

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Name of Property

County and State

Section number _____ Page _____

Name of multiple property listing (if applicable)

SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 08000550

Date Listed: 6/27/2008

Property Name: Old Stone Arch Bridge

Multiple Name:

County:

State:

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.

Patricia Andrews
Signature of the Keeper

6/27/2008
Date of Action

Amended Items in Nomination:

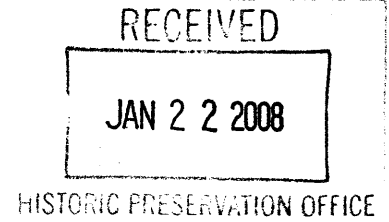
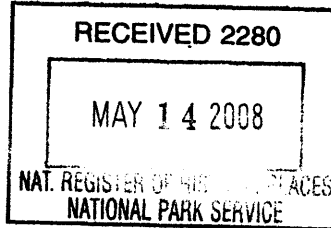
This SLR is issued to clarify the Level of Significance of the Old Stone Arch Bridge. In section 3 of the nomination form, "local" significance is checked, while in Section 8, p. 3 of the form, "State" level of significance is indicated. The NJ SHPO has clarified that the property is nominated at the State level of significance.

DISTRIBUTION:

National Register property file
Nominating Authority (without nomination attachment)

350

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 Old Stone Arch Bridge

other names/site number Somerset County Bridge H0711

2. Location

street & number Railroad Avenue, approximately 194 feet east of South Main Street

not for publication

city or town Bound Brook Borough, Middlesex Borough

vicinity

state New Jersey

code

NJ

county Somerset, Middlesex

code 035,023

zip code 08805

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.

Amy Cradic
Signature of certifying official/Title

5/7/08
Date

Amy Cradic, Assistant Commissioner Natural & Historic Places, DSHPO

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:

entered in the National Register.
 See continuation sheet.

determined eligible for the National Register.
 See continuation sheet.

determined not eligible for the National Register.

removed from the National Register.

other, (explain:)

Signature of the Keeper

Date of Action

Patricia Andrews

6/27/2008

Old Stone Arch Bridge
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Somerset and Middlesex Counties, NJ
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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	
0	0	buildings
1	0	sites
1	0	structures
0	0	objects
2	0	Total

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

Number of contributing resources previously listed in the National Register

N/A

0

6. Function or Use

Historic Functions

(Enter categories from instructions)

TRANSPORTATION: road-related

Current Functions

(Enter categories from instructions)

TRANSPORTATION: road-related

7. Description

Architectural Classification

(Enter categories from instructions)

OTHER: Stone arch bridge

Materials

(Enter categories from instructions)

foundation STONE
walls STONE

roof _____
other _____

Narrative Description

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

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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 one or more continuation sheets.)

9. Major Bibliographical References

Bibliography

(cite the books, articles, and other sources used in preparing this form on one or more 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
- # _____
Record # _____

Areas of Significance

(Enter categories from instructions)

TRANSPORTATION
MILITARY
ENGINEERING
ARCHAEOLOGY: historic, non-aboriginal

Period of Significance

circa 1730-1895

Significant Dates

circa 1730
1777, April 13

Significant Person

(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

Euro-American

Architect/Builder

Unknown

Primary location of additional data

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

Name of repository:

Somerset County Cultural and Heritage Commission

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10. Geographical Data

Acreage of property less than 1 acre

UTM References

(Place additional UTM references on a continuation sheet.)

1	Zone	Easting	Northing	3	Zone	Easting	Northing
2				4			

See continuation sheet

Verbal Boundary Description

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

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Jennifer B. Leynes, Senior Architectural Historian
organization Richard Grubb & Associates, Inc. date January 2008
street & number 30 North Main Street, P.O. Box 434 telephone 609-655-0692
city or town Cranbury state NJ zip code 08512

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

- A **USGS map** (7.5 or 15 minute series) indicating the property's location.
- A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional items

(Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of the SHPO or FPO.)

name _____
street & number _____ telephone _____
city or town _____ state _____ zip code _____

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. Response to this request 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.

