

Nortonville Begins Complete Water System Upgrade



In 1940 the city of Nortonville made the decision to replace its water system. Seventy years later the same decision was made again. Nortonville is a community of about 600 people and is located on the northern border of Jefferson County in northeast Kansas.

The total cost for the project is \$1,115,000. The city received a grant from the USDA Rural Development for forty-five percent of the project. The city obtained a USDA loan for the remainder. Bartlett & West, Inc., Topeka, KS, is the project consultant.

The bids were opened on November 9, 2010 with five contractors submitting bids. The bids ranged from \$473,620 to \$674,860. The city awarded the contract to the low bid as submitted by J and K Contracting, LLC, Junction City, KS.

The project calls for replacement of all mainline valves. These costs were as follows: 6-inch at \$645 and 4-inch at \$540 each. There were a total of seventeen 6-inch valves and thirty-

J and K Contracting, LLC, is installing a new water system in Nortonville, KS.

four 4-inch valves. With most of the fire hydrants being the same age as the old water system, the decision was made to replace ten of them. The costs to replace these were at a rate of \$2,640 per hydrant with installation.

The project includes forty feet of 8-inch Class 200 PVC at a cost of \$13 per foot. There will be 5,100 feet of 6-inch PVC at \$12 per foot; 9,000 feet of 4-inch will be installed at a cost of \$8.60 per foot. The contract also includes 250 feet of 2-inch at \$7 per foot.

The city will also be replacing 157 meter setters and service lines. The bid price on these was \$650 per service. The city will not be replacing the meters, as they are relatively new.

Nortonville produces water from its three wells. Well labeled as #4 produces twenty-four gallons per minute (gpm); Well #5 produces forty-six gpm and Well #6 produces eighty gpm. These wells have always been sufficient for the city, but the council and operators believed they needed a backup water supply. With Atchison Cons. RWD 5 being within only a half mile of the city, the decision was made to connect with the RWD. A 12-foot round master meter vault was set in place to house the master meter, check valves and shut off valves. The meter vault was also designed so that Nortonville can be a backup water supply for the RWD.



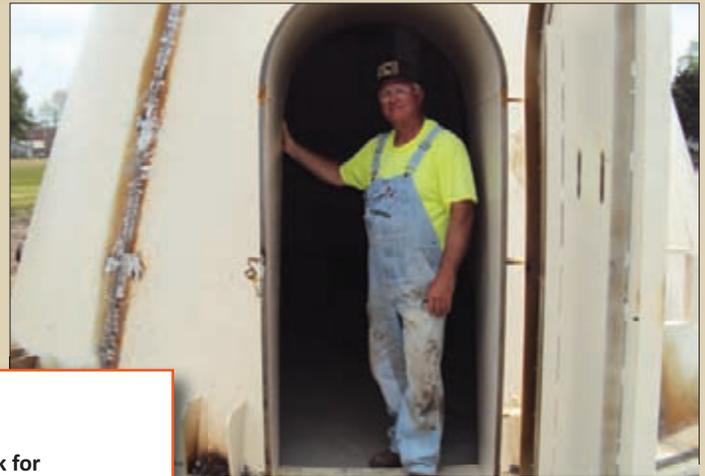
This new 12-foot meter vault will contain the connection between the city of Nortonville and Atchison Cons. RWD No. 5.



Caldwell Tank, Inc., Louisville, KY constructed the 50,000-gallon water tank. This photo shows the work on the foundation.

Repair or replace?

A substantial debate riveted the city council and staff on the question of whether to repair or replace the city's elevated water storage tank. The decision was finally made to replace the tower. The low bid on the tower was submitted by Caldwell Tanks, Inc., Louisville, KY at a cost of \$366,530. A new single-pedestal tank has been erected in Nortonville; the capacity is 50,000 gallons. The new tank is twenty feet higher in elevation;



Nortonville Operator Larry Pruett stands inside of the yet to be painted, single-ped water storage tank.

Nortonville's prior system

Readers might find it interesting that the original paperwork for Nortonville's 1940 system was still on file at the city's shop. On January 18, 1940, the Kansas State Board of Health approved the city of Nortonville to install a new water system. E.T. Archer & Company of Kansas City, MO was the consulting engineer for the job.

The water system at Nortonville included:

- 60 feet of 8-inch cast iron pipe at \$1.50 per foot
- 3,550 feet of 6-inch cast pipe at \$1.20 per foot
- 17,420 feet of 4-inch cast pipe at \$0.80 per foot
- 33,300 feet of 2-inch cast pipe at \$0.40 per foot

And there were these Ludlow gate valves:

- 8-inch at \$40; 6-inch at \$30; 4-inch at \$20; 2-inch at \$15

Twenty-three fire hydrants were installed at a cost of \$50 per hydrant. The service meters cost the city \$15 for a 3/4-inch and \$8.30 for 5/8-inch meters. A new well was also drilled in 1940. This well was drilled 170 feet deep; the cost was \$3,500. A 50-gpm pump with a 7.5 HP motor was installed for \$1050.

The most interesting part of the old system is the storage tank. The city had two choices for the elevated tank. One was a new 100-foot, four-legged 50,000-gallon tank. This tower would cost \$5,800.00 completely erected. The second choice was a used 50,000-gallon tower from the City of Des Moines, IA. It was rated in excellent condition and had been in service for 12 years. This would cost the city \$5,750.00 to dismantle and to ship to Nortonville and re-erect. The city chose to go with the used tower.

I did some research on prices in 1940. The average car cost \$800; gasoline was \$.18 per gallon. The minimum wage was \$.30 an hour. So saving \$50 in 1940 probably meant a lot.

that will provide an additional nine pounds of pressure. The old tower will be dismantled.

Nortonville Operator Larry Pruett commented that the old system is "well overdue" for replacement. Much of his time was spent finding and fixing leaks. He also said that he is glad to see the city to include tracer wire to all the new water lines.

Tony Kimmi has worked as a Tech Assistance for KRWA since October 2009. He has extensive experience in the operation of construction equipment. He has assisted in the construction of several rechlorination stations and ongoing monitoring of water quality issues. Tony enjoys providing assistance to public water supply systems.

