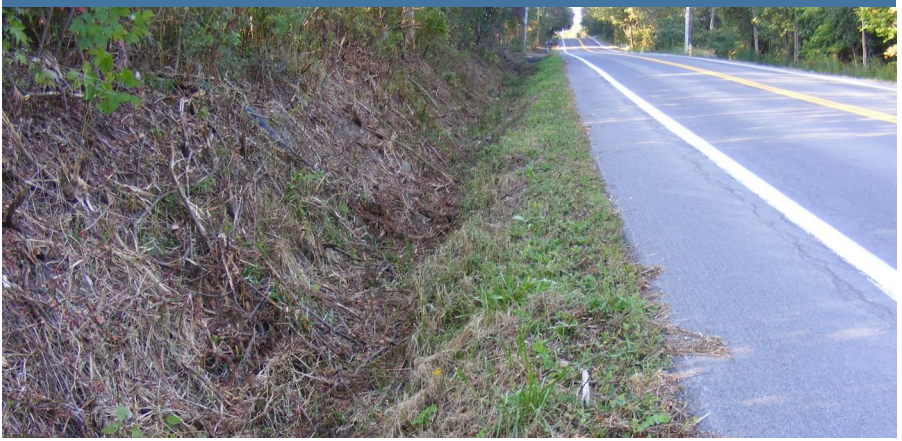
Cayuga County Water Quality Management Agency

# Guidelines for Municipal Maintenance of Roadside Ditches



October 4, 2017

## INTRODUCTION

Hundreds of miles of drainage ditches run along roads throughout Cayuga County. While these ditches play an important role in preserving the pavement and base materials of roads, they can also have significant impacts on the quality of down-stream water resources. By serving as conduits for the discharge of a large volume of untreated water to lakes and streams at high velocities, poorly managed roadside ditches can transport sediment, salts, and nutrients to receiving waters in such large amounts that the suitability of the water for aquatic life and human use is severely threatened.

This document presents a set of ditch maintenance guidelines recommended for towns and villages to follow in order to minimize the degradation of water quality that can result from excess nutrient loading. The guidelines were prepared by the Nutrient Working Group of the Cayuga County Water Quality Management Agency (WQMA) in consultation with county and town highway officials and staff of Cornell University's Local Roads Program.

The WQMA understands that it can be difficult for municipal road crews to improve management practices given limited budgets, heavy workloads, lack of suitable equipment, and inadequate space within the public right-of-way. But it hopes that the promotion of these guidelines will increase awareness of ditch maintenance issues among government employees and officials at all levels and lead to the creation of new cooperative approaches and the allocation of additional resources.

For updates on the County's efforts to promote the use of these guidelines and produce similar material addressing other potential causes of nutrient pollution, visit the Water Quality Management Agency's website at www.cayugacounty.us/wqma.

# Guidelines for Municipal Maintenance of Roadside Ditches

## DITCH MAINTENANCE

1. Ditch clearing should be done as needed to remove over-winter accumulation of trash, branches, debris, and roadside gravel.
2. Ditch mowing should be done in early summer and again in late summer or early fall.
3. Fore and back slopes of ditches should not be stripped of their vegetation during ditch clearing.
4. Ditch scraping (excavation to correct buildup of sediment, rock, or other debris and maintain the ditch shape) should be kept to a minimum and done only as needed to allow the flow of water as intended.
5. When routine ditch scraping is necessary, it should only be done during dry weather and in late summer or early fall.
6. Ditch scraping should not be done if there is flowing water in the ditch.
7. During ditch scraping, vegetative strips should be left downslope or wattles, temporary check dams, or erosion blankets should be installed downslope to capture sediments as per NYSDOT standard sheet 209-02.
8. Dredged material from ditch scraping should be removed offsite. Dredged materials left onsite are likely to erode back into the ditch and wash downstream. Use sediment control structures around temporary spoil piles. If dredged material is to be placed onto adjacent land, e.g. farm fields, the materials should be placed at least 20 feet from the ditch.
9. Seeding should be done as soon as possible after ditch scraping and before any rain.
10. When seeding, drought tolerant seed should be used to avoid the need for subsequent watering.
11. Vegetation in critical areas such as steep ditches should be inspected at least once per year and after significant runoff events to evaluate its effectiveness as erosion control and remediated as necessary.
12. Consider using erosion blankets (biorolls and turf reinforcement mats) in both temporary and permanent settings as needed. Consider using those that are filled with material that captures pollutants.

## REDUCING SEDIMENT AND GRAVEL DEPOSITION

13. The entire road right-of-way should be preserved as a buffer that is maintained by the local municipality.
14. Maintain a 3 foot vegetative strip between any gravel shoulder and the ditch.
15. To reduce erosion, lessen grade of the shoulder (4% or lower for an asphalt road and 6% or lower for a gravel road).
16. Salt/sand trucks should be calibrated for spreader rate control. Computerized spreader control is optimal.

## DRAIN TILE OUTLETS

17. Municipalities should encourage property owners to mark the location of their drain tile outlets so that they

will not be damaged during ditch maintenance.

18. Municipalities should encourage property owners to angle their drain tile outlets in the direction of flow.

19. Splash blocks or turf reinforced mats should be installed to minimize erosion at the drain tile outlet.

## IMPROVING DITCH DESIGN

20. Ideally, ditches designed to encourage infiltration of water should be installed. Refer to Page 35 of Cornell Local Roads Program Publication No. 14-03, *Stormwater Management*, for more information.

21. Ditches should be reshaped to a shallow, trapezoidal or rounded profile that allows routine mowing. V-shaped ditches should be avoided.

22. Depending upon the slope, a structure such as a check dam should be installed periodically to slow down water and capture sediment as per NYSDOT standard sheet 209-02, *Check Dams*. Trapped sediment should be removed periodically.

23. Culverts should be designed to carry adequate flow per the NYSDOT Highway Design Manual Chapter 8. Culvert outlet protection should be installed to prevent erosion and scouring of the ditch. Perched culverts should be avoided.

## PLANNING AND ORGANIZATIONAL SUSTAINABILITY

24. Each municipality should map ditch networks, include the direction of flow, identity of receiving stream, and sizes of any culverts in order to assess the water quality risk of each ditch.

25. Municipalities should require property owners to obtain permission to discharge increased storm water into ditches under their jurisdiction.

26. Highway superintendents from all municipalities should attend training regarding water quality impacts of storm ditches.

27. Highway superintendents and the agricultural community should meet at least once a year to discuss common issues.

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The Nutrient Working Group also wishes to thank the following people for the expert advice they provided at various stages during the drafting of the guidelines presented in this document:

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Town of Venice Highway Superintendent

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CAYUGA COUNTY
Water Quality
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