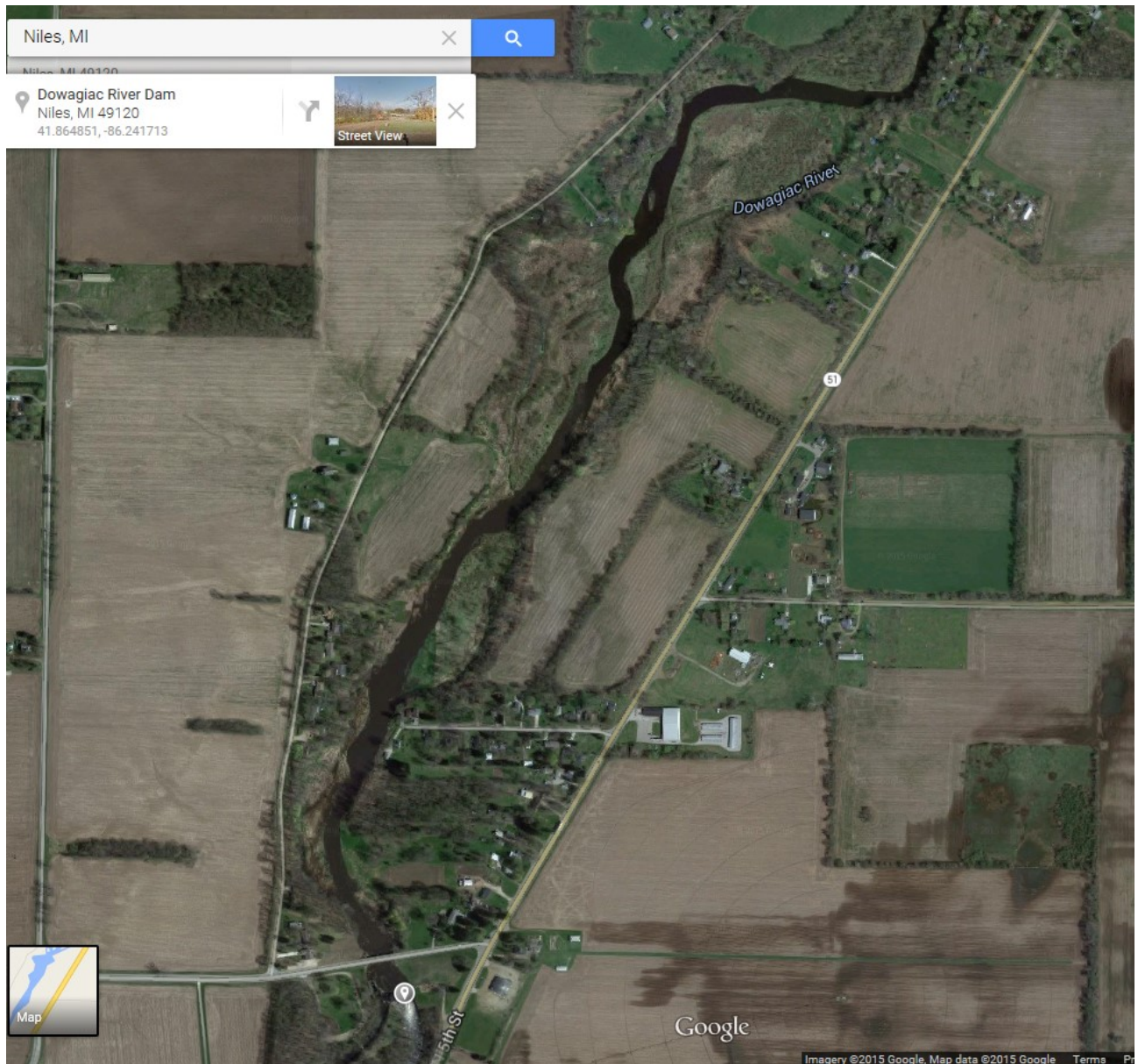


## Pucker Street Dam Removal on the Dowagiac River

### Land use history and environmental setting of the project area

The land use upstream of the dam is natural, agriculture and rural residential. The land surrounding the dam is a public park owned and operated by the City of Niles. This area will remain a public park after the dam removal.



The existing Pucker Street concrete dam, wing walls and powerhouse were built in 1928 with an old log dam built one hundred years earlier. In 1828, Eli Ford built the log dam and grist mill. In 1891, Bascom Parker, Sr, bought the mill (known as the old Yellow Mill) and dismantled the grist mill to establish a private power plant to supply electricity for street lights.

In 1894, the City of Niles purchased the dam and 17 acres from the Niles Electric Company. The site produced power for the City of Niles until November 1992. In 1949 the foundation of the log structure collapsed underneath the west wing wall. The City had a very difficult time repairing it and substantially modified the timber structure with large amounts of concrete.

The last major modifications and improvements to the dam were made in 1928 when the concrete dam was built and the generators were converted from horizontal water wheels to a turbine type drive system with an automatic control and switching equipment.