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Description

Constructed circa 1730-1760 to carry the Raritan Road over Green Brook near its confluence with the Raritan River at the village of Bound Brook, the Old Stone Arch Bridge is a three span, rough-cut stone arch structure with buttresses between the arches on the south face. During the 1840s, the channel of Green Brook was altered by railroad construction in the area, and in 1880 the waterway was completely rerouted to the east, leaving only a small drainage channel beneath the Old Stone Arch Bridge. The area surrounding the bridge was filled in the decades that followed. As a result, today much of the Old Stone Arch Bridge lies below-ground. The upper portion of the south parapet wall is visible above-ground; constructed of rough-cut rubble laid in irregular courses with a sandstone capstone, this parapet was added during the nineteenth century. The north parapet has been removed to the level of the roadway, and the north face is completely buried by a sloped embankment rising to a commercial building located on the fill to the north. Portions of the capstone on the south parapet are missing, and all of the capstones were removed on the north side when the parapet was lowered; however, most have been found in the immediate area. Some of the capstones were used to build an extant staircase north of the bridge, and others have been located in the fill surrounding the structure. The overall length of the visible south side of the bridge, end to end of wingwalls, is about seventy-nine feet six inches (79'6"). The minimum distance between the inside faces of the south parapet and the visible remnants of the north parapet is about twenty-six feet (26').

A partial excavation of the south face of the Old Stone Arch Bridge in July 2006 revealed additional details of the bridge's construction, as shown in Figure 1. The bridge has a center arch span of about seventeen feet nine inches (17'9") and side spans of about twelve feet six inches (12'6") on the west and twelve feet three inches (12'3") on the east. The central arch is taller than the flanking arches, likely resulting in the humpback profile typical of early stone arch bridges. Pointed buttresses flank all three arches on the south, downstream face; the upper portions of these buttresses are in deteriorated condition. The spandrel walls, buttresses, and abutments are constructed of rough-cut rubble laid in irregular courses, as are the undersides of the arches. The voisoirs and keystones are dressed stone, and the keystone of the center arch is surmounted by a large dressed stone, equal to the width of the keystone and the flanking voisoirs, which gives the keystone a greater visual impact.

The excavation of the south face, and subsequent excavation of the north face in August 2006, revealed several alterations to the bridge. The upper portion of the parapet wall, visible above-ground on the south face, is a later alteration to the bridge. A clear line in the masonry marks the change between the original spandrel wall and the parapet. This parapet was likely added when the roadway over the bridge was raised to eliminate its original humpback profile. Although an exact date for the change was not found in documentary sources, the parapets were almost certainly added prior to 1887; a lithograph of Bound Brook published in that year shows the three-span structure with parapets rising above the tops of the buttresses and without the original humpback profile (Fowler 1887).

A second alteration to the Old Stone Arch Bridge uncovered during the excavations was a widening of the span on its north side. Like the south face, the north face features three arches, with the central arch raised above the height of the flanking arches; however, the north elevation has no buttresses or piers. The central arch was uncovered to its intrados during the excavations, but the sloped fill that supports the building on the north face of the bridge prohibited excavating to a greater depth on this side and, as a result, the flanking arches were not uncovered. Despite these limitations, the excavations revealed that at least the center arch was built using three courses of brick headers with a rock-faced ashlar keystone. Presumably the flanking arches were treated in a similar manner. The likelihood that the bridge was widened is further supported by the bridge's current width between parapets, which, at twenty-six feet (26'), is significantly wider than other eighteenth-century bridges in New Jersey; for example, Bonnie's Bridge, built before 1795 in Cherry Hill, Camden County, has a width of only fourteen feet (14') (Greenberg 1984: n.p.). Despite the physical evidence of the widening, documentation of this alteration is

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wanting. A map contained in an 1881 deed transferring property to the Easton and Amboy Railroad Company illustrates the bridge with buttresses on both the north and south sides, suggesting that the bridge had not been widened by that date (Somerset County Clerk's Office 1881). Later maps also show a narrowing of the roadway at the bridge (Somerset County Clerk's Office 1891a, 1891b; Transportation Corporation Records n.d.: Brunswick Traction Company). The most likely explanation may be that the bridge was widened in 1896 as part of a larger improvement project that included replacement of the wooden bridge to the east, over the rerouted Green Brook, with an iron structure; however, neither the Somerset nor Middlesex County Freeholders' Minutes contain a record of the widening.

