

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials and areas of significance, enter only categories and subcategories listed in the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Yard Road stone-arch bridge over a tributary of Sand Brook
other names/site number "Hunterdon County Bridge #D379"

2. Location

street & number Yard Road at a tributary of Sand Brook not for publication
city or town Delaware Township vicinity
state New Jersey code 019 County Hunterdon zip code 08559

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property meets does not meet the National Register criteria. I recommend that this property be considered significant nationally statewide locally. See continuation sheet for additional comments.

Signature of certifying official/Title _____ Date _____
Deputy SHPO Assistant Commissioner for Community Investment and Economic Revitalization
State or Federal agency and bureau _____

In my opinion, the property meets does not meet the National Register criteria. See continuation sheet for additional comments.

Signature of certifying official/Title _____ Date _____
State or Federal agency and bureau _____

4. National Park Service Certification

I hereby certify that this property is:

<input type="checkbox"/> entered in the National Register. <input type="checkbox"/> See continuation sheet.	Signature of the Keeper _____	Date of Action _____
<input type="checkbox"/> determined eligible for the National Register. <input type="checkbox"/> See continuation sheet.	_____	_____
<input type="checkbox"/> determined not eligible for the National Register.	_____	_____
<input type="checkbox"/> removed from the National Register.	_____	_____
<input type="checkbox"/> other, (explain:) _____	_____	_____

Yard Road stone-arch bridge over a tributary of Sand Brook
Name of Property

Hunterdon County, New Jersey
County and State

5. Classification

Ownership of Property
(Check as many boxes as apply)

- private
- public-local
- public-State
- public-Federal

Category of Property
(Check only one box)

- building(s)
- district
- site
- structure
- object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
_____	_____	buildings
_____	_____	sites
1	_____	structures
_____	_____	objects
1	_____	Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing.)

Historic Bridges of Delaware Township, Hunterdon County, New Jersey

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions
(Enter categories from instructions)

Transportation/road-related (vehicular)

Current Functions
(Enter categories from instructions)

Transportation/road-related (vehicular)

7. Description

Architectural Classification
(Enter categories from instructions)

Other: Stone arch bridge

Materials
(Enter categories from instructions)

foundation sandstone
walls Sandstone and granite (abutments, parapets, arch barrel and wingwalls) Cut sandstone (arch ring); Poured concrete (wingwall)
roof N/A
other Asphalt (road)

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)
See continuation sheet

Yard Road stone-arch bridge over a tributary of Sand Brook
Name of Property

Hunterdon County, New Jersey
County and State

8 Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B** Property is associated with the lives of persons significant in our past.
- C** Property embodies the distinctive characteristics of a type, period or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria considerations

(mark "x" in all the boxes that apply.)

Property is:

- A** owned by a religious institution or used for religious purposes.
- B** removed from its original location.
- C** a birthplace or grave.
- D** a cemetery.
- E** a reconstructed building, object or structure.
- F** a commemorative property.
- G** less than 50 years of age or achieved significance within the past 50 years.

Narrative Statement of Significance

(Explain the significance of the property on continuation sheets.)

9. Major Bibliographical References

Bibliography

(cite the books, articles, and other sources used in preparing this form on continuation sheets.)

Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # _____
- recorded by Historic American Engineering Record # _____

Areas of Significance

(Enter categories from instructions)

Engineering
Transportation

Period of Significance

1872

Significant Dates

1872 (construction date)

Significant Person

(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

unknown

Primary location of additional data

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository: Hunterdon County Division of Engineering

Yard Road stone arch bridge over a
tributary of Sand Brook
Name of Property

Hunterdon County, New Jersey
County and State

10. Geographical Data

Acreage of property 0.040 acres

Latitude / Longitude Coordinates

(Note to Preparers: NJ HPO will complete this portion of the Registration Form for all Preparers, based on the coordinates derived from the Site Map or District Map that HPO produces.)

1. Lat 40.458176 Long -74.897915

(NJ HPO will place additional coordinates, if needed, on a continuation sheet for Section 10.)

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet for Section 10.)

Boundary Justification Statement

(Explain, on the section sheet following the Verbal Boundary Description, how the chosen boundaries meet the requirements for boundary selection and are the most appropriate boundaries for the nominated property or district.)

11. Form Prepared By

name/title Carla Cielo, Historic Preservation Consultant
organization None date 10/31/2023; revised 4/22/2024
street & number 548 County Road 579 telephone 908-310-2505
city or town Ringoes state New Jersey zip code 08551

Additional Documentation

(Submit the additional items with the completed form that are outlined in the "Standard Order of Presentation" that NJ HPO provides. Each page must contain the name of the nominated property or district, and the State and the county in which the property or district is located. Consult with NJ HPO if you have questions.)

Property Owner

(Either provide the name and address of the property owner here or provide the information separately to NJ HPO. Check with NJ HPO for other requirements. All owners' names and addresses must be provided, including public and non-profit owners, but their presence on the form, itself, is not required).

name Hunterdon County Department of Public Works
street & number 314 NJ-12 (Mailing: P.O. Box 2900) telephone 908-788-1227
city or town Flemington state NJ zip code 08822

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties and to amend existing listings. The proper completion of this form and the related requirements is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.470 *et seq.*)

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503.

Direct questions regarding the proper completion of this form or questions about related matters to the Registration Section, New Jersey Historic Preservation Office, Mail code 501-04B, PO Box 420, Trenton, NJ 08625-0420.

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Yard Road stone-arch bridge
over a tributary of Sand Brook
Hunterdon County, NJ

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Description

Summary

The Yard Road stone-arch bridge over a tributary of Sand Brook is a single-barrel stone-arch bridge located in a rural, agricultural fields of Delaware Township in Hunterdon County, New Jersey.¹ It was constructed of native sandstone along with its section of Yard Road in 1872 (photo 1-2). The arch barrel has an eleven-foot span set on a skew angle of 85 degrees with a low rise of .33 (one-third of a circle) and is decoratively faced with radially-aligned, cut sandstone arch rings with keystones on both sides (Illustration 11a and 11b). This narrow bridge is only 16'-2" wide overall (outside parapet face to outside parapet face) and is 13-feet wide between the roughly-coursed parapets. Minimal alterations include several repointing episodes and partial reconstruction of the south (downstream) parapet. On the upstream side, the northwest wingwall was lengthened with a poured concrete retaining wall in the mid-20th century (Illustration 11a and 11b). The bridge is overall in a fair condition. Despite alterations, Yard Road stone-arch bridge retains integrity.

Location and Roadway

This single-lane, single-barrel, stone-arch bridge in the eastern side of Delaware Township, is on Yard Road, midway between Easton-Trenton Turnpike (County Road 579) and Sandbrook-Headquarters Road (Illustration 12). The area around the bridge is rural, agricultural, and residential. The bridge crosses over a small spring-fed tributary of Sand Brook.² Yard Road is paved with asphalt and maintains a narrow one-lane road width of 12 feet or less for much of its 2.1-mile length. The road is 10 feet wide at the bridge. The 13-foot bridge width allows for 18-inch shoulders on either side of the pavement.

This vernacular structure was built to conform to its setting. The road has a gentle rise and a curve at the bridge and the wingwalls are asymmetrically splayed to follow the curvature of the road. The highest parts of the parapets are off-center to conform to the rise in the grade at the bridge. These subtle refinements are unique to this structure and enhance its significance (Illustration 11a and 11b, Photos 1-2).

