



State of New Jersey
DELAWARE AND RARITAN CANAL COMMISSION
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STAFF REPORT

DRCC #: 26-3613B

DATE: August 26, 2026

PROJECT NAME: NJWSA Station 523+80 -- Collapsed Rail Bridge Removal

Latest Submission Received: July 31, 2026

Applicant:

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New Jersey Water Supply Authority
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Engineer:

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Project Location:

Road	Municipality	County	Block(s)	Lot(s)
N.J. State Highway Route No. 29	Hopewell Township	Mercer	58	3, 3.01

Jurisdictional Determination:

Zone A	Minor	Governmental

Subject to Review for:

Drainage	Visual	Traffic	Stream Corridors
	X		

Documents Received: Site Plans (8 sheets) dated July 23, 2026; prepared by Mott MacDonald.

**THIS STAFF REPORT IS ISSUED AS A GUIDE TO APPLICANTS IN
COMPLYING WITH DRCC REGULATIONS. IT IS NOT AN APPROVAL. NO
CONSTRUCTION SHALL BEGIN UNTIL A CERTIFICATE OF APPROVAL
HAS BEEN ISSUED.**

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The application is complete and shall be presented to the Commission for their action with a staff recommendation of approval at the September 16, 2026, meeting based upon the following analysis:

Existing Conditions: The project area is located in the feeder portion of the Delaware and Raritan Canal State Park in Hopewell Township, Mercer County, and within Commission Review Zone A. Specifically, the project site is the collapsed former railroad spur bridge located at Station 523+80, west of N.J. State Highway Route No. 29 (Route 29) at Milepost 15.6.



The project site is generally bounded by the Delaware and Raritan Canal State Park to the west and south, and by Route 29 followed by the Mercer County Correction Center, Mercer County Wildlife Center, and associated buildings to the north and east.

In the existing condition, the site is a collapsed former moveable bridge built in 1915 to provide a rail connection over the canal and into the Mercer County Workhouse Quarry on Belle Mountain. The bridge comprised a timber trestle section, which lost structural integrity and was removed from the canal to prevent the debris from blocking the flow of water. The steel frame section, which was the former moveable portion of the bridge, has substantially settled in the canal.

Proposed Project: The New Jersey Water Supply Authority (NJWSA) proposes the removal of the remaining steel frame portion of the collapsed bridge and the removal of the accumulated wooden trestle debris from the canal and embankment. The project would entail the use of cofferdams or porta-dams to effect the removal of the submerged steel structure, wood ties, center wood support, as well as dilapidated chain link fencing, and accumulated debris from within canal and around the bridge.

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The applicant also proposes to restore approximately 3,392 square feet of the canal liner where impacted using a maximum of 12-inch compacted impermeable clay. The project would require the closure of the Delaware and Raritan Canal State Park multiuse trail, and the applicant would reseed and restore any areas of the embankment and multiuse trail damaged as a result of the project activities.

The project does not propose the creation of any impervious surface coverage, since the canal, like other surface water bodies, is considered impervious surface for the purpose of stormwater calculations. The project would also result in the disturbance of 22,064 square feet (0.51 acre) of land.

The project is necessary because a full collapse of the remainder of the bridge poses a threat to the operations of the water transmission complex of the canal, and an attendant water supply emergency for a large portion of central New Jersey.

Stream Corridor: There are no streams or mapped watercourses on the project site, the nearest being Moores Creek, a tributary of the Delaware River which flows beneath the Delaware and Raritan Canal through a stone arch culvert located approximately 1,510 feet to the southeast. Therefore, the project is not subject to stream corridor impact review pursuant to N.J.A.C. 7:45-9.1(a).

Stormwater Runoff and Water Quality: The project does not propose an increase in impervious surface coverage. Therefore, the project is not subject to stormwater runoff and water quality impact review pursuant to N.J.A.C. 7:45-8.

Visual, Historic and Natural Quality Impact: N.J.A.C. 7:45-10.2(a) directs that the Commission shall review all projects in Review Zone A to determine if the project is in accord with the goals for the Delaware and Raritan Canal State Park as defined in the park's master plan. The visual, historic and natural quality impact review is intended to assure that development within Zone A is not harmful to the character of the environmental types identified in the Delaware and Raritan Canal State Park Master Plan (Master Plan) as comprising the park.

The project is located in a Transportation canal environment as described in the Delaware Master Plan. The Transportation canal environment is characterized at N.J.A.C. 7:45-10.2(a) as an area in which the canal park squeezed between roads, railroads, and river or stream.

The Master Plan at Page 14 proposes that the large field located at the Mercer-Hunterdon county line become the staging area for a canal boat ride to Lambertville. That area was also envisioned as the headquarters for maintenance of the western section of the canal park, a proposal which was mooted by the construction of such facilities at Bulls Island Recreation Area. The plan generally proposes additional access to the park and more path connections throughout this section. Therefore, nothing with regard to the project is incompatible with the goals of the Master Plan.