The partial excavation of the south face of the Old Stone Arch Bridge in July 2006 identified the location of a stone headwall that contains a thirty-six inch metal drainage pipe located approximately in line with the center of the westerly arch. The pipe was added approximately ten feet from the south face of the bridge by the Port Reading Railroad circa 1892, during construction of its line south of the causeway. The pipe extends under the railroad embankment, and its southern terminus is exposed on the south side of the embankment. It was added to carry any underground water seepage that could migrate within the filled stream channel, as well as surface run-off.

The overall historic integrity of the Old Stone Arch Bridge is good. The bridge exhibits a high degree of integrity of location, materials, and workmanship; it stands in its historic location, and it retains its original materials, despite later additions and alterations. The stonework exhibits the workmanship of the eighteenth century masons who built the structure. The design of the structure remains largely intact, although obscured from view because of the fill beneath and around the bridge. Physical evidence suggests that the bridge was widened during the late nineteenth century, probably circa 1896. This widening, as well as other changes, including the raising of the parapets, represents an alteration to the original design; however, this type of change is expected in a structure that by necessity required periodic repairs and alterations to remain safe and functional for pedestrian and vehicular traffic (Brown 1992: F3). The alterations have not significantly impaired the bridge's ability to convey its historical associations. The Old Stone Arch Bridge has diminished integrity of setting, feeling, and association because of the rerouting of Green Brook and subsequent filling of the area beneath and around the structure. These physical changes to the landscape surrounding the bridge have impaired the structure's ability to convey its historical associations; however, they have also served in part to preserve the structure for archaeological study. Thus, although the changes have been detrimental to some visual aspects of the bridge's integrity, they have nevertheless worked to maintain its integrity of design and materials.

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Significance

The Old Stone Arch Bridge is significant on the state level under National Register Criteria A, C, and D in the areas of transportation, military history, engineering, and historical archaeology. The structure's period of significance begins with its construction, circa 1730, and ends in 1895, when East Main Street was constructed north of the railroad embankments, thus relegating the former Raritan Road causeway to a secondary role in local transportation.

The historical significance of the Old Stone Arch Bridge under Criterion A is associated with its role as a bridge on the Raritan Road. This road served as an important corridor along the north side of the Raritan River as early as the 1680s, and it intersected with another important colonial highway, the Old York Road, near Bound Brook. The road and its crossing over Green Brook were sufficiently important to local residents to petition the colonial legislature for construction of a bridge at the crossing as early as 1728. This petition ultimately led to the construction of the bridge by the Somerset and Middlesex County Freeholders after 1730. The bridge is representative of the first major stage of growth of Somerset County's transportation network, which involved the development of roads with reliable watercourse crossings (Brown 1992). Its significance as a critical element of the transportation corridor along the Raritan River continued until 1895, when the bridge carrying East Main Street over Green Brook was built. This new roadway supplanted the old Raritan Road in importance after that date. Although the filling of the area around the Old Stone Arch Bridge has diminished its integrity of setting and association, its integrity of location, design, materials, workmanship, and feeling remain high.

The Old Stone Arch Bridge is also historically significant for its associations with the American Revolution. The Battle of Bound Brook occurred in the vicinity of the bridge on April 13, 1777. The surprise attack on American troops stationed at Bound Brook was a victory for the British and demonstrated to General Washington the difficulty of defending the community and its important river crossings from enemy troops. The Battle of Bound Brook took place in the vicinity of the Old Stone Arch Bridge, and one contemporary account of the battle specifically mentions the causeway and bridges in the description of the engagement. Very few original bridges described in a first person Revolutionary War battle narrative remain in the United States. The Old Stone Arch Bridge and General Lincoln's headquarters, the Van Horne House, are the only standing structures directly associated with the Battle of Bound Brook.

