

DEER BROOK BRIDGE

Acadia National Park Roads & Bridges

Spanning Deer Brook on Eagle Lake-Jordan Pond Carriage Road

Seal Harbor Vicinity

Hancock County

Maine

HAER NO. ME-36

HAER
ME
5-SEHA.V,
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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

PHOTOGRAPHS

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service

Department of the Interior

P.O. Box 37127

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HISTORIC AMERICAN ENGINEERING RECORD

DEER BROOK BRIDGE

HAER No. ME-36

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LOCATION: Spanning Deer Brook on eastern segment of the Jordan-Sargent Mountain carriage road, 1 $\frac{1}{4}$ miles north of Jordan Pond House, Seal Harbor vicinity, Mount Desert Island, Hancock County, Maine

Quad: Seal Harbor, ME
UTM: 19/558720/4910700

DATE OF CONSTRUCTION: 1933

ARCHITECT: Charles W. Stoughton

ENGINEER: Paul D. Simpson

CONTRACTOR: Wyman and Simpson, Augusta, ME

STRUCTURE TYPE: Stone-faced reinforced concrete filled spandrel arch bridge

FHWA STRUCTURE NO.: 1700-041S

SIGNIFICANCE: The Deer Brook Bridge carries the Jordan Pond-Eagle Lake Carriage Road over its namesake stream, and provides a grade separation with the Deer Brook Trail. The bridge spans the stream on two tall semicircular arches and is the only such structure on the carriage road system.

PROJECT INFORMATION: Documentation of the Jordan Pond Road Bridge is part of the Acadia National Park Roads and Bridges Recording Project, conducted in 1994-95 by the Historic American Engineering Record. This is one in a series of project reports. HAER No. ME-13, ROCKEFELLER CARRIAGE ROADS, contains more specific information on the park carriage road system.

Richard H. Quin, HAER Historian, 1994

This is one in a series of reports prepared for the Acadia National Park Roads and Bridges Recording Project. HAER No. ME-13, Rockefeller Carriage Roads, contains more specific information on the park carriage road system.

HISTORY

In 1924, John D. Rockefeller, Jr. began to extend his private carriage road system, then mostly located on his estate at Seal Harbor, northward on Mount Desert Island into Lafayette (now Acadia) National Park. Rockefeller's road scheme was supported by park superintendent George B. Dorr, who thought the road would provide a valuable internal link between the northern and southern sections of the park, useful for patrols, fire control and internal communication. Construction of this segment, which connected the Jordan Pond House with Eagle Lake, would require a bridge over Deer Brook, a small perennial stream draining the ravine between Sargent and Penobscot mountains.

As he did with several other bridges on the Mount Desert Island carriage road system, Rockefeller hired a New York architect, William Welles Bosworth, to design the bridge. Bosworth, a graduate of the École des Beaux-Arts, had designed the interior of Rockefeller's townhouse on West 54th Street (1914) and was designing bridges for the Rockefeller carriage road system at Pocantico Hills when he was asked to design the Deer Brook Bridge.

In contrast to the other bridges on the Mount Desert system, which to this point were all single-span structures with shallow semicircular arches, Bosworth designed the Deer Brook Bridge with two tall, narrow semicircular Roman arches. Between the arches, Bosworth proposed a cast bronze deer's head to emphasize the name of the stream.

In December 1924, Rockefeller told Simpson he wanted the work to commence in the spring, and asked that the engineer go over the blueprints, perhaps in conjunction with a visit to the site. Simpson was to make any necessary changes to the working drawings and forward any comments as soon as possible so that the final construction of drawings could be completed by Bosworth's office.¹

¹Rockefeller to Paul D. Simpson, Seal Harbor, ME, 24 December 1924. Rockefeller Archives Center, Office of the

As the bridge was to be constructed within the park on federal land, its design had to be approved by the National Park Service. In May 1925, Bosworth sent a tracing of the plans for the bridge to NPS Director Stephen T. Mather, who forwarded it to NPS Chief Landscape Engineer Daniel R. Hull for review. Hull told Mather he thought the bridge would induce a "very fine feeling with good rock work," but suggested that the deer be shown in relief, rather than as projecting bronze heads. Mather told Superintendent George Dorr he agreed with Hull's suggestion, but would leave the final decision up to Rockefeller.²

Rockefeller engaged Seal Harbor contractor Samuel W. Candage to construct the bridge. Candage, a small general contractor, was Rockefeller's neighbor at Seal Harbor and had already built a number of other stone bridges on the Rockefeller carriage road system.

In June, Rockefeller's carriage road engineer, Paul Simpson, wrote his employer that he was beginning preparations for the construction of the bridge and raising the question of a quarry site. Although there was an abundance of good stone above the bridge site, it would be difficult and expensive to open up a new quarry there in the cramped space on the hillside. Simpson asked Rockefeller whether it might be more advisable to use stone from Candage's quarry on the Jordan Pond Road, provided the charge for the stone was not too great. Since this quarry was already open, the stone could be taken out at once, hastening the pace of the construction.³

Simpson noted that much of the stone in Candage's quarry was "very dark and old looking." Candage had suggested using this stone for the body of the bridge, and using lighter stone from

Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 121 Folder 1217.