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The provisions of N.J.A.C. 7:45-10.3(a), which discourage major projects in those portions of Commission Review Zone A that comprise the Transportation canal environment, are inapplicable to the project, which is a minor project.

N.J.A.C. 7:45-10.3(b) directs that minor projects proposed in those portions of Commission Review Zone A that comprise the Transportation canal environment of the park, the Commission may require specific compensatory measures to mitigate the project's potential for harmful impact may be required as a condition of approval. Examples of such compensatory measures may include, but are not limited to:

- Increased setback distances from the park;
- At least 40% of the total project site be made available for open space for recreation or conservation purposes;
- Extensive landscape development;
- Development of circulation patterns that direct traffic away from the park;
- Noise abatement measures;
- Improvements to adjoining portions of the park; and
- Signs or other means of interpreting any historic structures or districts relating to the site [Emphasis added].

Commission staff notes that the applicant, as a condition of DEP State Historic Preservation Office (SHPO) emergency authorization for the removal of the bridge, will provide for design and installation of an interpretive sign detailing the history and significance of the Belvidere-Delaware Railroad and its siding to the former quarry, which would be displayed in a publicly accessible area in the vicinity of the former bridge crossing of the canal. The content of the signage would include historic images of the railroad bridge prior to its collapse, as available.

Commission notes that the SHPO mitigation meets the criteria for a specific compensatory measure pursuant to N.J.A.C. 7:45-10.3(b), and that Commission staff determines that the project is in compliance with this requirement.

N.J.A.C. 7:45-10.4(a) directs that projects in Commission Review Zone A shall be set back from the Delaware and Raritan Canal State Park sufficiently far so that the winter visual and natural quality of the park are not adversely affected. In the Transportation canal environment, all structures shall be located 200 feet or more from the park. The project does not propose the construction of any structures. Therefore, this requirement is inapplicable to the project.

N.J.A.C. 7:45-10.4(b) directs that projects in Commission Review Zone A shall maintain a reasonable height and scale relationship to nearby structures or vegetation. In the Transportation canal environment, structures shall be limited to a height of 40 feet above the existing grade where existing vegetation does not provide adequate winter screening. The project does not propose the construction of any structures. Therefore, this requirement is inapplicable to the project.

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N.J.A.C. 7:45-10.4(c) direct that for projects in Commission Review Zone A, the exterior appearances of a project shall be in keeping with the character of the Delaware and Raritan Canal State Park's individual environments. Specifically, colors used shall harmonize with the man-made or natural surroundings of the project and shall be typical of colors found in the park environment, and building materials and texture shall harmonize with the surrounding man-made and natural materials. The project does not propose the construction of any structures. Therefore, this requirement is inapplicable to the project.

The provisions of N.J.A.C. 7:45-10.4(d)3 and 4, respectively, which regulate the location and dimensions of commercial signage and outdoor advertising devices, are inapplicable to the proposed project.

The provisions of N.J.A.C. 7:45-10.4(d)5, which direct that wherever possible, natural terrains, soils, stones, and vegetation should be preserved and that new vegetation, stones, and soils should be native to the environment in which they are placed, are inapplicable to the proposed project.

N.J.A.C. 7:45-10.4(d)6 directs that projects that are located in any officially designated Federal, State or local historic district or site shall be assessed for their impact upon that district or site. Recommendations to avoid, minimize, and/or mitigate the impacts of a project on a listed property shall be made in consultation with the SHPO and based upon the United States Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings.

The project is located in the Delaware and Raritan Canal Historic District, which encompasses the canal bed and all structures within 300 feet of the centerline of the canal. As noted above, the applicant obtained emergency authorization to remove the bridge structure from the canal on November 25, 2025. As a mitigation for the adverse impact of the project upon the Delaware and Raritan Canal Historic District, the applicant was required to undertake the installation of the interpretive signage noted above, and to document the existing conditions of the bridge, with a focus on the setting, to Level III equivalent standards of the Historic American Engineering Record (HAER).

Given the foregoing, Commission staff determines that the project is in compliance with this requirement.

Historical Background: The Mercer County Workhouse Quarry was a small, hillside quarry located on Belle Mountain, roughly triangular shaped and approximately 500 by 800 feet in area. From 1892 until 1975, the quarry was worked adjunct to what is now referred to as the Mercer County Correction Center, which also included a working farm.

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(Coal is unloaded using a pole boom from canal hinge boats at the Mercer County Workhouse, circa 1900. Note the armed guard sitting on hatch supervising the work.)

The Mercer County Workhouse was established in 1892, when the county acquired the 103-acre farm of Levi Stout. It appears that the potential for quarrying operations were specifically contemplated prior to the acquisition, along with the stated goal of creating a facility “where prisoners could be regularly employed at certain kinds of labor that would tend to relieve the county of the expense of supporting them in idleness and would supply material which could be sold or used on the roads of the county or otherwise for the county’s benefit, and to diminish the number of those who crowd the Jail in the Winter season.”