Built between 1730 and 1760, the bridge is also significant under Criterion C as a rare surviving mid-eighteenth-century stone arch bridge. According to the Early Stone Bridges of Somerset County Multiple Property Documentation Form, stone arch bridges were rarely built prior to the 1780s, and even during the height of their popularity they were very uncommon. The earliest extant stone arch bridge in Somerset County with a readable datestone—the Kingston Bridge over the Millstone River—was constructed in 1798, and the earliest surviving stone arch bridge on the New Jersey State highway system is the Stony Brook Bridge (1791-1792) in Princeton Township, Mercer County, which formerly lay on the border between Middlesex and Somerset counties. The Old Stone Arch Bridge is thus the earliest documented stone arch structure in Somerset County and among the oldest in the state (Brown 1992: E1-E2; A.G. Lichtenstein & Associates 1994: 53-54, SOM-1). Although the setting of the Old Stone Arch Bridge has been compromised by the rerouting of Green Brook to the east and the subsequent filling of the area surrounding the structure, it nevertheless represents a rare surviving example of its type.

Because a large portion of the structure has been buried under fill, the Old Stone Arch Bridge has significance under Criterion D for its potential to reveal information about eighteenth-century bridge construction techniques. Eighteenth and early nineteenth-century stone bridges were built by local masons and, as such, are representative of local engineering, design, and stone laying techniques. Because no other bridges in New Jersey are known to have been built as early, the Old Stone Arch Bridge is of particular significance as a rare surviving example of contemporary stone masonry (Brown 1992: F3).

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The Raritan Road and Settlement of Bound Brook

The Old Stone Arch Bridge was built over Green Brook near its confluence with the Raritan River, on the boundary line between Somerset and Middlesex Counties. The brook and its tributaries became known as Bound Brook, although technically its main channel remained Green Brook, at least where it joined the river (Meuly 1976: 29).

English settlement in the Raritan Valley began after 1664 with the creation of the Elizabethtown Tract (Meuly 1976: 12-13). As early as 1681, English investors acquired several thousand acres from the Raritan (Lenni Lenape) Indians near the confluence of the Millstone and Raritan Rivers. Only one of the investors, Thomas Codrington, settled in the area in 1683, building a house on an 877-acre tract believed to be situated within the present-day Borough of Bound Brook (Davis 1893: 4). By 1688, the population of the area was sufficient to demand the formation of Somerset County from Middlesex County (Snyder 1969: 222).

In 1684, the Great Raritan Road, also known as the "Road up Raritan," was formally laid out on the north bank of the Raritan River, following an existing Indian trail (Hunter Research, Inc. [HRI] 2003a: 2). The road extended from Piscataway through Bound Brook, where it came to be joined by another major highway, the Old York Road, near the North Branch of the Raritan River (Van Sickle 1936: 81; Lane 1939: 51). The Raritan Road formed the major east-west route through Piscataway Township until the mid-eighteenth century, when the alignment was altered by the construction of the Old Stone Arch Bridge over the Green Brook (HRI 2003a: 2).

Additional English and Dutch settlers continued to be attracted to the area through the late seventeenth and early eighteenth centuries. On the eve of the American Revolution, the village of Bound Brook boasted approximately thirty-five houses, a blacksmith shop, two hotels, several taverns, a general store and a church (Bicentennial Committee of Bound Brook 1976: 5).

Construction of the Old Stone Arch Bridge

The Old Stone Arch Bridge over Green Brook was built during this period of early settlement in the area, circa 1730-1760. The construction of a bridge in the vicinity was authorized by the Provincial legislature in 1727/28:

[T]here shall be a Bridge built over the *Bound-Brook*, in the most commodious place on the *North-East-Side* of the Road, as it now lies from *Piscataway*, in the County of *Middlesex*, up *Rariton River* (Bush 1977: 384).

Construction of this bridge apparently had not begun by 1730, when the legislature passed a supplementary act to clarify the intent of the earlier law regarding the Bound Brook bridge. According to the supplementary act:

Whereas the Bridge to be built over *Bound Brook*, between the County of *Middlesex* and *Somerset*...has hitherto met with Obstructions, arising from Mistakes concerning the Meaning and Intention of the said [1727/28] Act: For Remedy whereof, and to prevent any further Delay that may be made in building the said Bridge so much wanted for the publick Use...That as soon as conveniently may be after the Publication of this Act, there shall be a Bridge built over the *Bound Brook*, on the most commodious Place on the North East Side of the Road now used, as it lies from *Piscataway*, in the County of *Middlesex*, up *Rariton River*, which Road, as the same is now used, shall be deemed and taken for the Road or High-way, and good and sufficient Causeways laid and made to the said Bridge in the said Counties; which Bridge so to be built, and Causeways so to be laid and made...one Third Part at the Expence of the County of *Middlesex*...the other two Third Parts thereof at the Expence of the County of *Somerset* (Bush 1977: 409).

