

Woodstock Conservation Commission Special Meeting

October 27, 2022 Development Review Committee Meeting Notes

Discuss and comment on the town scenic road Center Cemetery Road proposed road improvements proposed by the Woodstock Highway Department

Background Information

Center Cemetery Road is designated a Town of Woodstock Scenic Road. The Woodstock Highway Department proposes to make changes to the road above what is considered routine maintenance. These changes include:

- Remove two dead/dying ash trees
- Add two catch basins to the side of the east side of the road and relocate an existing catch basin from the south side of the driveway to the north side.
- Extend apron from County Road 80 feet
- Reshape the road to direct drainage to the catch basins
- Fine grade and pave the drainage ditch from the apron to the last catch basin to the north and install Cape Cod style curbing from County Road to the last basin. Backfill behind the curb to level the grade from the curb to the wall to improve parking.
- Fine grade the roadbed and apply a double chip seal from County Road apron to a point just past the driveway of #45.
- Section 2 – apply double chip seal from the point by #45 to a point just short of driveway at # 130.



Figure 1 Blue dashed line shows the extent of proposed chip seal application on Center Cemetery Road.

Jean Pillo and Pam Spaeth each individually drove the length of Center Cemetery Road prior to meeting to discuss the proposed changes to the roadway.

Current road conditions on October 27, 2022



Figure 2 View of the tree line Center Cemetery Road from the County Road end. The cemetery is on the left side of this image. There is a gradual increase in elevation as you travel away from County Road. Note there are existing grass line swales on both sides of the roadway and gullies forming along both sides of the immediate roadway. Between the swales and gullies are piles of sand and gravel deposited by snowplows or the road grader. These piles act as berms preventing the stormwater runoff from sheeting off the roadway into the swales where the water would be slowed down and absorbed.



Figure 3 Existing storm drain on the south side of the cemetery entrance. It is clogged with a mixture of leaves and gravel after a recent rain event.

Around the road bend by #45, the erosion along the cemetery side of the road continues until the driveway for Fairlane Farm on the south side of the road.



Figure 4 Entrance to the Fairlane Farm property from Center Cemetery Road. Note the beginning of the roadside erosion just past this driveway entrance and the sand and gravel berm between the road and the grass surface to the south.

Discussion:

The Conservation Commission does not object to removing the dead/dying ash trees.

The Conservation Commission sees opportunities to correct the stormwater drainage without forever changing the character of Center Cemetery Road with a chip seal application to more than half the length of the road.

1. The longer the flow path of water along the sides of the dirt road, the greater the stormwater volume and erosive capacity. As the velocity increases, more sand and gravel are eroded, adding to the erosive force of the stormwater flow. When the velocity of the runoff on the unpaved road surface doubles, the volume of sediment that can be moved increases fourfold. The size of particles that can be transported increases eightfold when the velocity is doubled.
2. The sand and gravel deposits along the sides of the road act like berms. Water follows the path of least resistance and in most cases, does not flow uphill.
3. The road was designed with grass lined swales for managing the stormwater runoff. Grass swales are shallow channels lined with grass and used to convey and store runoff. The roadside berms prevent the stormwater from flowing into the swales.

Recommendation:

1. Disrupt the flow of stormwater along the roadsides by regrading the road and installing rolling dips in the road. Rolling dips will intercept the flow of water, reducing the flow volume and velocity. Water can be directed off the road surface to places where grasses will further slow down the flow and infiltrate the stormwater into the ground. An added benefit of rolling dips is the traffic calming effect, which will help to reduce road dust. If a series of rolling dips are installed in the roadway, the erosive force of the stormwater runoff will be greatly reduced.