Narrative Description

For terminology reference, please see the "Stone Arch Bridge Components" diagram located in the "Accompanying Documentation" section of the *Historic Bridges of Delaware Township, Hunterdon County, New Jersey* Multiple Property Documentation Form (MPDF).

¹ Yard Road stone-arch bridge over a tributary of Sand Brook will be referred to as Yard Road stone-arch bridge throughout the nomination; the tributary is unnamed.

² The contemporary name of the water source is the Third Neshanic River, however historically, this portion of the water source was called "Sand Brook". For this nomination, the water source will be referred to as "Sand Brook".

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Arch Barrel

The Yard Road stone-arch bridge has a segmental-arch, meaning that the 11-foot span of the arch barrel is in the shape of a segment of a circle rather than a full semicircle (Photos 4 and 7). The arch barrel is set on an oblique angle (85-degree skew) to that of the wingwalls and is formed with a single wythe of longitudinally-oriented sandstone and possibly some gneissic stonework (Illustration 11a and 11b). The arch rises approximately 3-feet 6-inches (.33; one-third of a circle) above the base and is faced with squared, rock-faced sandstone voussoirs (1'-6" high) that are set with thin, radially-aligned mortared joints to create the decorative arch rings. The arch barrel has extremely low bearing seats (stone bases) that extend to the water level (Photos 4 and 7).

Arch rings

The arch rings are similar on both sides of the bridge, with slight variations stemming from the hand-made character of the stonework (Photos 4 and 7). On the north (upstream) side, the keystone (9" wide at the top; 5" wide at the base and 1'-6" high) is flanked by 15 hand-dressed voussoirs on either side for a total of 31 voussoirs. All voussoirs of the arch ring appear to be wedge-shaped (around 7" to 9" wide at the top and 5" to 7" wide at the base), but some taper less (6" wide at the top and 5-inches wide at the bottom). On the south (downstream) side, the keystone (14" wide at the top; 8½" wide at the base, 11¾" deep and 1'-6" high) is much larger and is flanked by 12 to 13 voussoirs on either side. On this side the smallest voussoirs are rectangular (5" wide x 1'-6" high), but the larger units are wedge-shaped. On both sides of the bridge, the height of the keystone matches the height of the other voussoirs in the arch ring. The arch rings are randomly keyed to the barrel with voussoirs that are up to 1'-5" deep.

Wingwalls and Parapets

On both sides of the bridge, the semi-coursed sandstone and granite abutments and wingwalls are built independent of the roughly-coursed spandrels and decorative arch ring, with a vertical seam in the masonry between the wingwalls and spandrels at the splay on each side of the bridge. Dressed sandstone quoins (up to 9" high x 2'-7" wide) anchor the corners of the wingwalls and form the vertical seams³ with a 5 and 8-inch projection beyond the plain of the spandrels at grade (Photos 5 and 7). Since the wingwalls are built with an intentional batter (an inward slope) and the spandrels are flush with the arch ring, the seams taper to fade into the masonry parapets (Photo 5). On both sides of the bridge the vertical seams are 14'-6" apart. On the north (upstream) side, the vertical seams fade into the masonry 1'-6" below the capstones, which is above the keystone (Photo 5). Photographic documentation suggests that the north (upstream) side never had a cantilevered line of stonework creating the horizontal seam of an inset panel (Illustration 8 and Photo 3). On the south (downstream) side of the bridge, the vertical seams fade into the masonry below the capstones (Photos 6-7). Photographic documentation

³ The vertical seams are similar to those found on the other stone-arch bridges that have inset panels; however, this bridge is not categorized as inset panel arch bridges (See Section 8, Page

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shows that this side once had a horizontal, cantilevered line of stonework above the arch ring creating an inset panel (Illustration 10) (see alterations below).

Three of the four original stone wingwalls remain intact (the northeast upstream and the southeast and southwest downstream) along with a two-foot section of the original northwest wingwall which remains adjacent to the non-original poured concrete wingwall. On the downstream side, the southwest wingwall is 17'-6" long and the southeast wingwall is 18'-4" long for an overall bridge length of 50'-5". On the upstream side, the northeast wingwall is roughly 19'-6" long and the northwest wingwall (including the poured concrete section) is roughly 30-feet long for an overall bridge length of 63½-feet. At the eastern approach, the wingwalls are staggered with the upstream wingwall beginning 6-feet west of the downstream wingwall (Illustration 11a and 11b). This stagger aligns with the road curvature. The length of the original northwest wingwall is not known (see alterations below for a description of the non-original poured concrete wingwall).

The three original stone wingwalls splay at various angles between 10 and 30 degrees to align with the curvature of the roadway. The splay begins at the vertical seams in the masonry. The tops of the wingwalls slope at an approximate 10 to 20-degree angle. The easterly approach is 25-feet wide, which roughly allows for a 7 feet shoulder on the south (downstream) side and a 4-feet shoulder on the north (upstream) side. The westerly approach is 20-feet wide and includes a 3-feet shoulder on the south (downstream) side and a 6-feet shoulder on the north (upstream) side (Illustration 11a and 11b).

The north (upstream) parapet is 2-feet high above the roadway and 2'-3" above the keystone. Instead of centering the highest point of the parapet on the keystone, the highest capstone is roughly 3-feet east of the keystone and is centered on the stream. The top of the parapet is level above most of the arch barrel, but due to the rise in the roadway and the skew angle of the arch barrel, it appears lower at its west end. The south (downstream) parapet is 1'-10" high and slopes uniformly in both directions (Photos 1-2).

Capstones

The original rusticated sandstone capstones remain on the parapets and on the three remaining stone wingwalls. They are 4½" thick, 1'-7" wide and have mortared joints. The end capstones at each wingwall are 5' to 5'-5" long, which is substantially longer than all other capstones (Photo 6). On the north (upstream) side, the central capstones range in length from 1'-4" to 3'-7" and align with the wall thickness. On the south (downstream) side the central capstones range in length from 1'-8" to 2'-8" and extend about ½-inch beyond the face of the wall where the wingwalls have shifted (see alterations below).

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Gate hook

One gate hook remains on the south (downstream) side for cattle crossing. It extends 3½-inches from the face of the spandrels and is 2½" high with a blunt right angle. It is positioned 2'-10" below the capstones.

Alterations

The first alteration occurred in the mid-20th century with the construction of a poured concrete wingwall at the far end the original northwest wingwall on the upstream side of the bridge (Illustration 8). It serves as a retaining wall and extends perfectly straight for a 27'-8" length, which is 12-feet longer than the corresponding downstream wingwall (Photo 3). This suggests that it extends farther than the former original stone wingwall. The existing poured concrete wingwall is 18" wide at the junction of the remaining section of the northwest stone wingwall and 12" wide at the far end. It conforms to the jagged end of stonework of the remaining 2-foot section of the original northwest wingwall and to its end capstone. The top surface slopes downward for drainage away from the bridge and the corners are chamfered. This wingwall is 1'-8" high above the roadway at the remaining stone section of wall and is level with the roadway at the far end.