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Thus, the construction of a bridge at this location, at the shared expense of Somerset and Middlesex Counties, was authorized in 1730; however, it is unknown when construction began or whether another structure preceded the Old Stone Arch Bridge. At least one historian suggests that the Old Stone Arch Bridge was built in 1731 (Van Horn 1965: 43), but no corroborating documentation for this construction date has been found. Unfortunately, the minutes of the county freeholders before 1772 do not survive for either county; as a result, no definitive record of the construction of the Old Stone Arch Bridge survives.

As suggested in the authorizing legislation, the bridge was part of a larger engineering project that included a causeway. The causeway was necessary because of the marshy conditions found at the mouth of the Green Brook in the eighteenth century. This marsh extended approximately 800 to 1,000 feet across and was too large to be spanned by contemporary bridge technology. As a result, the site required construction of a causeway. The Old Stone Arch Bridge over Green Brook was located at the west end of the causeway, which extended parallel to the Raritan River (HRI 2003a: 2, 8). A legislative act of 1760 regulating roads and bridges clearly references this arrangement, stating: "two Stone Bridges and a Causeway have been built near the Mouth of *Bound-Brook*" (Bush 1982: 49).

The second stone bridge referenced in the act was located at the eastern end of the causeway. This structure extended over the tail race for the neighboring gristmill. The exact construction date of the gristmill is unknown; however, it is believed to predate the bridges and causeway (HRI 2003a: 9). A 1766 map of Somerset County depicts the gristmill on the Raritan Road, upstream from the causeway, and attributes it to "Fields" (Morgan 1766). Michael Field, a miller and merchant in Bound Brook, was most likely the operator of the gristmill on Green Brook. Field did not then own the property, but the land had belonged to his family as early as the 1720s. The gristmill was likely built either during the tenure of Michael's father, Jeremiah (1729-1747), or his brother, also Jeremiah, prior to 1765 (HRI 2003a: 9).

The aforementioned legislative act of 1760 confirms the construction of the Old Stone Arch Bridge by this date, as do other eighteenth-century sources. For example, a Somerset County road return from 1764 details the route of the Raritan Road from the North Branch of the Raritan River to Bound Brook, ending at "the middle of Bound Brook Stone Bridge" (Somerset County Road Book A-1: 62). The county road returns commonly used the Old Stone Arch Bridge as a landmark because of its location at the boundary between Middlesex and Somerset Counties.

Stone bridges were the earliest permanent bridges constructed by European settlers in the colonies, but the expense and time required to build these structures made them very uncommon prior to the final decades of the eighteenth century. The structure type peaked in popularity by the mid-nineteenth century (Brown 1992: E1). Relatively few stone arch bridges are known to have been built in New Jersey during the mid-eighteenth century. Examples include a bridge over the Elizabeth River in downtown Elizabeth (circa 1750) and a bridge over the Assunpink Creek in Trenton (1766), neither of which survive (Thayer 1964; HRI 2003b: 4-9, 6-5). These bridges were typically built in major cities or on heavily traveled highways (A.G. Lichtenstein & Associates, Inc. 1994: 42).

During the eighteenth-century, stone arch bridges were built by local masons using materials gathered or quarried from the area, as transportation of large quantities of stone over any distance would have been very difficult during this period. In Somerset County, red shale and sandstone were the most common building materials for early bridges, as these rocks underlie the New Jersey Piedmont that encompasses most of Somerset County. Early spans typically employed large, randomly laid rough stones (Brown 1992: E1, E4).

Several sources offered technical guidance for the construction of stone arch spans to bridge builders of the period. Italian architect Andrea Palladio's *The Four Books on Architecture*, originally published in 1570, was published in English during the early eighteenth century in two different translations; this text included sections on roadways, bridges, and civic architecture in

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the third book (Tavenor and Schofield 1997: xvii). Although Palladio's designs were classical in styling, their structural elements and proportions as shown in his illustrations (see Figure 2) could be translated by colonial stonemasons into simple forms. Another book, Stephen Riou's *Short Principles for the Architecture of Stone Bridges*, offered additional technical guidance to bridge builders. Published in 1748 and again in 1760, Riou's book offered practical guidance as well as mathematical formulas for determining the size of piers and other aspects of bridge design. Riou noted that bridges of three to five arches might have a wider central arch and advocated that "the road over a bridge should be as level as possible" (Riou 1760: 11, 91).

