



Rock Chute Spillways

Why Should I Create a Rock Chute?

A Rock Chute is designed to control soil erosion as surface water flows from an agricultural field into a receiving water course. Like other soil erosion control structures, rock chutes help prevent surface water from carrying top soil from the field which could, over time, cause reductions in crop yield. The eroded soil contaminates the receiving surface water bodies because the soil contains nutrients and pesticide residues. Increased runoff not only affects water quality but also results in the loss of nutrients from the field, which crops need for top yields. Over time, additional fertilizer will need to be applied as nutrients are carried away and soils are degraded. A rock chute spillway is a structure that directs and slows the concentrated flow of surface water from the field to the bottom of a stream or ditch outlet. This type of spillway helps stabilize banks by preventing the formation of furrows, washouts, and the formation of eroded gullies in fields. This flexible, low-cost and effective structure is readily adapted to the site and represents few drawbacks for agricultural practices.



How does it work?

The rock chute spillway is used at the low end of fields, at the outlet of a furrow, an interception channel or a grassed waterway, or any other place where concentrated water flows tend to form channels before entering a stream or ditch. Chute spillways are constructed with rock riprap and must be underlain with a filter cloth material. Please refer to the Lower Thames Valley Conservation Authority's (LTVCA) Rock Chute Installation Sheet for construction specifications.



What cost-share programs are available?

In an effort to improve the quality of our environment, LTVCA has developed a comprehensive Agricultural Improvement Fund (AIF) to improve Chatham-Kent, Elgin, Essex and Middlesex County's Kent County's soil, air and water by providing grants for stewardship projects. Grants are available to qualifying farmers and landowners to implement soil erosion control structures on their farm to help improve local water quality. Participation in the program is entirely voluntary, and will not have any impact on property rights. Please be sure to contact the LTVCA office **before** initiating any project for which you wish to apply for a grant: P 519-354-7310. Funding for rock chutes is also available through the Ontario Soil and Crop Improvement Associations Growing Forward 2 program. For more information please see: http://www.ontariosoilcrop.org/en/programs/growing_forward_2.htm



How does this benefit the environment?

In the Lower Thames Valley Watershed, it is estimated that top soil is lost at a rate of 3 tons/acre/year. So the question is why is controlling soil erosion important to me? In any soil profile, the most productive layer is the top layer (a horizon) or plow layer. This productive plow layer is not only important to the success of your crops but is where nutrient placement occurs. When soil moves across the landscape by erosion it not only causes you to lose your productive plow layer but also the nutrients that are bound to your soil – which ultimately costs you money. Most soils have a high capacity to hold the nutrient Phosphorus. The higher the clay content of the soil, the increased capacity of that soil to retain Phosphorus. However, due to their fine particle nature, clay soils have an increased erosion potential as these fine particles are more easily transported compared to sand or a loam. This can be problematic as soil loss can be attributed to a loss of nutrients and profit.

The extensive drainage and ditch networks of the Municipality of Chatham-Kent and Essex County can accelerate the movement of water and sediment from the poorly infiltrated fine textured clays to receiving water bodies. The increased movement of soil to watercourses not only effects aquatic life and the increased potential for eutrophication causing algae blooms but also decreases channel capacity which can be attributed to more frequent drain cleanouts.

References

Agriculture and Agri-Food Canada, Ontario Federation of Agriculture, and Ontario Ministry of Agriculture, Food and Rural Affairs. Best Management Practices: Controlling Soil Erosion on the Farm.

Quebec Department of Agriculture, Fisheries and Food and Agriculture and Agri-Food Canada, 2009. Factsheet, Rock Chute Spillways.

Ontario Ministry of Agriculture, Food and Rural Affairs, 1996. Factsheet, Control of Soil Erosion.



100 Thames Street, Chatham, ON, Canada N7L 2Y8
P 519-354-7310 F 519-352-3435
www.ltvca.ca

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