

South Branch Root River Watershed Project
July 12, 2007 Meeting Notes

In attendance: Vaughn Snook (DNR Fisheries), Keith Voorhees (Clayton Twp), Bill Sweetser (Bennington Twp), Ray & Donna Cerise (landowners), Bev Nordby and Rick Morrison (Mower SWCD), Rich Biske (The Nature Conservancy), Mark White (Forestville/Mystery Cave State Park), Jerry Tesmer (U of M Extension), Mark Dittrich and Adam Birr (MDA), Donna Rasmussen (Fillmore SWCD)

MDA Wood Chip Bioreactor: Mark Dittrich reported on the installation of the bioreactor and its purpose. It utilizes the bacteria that are on the wood chips to turn nitrogen into nitrogen gas and nitrate. The chips in this reactor are maple and oak. The chips last about 20 years, and the size of the chips is important to having them last that long. Optimum efficiency is expected in about a year when the entire bioreactor has been uniformly inoculated with soil and bacteria. The chips serve as the carbon source for the bacteria to work. Getting the right carbon to nitrogen ratio is important for the best treatment. One demonstration site is 32 acres with a 125-foot treatment area, and that is maxed out. It shows a 25% reduction in nitrogen. General rule of thumb is 10 feet of treatment for every acre. This site is 30 acres and has 150 feet of treatment. Currently, flows are being monitored as well as nitrate-nitrogen levels. There are no results yet on the amount of nitrogen reduction. Vertical and horizontal water movement will be measured. There is discussion of adding a component with the conservation drainage site to do subsurface irrigation of manure and hold it underground by shutting the control structures so the plants use the nutrients. The influx of E. coli bacteria into the bioreactor would be monitored.

MDA Watershed Modeling and Monitoring Stations: Adam Birr explained the monitoring being done in conjunction with a Clean Water Legacy Act grant to do watershed modeling in watersheds with impairments. The South Branch is listed as having a turbidity impairment and the additional monitoring provides information about the upper watershed. Two stations are being installed, with one watershed of about 4,000 acres and the other of about 3,200 acres. The data being collected will be good baseline information if a paired watershed project were undertaken. Good monitoring data is needed for proper calibration of the watershed models. Parameters being measured are nitrogen, phosphorus, total suspended solids, turbidity, and pesticides (24 constituents). The equipment includes a sampling line, pressure transducer, and turbidity probe. The automatic samplers are triggered by turbidity levels unlike most other samplers that are triggered by stream stage. A phone line is also being installed at one site to allow remote access to the data. DNR is taking flow measurements. The relationship between flow and depth of the water can be put into a rating curve so that the discharge can be calculated at various stream stages. These are long-term stations that will complement the work being done on the controlled drainage site and also at the larger watershed scale with the station at Forestville State Park. Eventually, the data should be helpful in identifying best management practices to reduce turbidity. Where they should be installed and over what percentage of the watershed are questions that may also be answered to determine how to get the best water quality results. These sites also allow looking at a progression of data after the ditch clean out and a comparison to the stream that was not cleaned out. Local governmental units will have a role with implementing practices and educating the public about what is being done.

The meeting adjourned at 9:00 p.m.