The Old Stone Arch Bridge exhibits many of the features common to eighteenth-century structures of its type. The three-arch bridge is constructed of rough-cut, locally available stone laid in irregular courses, and its central arch rises above the flanking arches, suggesting an original humpback profile to the roadway. This basic three-arch design is similar to Palladio's bridges, although lacking their architectural embellishments. Interestingly, the buttresses on the piers are an apparent local adaptation and an unusual feature of the Old Stone Arch Bridge; neither of the contemporary sources advocate buttressing, and inadequate data is available on eighteenth-century bridges in New Jersey to determine whether this treatment was common locally. The pointed faces of the buttresses are typical of masonry bridges of the period; both Palladio and Riou advocate a pointed or semicircular front to the piers to direct the stream's current between the arches (Tavernor and Schofield 1997: 21; Riou 1760: 2). Interestingly, Riou suggests that this treatment is needed on "the faces against the stream, from their foundation up to the high water-line," but the Old Stone Arch Bridge's piers on the downstream side also have pointed fronts (Riou 1760: 2).¹

Revolutionary War

In the spring of 1777, the Old Stone Arch Bridge was at the center of a battle between British and American forces at Bound Brook. Following the Battles of Trenton and Princeton, Washington and his troops withdrew to Morristown for the winter, and Cornwallis's troops encamped from Perth Amboy to New Brunswick. As a result, the Raritan River valley, which extended between the two camps, became a strategically important area, and American troops were sent to Bound Brook by January 20, 1777. In March, Washington sent General Benjamin Lincoln to take command of more than 500 Continental troops and militia stationed at Bound Brook to provide protection from a British attack on the camp at Morristown and to prevent the British from shipping supplies on the river and foraging in the countryside. Lincoln's troops established patrols along the river to guard the bridges at Bound Brook and Finderne (Davis 1895: 1-2, 5-6).

Lincoln took up a position near the northern approach to the bridge over the Raritan River at Bound Brook, known as Queens Bridge. His troops constructed a redoubt or battery to defend the river crossing and the stone bridges and causeway carrying the Raritan Road across Green Brook (Bicentennial Committee of Bound Brook 1976: 6; Davis 1895: 2). This crescent-shaped earthwork, referred to as the Half-Moon Battery, was to contain four cannons, although for unknown reasons these weapons were not in place at the time of the Battle of Bound Brook (Schleicher and Winter 2002: 41). Lincoln established his headquarters west of the village, on the Old York Road, in the home of Phillip Van Horne (Ewald 1979; Schleicher and Winter 2002: 40).²

¹ The original appearance of the upstream side is unknown because of the later widening; however, it was almost certainly identical. Riou notes that only one elevation drawing is necessary when designing a bridge because "it would be an unaccountable innovation to make [the two sides] different" (Riou 1760: 47).

² Some late nineteenth-century sources alternately place Lincoln's headquarters in the eastern part of Bound Brook, near the redoubt (Davis 1895; Messler 1899; Somerset Messenger-Gazette 1899).

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In mid- to late March, the British formulated plans for an attack on the American forces at Bound Brook, but inclement weather delayed the movement until April 12. On that night, Cornwallis secretly ordered some 4,000 British troops to march out of New Brunswick to Bound Brook. The force was divided into four detachments, which were to approach the village from different directions in an attempt to surround the patriot force and capture General Lincoln and General Anthony Wayne, whom Cornwallis mistakenly believed was also in Bound Brook (Schleicher and Winter 2002: 41; Davis 1895: 6-7).