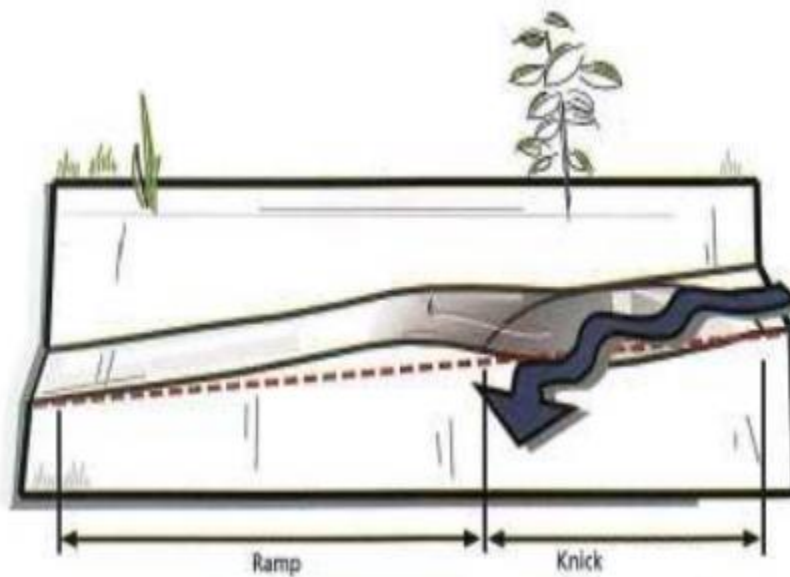
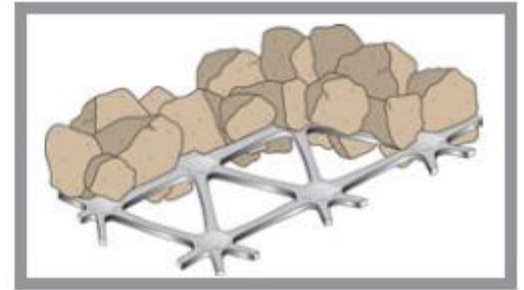


Figure 5 Example of a rolling dip used to redirect stormwater from an unpaved road surface. From Green Roads for Water website <https://roadsforwater.org/guideline/water-harvesting-and-drainage-from-unpaved-roads/use-basic-road-surface-drainage/>

2. When re-grading the road surface following the winter plow season, it is important to level the sand and gravel deposits that form at the end of the road grader blade. One method is complete multiple passes on the road until there are no berms evident. Another method is to follow the road grader with a bobcat to smooth out the roadside edges.
3. For areas of the road that consistently rut during mud season, consider installing a geogrid underlayment beneath the layer of aggregate that forms the road surface. Geogrid systems are designed to underlie the road surface and prevent the gravel in from shifting. Like a show shoe, the weight of vehicles on the surface is distributed over a larger area, which prevents the rutting. Geogrid systems can be installed in select areas where needed. See Figure 5 for an example of a geogrid system.
4. Storm drains are not the best method for collecting and conveying stormwater on an unpaved road, especially when built into the roadway. There is a current focus on limiting installation of stormwater hardscapes in favor of green infrastructure, such as swales, to collect, treat and infiltrate stormwater runoff. The Conservation Commission favors low impact development and green infrastructure practices.



The unique structure of Tensar TriAx Geogrid provides a high degree of in-plane stiffness, improving performance.

Figure 6 Example of a geogrid system

Doug McCluskey of EJ Prescott offered to Jean Pillo to do a geogrid demonstration project in Woodstock. This offer was extended to John Navarro and Jay Swan. There has resistance from the Highway Foreman to try this technology. This product and similar products are available from multiple vendors and are used successfully on unpaved roads throughout New York and New England.

If the above Best Management Practices for unpaved roadways are applied to Center Cemetery Road, it may eliminate the need to double chip seal the road and install additional storm drains in the roadway. Cape cod curbing will prevent the stormwater from entering the swale.

A cost comparison of these storm water best management practices has not been completed. The Conservation Commission recommends the Highway Department be requested to investigate what is most cost effective for the town while keeping the historic character of the town's scenic roads as a factor.

Once a scenic unpaved road is chip sealed, it will never be undone. The lost of our scenic and historic resources should be avoided unless there are no reasonable or practical alternatives.

Meeting Minutes submitted by Jean Pillo, Woodstock Conservation Commission

Note: Jean Pillo is a Certified Professional in Sediment and Erosion Control