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KANSAS ENGINEERING TECHNICAL NOTE NO. KS-3

SUBJECT: ENG - Temporary Erosion Control - Straw Bale Check Dike

Purpose. To provide guidance on straw bale check dikes

Effective Date. Effective upon receipt

What is Temporary Erosion Control?

This is an erosion control system that is installed to protect the soil from erosion until the permanent vegetation has established itself.

What is a Straw Bale Check Dike?

These are temporary sediment barriers constructed of straw bales across very small drainage areas. They are located downslope of a disturbed area or around a storm drainage inlet to redirect debris flows or trap debris materials.

When is a Straw Bale Check Dike Used?

These temporary structures are normally used to slow debris flow from predicted rainfall events that will cause erosion. They are intended to provide protection for a limited time period (normally less than 3 months). *They are not intended to provide protection from large storm events or to control debris flows in water bodies such as creeks, streams, and rivers.*

Planning Criteria

The drainage area limits of straw bale check dikes are as follows:

Slope	Maximum Drainage Area (acre)	Maximum Slope Length (feet)
0 - 15 percent	1	200
>15 percent	½	100

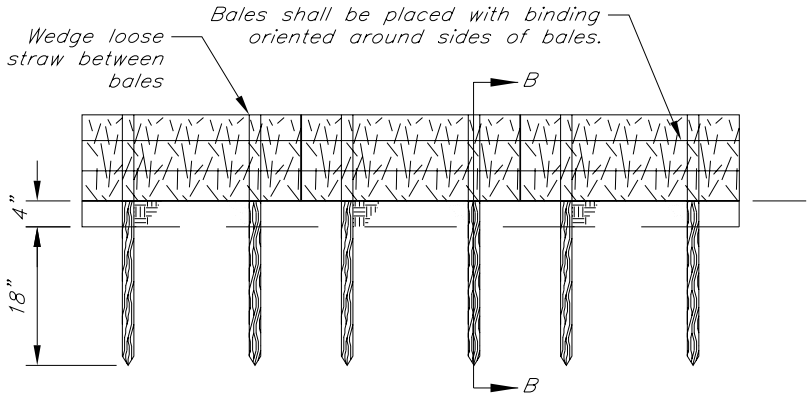
Anchorage

Each bale should be embedded in the soil a minimum of 4 inches. Drive 2-inch by 2-inch stakes or No. 4 rebar through the bales and into the ground 1½ to 2 feet for anchorage. The first stake in each bale should be driven toward a previously laid bale to force the bales together (see Figure 1).

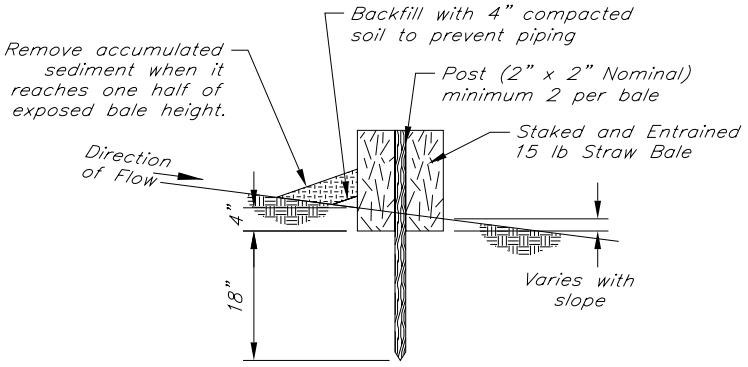
(more)

DIST: A, F

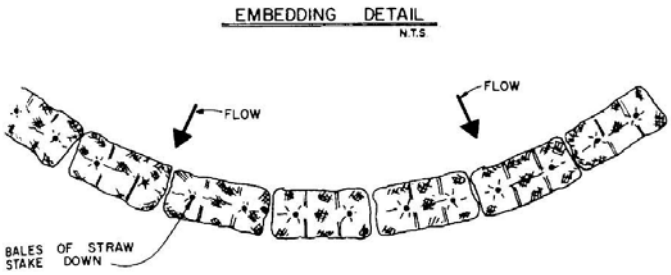
Figure 1 Straw Bale Check Dike



Front View



Section B - B



Plan View (not to scale)

Methods and Materials

Bales should be bound with nylon twine. Bales should be placed in a single row on the contour with ends tightly abutting the adjacent bales. The straw bales shall be installed so that binding is oriented around the sides rather than along the tops and bottoms of the bales. **Do not place bales with twine touching the soil** (see Figure 1)**.** Some loose straw should be compressed between adjacent bales to close the voids. The tops of bales should all be level and set at the same elevation. The end bales should be positioned facing upslope so that outer ends are 4 to 6 inches higher, creating a weir notch.

Maintenance

Inspect the straw bale check dike and provide necessary maintenance following each storm period. It is important to assure that loose straw does not enter storm drain facilities. Remove the bales once permanent drainage and stabilization is reestablished. Remove stakes and nylon twine (or binding wire) from the site. Used straw can be utilized as mulch in other areas.

References

Data was provided by the following:

NRCS, Davis, California
NRCS, Bozeman, Montana
Kansas Standard Drawing

Contact

Technical assistance is available from the Natural Resources Conservation Service (NRCS) at your local USDA Service Center (listed in the telephone book under United State Government). More information is also available on the Kansas Web site at www.ks.nrcs.usda.gov.

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