Hunterdon County Engineering records indicate that the south (downstream) parapet was partially reconstructed sometime before 2014 and was repaired a second time in the spring of 2021 after a truck hit the parapet broadside and caused major damage.⁴ Photographic documentation from 2008 shows an inset panel for the arch ring on the south (downstream) side (Illustration 10). The parapet was reconstructed reusing the original stonework in a bearing manner, but the cantilevered stonework was not kept after the second repair episode and the horizontal seam and the inset panel was lost. The parapet capstones were reused but were squared on the sides (with a saw cut) and reset at the reconstructed area of the parapet. Poured concrete curbs (14" high x 10" deep) were added in the 20th century in front of the bearing seats, thus reducing the width of the creek bed (Photo 7). Additionally, extensive repointing has been completed.

Condition

The overall condition of the bridge is fair. On the upstream side, the north spandrel is displaced about 3" inches beyond the plane of the arch ring and there is a bulged section of stonework in the northeast wingwall. The stonework has been extensively repointed with wide joints and coarse, black-colored aggregate. At least four different pointing mortars exist at the south (downstream) side.

Integrity

The Yard Road stone-arch bridge retains integrity. The original skewed stone arch barrel remains in its entirety, as does both arch rings, the approach from both ends, three of the four wingwalls and all capstones albeit with

⁴ Hunterdon County, New Jersey. "Bridge file D379," Hunterdon County Engineer's Office, Raritan Township.

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some reconstruction and repointing as part of continuous maintenance cycles. Additionally, original workmanship and materials remain throughout the bridge, indicative of its period of construction. This bridge maintains its integrity of location as the bridge has not been moved, closed to traffic, re-routed, or replaced, and was never widened or enlarged. It also retains its integrity of setting as the surrounding area remains rural and agricultural. Yard Road stone-arch bridge retains its narrow 12-foot road-width throughout most of its length and the approaches remain relatively unchanged. Thus, the bridge also retains integrity of feeling and association. This vernacular structure was built to conform to the typology of its setting and the means by which the original builder adapted its construction to fit the landscape remains readily discernable. Its splayed wingwalls follow the curvature of the road at the bridge and remain off-center to conform to the rise in the grade at the bridge.

For the most part, the non-original, poured concrete wingwall remains below the roadway and concealed by vegetation, and therefore does not impose upon the overall appearance of the bridge. It is not readily noticed and therefore does not detract from the stonework. The remainder of the north (upstream) side appears to be original (with no reconstruction), including all of its capstones. The north face of the stonework was repointed more than fifty years ago as indicated by its algae-covered patina over most of the pointing. The north (upstream) side retains its original workmanship at the spandrels, arch ring, parapet and the vertical seams in the masonry. This side never had an inset panel.

The south (downstream) parapet was sympathetically reconstructed in 2021 with matching stonework after having been partially reconstructed approximately ten years prior.⁵ However most of the south (downstream) wingwalls appear to remain original. All of the original capstones remain. The horizontal seam of the inset panel was lost through the rehabilitation of the parapet wall. Even though this was a significant component of the bridge, its absence does not affect the overall form of the bridge and the vertical seams in the masonry remain. All new stonework is bearing and matches the quality and materials of the original stonework and the original stonework was reused.

⁵ Hunterdon County, New Jersey. "Bridge file D379," Hunterdon County Engineer's Office, Raritan Township.

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Statement of Significance

Summary

The Yard Road stone-arch bridge over a tributary of Sand Brook is significant at the local level under National Register Criteria A and C in the areas of transportation and engineering.¹ Constructed in 1872, this bridge represents the post-Civil War period of agricultural prosperity and progress that was supported by the establishment of a reliable road network with permanent stream crossings. It embodies the characteristics of a type, period and method of construction, but displays vernacular adjustments of key features to adapt the bridge to various site constraints including a curve and rise in the roadway. It is an engineering marvel and a picturesque vernacular component of a pristine rural landscape. The Yard Road stone-arch bridge meets the registration requirements set forth in the *Historic Bridges of Delaware Township, Hunterdon County, New Jersey Multiple Property Documentation Form* (MDPF) and therefore individually eligible to be listed in the New Jersey and National Registers of Historic Places.² Additionally, it has enhanced significance because of its skewed construction. The period of significance is 1872, when the bridge was constructed.

Yard Road and the Vicinity of the bridge

The 1.3-mile section of present-day Yard Road, which includes the stone-arch bridge, was chartered in April of 1872, improving the conditions of a previously established road that led from the Higgins one-room schoolhouse at Easton Trenton Turnpike (County Road 579) to the German Baptist church in the village of Sand Brook. (Illustration 4) The original road alignment is shown on Thomas Gordon's 1828 map entitled "*A Map of the State of New Jersey with part of the adjoining States Compiled under the Patronage of the Legislature of said State*". (Illustration 1) The 1872 portion of the road allowed bypass of a small but cumbersome knoll and shows on the 1873 Beers *Atlas of Hunterdon County*. (Illustration 5) The stream shown on the 1872 road survey leading from a spring, suggesting that the Yard Road stone-arch bridge accompanied the road's construction.³ It is likely the first and only bridge to span the spring-fed tributary at that location.

The 1851 *Map of Hunterdon County* shows the earlier road alignment and two early industries along "Sand Brook". There was "J. Rowland B. Shop" (a blacksmith shop) and a "new copper mine" on the west side of the knoll. (Illustration 2) In 1850, John Rowland was a 34-year-old blacksmith with a wife and one child.⁴ Copper mining occurred in Raritan Township in the 1830s along what is today the NJ Rt 31/202 corridor and in the

¹ Yard Road stone-arch bridge over a tributary of Sand Brook will be simply referred to as Yard Road stone-arch bridge throughout this nomination.

² Caroline Charlese Scott and Carla Cielo, "Historic Bridges of Delaware Township, Hunterdon County, New Jersey," National Register of Historic Places Multiple Property Documentation Form. Washington, DC: US Department of the Interior, National Park Service, 2016, NRIS# 64501271.

³ Hunterdon County, New Jersey. "Survey 20-9-27," Road Records; Record Room of the County Clerk's Office, Flemington Borough.

⁴ 1850, U.S. Federal Census, Hunterdon County, NJ, Schedule 1, Township of Delaware, Dwelling no. 131, John Rowland

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southeastern portion of Delaware Township, but by 1860, all mines had been abandoned.⁵ Neither industry shows on the 1860 *Map of the Vicinity of Philadelphia and Trenton*, suggesting a shift away from light industry towards solely agricultural pursuits. (Illustration 3)

The 1860 map shows several farms along the earlier route. Access to the Young, Elgorden and Hice farms from the east was encumbered by the knoll near the former copper mine and long driveways that crossed Sand Brook. (Illustration 3) In 1872, local residents William Hice, Asher Young, Harrison Rounsaville and James Buchanan petitioned for a new public road that would bypass the hill and decrease the length of the driveways. (Illustration 4) The 1872 survey shows the new road running right in front of the three farmhouses and a spring-fed stream on the property of William Hice crossing the road at the location of the existing stone-arch bridge.⁶ Both the survey and the 1873 Beers' *Atlas of Hunterdon County* show the new road as an alternative route. (Illustrations 4-5) It was not meant as a road realignment and both sections of the road remained open until the 1950s when most of the original section was abandoned (Illustration 9). The new road segment avoided a hill and simplified east-west travel, thereby contributing to the transportation network. The stream crossing is shown on the 1887 *Topographical Map of the Vicinity of Flemington*, but is not shown on the Beers' 1873 Atlas. (Illustration 6)

Incidental History

The stone-arch bridge is located on the mid-19th century farm of William Hice (1790-1881). Hice was an 81-year-old retired farmer in 1872 at the time of the road petition. He is shown as the owner of the farm on the 1851 *Map of Hunterdon County* (Illustration 2). Yard Road was named for the Yard family. Richard E. Yard (1933-2021) was the son of Elmer R. and Sarah Case Yard. He was born in Sand Brook and lived in Delaware Township all his life.⁷

Joseph Smith (1809-1886) was the chosen County Freeholder in Hunterdon County between 1870 and 1875, a county collector and an active, lifelong Delaware Township resident and therefore likely contributed to the construction of this bridge. In 1872, Smith was the supervisor and paymaster of the construction of the Green Sergeant's covered bridge.⁸ His name is also recorded on the date panels of the Sandbrook-Headquarters stone-arch bridge (1873) and the Sergeantsville Road (1872) stone-arch bridge.

