NPS Form 10-900
(7-81)

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

For NPS use only
received
date entered

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic Mine Creek Bridge

and/or common Mine Creek Bridge

2. Location

street & number 6 miles east and .5 miles south of Mound City N/A not for publication

city, town Mound City x vicinity of ~~congressional district~~

state Kansas code 20 county Linn code 107

3. Classification

Category	Ownership	Status	Present Use	
___ district	x public	x occupied	___ agriculture	___ museum
___ building(s)	___ private	___ unoccupied	___ commercial	___ park
x structure	___ both	___ work in progress	___ educational	___ private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	___ yes: restricted	___ government	___ scientific
	___ being considered	x yes: unrestricted	___ industrial	x transportation
	N/A	___ no	___ military	___ other:

4. Owner of Property

name Linn County

street & number Courthouse

city, town Mound City N/A vicinity of state Kansas

5. Location of Legal Description

courthouse, registry of deeds, etc. Register of Deeds

street & number Linn County Courthouse

city, town Mound City state Kansas

6. Representation in Existing Surveys

title Inventory of Marsh Arch Bridges--Kansas Department of Transportation has this property been determined eligible? ___ yes x no

date 1980 ___ federal x state ___ county ___ local

depository for survey records Kansas State Historical Society

city, town Topeka state Kansas

7. Description

Condition		Check one	Check one
___ excellent	___ deteriorated	___ unaltered	_x_ original site
_x_ good	___ ruins	_x_ altered	___ moved date _____
___ fair	___ unexposed		

Describe the present and original (if known) physical appearance

The Mine Creek bridge east of Mound City is a 110 foot long reinforced concrete "rainbow arch" (or "Marsh arch"). It spans Mine Creek on old highway 69 about one mile east of new 69. The structure's 20 foot wide roadway has been periodically resurfaced but this has not significantly compromised its integrity. Marsh's plans allowed for whatever filling material, between the bridge deck curbs, that locality might desire. The bridge's arches show evidence of the removal of the thru struts.

The bridge's footings lie approximately 22 feet below grade and the low water level is approximately 16 feet below grade.

The best description of a rainbow arch span is contained in James Marsh's 1911 patent application. The bridge consists of ". . . two abutments (which could be piers), a pair of arches disposed between and springing from the abutments, the floor carried by and between the arches and reaching from one abutment to the other where it alines with the parapets or rails along opposite sides of the floor line." The original patents called for slideable wear plates to be moulded into the concrete where the bridge floor came into contact with the beams and abutments. This is of importance as one of the main benefits of this design was to allow for the expansion and contraction of the reinforced concrete bridge under varying conditions of temperature and moisture.

There were two basic rainbow arch designs, fixed and tied. The original patent application describes the fixed type such as the Mine Creek bridge, in which case the arch flowed below the bridge deck and was "fixed" directly into the abutment. This massive abutment (or pier) resisted both the horizontal and the vertical thrust of the arch. In a tied design the arch did not flow below the deck line and was not fixed directly into the abutment. It was secured atop the abutment or pier by the use of steel rocker or expansion rocker bearings. Vertical thrust was resisted by the pier and bearing, while horizontal thrust was resisted by the addition of a lower chord.

8. Significance

Period	Areas of Significance—Check and justify below			
___ prehistoric	___ archeology-prehistoric	___ community planning	___ landscape architecture	___ religion
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science
___ 1500–1599	___ agriculture	___ economics	___ literature	___ sculpture
___ 1600–1699	___ architecture	___ education	___ military	___ social/ humanitarian
___ 1700–1799	___ art	x engineering	___ music	
___ 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	___ theater
x 1900–	___ communications	___ industry	___ politics/government	x transportation
		___ invention		___ other (specify)

Specific dates 1927 **Builder/Architect** James B. Marsh, Engineer

Statement of Significance (in one paragraph)

The Mine Creek bridge east of Mound City, Kansas retains its integrity of location, design, setting, material, feeling, and association. It is associated with the life of James B. Marsh, pioneer in steel and concrete bridge construction. It embodies the distinctive characteristics of a type and method of construction that is no longer used and, as such, may yield information important to the history of engineering. Although 72 rainbow arches are known to exist in Kansas they are quickly becoming an endangered species due to the ever-changing needs of modern transportation. The Mine Creek bridge, however, has a good chance for survival as the construction of new highway 69 has rerouted much of the bridge's original traffic.

