

BURLINGTON NORTHERN SANTA FE RAILROAD,
CAJON SUBDIVISION , STRUCTURE NO. 64.2
between Cajon Summit and Keenbrook
Devore vicinity
San Bernardino County
California

HAER CA-2259-L
CA-2259-L

HAER
CA-2259-L

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
PACIFIC WEST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
1111 Jackson Street, Suite 700
Oakland, CA 94607

HISTORIC AMERICAN ENGINEERING RECORD

Burlington Northern Santa Fe Railroad, Cajon Subdivision,
Structure No. 64.2

HAER
CA-2259-L

HAER No. CA-2259-L

Location: BNSF Railway Company (BNSF) Railroad Structure No. 64.2, a reinforced-concrete box culvert, is located at Milepost 64.2 on Main Tracks 1 and 2, Devore vicinity, San Bernardino County, California. The culvert is bounded by the Union Pacific Railroad to the west and Interstate 15 to the east.

The culvert lies within the NE ¼ of the SE ¼ of the NE ¼ of Section 12, Township 2 North, Range 6 West, on the 1956 Cajon, California (photorevised 1988), 7.5-minute U.S. Geological Survey quadrangle. Universal Transverse Mercator Coordinates: Zone 11, NAD83, Geodetic Reference System 1980 ellipsoid, mN 3792780, mE 458205 (inlet); mN 3792779, mE 458225 (outlet).

Date of Construction: 1939

Architect/Engineer: unknown

Builder: Atchison, Topeka and Santa Fe Railway (AT&SF)

Present Owner: BNSF

Present Use: Culvert on Main Tracks 1 and 2.

Significance: The section of railroad through Cajon Pass provided a vital link between the greater Los Angeles area and distant markets. In 1998, the California State Historic Preservation Office determined the historic route of the AT&SF (now BNSF) railroad alignment through Cajon Pass to be eligible for listing in the National Register of Historic Places under Criteria a and c. By connecting Los Angeles and San Bernardino to markets throughout the United States, the railroad dramatically affected demographic, commercial, and cultural trends in southern California. Furthermore, construction of the long, winding alignment through rugged and often steep terrain represents a significant engineering feat for its time. Structure No. 64.2 contributes to the function and significance of the railroad line by mitigating the effects of erosion on the integrity of the system.

Report Prepared by: Scott Thompson, Senior Historian
John Goodman, Archaeologist
Statistical Research, Inc.
Tucson, Arizona

Date: March 2008

I. ARCHITECTURAL AND ENGINEERING EVALUATION

Structure No. 64.2 is a reinforced-concrete box culvert located on a secondary drainage with an east-west orientation (Figure 1). A culvert is a structure designed to protect the roadbed from the erosive effects of storm runoff by carrying water safely under the track. Culverts are placed at points along the roadbed where the railroad intersects normally dry channels. The size of a culvert is determined by the anticipated rate of flow during periods of heavy rainfall (Hay 1953:282, 284; Webb 1932:249).

Constructed in 1939 as part of a line change following the flood of 1938, the culvert is rectangular in cross section and was cast in place as a single unit. The culvert has an approximate length of 69'. The structure consists of an inlet transition on the west side of the roadbed embankment that diverts and channels water under the track at an oblique angle through a 4'-0"-high, 5'-0"-wide opening. A headwall and two wing walls hold back the roadbed fill from the culvert opening, and an apron prevents scouring around the inlet. The headwall measures 6'-10" in length and two wings, positioned at slightly obtuse angles to the headwall, slope downward from the top of the headwall to the apron located at the base of the culvert opening. The wings are 5'-8" long and have a standard 1" bevel. The apron is 7'-11" at its widest point and measures 5'-5" from its outer edge to the culvert opening (Bridge List, First District, Los Angeles Division, p. 48, Structures Department, BNSF Railway Company, Kansas City, Kansas). A date of 1939, signifying the year the structure was built, is stamped in the center of the headwall.

The culvert outlet is at a slightly lower elevation than the inlet to facilitate the flow of water under the roadbed. A large amount of sediment has been deposited within the opening on the downstream side of the culvert, precluding the complete recording of the size of its elements. Although not all of the outlet transition is visible, the rectangular opening is identical in dimensions to the inlet opening. A large, angled retaining wall approximately 28' long surrounds the culvert opening. A date of 1939 is stamped into the retaining wall directly above the culvert opening. Along the north side of the reinforced-concrete retaining wall is a crude post-and-rail fence constructed from running rails, the purpose of which is to prevent cobbles and large debris from obstructing the culvert opening.

II. REFERENCES CITED

Hay, William W.

1953 *Railroad Engineering, Volume One*. John Wiley & Sons, New York, and Chapman and Hall, London.

Webb, Walter L.

1932 *Railroad Construction: Theory and Practice*. 9th ed. John Wiley and Sons, New York.