The City of Niles announced in 1996 that the generators were no longer operational after silt and sand had caused major damage to the turbines. Both the City and MDNR met again to discuss the future of the dam. It was decided that the best option was to open the gates and create run of river flow. The drawdown of Pucker Street Dam began on May 10th, 1999. No structures or historic items were found with the drawdown of the impoundment in 1999. Three years after the draw down the river channel stabilized considerably in the former impoundment. (from MDNR report)

A field survey was conducted in April 2015 by Rick Westerhof (USFWS), Jeff Dunlap (City of Niles, Utilities Department), Marcy Colclough (Southwest Michigan Planning Commission) and Andy Selle (Inter-fluve). Besides the dam and powerhouse there is the Pucker Street bridge about 350 feet upstream of the dam. There was no visible evidence of the 1828 dam.

The city contacted the local history museum, Fort St. Joseph Museum regarding the dam removal. The museum supports the removal of the dam. The City historian, Donna Ochenryder, supplied several historical photos and articles. The City Utilities Department also had many historical documents and photographs that were used to complete this report. The Pokagon Band of Potawatomi Indians' Natural Resources Department has been involved in the dam removal project and has attended project meetings since project inception. Tribal staff involved includes Jennifer Kanine, DNR Director and Grant Poole, Water Quality Specialist. Further, a presentation on the dam removal was given to the Pokagon Band's Planning Committee in 2014. The feedback from this meeting was very positive. Rick Westerhof, USFWS, also consulted with the tribe's Natural Resources Department staff in April 2015. The Pokagon Band is currently working to restore several miles of the Dowagiac River upstream from the dam site. The dam removal will complement their efforts and result in a significantly improved river system. The Pokagon Band indicated that they had activity in this area. The Band requested that

if any artifact was found during construction activities to notify them. There will be a procedure in the bid documents describing actions and follow up that should occur if any artifacts are found on site. The City of Niles has also hosted two landowner/stakeholder meetings in 2014 and on March 10, 2015. The City mailed letters to landowners in the project area. The public and landowners were supportive of the dam removal project and did not mention any concerns with historic sites or structures.



**2000 Photo (after drawdown)**



### Known Buildings/Sites in Project Area

The existing concrete dam and brick powerhouse was built in 1928. Various repairs to the existing concrete structure have been completed over the years, including gunite repairs to the principal spillway structure in 1939, installation of steel sheetpiling along the right auxiliary spillway abutment in the vicinity of the previous timber-crib structure in 1949, reconstruction of the failed left downstream abutment wall in 1951, and filling a void underneath the spillway apron with concrete in 1996. The Niles dam consist of a short left earthen embankment, a gated concrete principal spillway, a powerhouse section, a concrete and earth fill needle section, an abandoned millrace/spillway and a short right earthen embankment. The dam is about 100 feet long and has a structural height of 38 feet. The abandoned spillway consists of 2 approximately 12-foot wide gated concrete spillway bays and a severely deteriorated concrete-lined channel. The powerhouse has a concrete substructure and a brick masonry superstructure. The powerhouse is 28 feet wide along the axis of the dam. The structures between the powerhouse and the west abutment are a concrete wall and the abandoned spillway structure. See attached photos and plans for details.

The following is an excerpt from "Lower Peninsula of Michigan: An Inventory of Historic Engineering and Industrial Sites" by Charles Hyde, 1979 referencing the Pucker Street Dam.

NILES CITY POWER PLANT (1895,1928)  
Pucker St. at Dowagiac Creek  
Niles

Cassopolis  
16.562097.4634080  
Berrien

On August 14, 1895 the newly-formed Niles Board of Public Works took over the Niles Electric Company hydroelectric plant located on Dowagiac Creek north of Niles. The dam and generating station located at this site, powered by horizontal water wheels, supplied Niles with electricity until they were replaced in 1928 by the present dam and powerhouse. The only part of the 1895 installation still extant are portions of the exit raceway leading from the old powerhouse. The 1928 powerhouse, 10 feet by 15 feet, is a brick structure resting on a concrete foundation. The adjoining spillway dam is 60 feet long and is equipped with six radial (tainter) gates.

[Stevens, Howard G., Niles Board of Public Works, Seventy-Fifth Anniversary Report (Niles, 1970)]

Jeff Dunlap, a registered building inspector (MI registration #5294), performed a confined space entry to visually inspect the lower power house level to ascertain if any elements of the preexisting dam(s) were present. There was no visual evidence of the existing powerhouse foundation being combined with, or built upon, a preexisting dam structure. The large steel penstock doors that make up the North wall would be raised to allow water into the turbine room (which we were in). The turbine (I believe) was located within that large

concrete collar and has a shaft connected to the generator which when operational, produces power.

The dam and associated structures are in extremely poor condition. The abutments and tainter gates are compromised, the powerhouse is dilapidated and the foundations are not stable. In a November 2013 letter, the Michigan Department of Environmental Quality states the dam is in poor condition and rates the dam a significant hazard. The MDEQ has given the City of Niles 5 years to secure funding, complete the design, permitting and construction processes to remove the Pucker Street dam or to make extremely expensive repairs or replace the structure.

The Pucker Street bridge was built in 1985. It is a 2 span side by side (adjacent) pre-stressed concrete box beam bridge. Each span is a simple span 75 ft. long for a total bridge length of 150 ft. There is no deck just HMA topping on the beams. The bridge is in good condition.