Despite the strategic placement of the battery overlooking the Queens Bridge and the Raritan Road causeway, the British were able to march to Bound Brook without detection. Early on the morning of April 13, 1777, the British launched a surprise attack on the patriots, with three of the four detachments entering the village as planned. Caught unprepared, Lincoln and his troops were forced to flee Bound Brook, leaving behind papers and baggage and narrowly escaping capture. They were able to escape into the mountains because the fourth British detachment, which was to march to Bound Brook via Quibbletown and Green Brook, did not arrive in time to halt the American retreat. Accounts of the battle vary in details, with reports of between 60 and 100 American troops killed and wounded and at least 80 imprisoned; two civilians were also killed in Bound Brook (Davis 1895: 7-8; Schleicher and Winter 2002: 41-42).

Johann von Ewald, a captain in the Hessian Field Jäger Corps, led the advanced guard of the British attack on Bound Brook. His diary records the events of the battle and specifically references the bridges and causeway:

At daybreak I came upon an enemy picket on this side of the stone causeway which led to Bound Brook through a marsh along the Raritan River for five to six hundred paces over two bridges. The picket received us spiritedly and withdrew under steady fire. I tried to keep as close as possible to the enemy to get across the causeway into the town at the same time. This succeeded to the extent that I arrived at the second bridge at a distance of a hundred paces from the redoubt which covered it and the flying bridge [over the Raritan River].

The day dawned and I was exposed to a murderous fire... We had no choice but to lie down on the ground before the bridge... Luckily for us, Colonel Donop's column appeared after a lapse of eight or ten minutes, whereupon the Americans abandoned the redoubt. We arrived in the town with the garrison of the redoubt amidst a hard running fight, and the greater part were either cut down or captured (Ewald 1979: 56).

Ewald's diary included maps, and his "Plan of the Area of Bound Brook, 20 April 1777" clearly illustrates the two bridges and causeway on the Raritan Road east of the village, as shown in Figure 3 (Ewald 1979: 58-59). Although not as accurate as the earlier Morgan map of 1766, Ewald's map is of particular interest because of the description of the bridge and causeway that accompanies it (HRI 2003a: 2).

After the American retreat from Bound Brook, the British soldiers remained behind in the village, gathering provisions and supplies, before returning to New Brunswick in the evening. General Nathaniel Greene and his troops arrived from Basking Ridge in support of Lincoln too late to engage the enemy; however, Greene secured the village again under American control, thus making the British victory a hollow one. The attack underlined the difficulty of defending the location, which the American troops abandoned in May 1777 to join the rest of the army nearby at Middlebrook. Thereafter, the area would play a limited role in the Revolutionary War, with the second American encampment at Middlebrook during the winter of 1778-1779 the only significant occupation in the area. Portions of Washington's army also marched through Bound Brook via the Old Stone Arch Bridge en route to victory at Yorktown, Virginia, in August 1781 (Davis 1895: 14-16; Jackson and Twohig 1978: 416).

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The Old Stone Arch Bridge and the Van Horne House are the only surviving properties directly associated with the Battle of Bound Brook. The second bridge and causeway that carried the Raritan Road were obliterated by railroad construction and the rerouting of the Green Brook channel during the late nineteenth century, and the neighboring Queens Bridge over the Raritan River was replaced by a new structure. The redoubt built by the American troops to guard the bridge and causeway was destroyed by railroad construction circa 1840 (Davis 1895: 2).

Bound Brook in the Nineteenth Century

During the early nineteenth century, the turnpike movement swept New Jersey, and new routes were constructed across the state to improve communication and transport of goods from the state to neighboring New York and Pennsylvania. In 1806, the state legislature incorporated the New Jersey Turnpike Company to build a road from New Brunswick to Phillipsburg (Lane 1939: 147). Completed by 1809, the route ran along the southern bank of the Raritan River from New Brunswick to Bound Brook, where it crossed the river on the Queens Bridge. The turnpike then continued northwest to Somerville, “a little north of the ‘Great Road’ [Road up Raritan]” (Doughty 1912: 102). A survey map of the route prepared in 1807 clearly shows the turnpike crossing the Raritan at Bound Brook, with the Raritan Road bridges and causeway immediately to the east. The map, included as Figure 4, also shows Field’s Mill (Plum 1807).

A contemporary account confirms the existence of the Old Stone Arch Bridge during this period. In 1808, the annual meeting of Bridgewater Township (in which Bound Brook was then located) appointed Matthew Ten Eyck as overseer of the roads in an area bounded in part by the New Jersey Turnpike and “the Arch Bridge over Bound Brook” (Bridgewater Township Freeholders [BTF] 25 April 1808). Ten Eyck was allowed \$60.00 for the maintenance of the roads in his part of the township (BTF 25 April 1808).

