STANDARD AND SPECIFICATIONS
FOR
CHECK DAM

Definition
Small barriers or dams constructed of stone, bagged sand or gravel, or other durable material across a drainage way.

Purpose
To reduce erosion in a drainage channel by restricting the velocity of flow in the channel.

Condition Where Practice Applies
This practice is used as a temporary or emergency measure to limit erosion by reducing velocities in small open channels that are degrading or subject to erosion and where permanent stabilization is impractical due to short period of usefulness and time constraints of construction.

Design Criteria

Drainage Area: Maximum drainage area above the check dam shall not exceed two (2) acres.

Height: Not greater than 2 feet. Center shall be maintained 9 inches lower than abutments at natural ground elevation.

Side Slopes: Shall be 2:1 or flatter.

Spacing: The check dams shall be spaced as necessary in the channel so that the crest of the downstream dam is at the elevation of the toe of the upstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

Therefore:
\[ S = \frac{h}{s} \]

Where:
- \( S \) = spacing interval (ft.)
- \( h \) = height of check dam (ft.)
- \( s \) = channel slope (ft./ft.)

Example:
For a channel with a 4% slope and 2 ft. high stone check dams, they are spaced as follows:
\[ S = \frac{2 \text{ ft.}}{0.04 \text{ ft/ft.}} = 50 \text{ ft.} \]

Stone size: Use a well graded stone matrix 2 to 9 inches in size (NYS – DOT Light Stone Fill meets these requirements).

The overflow of the check dams will be stabilized to resist erosion that might be caused by the check dam. See Figure 5A.9 on page 5A.24 for details.

Check dams should be anchored in the channel by a cutoff trench 1.5 ft. wide and 0.5 ft. deep and lined with filter fabric to prevent soil migration.

Maintenance
The check dams should be inspected after each runoff event. Correct all damage immediately. If significant erosion has occurred between structures, a liner of stone or other suitable material should be installed in that portion of the channel.

Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam. Replace stones as needed to maintain the design cross section of the structures.
Figure 5A.9
Check Dam

CONSTRUCTION SPECIFICATIONS

1. Stone will be placed on a filter fabric foundation to the lines, grades and locations shown in the plan.

2. Set spacing of check dams to assume that the elevations of the crest of the downstream dam is at the same elevation of the toe of the upstream dam.

3. Extend the stone a minimum of 1.5 feet beyond the ditch banks to prevent cutting around the dam.

4. Protect the channel downstream of the lowest check dam from scour and erosion with stone or liner as appropriate.

5. Ensure that channel appurtenances such as culvert entrances below check dams are not subject to damage or blockage from displaced stone.

Maximum drainage area 2 acres.

Adapted from details provided by USDA - NRCS, New York State Department of Transportation, New York State Department of Environmental Conservation, New York State Soil & Water Conservation Committee