⁵ James P. Snell. *History of Hunterdon and Somerset Counties New Jersey*. Philadelphia: Everts & Peck, 1881, p. 307.

⁶ Hunterdon County, New Jersey. "Survey 20-9-27," Road Records; Record Room of the County Clerk's Office, Flemington Borough.

⁷ "Richard Yard Obituary." *Hunterdon County Democrat*. April 1, 2021. <https://www.nj.com/hunterdon-county-democrat/>.

⁸ Snell, p. 374; Marfy Goodspeed, "Story of Green Sergeant's Bridge and Its Builders," GOODSPEED HISTORIES, May 1, 2011, <https://goodspeedhistories.com/story-of-green-sergeant%E2%80%99s-bridge-and-it%E2%80%99s-builders/>.

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Stone-arch bridges in Delaware Township

The Yard Road stone-arch bridge is one of fifteen 19th century stone-arch bridges remaining today in Delaware Township (eleven of which remain on active roadways). These bridges were typically built by local masons with local stone, since transporting building stone over a far distance was difficult during this period. Sandstone is the most commonly used stone in Delaware Township for both bridges and farmhouses, since the township is traversed by a belt of sandstone known as the "Stockton formation." Sandstone quarries were opened in Delaware Township in the late 18th century and continued to be worked sporadically throughout the 19th and into the 20th century. In each stone-arch bridge, hand-chiseled and rock-faced quarried sandstones are reserved for the face-stones of the arch rings (voussoirs and keystones) to decoratively hide the longitudinally-oriented structural stonework of the arch barrel. River or fieldstone is typically used for the bridge abutments, parapets and capstones.

The years 1872 and 1873 were a busy time for bridge building in Hunterdon County. Two other stone-arch bridges from that timeframe remain in Delaware Township - the Sandbrook-Headquarters Road stone-arch bridge, which was built in 1873 near the Amwell Church of the Brethren and the Sergeantsville Road (County Road 523) stone-arch bridge, which was built in 1872 and remains on an abandoned section of the road south of Sergeantsville. All three stone-arch bridges have a single barrel with a slight skew and, like all other stone-arch bridges in Delaware Township, have dressed arch rings and tapering splayed wingwalls. These three bridges indicate continued use of the stone-arch for smaller crossings at a time when metal and wood truss bridges were built at wider stream crossings. The Green Sergeant's Howe Truss covered bridge, which carries Rosemont Ringoes Road (County Road 604) over the Wickecheoke and remains as the last surviving covered bridge in New Jersey, was also built in 1872.⁹

Both the Yard Road stone-arch bridge and the Sandbrook-Headquarters Road stone-arch bridge have an 11-foot span, low bearing seats, and vertical seams. Inset panels are characteristic of the Delaware Township stone-arch bridges that were built between 1838 and 1873. These two bridges are the only Delaware Township bridges built in this timeframe without inset panels on both sides. Additionally, the Yard Road stone-arch bridge may be the only bridge in Delaware Township built with an inset panel on just one side of the bridge (Illustration 10).

Construction Details

The Yard Road stone-arch bridge is one of the narrowest historic bridges remaining on an active roadway today in Delaware Township. The arch barrel is 16'-2" wide and 13-feet wide between the parapets. The road width is 10-feet wide at the bridge. Most other stone-arch bridges are 17-feet wide or greater. This bridge was built to conform to the natural terrain of the road at the crossing, and as such is vernacular in character. The rise in the

⁹ Dennis N Bertland, "Covered Bridge Historic District," National Register of Historic Places Nomination Form. Washington, DC: US Department of the Interior, National Park Service, 1999, NRIS# 99000269.

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roadway is compensated for by placing the highest point of the parapet walls off-center and by leveling a section of the parapets. The wingwalls are staggered and splayed at varied angles to conform to a bend in the road (Photos 1-2).

A unique feature of this bridge is the construction of the semi-coursed sandstone and granite wingwalls independent from that of the roughly-coursed spandrels and decorative arch rings. The intentionally battered (sloped) wingwalls have large corner quoins that extend from 5 to 8 inches beyond the plane of the arch ring at the base and taper to blend in with the masonry. This detail is more pronounced in this bridge than at any other similarly-sized bridge in Delaware Township. (Photos 5 and 7)

This bridge is categorized as a skew or oblique-arch which is a method of construction that enables the arch to span at an angle other than at a right angle. This bridge is 5 degrees off axis. The principles for skewed arch bridge construction were developed in the early 19th century for railroad construction because railroads needed to cross obstacles in as straight a line as possible. However, where the skew angle is less than 15 percent, the stonework of the arch barrel could still be laid with the courses parallel to the abutment, resulting in what is known as a “false” skew arch.¹⁰ This bridge fits this category of bridge construction.

Additionally, the bridge falls under the bridge stylistic category of “Southern”, as described in the *Historic Bridges of Delaware Township, Hunterdon County, New Jersey* Multiple Property Documentation Form.¹¹ The intrados of arch rings are cut to a curve, the arch ring has a radial joint alignment, and the masonry, though roughly, is mostly coursed.

MPDF requirements

The Yard Road stone-arch bridge is listed in the *Historic Bridges of Delaware Township, Hunterdon County, New Jersey* National Register of Historic Places Multiple Property Documentation Form and meets all of its requirements.¹² This bridge meets the registration requirements established by the MPDF under Criterion A. It contributed to the improvement of a rural road network for the convenience of a dispersed population of local farmers to transport crops to mills, markets, and urban centers, and attend weekly church services. This stone-arch bridge reflects the growth and permanence of the local agricultural community.¹³

This bridge also meets the registration requirements established by the MPDF under Criterion C since it embodies the distinctive characteristics of a type, period and method of construction. The bridge was constructed within the

¹⁰ https://en.wikipedia.org/wiki/Skew_arch

¹¹ Scott and Cielo, Section F, Page 1-2.

¹² Scott and Cielo, Section F, p 1-5.

¹³ Ibid, Section E, p 4-10.

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period of significance (1829-1882) and shows a vernacular but refined character in the construction of its parapets and wingwalls. The arch ring shows a distinction in workmanship and the arch barrel remains intact.¹⁴ Bridge maintenance included repointing and limited reconstruction.

Conclusion

The rural historic landscape of Delaware Township maintains a high degree of integrity and provides the appropriate setting for small-scale, stone-arch bridges. These humble bridges are unassuming - built as utilitarian structures, but with a pride of craftsmanship. The Yard Road stone-arch bridge represents a local construction typology reflecting both the area's abundant supply of sandstone and the Euro-American population which settled the region in the 18th and 19th centuries.

¹⁴ Ibid, Section E, p 10-17.

