

Two Rivers Watershed District NEWS



In Roseau, Kittson, & Marshall Counties

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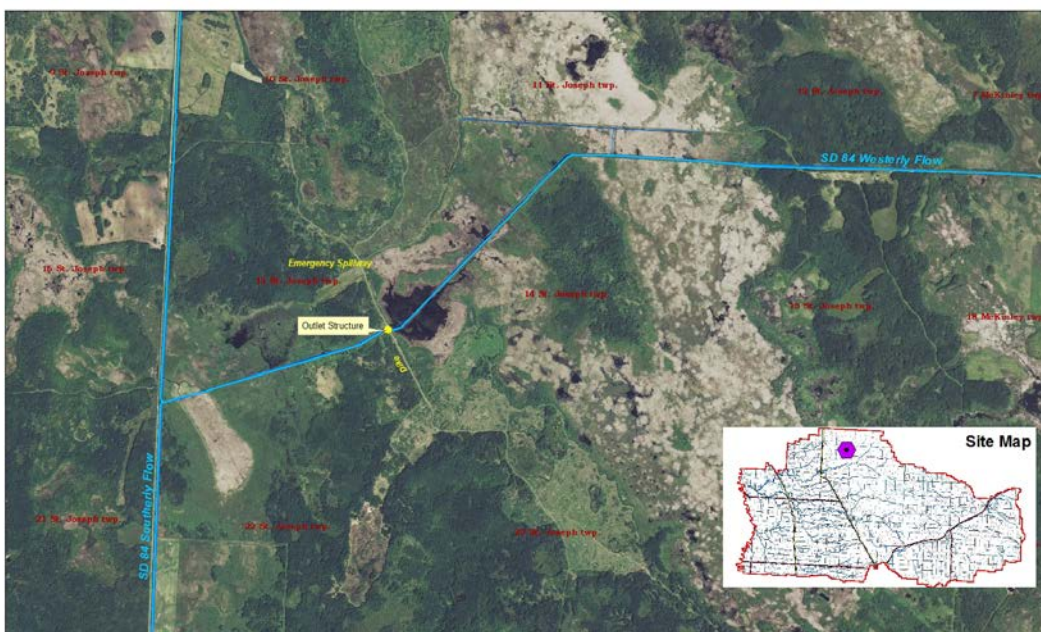
Impoundment Projects are Key Element to Flood Control

The Two Rivers Watershed District's general purpose under Minnesota Statutes is "to conserve the natural resources of the state by land use planning, flood control, and other conservation projects by using sound scientific principles for the protection of the public health and welfare and the provident use of the natural resources". One method the District has been successful in utilizing to reduce flood impacts is the construction of impoundments. These consist of dikes and structures to impound, or hold floodwaters for extended periods during the spring runoff and during summer floods. These impoundments not only reduce flooding, but at the same time provide an array of natural resource benefits.

Below are three of the impoundments built and operated by the District, all of which are used on a regular basis. Together, these projects impound over 9,200 acre feet of water. That's a lot of water, considering that one acre foot equals 325,829 gallons. Therefore, if all three impoundments were full, the total water being stored would equal 2,997,626,800 gallons of water!

Horseshoe Lake

The original wildlife structure, located north and east of the City of Lancaster in the SW ¼, section 15, T163N, R47W, was installed in 1968 under the Federal PL-566 program and is referred to as the Horseshoe Lake Wildlife Structure. The project consisted of diking, an emergency spillway, and a 54" diameter x 68' long pipe with an 8' x 16' x 7' concrete box inlet associated with the main outlet, and also a north dike to contain flows from State Ditch #84. Engineering and technical assistance was provided by the



Two Rivers Watershed District
Horseshoe Lake Impoundment

0 0.25 0.5 1 Miles



Natural Resources Conservation Service (previously known as the Soil Conservation Service) and funding and other resources were provided by both the Minnesota DNR (previously known as the Department of Conservation) and the Two Rivers Watershed District.

This structure was constructed for the purpose of waterfowl production, and it was envisioned that a 351 acre impoundment with an average 2' depth would be created at the normal pool elevation of 974.2 feet. A flood pool of 590 acres would occur at an elevation of 977.1 feet.