²Stephen T. Mather, Director, National Park Service, to George B. Dorr, Superintendent, Lafayette National Park, 12 May 1925. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 122 Folder 1234.

³Simpson to Rockefeller, 18 June 1925. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 122 Folder 1234.

the quarry for the ring stones, belt courses and coping. Simpson thought the contrast in color would be "very attractive architecturally."⁴

A few days later, Rockefeller wrote Candage, indicating that the contractor should have the final blueprints from Bosworth's office in hand and hoping his crews could start on the foundations at once. Rockefeller asked him to provide an estimate for the cost of construction as soon as possible.⁵ Candage estimated the cost at \$24,918.⁶

Rockefeller also added instructions for the stone cutters, telling Candage they should "make the stonework even rougher than anything than that of the last bridge." Rockefeller felt "The more rustic the bridge the better," and complained that Candage's men "usually erred on the other side" and cautioned that they would need constant attention "in order not to do too nice and refined a job."⁷

Rockefeller and his family arrived in Seal Harbor for the season the second week of July. During his stay on the island, Candage took him to see the stonework at the Edsel Ford cottage on Ingraham Point outside Seal Harbor. Candage also showed Rockefeller a small scale model of the bridge which depicted the two colors for the stone. Rockefeller then authorized Candage to use the quarried lighter stone for the arch, band course and coping, and the darker iron-stained stone for the exposed surfaces, provided the stone was laid in horizontal courses. The stones were to be shaped with a hammer and not a pointed instrument so that joints would be irregular, making for a more rustic appearance. Rockefeller also stated that since the bridge arches would be narrow and no path would run under them, there seemed no need to line them with stone, suggesting instead that

⁴Ibid..

⁵Rockefeller to Sam Candage, Seal Harbor, ME, 21 June 1925. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 121 Folder 1217.

⁶"Bridges Built by B. W. Candage," MSS, 19 August 1927. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 121 Folder 1217.

⁷Ibid..

they could be lined simply with a rough coat of concrete or stucco. This substitution would greatly reduce the cost of the bridge.⁸ In the end, this final idea was abandoned and the interior of the arch was faced in stone, possibly because of the high visibility of the bridge from the Deer Brook Trail, which passes just below the bridge as it drops to Jordan Pond.

The bridge was completed by the end of 1925 at a cost of \$26,642.⁹ On 31 December, Rockefeller wrote Candage, congratulating him on the work and stating "it must be a very fine bridge, judging from what I saw of it before leaving Seal Harbor." Rockefeller directed Candage to begin making arrangements for constructing two more bridges on the system, Chasm Brook Bridge [HAER No. ME-38] and Hadlock Brook Bridge [HAER No. ME-37].¹⁰

Vanasse Hangen Brustlin, Inc., a Boston engineering firm conducting an assessment of the Acadia carriage road bridges, inspected the bridge in June 1993. The project team identified a number of problems with the structure, including scouring along the base of the piers and the abutment walls, cracking of the arches through the stones of the intrados, deteriorated mortar joints and moderate to severe deposition of calcium carbonate on bridge surfaces, especially under the arch and on spandrel and wing walls. The firm recommended waterproofing the structure, repointing mortar joints where necessary, removal of the calcium carbonate efflorescence, and repairs to the damage caused by scouring.¹¹

⁸Ibid.; Rockefeller to Candage, 17 July 1925. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 122 Folder 1234.

⁹"Bridges Built by B. W. Candage," MSS, 19 August 1927. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 121 Folder 1217.

¹⁰Rockefeller to Candage, 31 December 1925. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group 2, Homes (Seal Harbor), Box 122 Folder 1234.

¹¹Vanasse Hangen Brustlin, Inc. & McGinley Hart & Associates. *Historic Bridge Reconnaissance Survey, Carriage Road System, Acadia National Park*. Draft edition, Boston, MA: National Park Service, North Atlantic Regional Office, September 1993.

DESCRIPTION

Deer Brook Bridge, the only two-span arched bridge on the Acadia carriage road system, carries the Jordan Pond-Eagle Lake segment of the "Around the Mountain" carriage road loop over a small mountain stream which has cut a deep ravine separating Penobscot and Sargent mountains. The concrete bridge is faced in coursed stone native to the island. Although the dark-stained stone and rough mortar joints were meant to evoke a rustic association between the bridge and its wild setting, the choice of the two semicircular Roman arches, horizontal coursing of the stone, and beltcourses and coping in contrasting lighter colored stone combine to give the bridge a more refined and formal appearance.

