



**Title WI 210-Engineering
Wisconsin Instruction**

WI 210_580: Part 580 - STREAMBANK PROTECTION

580.0 Purpose

This instruction specifies the conditions for applying Streambank and Shoreline Protection (Code 580).

580.1 Background

WI NRCS supports the fluvial geomorphic processes of alluvial streams. Stream channels need to adjust to changes in watershed land use, sediment load, and hydrologic cycle in order to maintain their ecological functions and values. Adjustments in cross sectional area, slope, and planform balance energy in the system and create diversity for fish and wildlife habitat.

Excessive bank erosion can adversely affect water quality by contributing suspended sediment and nutrient loads into streams. It is caused by extreme flooding, debris, and artificial channel manipulations. Excessive bank erosion can also bury critical habitat features such as deep pools, riffles, and overhead cover.

Site assessments are needed to identify a streambank erosion problem (excessive erosion) from normal or acceptable channel migration. Streambank protection is intended to protect isolated streambank sites from excessive erosion. It is not intended to restore an impaired channel, or reinforce a poorly designed channel. A near continuous sequence of streambank protection can adversely affect fluvial geomorphic processes by substantially constraining channel movement, increasing roughness, and impacting cross sectional area.

580.2 Policy

Streambank protection is limited to sites with watersheds less than 390 square miles in accordance with the National Watershed Program Manual.

To identify streambank erosion as a resource concern, the Bank Erosion Potential Index (BEPI) needs to exceed 20 points, or the lateral migration rate needs to exceed 0.5 foot per year. Refer to the assessment tools under WI FOTG, Section III, Erosion Prediction. The average annual rate of lateral migration should be measured at the apex of the channel bend using historic aerial imagery over a period of 20 years. This method may be excluded, or the evaluation period abbreviated, if imagery is unavailable or obscured by canopy.

Streambank protection should not be used to maintain linear alignment or fix the boundary of natural streams. If the stream was straightened by artificial means, the conservation objective is to restore the planform sinuosity.



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Streambank protection is not intended to protect homes and buildings located near the top of bank, because these structures are not resource concerns. If homes or buildings are the incidental beneficiaries of bank treatment, seek approval from the State Conservation Engineer. Structures can contribute surcharge to bank instability, or expose the agency to uncontrolled liability in the event of slope failure. The distance of concern will vary depending on type of structure, bank slope, soil type, and presence of seepage, but will generally be horizontally within two to three times the height of the bank from the toe of the slope. *[Note: Streambank protection is intended to protect structural property under the Emergency Watershed Protection Program during disaster recovery.]*

If a single site exceeds 500 feet, or the combination of existing and planned protection exceeds 1,000 feet in a ¼ mile reach (include both sides of the stream), complete the additional site assessments found under Open Channel (Code 582), *Additional Criteria for Stream Restoration*. Apply streambank protection as a component of stream restoration and address all identified channel impairments to the extent practicable. If these distances are exceeded, the conservation objectives are as follows: (1) maintain sediment transport continuity, (2) connect the bankfull channel to a floodplain, (3) match stream type (hydraulic proportions and features) to the geomorphic setting, and (4) restore the natural planform to the extent possible.

580.3 Contact

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