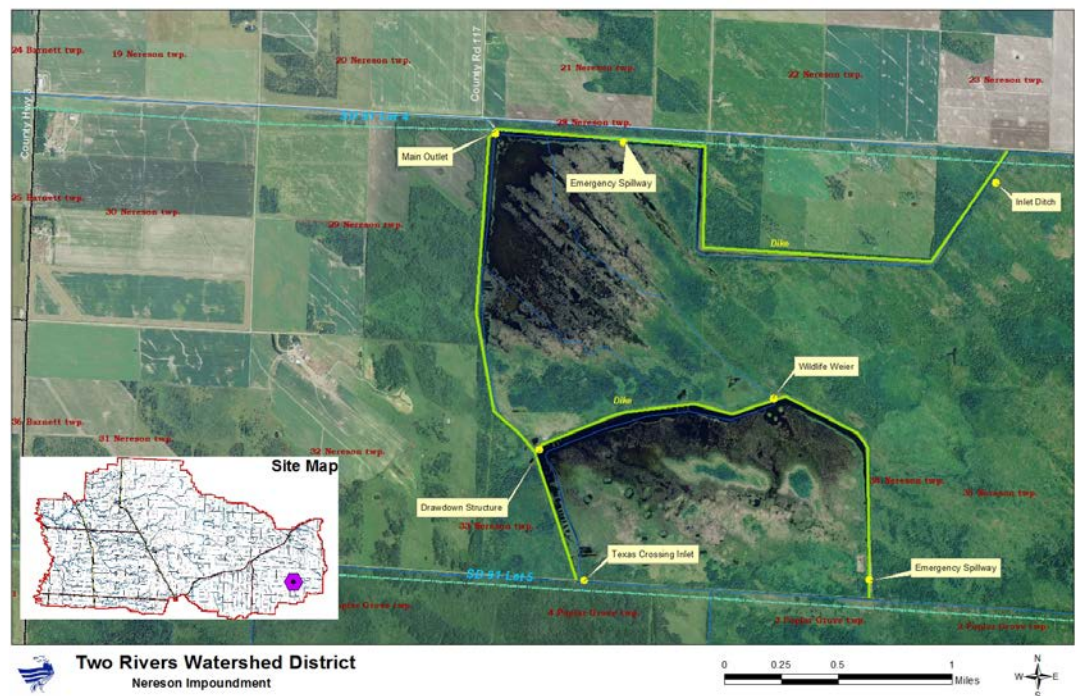
The impoundment did not attain its expected wildlife or flood control benefits, and in 2007 the DNR, TRWD, and Kittson County agreed to modify the structure by cutting a 4'x6' notch in the face of the cement box and inserting stoplogs to be able to manipulate the water levels. The new project has a capacity of storing a total of 2,130 acre feet from a drainage area of 29.4 square miles. This has local benefits to the North Branch Two Rivers and also smaller benefits to the Red River.

Nereson Impoundment

This impoundment consists of a main impoundment, constructed in the 1980s, and a sub impoundment, constructed in the 1990's. It is located approximately 10 miles southeast of the City of Greenbush on the Nereson Wildlife Management Area, on land owned by the MN DNR. Construction was funded by the State of Minnesota, the Red River Watershed Management Board, and the Two Rivers Watershed District. Project sponsors are the TRWD, DNR, and Roseau County.

The impoundment includes three water control structures, two emergency spillways, over 5 miles of dikes, and various inlet structures. The total surface water area when full to the emergency spillway covers over 1,500 acres. The impoundment will store 3,500 acre feet when full, and controls up to 4.1" of runoff from an upstream drainage area of over 16 square miles.

Local benefits include flood reduction on state ditch #91, the South Branch Two Rivers, Lake Bronson, and further downstream on the Red River. The control structures are operated by the MN DNR in close consultation with the TRWD. The impoundment is a dual purpose, with a wildlife conservation pool maintained year around, with a flood pool able to be used during times of flooding.



Ross Impoundment

The Ross Impoundment project was implemented by the Two Rivers Watershed District to achieve the purpose of flood control along Lateral 1 of State Ditch #95 in the upstream areas known as “Skunk Creek”. The project is located south of Minnesota State Highway 11, approximately 2 miles northeast of the City of Badger, MN, in the vicinity of sections 32 & 33 of Ross Township, Roseau County. Major construction was completed in 2007 and 2008, and the project was totally operational during the flood of 2009. It proved its worth the first year of operation and has been used several times since.



Land within the impoundment is controlled by the TRWD either through ownership or flood easements. The land that is owned by the TRWD is either in the federal Conservation Reserve Program or is rented out to producers who either hay it or grow crops such as wheat or soybeans. So far operation of the gate has not impeded the use of the land for agriculture. This has provided a win-win situation as both flood control and agricultural production has been achieved.

The impoundment has a detailed operating plan and is operated such that whenever there is downstream flooding on the landscape to the point that water is spilling out of downstream ditches or waterways, the gate will be closed. It will remain closed until such time that there is no more downstream flooding, and then the gate is opened to drain down the impoundment dry to allow for agricultural and storage for any additional follow on flood events. Benefits to downstream lands are achieved all the way to the Red River of the North. The impoundment will control up to 3.7” of runoff from an upstream drainage area of 18.2 square miles.

Project Details:

- Upstream Drainage Area - 18.2 Square miles
- Ungated Storage - 1,141 Acre Feet
- Gated Storage - 2,470 Acre Feet
- Total Storage to Emergency Spillway - 3,611 Acre Feet
- Water Surface Area to Emergency Spillway - 1,312 Acres