



DESIGNING THE FUTURE

Memorandum

To: Mayor and City Council
From: Ben Peters, City Engineer
Date: 11/30/2015
Re: Lake Bella Vista Dam Design Contract

In 2008 Lake Bella Vista Dam was overtopped in a large storm event. The earthen portion of the dam was partially eroded. The stability of the dam was questioned and some investigation was performed to determine the extents of the damage. Benton County was declared a disaster and the storm damage to public infrastructure became eligible to receive FEMA funding. CP&Y was hired by the City in July of 2008 to assess the existing dam and spillways and to provide a conceptual design to restore function, safety and long term usability of the lake as a park amenity.

The analysis of the dam revealed a dam that had been added to and repaired in a haphazard way. Although successful at impounding the lake since its inception in 1915-1918 the dam lacked a designed clay core and other features considered minimum industry standards for the construction of an earthen dam. CP&Y and City staff agreed that the dam could only be adequately repaired by replacing the dam in its entirety. The FEMA project specialist disagreed with the Engineers and City staff determining that the dam could be repaired by simply filling the void with compacted fill. This difference of opinion continued for some time and the City appealed the FEMA project specialist's decision.

The impasse concerning the proper repair continued until January of 2010. FEMA reconsidered its position and informed the City that FEMA would provide 75% funding for the design and construction of a new dam at the current location or at a more favorable site a short distance downstream. CP&Y completed conceptual design and cost estimates for both options.

In 2011 back to back large storm events occurred. Within a month the dam was overtopped two additional times. The damaged area was enlarged but the dam survived once again. The two storms combined to cause enough damage across then County that Benton County was once again declared a disaster. A new project specialist was dispatched by FEMA to inspect

the damage and prepare project worksheets for all of the damaged sites within the County. The project specialist reviewed the damage to the dam and reversed course and determined that the dam could be repaired without replacement. City staff, now familiar with the appeal process quickly appealed the project specialist position. FEMA assigned Mr. Joseph Klein P.E. to review the dam damage and create a new project worksheet. Mr. Klein, unlike the previous project specialist, was educated and experienced in the design and construction of earthen dams. Mr. Klein prepared a project worksheet that aligned with the City Staff belief that replacement was the only proper repair. Mr. Klein reviewed the CP&Y report that included the downstream option. He determined that the downstream option was feasible and cost effective (it was cheaper than the in-place replacement) but according to FEMA rules would be considered an "improvement" to the existing dam. The City could apply to pursue the downstream option but it could take up to two years to receive a decision, After the circuitous path to this point, it was determined that pursuing the in-place replacement was the prudent path.

During this same time frame, the project was once again put on hold. During the 2010 storm event the west bridge abutment for the bicycle and pedestrian bridge across Town Branch Creek was undermined. It was determined by City staff that the damage was significant and that further rain events could result in collapse of the bridge. The City hired Manhattan Bridge Company to drive sheet piling between the creek and the abutment to prevent further erosion and to serve as a concrete form to stabilize and repair the undermined abutment. The FEMA project specialist agreed with this approach completed a project worksheet and funding in the amount of \$18k was received by the City. Within the same week of receiving the check, a letter was received by the City from the Arkansas Department of Emergency Management (ADEM), the go between for the City and FEMA that the project worksheet was reviewed and the check was written in error. The determination was that the use of concrete to support the abutment was an "improvement" to the abutment and was therefore ineligible because the City did not wait for a determination from FEMA before pursuing the repair. The determination was appealed by Staff and ultimately the City was permitted to keep the money it had received. During the time it took for the appeal, Staff put the dam project on hold. If FEMA would request \$18k be refunded, the fear was that they might do the same on a \$3.6M project.

In 2013, with the abutment project behind us and with a successful outcome, Staff authorized CP&Y to resume the dam project. An environmental assessment (EA) was performed and coordinated with FEMA, United States Army Corps of Engineers, Arkansas Natural Resource Commission, Arkansas Department of Emergency Management, and the Arkansas Game and Fish Commission. The completed EA was submitted to FEMA in February of 2014. The EA was reviewed and approved for publication for public notice on February 18, 2014. Following public comment and FEMA review, the Final EA was published on August 2015 with a Finding of No Significant Impact (FONSI). The project is now environmentally cleared and can proceed with design and construction.

November 30, 2015

Staff requested that CP&Y prepare a scope of work and fee estimate for the design, preparation of contract documents and construction phase services. The contract is included for your review and consideration.

The project is eligible for reimbursement from the following funding sources:
FEMA has authorized funding of 75% of the project design and construction
ADEM has authorized funding of 12.5% of the project design and construction
Arkansas Department of Economic Development (ADEM) has approved funding of \$795k for the construction of the project

While the City will have to pay for the design and construction up front, based on the \$3.6M project estimate, the City will be fully reimbursed for the project costs.

Staff recommends the Council authorize the Mayor and City Clerk to execute this contract as presented.

Please contact me with any questions or concerns regarding the proposed contract or the project as a whole. My direct telephone number is (479) 271-5993 or I can be reached via email at bpeters@bentonvillear.com.