RED RIVER WATERSHED MANAGEMENT BOARD

MARCH 25, 2015

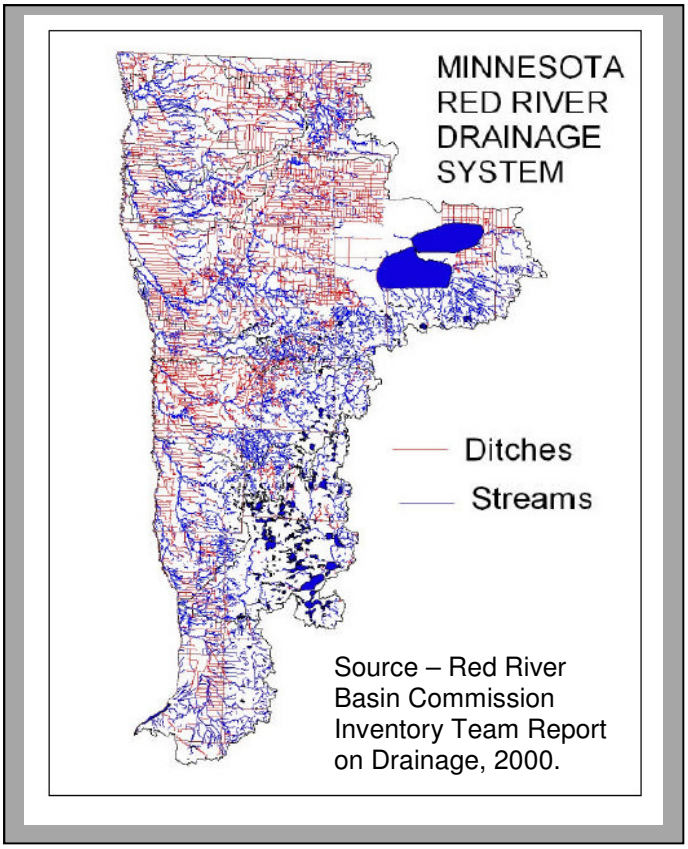
DRAINAGE PERMITTING AND MANAGEMENT IN THE MINNESOTA RED RIVER BASIN

Since approximately 2000, the installation of sub-surface drainage (tile) has been common in the Red River Basin (RRB). Farmers and landowners install tile for a number of reasons including but not limited to soil health issues, spring tillage/planting, excess water management, timely fall harvest operations, and soil salinity. Prior to the modern tile era, RRB farmers relied on a vast network of aging private and public surface ditches (see map below). Spring floods and summer storms have become more intense, making management of public and private drainage systems more difficult. Without proper oversight and management of public and private drainage systems, negative water quantity and quality impacts can occur.

Who is responsible for permitting drainage activities? There are nine watershed districts in Minnesota's RRB and these local authorities are responsible for maintaining and managing public drainage systems. Watershed districts use Minnesota Statutes 103E (drainage law) and 103D (watershed law) to administer rules and regulations, manage public projects, and issue permits. Watershed districts also permit private drainage projects, which can include but not be limited to pattern tiling, ditch clean-outs, culvert installations, private connections to public systems, and other private drainage projects.

- Road authorities such as townships, counties and the state may require permits for private drainage projects that are within road rights-of-ways or have the potential to affect public roads or other public infrastructure.

- Wetland related permits are also required for some private drainage projects and landowners work with local Soil and Water Conservation Districts (SWCD) and other state and federal agencies to determine permit requirements.



Source – Red River Basin Commission Inventory Team Report on Drainage, 2000.

Is there any drainage research currently being conducted in the RRB? The Minnesota Department of Agriculture (MDA), University of Minnesota, North Dakota State University, and the Minnesota Agricultural Water Resource Center are conducting drainage research and/or are demonstrating farming and drainage practices in the RRB. More information about the effects of surface and subsurface drainage will be available in the future but until then, the following websites provide some information about these types of drainage activities in the RRB of Minnesota.