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Boundary Description

The boundary of the nominated resource consists of the main body of the bridge (arch barrel, parapets, abutments and wingwalls) extending to the end of its wingwalls in all directions. It also includes the bridge right-of-way.

Boundary Justification

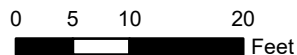
Hunterdon County owns the bridge and the bridge right-of-way. The boundaries of the nominated resource are the same as the boundaries of the bridge and the bridge right-of-way property. There is no deed which records the boundaries of that property.

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

**Yard Road stone-arch bridge
over a tributary of Sand Brook**

New Jersey and National Registers Nomination
Delaware Township, Hunterdon County, New Jersey



Datum: NAD 1983 State Plane New Jersey

Legend

-  SR & NR boundary
-  Parcels Data (Block and Lot)
-  Coordinates
-  Roads NJ (Centerlines)
-  Stream/River
-  Connector

0.040 Acres



NJDEP
Historic Preservation Office
April 2024

Boundary and tax map

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Photo Log

Name: Yard Road stone-arch bridge over a tributary of Sand Brook

Location: Delaware Township, Hunterdon County, NJ

Photographer: Carla Cielo

Date(s): April 6, 2023; October 10, 2023

Repository: 548 County Road 579, Ringoes, New Jersey 08551

Photo 1: Yard Road Bridge, view facing northwest.

Photo 2: Yard Road bridge, view facing southeast.

Photo 3: North (upstream) side of the bridge, view facing southwest.

Photo 4: North (upstream) side of the bridge, view facing southwest showing the arch ring.

Photo 5: North (upstream) side of the bridge showing the vertical seam in the masonry.

Photo 6. South (downstream) side of the bridge, view facing north west. Showing the original capstones.

Photo 7: South (downstream) side of the bridge, view facing north.

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Illustration 1: A 1828 map showing the earlier alignment of present day Yard Road.¹

¹ Thomas Gordon. *A Map of the State of New Jersey with part of the adjoining States Compiled under the Patronage of the Legislature of said State*. Trenton: Thomas Gordon, 1828.

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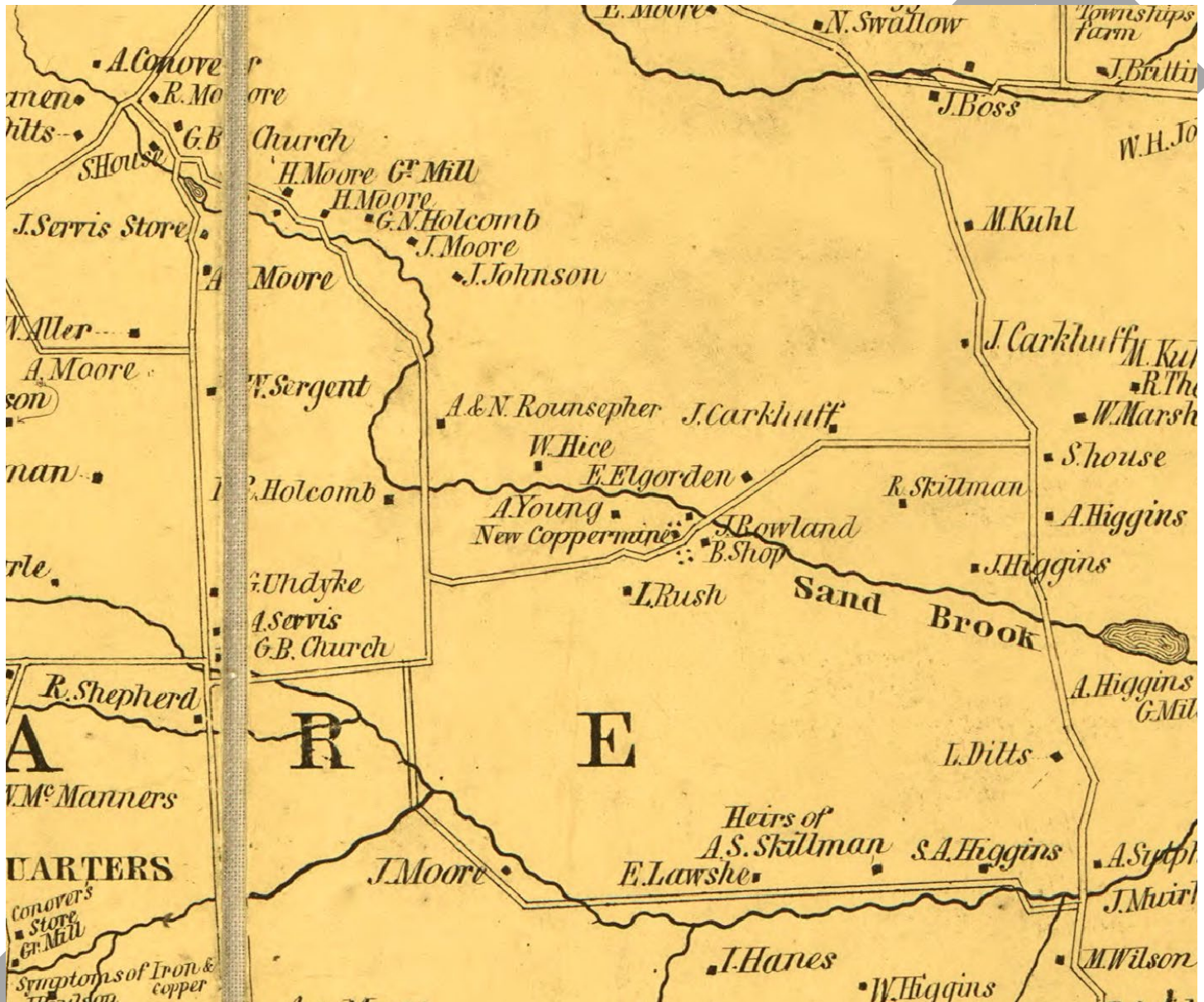


Illustration 2: A 1851 map showing a copper mine and blacksmiths shop along Sand Brook.²

² Samuel C. Cornell. *Map of Hunterdon County New Jersey: Entirely from Original Surveys*. Philadelphia: Van Derveer & Cornell, 1851.