The bridge is built on a tangent, though the ends flare outward to the curtails. It measures 78' long and stands 22' 5" above the rocky streambed. The two semicircular arches are 15' tall and 9' 8" wide and are outlined by arch radiating voussoirs or arch ring stones. The reinforced concrete structure is faced in iron-stained granite from the Candage pit with a contrasting belt course of lighter colored stone at the springline for the arches and at the base of the parapet walls. The stone coping at the top of the parapet walls is likewise of the lighter-colored stone. Between the top of the two arches is a stone rondel which was originally intended to feature the proposed bronze deer head; it was ultimately used to display the bridge's date of construction, 1925.¹²

¹²Ibid., 64.

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DEER BROOK BRIDGE

HAER No. ME-36

Eagle Lake-Jordan Pond Carriage Road, spanning Deer Brook

Acadia National Park Roads and Bridges

Seal Harbor Vicinity

Hancock County

Maine

JET LOWE, PHOTOGRAPHER, SEPTEMBER 1994

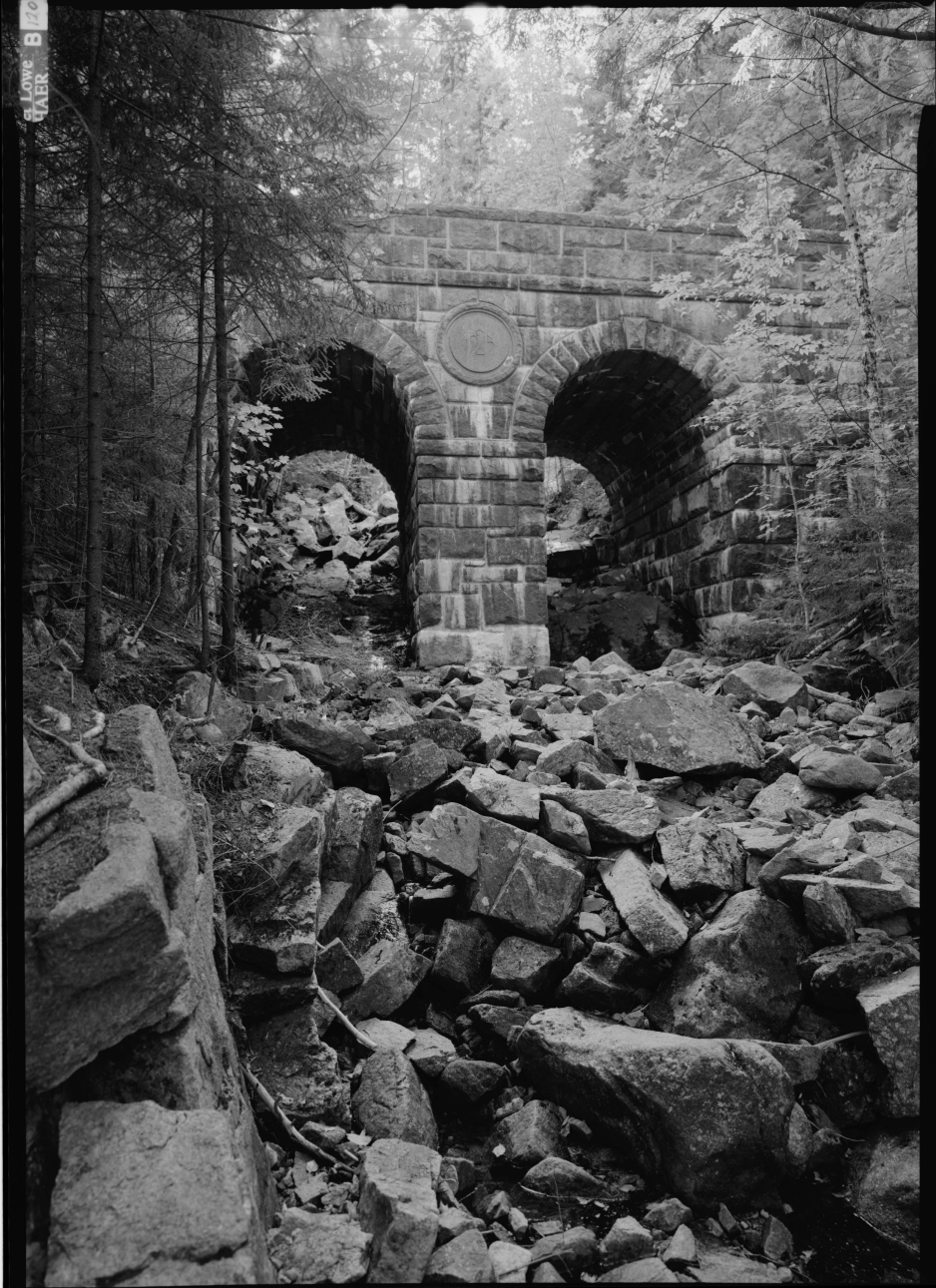
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| Me-36-1 | "AXONOMETRIC" VIEW FACING SW |
| Me-36-2 | ELEVATION FROM DOWNSTREAM FACING NORTH |
| Me-36-3 | VIEW FROM UPSTREAM OF WEST ELEVATION FACING EAST |



HAER No. ME. 930.1

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LOWE
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HAER No ME-36.3