Burlington Northern Santa Fe Railroad, Cajon Subdivision,
 Structure No. 64.2
 HAER No. CA-2259-L
 (page 3)

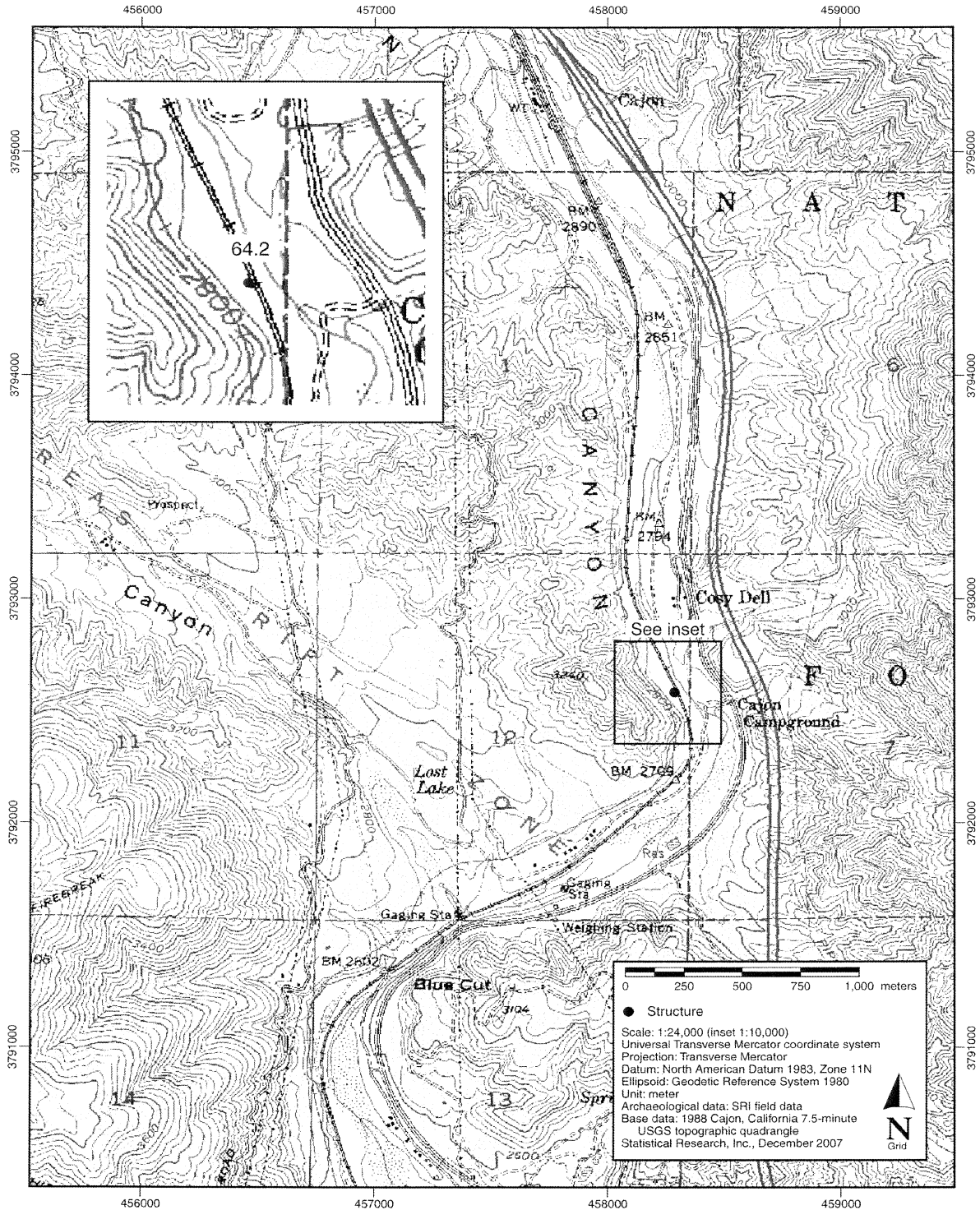


Figure 1. Project location (1956 Cajon, California, 7.5-minute U.S. Geological Survey quadrangle [photorevised 1988]).

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

Burlington Northern Santa Fe Railroad, Cajon Subdivision,
Structure No. 64.2
Between Cajon Summit and Keenbrook
Devore vicinity
San Bernardino County
California

HAER No. CA-2259-L

David G. De Vries, photographer

June 2007

CA-2259-L-1 CONTEXT VIEW, TO THE NORTHWEST DOWN RAILROAD TRACKS. [100]

CA-2259-L-2 CULVERT INLET. [99]

CA-2259-L-3 CULVERT OUTLET, SHOWING LARGE CONCRETE RETAINING WALL. [97]

CA-2259-L-4 DETAIL OF CULVERT OPENING ON DOWNSTREAM SIDE. [98]

Kodak 400TMY



HAER No. CA-2259-6-1



KODAK 400TMY

HAER NO. CA 2259- L-2



KODAK 400TMY

HAER No. CA - 2259 - L-3



KODAK 400TMY

HAER NO. CA - 2259 - L-4