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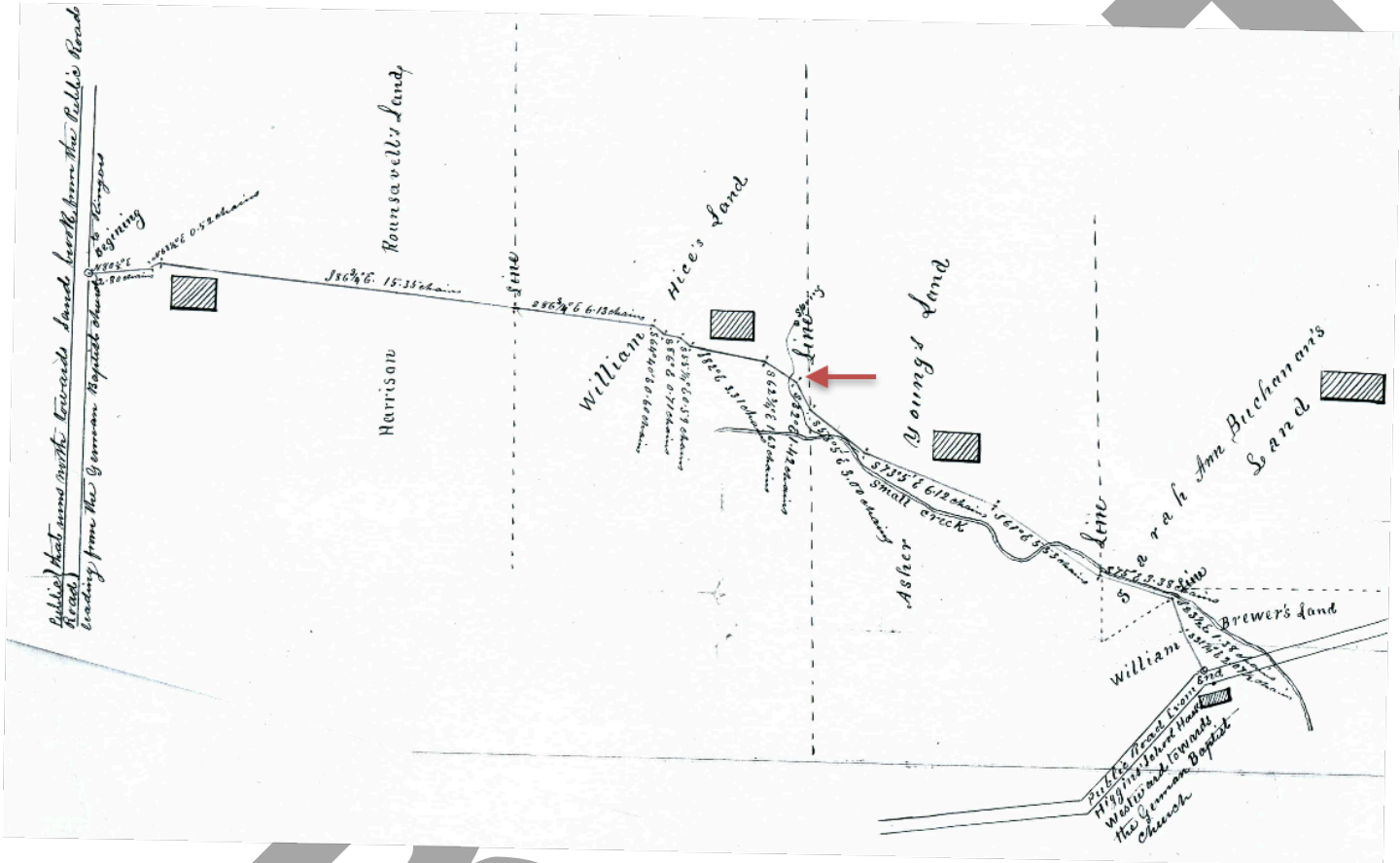


Illustration 4: 1872 survey of the new section of the road currently called Yard Road. The bridge crosses the spring-fed stream on the William Hice farm. The Third Neshanic River or Sand Brook is identified as a "small creek" on this survey. The arrow points to the location of the bridge.⁴

⁴ Hunterdon County, New Jersey. "Survey 20-9-27," Road Records; Record Room of the County Clerk's Office, Flemington Borough.

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Illustration 5: A 1873 map showing the new section of road. The tributary and bridge crossing do not show on this map. The bridge is adjacent to the Hice farm.⁵

⁵ F. W. Beers. *Atlas of Hunterdon County, New Jersey: From Recent and Actual Surveys and Records*. New York: Beers, Comstock & Cline, 1873.

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Illustration 6: A 1887 topographic map showing the location of the bridge (circled).⁶

⁶ C. C. Vermeule. *A Topographical Map of the Vicinity of Flemington: From Somerville and Princeton westward to The Delaware*. Trenton: Geological Survey of New Jersey, 1887.

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Illustration 7: circa 1930-40, Yard Road at the stone arch bridge.⁷

⁷ "Bridge File D379."

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Illustration 8: circa 1940 view of the upstream side of the Yard Road bridge after the construction of the poured concrete wingwall.⁸

⁸ Hunterdon County, New Jersey. "Bridge file D379," Hunterdon County Engineer's Office, Raritan Township.

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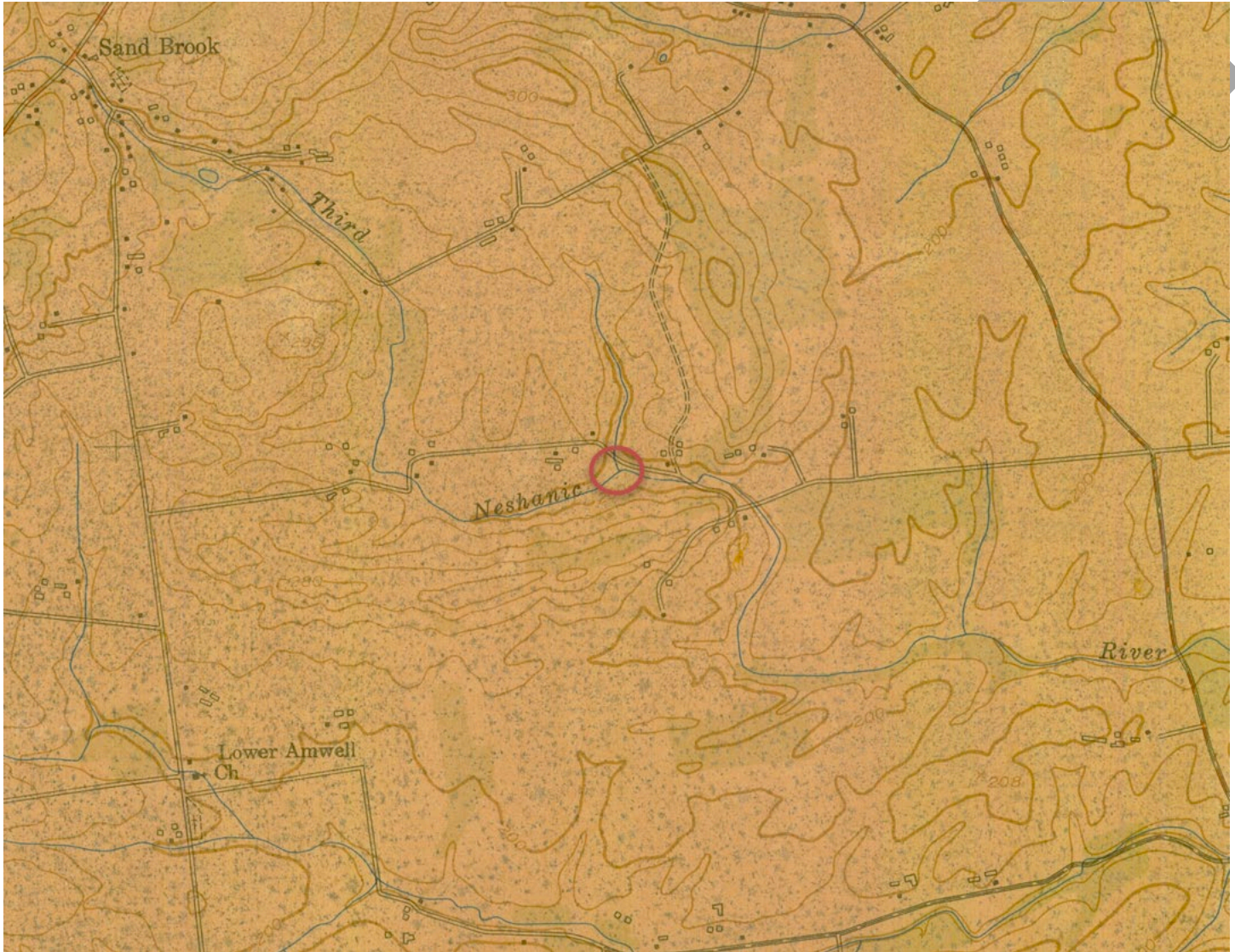


Illustration 9: A 1954 topographical map showing the bridge location and that the original road alignment had been abandoned by that time.⁹

⁹ U.S. Geological Survey, *Stockton, N.J.—PA*, 1954 ed., Scale 1:24,000, 7.5 Minute Series (Topographic). (Washington D.C.: USGS 1956).