James Barney Marsh was born in 1856 at North Lake, Wisconsin. He went to Iowa at the age of 18 to enter preparatory school at Fredericksburg. Marsh graduated in 1882 from Iowa State College of Agriculture and Mechanical Arts in Ames, with a B.M.E. degree. In March of 1883 he began his professional career in the Des Moines office of the King Bridge Company of Cleveland, Ohio. With King, Marsh was involved in the design, sales and actual erection of metal bridges. While he continued to work with the King Company, he also became head of the Northern Agency for the Kansas City Bridge and Iron Company. In this capacity, he both designed and superintended the actual construction work done by the company. By March of 1889, Marsh had become general western agent and contracting engineer for the King Bridge Company and was placed in charge of the general western office in Des Moines. In the spring of 1896, he formed his own company, the Marsh Bridge Company, and was its sole proprietor. In private practice as a contracting engineer, Marsh was able to more fully develop his own designs. He also constructed the designs he developed, usually using steel as a medium. At the turn of the century, Marsh initiated the use of both concrete and steel in his bridge design. In April of 1904, the Marsh Bridge Company was reorganized as the Marsh Engineering Company.

It was not until the introduction of the "rainbow arch" by Marsh, that Kansas made widespread use of reinforced concrete spans for major stream crossings. Marsh canvassed the midwest, selling his arches in direct competition with the steel trusses at that time.

Bids for 21 miles of paving on the Short Line highway (old 69) were opened on March 31, 1927. This paving project included the building of four bridges for which the Maxwell Construction Company received the contracts for a total bid of $36,484. Among these bridges was the Mine Creek rainbow arch which made up nearly half of the total with a cost of $15,037.60.

See Continuation Sheet, Item #8.

8. Significance

Maxwell began work almost immediately and by June 9, 1927 the Pleasanton Observer-Enterprise reported the Mine Creek bridge to be "progressing in fine shape." All of the footings had been completed and work on the piers had begun.

On August 4, 1927 the Observer-Enterprise wrote:

> "The rainbow arch bridge over Mine Creek is receiving the praise of all those who have viewed it, although only the steel arches are in place, a mere skeleton of the beautiful bridge that will soon span the creek."

Progress continued and by September 15, 1927, all of the bridges were completed with the exception of the Mine Creek bridge which still lacked its flooring.

The bridge was completed on October 9, 1927 and the Observer-Enterprise reported that it "presents a most pleasing appearance as it stands, solidly rooted in the banks of the stream with its massive light gray arches rising above the trafficway."

9. Bibliography

"Paving Contracts to be Let in March," Pleasanton Observer-Enterprise, January 20, 1927, p. 1, c. 6.
"Commissioners to Advertise for Bids," Pleasanton Observer-Enterprise, March 3, 1927, p. 1, c. 1.
"Notice to Bridge Contractors," Mound City Republican, March 3, 1927, p. 4, c. 2.
"Post Mortem of Paving Contracts," Pleasanton Observer-Enterprise, April 7, 1927, p. 1, c. 1.
"Contracts for 21 Miles Let at Cost of $575,965.23," Mound City Republican, April 7, 1927, p. 1, c. 1.
"Pleasanton Soon to be 'Up-Town' City," Pleasanton Observer-Enterprise, June 9, 1927, p. 1, c. 1.
"Bridge Work Goes Along Nicely," Pleasanton Observer-Enterprise, August 4, 1927, p. 1, c. 2.
"Maxwell Complete Bridge," Pleasanton Observer-Enterprise, August 18, 1927, p. 1, c. 5.
"Work on Roads Progressing Fast," Pleasanton Observer-Enterprise, September 15, 1927, p. 1, c. 3.
"Paving Through County Nears Completion," Pleasanton Observer-Enterprise, September 22, 1927, p. 1, c. 6.
"A Dream About to Become a Reality," Pleasanton Observer-Enterprise, October 13, 1927, p. 1, c. 1.

Nichols, C.S., Comp. Directory of Graduates of Division of Engineering, Iowa State College of Agriculture and Mechanical Arts, Ames, Iowa.

The Alumnus of Iowa State. Alumni Association of Iowa State College, Ames. Volume XXXII, #1, July 1936.

9. Bibliography continued

Marsh, James B., Specification of Letters Patent, Number 1,035,026, patented August 6, 1912, United States Patent Office, Washington, D.C.

Plans and files. Design Department, Kansas Department of Transportation, Topeka, Kansas Microfilm Roll #26, frame 514+.

9. Major Bibliographical References

See Continuation Sheet, Item #9.

10. Geographical Data

Acreage of nominated property .5

Quadrangle name Pleasanton

Quadrangle scale 1:24,000

UMT References

	Zone	Easting	Northing
A	15	351450	4222640
B			
C			
D			
E			
F			
G			
H			

Verbal boundary description and justification

That property on and over which the bridge is built, 6 miles east and .5 miles south of Mount City, Kansas. S7, T22S, R25E. Includes bridge superstructure plus supporting abutments.