MDA Clay County Drainage Website:
http://www.mda.state.mn.us/en/protecting/cleanwaterfund/onfarmprojects/claycounty.aspx

MN Discovery Farms Website:
http://www.discoveryfarmsmn.org/

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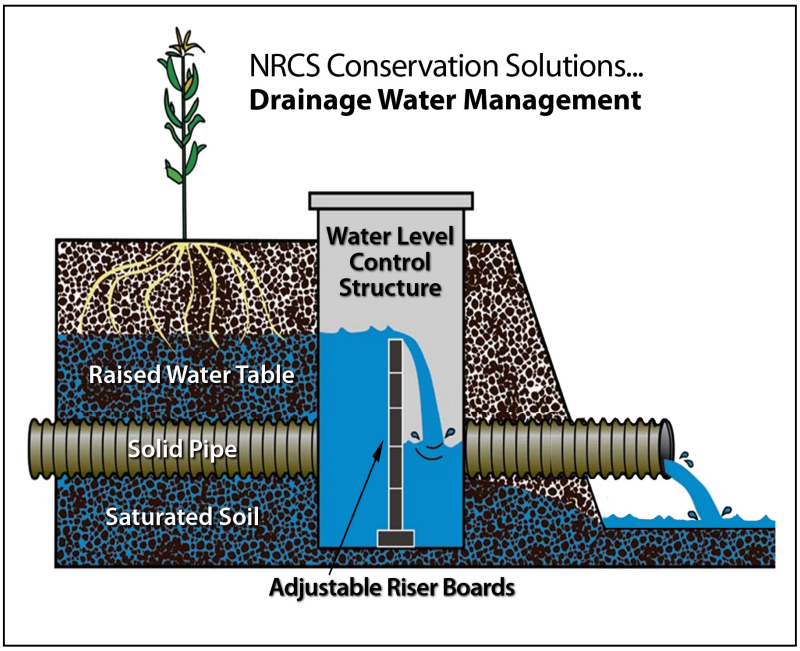
What types of drainage best management practices can RRB farmers use? Properly installed and managed subsurface drainage systems help farmers mitigate risk. The USDA Natural Resources Conservation Service (NRCS) and the Minnesota Board of Water and Soil Resources have technical assistance and financial incentives available to install drainage Best Management Practices (BMPs). Farmers work with local NRCS offices and SWCDs to obtain assistance and guidance for implementing drainage BMPs and to develop drainage water management plans. BMPs include but are not limited to:

- Development and implementation of drainage water management plans.
- Control structures and pumps.
- Proper system design.
- Standard side inlet controls.
- Alternative side inlet controls.
- Water storage.
- Bioreactors.
- Saturated buffers.
- Two-stage ditches.
- Removal of open tile inlets.



What are the effects of private drainage water on flooding? There has been relatively little research specifically conducted in the RRB on this issue. However, in 2011 the Red River Retention (RRRA) commissioned the International Water Institute (IWI) to establish an objective and scientific process to determine the impacts of agricultural drainage (tile drainage) on peak flows. The IWI established a Basin Technical and Scientific Advisory Committee (BTSAC) comprised of technical representatives from various RRB stakeholders. BTSAC developed three briefing papers, which are available at the following websites: (http://www.rrbdin.org/archives/649) (http://www.rrbdin.org/archives/4039)

- BTSAC Briefing Paper #1: Impacts of Subsurface Agricultural Drainage on Watershed Peak Flows
- BTSAC Briefing Paper #2: Water Management Options for Subsurface Drainage
- BTSAC Briefing Paper #3: Water Management Options for Surface Drainage

How do watershed districts address drainage and flooding concerns? The Red River Basin Commission has developed a basin-wide flow reduction strategy, long-term flood solutions and distributed detention plans that indicate goals for floodwater storage in the RRB (see website below for detailed plans). Watershed districts in the RRB are currently working towards these goals in conjunction with the Red River Basin Commission, Red River Retention Authority and the Red River Watershed Management Board in Minnesota.

http://www.redriverbasincommission.org/Long_Term_Flood_Solutions/long_term_flood_solutions.html

Eight of the nine watershed districts in the Minnesota portion of the RRB are part of the Red River Watershed Management Board, which continues to work towards securing state funds for water storage projects. Funds for projects can come from varying sources to implement drainage BMPs on public drainage systems or to incent private landowners to install drainage BMPs. Water management is complex and landowners and farmers are critical in meeting storage goals.