The quarry was able to take advantage of the large deposits of diabase, or trap rock, that are found at several locations in the Hopewell Valley. Two such sites were located along the Delaware River between Lambertville and Titusville, namely Baldpate Mountain, and Belle Mountain, while the third was located near Pennington. All of the sites were quarried for stone for use on local roads, and all had adjacent railroad sidings to deliver that stone to markets. Trap rock was particularly useful in the construction of macadam roads, which were built from layers of crushed stone -- small, angular pieces that would naturally tightly interlock -- that could be compressed to create a solid surface.

The workhouse quarrying and stone crushing operation ultimately led to the construction of the bridge. The stone crusher was installed on site in September 1893, not long after the construction of the workhouse itself. Although the quarry produced a considerable amount of crushed stone between 1893 and 1915, reported in 1908 at 100 tons daily, the loading or unloading process using a small canal basin located near the crusher took between four and six hours.

Plans to construct a rail bridge and siding began in 1910, and in 1915 the Pennsylvania Railroad Company (PRR) agreed to construct the bridge and siding that would connect to

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a new crusher machine, which remains along Route 29 to the present day. As originally installed, the siding began at the newly installed crusher on the workhouse property, extended southeast across the workhouse yard in two tracks, one for loaded cars and one for unloaded cars, then crossed River Road (now Route 29) via an overhead trestle and continued west to the east bank of the feeder canal. At this point, the siding connected to the moveable bridge, which in turn connected to Bel-Del Railroad's double tracked main line on the west side of the canal. The original overhead trestle that carried the siding over River Road was demolished in 1917 and replaced with an at-grade crossing.

The bridge and siding greatly increased the output from the workhouse quarry. It was reported that 25,000 tons of stone were exported from the Workhouse quarry in 1916, which increased to 50,000 in 1926, 60,000 in 1927, and 70,000 in 1928. Eventually, the system of free prison labor collapsed after an inmate strike in 1956, and investigations into inhumane treatment and dangerous conditions conducted by the ACLU in 1972. The Mercer County Board of Chosen Freeholders voted in 1973 to end quarrying at the site. Concurrently, the main trackage of the Bel-Del line went bankrupt along with rest of the PRR and was merged into Conrail in 1976. The tracks were then removed and became the Delaware and Raritan Canal State Park multiuse trail during the 1980s.



(Stone crusher 1985)

Engineering Background: The deck plate girder swing bridge and timber trestle carrying the Mercer County Workhouse siding over the Delaware and Raritan Canal feeder was constructed in 1915. The purpose of the bridge was to carry a railroad siding over the canal and to connect with the stone crusher located at the Mercer County Workhouse on one end, and thence to the main track of the Trenton Division of the Delaware and Belvidere (Bel-Del) Railroad, which was leased by the PRR when the bridge and siding were built.

The bridge was built by PRR engineers and contractors and maintained after its construction by Mercer County. The bridge runs between the east and west banks of the feeder canal in a general north to south orientation. The full length of the bridge is about 100 feet, approximately 45 feet of which is the deck plate girder span located on the east half of the bridge, and the 55 foot-long timber trestle span that comprised the west half of the bridge. Both spans are approximately 8 feet wide.

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According to the HAER documentation, plans for the construction of the bridge drafted in 1915 indicate that two timber and earthen fenders were installed on the east and west banks of the canal just inside the bridge's timber abutments, underpinning the structure. The structure's deck plate girder span consists of twin deep riveted I-beams that are connected on the interior by riveted cross braces. The timber rail ties were fastened directly to the I-beams. A geared mechanism is attached beneath the bridge deck on its west elevation near the bridge abutment. Made of cast steel, the mechanism consists of a larger toothed and spoked gear set on a long axle that extends through the interior of the deck plate girder and roughly one foot past the exterior face of the gear. A smaller toothed gear is fixed above the larger gear. Most likely, this is related to the bridge's swing mechanism, although the HAER documentation notes that plans for its construction do not detail the mechanism, nor do they indicate how the bridge operated.

Like other small deck plate girder bridges built by the PRR during the early decades of the 20th century, the span was manually opened to allow canal boats to pass utilizing the geared mechanism. When open, the deck plate girder span rested on the timber fender on the canal's west bank. The timber trestle span sat on four bents that were driven into the canal bed through the west timber and earthen fender that sat below the bridge. Each timber bent consisted of two posts connected by an overhead beam to which paired rails were fixed that underpinned the structure's railroad ties.

Staff Recommendation: Staff recommends approval.

Sincerely,



John Hutchison
Executive Director

- c. Marc Brooks, Executive Director, NJWSA
Michael Sellar, Delaware and Raritan Canal Facilities Manager, NJWSA
Jesse West-Rosenthal, Ph.D., Program Specialist, CIER-SHPO
Maggie Mitchell, Superintendent, Delaware and Raritan Canal State Park
Eliot Nagele, Superintendent of Delaware and Raritan Canal State Park -- Bulls Island Recreation Area

Please refer to the Commission project number (DRCC #) when making a submission, a resubmission, or transmitting project correspondence or documents.