BUILDING THE NEW BROADWAY BRIDGE
CULTURAL DISCOVERIES

TECHNOLOGIES USED FOR CULTURAL RESOURCES DOCUMENTATION

BY: Matt Strawn
INTRODUCTION

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Environmental Division

The Environmental Division is primarily responsible for ensuring that the Department adequately addresses and documents the impacts of highway projects on the natural and social environment in compliance with regulations set forth in the National Environment Policy Act of 1970 (NEPA), as well as other state and federal laws pertaining to environmental protection.
ARDOT – ENVIRONMENTAL DIVISION

ASSESSMENTS – CULTURAL RESOURCES – GIS – NATURAL RESOURCES – PUBLIC INVOLVEMENT

STAFF
- 7 Archeologists
- 1 Architectural Historian
- 1 Section Head

STAFF
- 4 GIS Specialists
- 1 GIS Lead
- 1 Section Head

JASON EADS - ARCHEOLOGIST

WANNABE ARCHIE

KRISTINA BOYKIN – ADVANCED ARCHEOLOGIST
• Construction began in 1921
• The bridge officially opened March 1923
• An estimated 50,000 people attended the grand opening
The structure was a five-span open spandrel arch concrete bridge having a length of 2,786 feet, a deck width of 40 feet and a 24.3 foot vertical clearance. Construction Cost $971,000.
In 1974, two spans were removed and replaced with a single through arch span to achieve the required opening for the McClellan–Kerr Arkansas River Navigation System.
The need to replace or rehabilitate the original bridge was identified in 2010 as the structure was determined to be structurally deficient.

ADT of 24,000 vehicles in 2014
Once the existing bridge is closed, the contract calls for the new bridge to be opened to traffic within six months. This timeframe was provided by the contractor in its bid on the project. An earlier opening will earn the contractor an incentive of $80,000 per day.
At 10:00 a.m. on September 28, 2016, the Broadway Bridge was closed to traffic for the last time since it opened 1922.
During the construction of the elevated shared use ramp and the MSE retaining wall as part of the connection to Riverfront Park, brick and concrete were removed revealing a void with standing water, a possible stone feature to the west, and two brick foundations. This site was buried under three feet of construction fill material.
The appropriate agencies accessed the situation and decided to reveal the extent of the site that might be impacted by additional construction activity in that area.
Six feet deep stone and mortar spring cistern

Additional brick foundations were discovered to the east as well as a pipe system.
Late 19th - Early 20th Century Stone Wall
GPS

Trimble Geo 7x
Centimeter Enabled Unit

Job 061275
Location of discovered spring on aerial.
OFFICE USE ONLY
This site is recorded at what was the end of Spring Street. The spring cistern is associated with the original spring that gave the street its name in 1821.
What is Site 3PU977 associated with?

• The brick foundations at this site are associated with the Edison Electric Light and Power Company (EELP).

• In 1888, the county leased the grounds near the jail to the EELP to build their plant.

• A charter was granted by the city to construct, maintain, and operate the electric light system in the city.

• The electric company utilized the spring for their operations while still providing water to the jail as well as electric light service.
What was found at this site besides the foundations, cistern, and stone wall?

- Knob and tube wiring devices
- Machinery parts
- Stoneware jugs
- Glass flasks
- Animal bones
By 1913 there was 32.3 miles of electrified track for street cars.
SPRING STREET ELECTRIC SITE (3PU977)

WHAT HAPPENED TO THE SITE?

- ARDOT ARCHEOLOGISTS DOCUMENTED THE SITE.
- DESIGN PLANS WERE SHIFTED.
- CISTERNS WAS FILLED WITH SAND.
- ENTIRE SITE WAS REBURIED.
December 2016 wood block pavers were uncovered during deep excavation for a drainage pipeline and the MSE retaining wall on Broadway Street in between City Hall and the Robinson Center.

It is a 1912 roadway segment of Broadway, consisting of a concrete foundation, a layer of sand, and creosote wood block pavers.

The timeframe for the use of creosote wood blocks for pavement in Little Rock was 1910 to 1922.

Two trenches were excavated: one for the drainage pipeline and an eastern trench. The eastern trench was done to see if the road continued to the curb.
Photograph of Little Rock City Hall, Circa 1910

The grade change is illustrated in two pictures before and after the bridge construction. You can see the city hall building with the additional steps here. The photograph on the right was taken after the completion of the 1923 bridge with the lower level of steps now gone.
WHAT HAPPENED TO THE SITE?

- Design plans could not be shifted.
- AHTD archeologists documented the revealed portions of the site.
- Those portions were destroyed, except for the eastern trench segment.
- The eastern segment was reburied and preserved in place.

Photograph courtesy of Arkansas Democrat Gazette
Inadvertent Discoveries

Why were these two sites not found before construction began?

- Even if it is on a historic map, cannot verify that it still remains or how deep it is buried.
- These were buried sites that could only be found by deep excavation.
- Remote-sensing could be applied, but it is costly.
ONE LAST EMERGENCY

3PU876/NATIONAL REGISTER #PU10039

- In 2006, the U.S. Corps of Engineers (USACE) contracted PCI to investigate several locations along the Arkansas River that could potentially have sunken ships.

- The USCE planned to deepen the river channel between the Murray Lock and Dam and Pine Bluff. PCI used side scan sonar and located a sunken barge and then used archeological divers to measure and record the barge.

- 3PU876 was determined eligible to the NRHP under Criterion D for its future archeological and historical research potential due to it being mostly intact (Buchner 2007).
SUNKEN WOODEN BARGE
DATED TO THE LATE 1800S EARLY 1900S

SIDESCAN SONAR OF THE WRECKED VESSEL BELOW THE BROADWAY BRIDGE
(PANAMERICAN CONSULTANTS, INC. 2007)
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
SPECIAL PROVISION
JOB 64175
RESTRAINING CONDITION

[Diagram showing river and construction site with marked areas and coordinates]

[Photograph showing construction equipment on the river]

[Photograph showing river and bridge in the background]
What’s wrong with this picture?
The original plan by the County Judge Arch Campbell was to leave the prisoners within the jail during the move. Sheriff Gully, however, did not feel comfortable leaving the prisoners in the jail while the building was moved. The federal prisoners were moved to Pine Bluff and the county prisoners were moved to the Little Rock City Jail. All prisoners were returned to the Pulaski County Jail on August 17, 1956 (Arch Campbell Scrapbooks, Arkansas History Commission, Little Rock, Arkansas).
SUMMARY
OF TECHNOLOGIES USED ON THIS PROJECT

- GPS
- LASER RANGE FINDER
- GEOREFERENCED HISTORICAL MAPS
- LASER SCANNER
- SIDE SCAN SONAR