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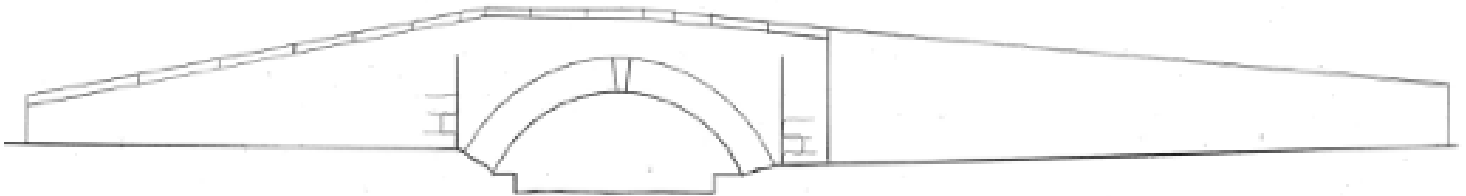
Illustration 10: 2008, Downstream side of the Yard Road stone arch bridge, view facing northwest. Showing the full inset panel prior to the reconstruction of the parapets. Complements of Marilyn Commings.

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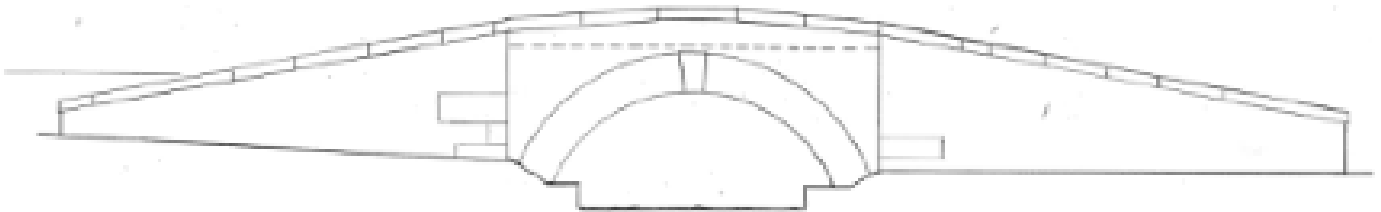
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Upstream Side Elevation



Downstream Side Elevation

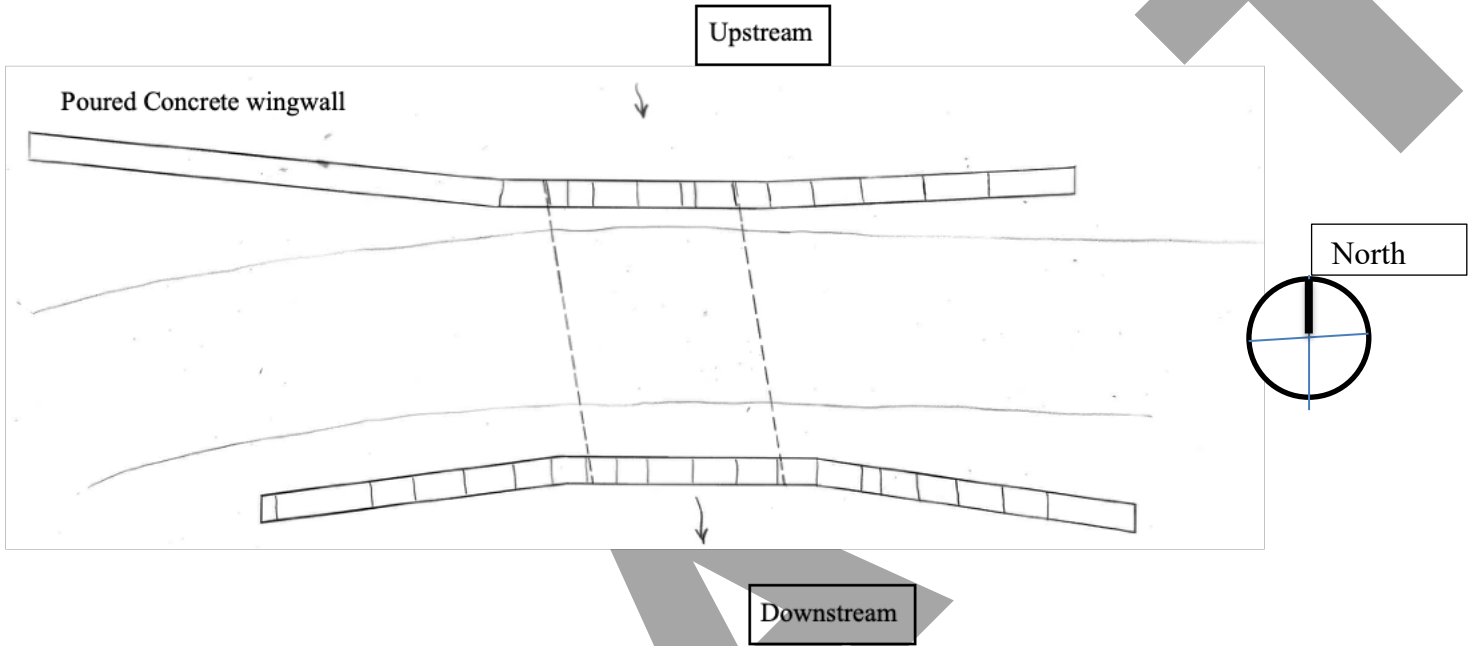
Illustration 11a: Measured drawings. Not to scale.
Drawn by Carla Cielo September 2023

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Plan

Illustration 11b: Measured drawings. Not to scale.
Drawn by Carla Cielo September 2023