List all states and counties for properties overlapping state or county boundaries

state N/A code county code

state code county code

11. Form Prepared By

name/title Larry Jochims, Research Historian and Michael Snell

organization Kansas State Historical Society date

street & number 10th and Jackson Streets telephone (913) 296-2973

city or town Topeka state Kansas

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national _x_ state ___ local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature

title date

For NPS use only

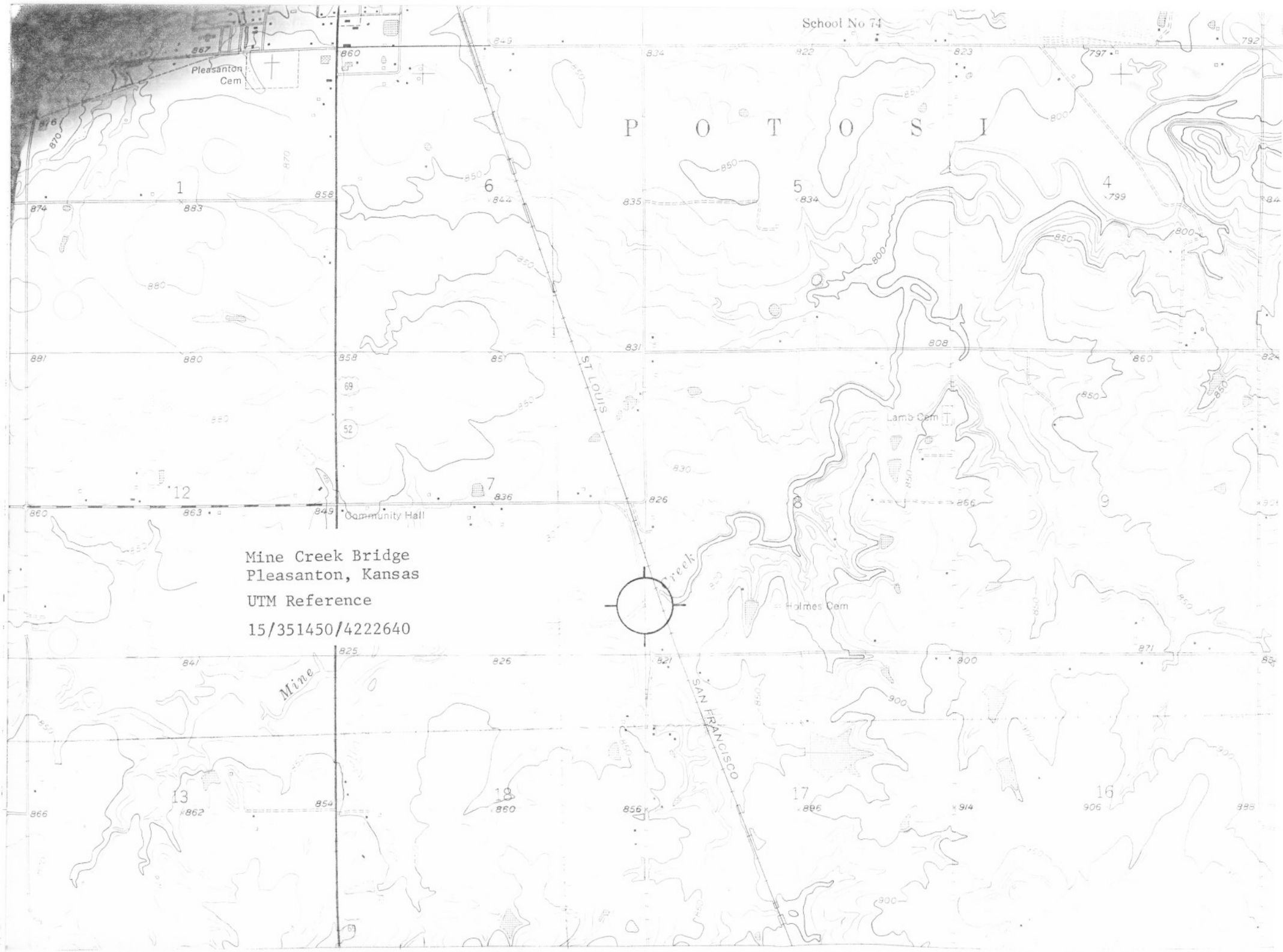
I hereby certify that this property is included in the National Register

date

Keeper of the National Register

Attest: date

Chief of Registration


School No 74
Pleasanton Cem
P O T O S I
ST LOUIS
SAN FRANCISCO
Lamb Cem
Holmes Cem
Community Hall
Mine Creek
Mine Bridge
Pleasanton, Kansas
UTM Reference
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