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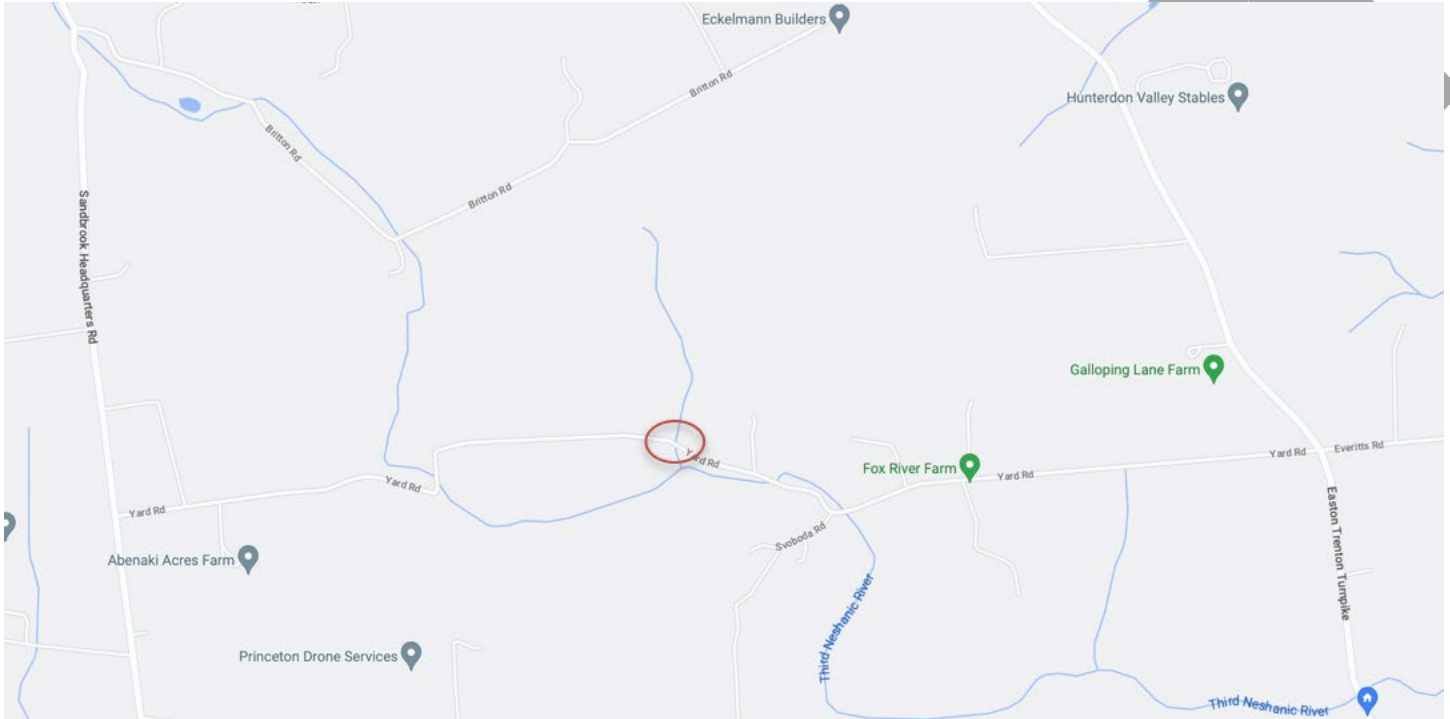


Illustration 12: Current location map (the circle indicates the location of the bridge)¹⁰

¹⁰ "Yard Road, Delaware Township, New Jersey," Google Maps, accessed December 2023, <https://www.google.com/maps/place/Yard+Rd,+Delaware+Township,+NJ+08559/@40.4576631,-74.8991509,17z/data=!3m1!4b1!4m6!3m5!1s0x89c3f7426f78da29:0x5c3a7dcde70e8790!8m2!3d40.457659!4d-74.896576!16s%2Fg%2F1v3gsvt5?entry=ttu>.

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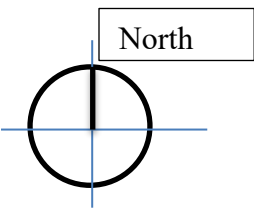
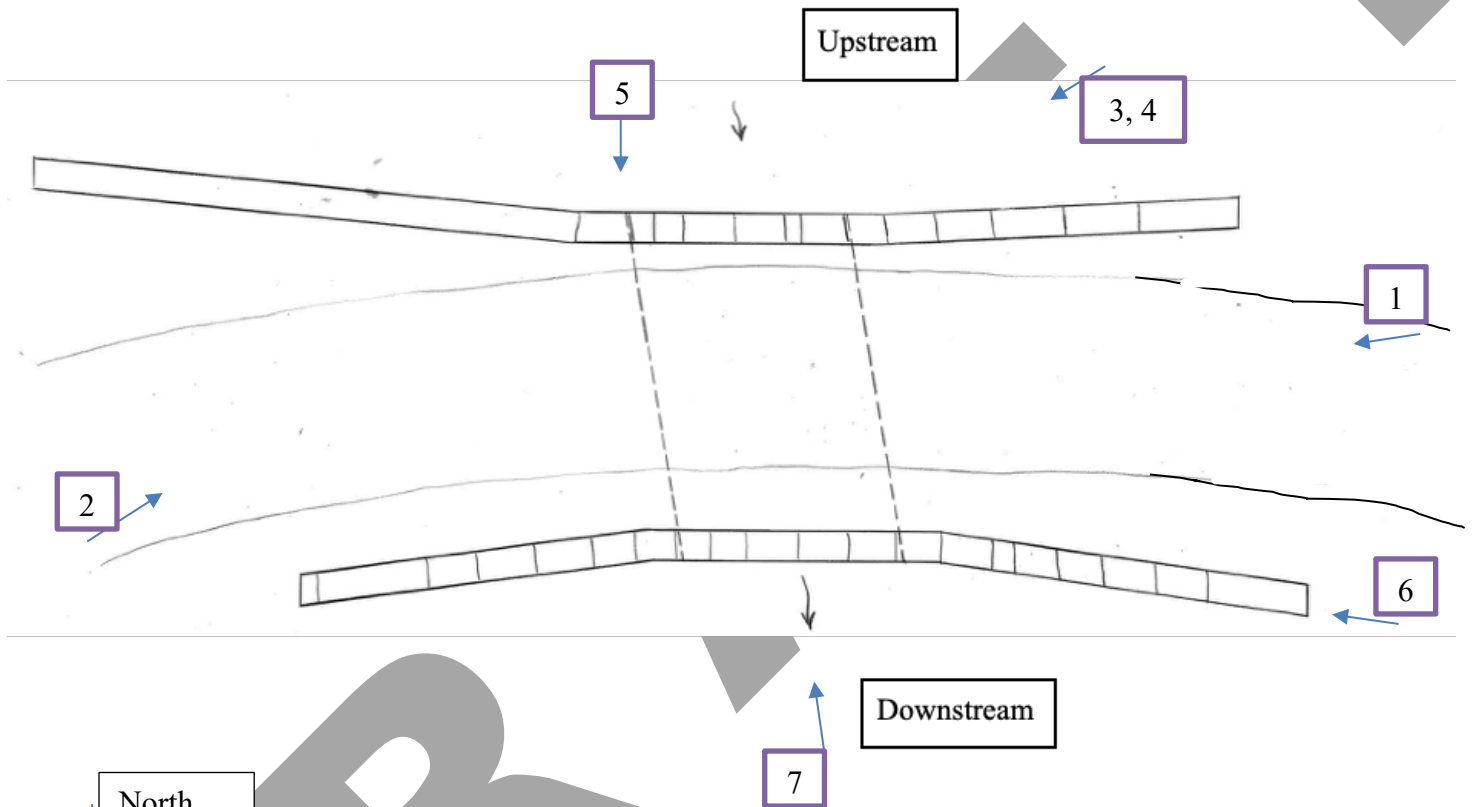


Photo Key

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Photo 1: Yard Road Bridge, view facing northwest.

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Photo 2: Yard Road bridge, view facing southeast.

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Photo 3: North (upstream) side of the bridge, view facing southwest.

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Photo 4: North (upstream) side of the bridge, view facing southwest showing the arch ring.

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Photo 5: North (upstream) side of the bridge showing the vertical seam in the masonry.

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Photo 6. South (downstream) side of the bridge, view facing north west. Showing the original capstones.

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Photo 7: South (downstream) side of the bridge, view facing north.