Relatively few references to the Old Stone Arch Bridge appear in the Somerset and Middlesex County Freeholders’ Minutes during the first half of the nineteenth century. In 1818, the Somerset County Board formed a committee to meet with the Middlesex County Freeholders regarding repairs to “the Arch Bridge at Bound brook on the County line” and to execute the repairs (Somerset County Board of Chosen Freeholders [SCBCF] 13 May 1818). Although no record of a meeting between the two Boards survives, the Middlesex County Freeholders likewise approved an expenditure not to exceed \$50 for “the stone bridge at Bound Brook” in May 1818, suggesting that repairs were likely made to the structure in that year (Middlesex County Board of Chosen Freeholders [MCBCF] 13 May 1818).

Three years later, the Somerset County Board again considered the subject of repairs to the Bound Brook arch bridge. The Freeholder from Bridgewater, Jacob DeGroot, was authorized in May to meet with the Middlesex County Board regarding repairs to the “Bound Brook Arch Bridge” (SCBCF 9 May 1821). The repairs were completed by September, when the Board authorized payment of \$9.38 to DeGroot, Andrew Ten Eyck, and Jonathan La Tourette, for “half expence [sic] of Bound Brook Arch Bridge” (SCBCF 3 September 1821). It should be noted that either or both of the repair jobs may have been to the adjoining bridge over the mill race at the east end of the causeway, rather than to the Old Stone Arch Bridge. The bridge over the mill race technically lay completely within Middlesex County; however, the cost of maintenance and repairs to the two bridges and causeway were shared by the two counties, as set forth in the 1730 legislation authorizing their construction.

These authorizations for repairs to the Old Stone Arch Bridge illustrate the typical procedure used by the county freeholders to build and repair bridges during the first half of the nineteenth century. Applications regarding the need for new bridges or repairs to existing structures were brought before the Board, either by the Freeholder representing the township or by local citizens. In Somerset County, the Board then scheduled a meeting to view the site and determine whether the bridge or repairs were necessary. If the work was approved, the Board would return to the site upon its completion to approve and

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accept the new or repaired structure (SCBCF 1822-1850). The Middlesex County Board did not conduct site visits with as much frequency as the Somerset Board, relying more on committees to determine the necessity of work and to oversee its completion (MCBCF 1814-1841). When the bridge was located on the county line, the Boards would schedule a joint meeting, often at the site, to discuss the matter and appoint a committee to oversee construction.

In 1836, the Somerset County Board again appointed a committee to meet with the Middlesex County Freeholders regarding the bridge on the county line at Bound Brook (SCBCF 11 May 1836). Although the Freeholders' Minutes do not specifically mention the Old Stone Arch Bridge, the reference is almost certainly to either this structure or the adjacent bridge over the millrace; historic maps indicate that a second crossing of Green Brook was not built in the vicinity of Bound Brook village until after 1850 (Otley and Keily 1850a, 1850b). The need for repairs to the bridge was also acknowledged by the Middlesex County Board, which likewise authorized a committee to make "all necessary repairs to the bridge at Bound Brook" (MCBCF 11 May 1836).

Railroads in Bound Brook

During the mid- to late-nineteenth century, new modes of transportation transformed Bound Brook, particularly in the vicinity of the Old Stone Arch Bridge. The first of the changes occurred in 1834, when the 44-mile Delaware and Raritan Canal was completed from the Delaware River to the Raritan Bay. The canal was located on the south side of the Raritan River, opposite Bound Brook. Although no direct construction impacts occurred within the village or in the vicinity of the Old Stone Arch Bridge, trade on the canal resulted in significant growth in Bound Brook (New Jersey Department of Environmental Protection 1971). By 1834, the village contained fifty dwellings, four stores, three taverns, a Presbyterian Church, and a large grist mill (Gordon 1973: 107).

Within a few years of the canal's completion, the Elizabethtown and Somerville Railroad (E&SRR) reached Bound Brook. Chartered in 1831, the E&SRR crept toward Bound Brook (1838) and Somerville (1842) before collapsing in bankruptcy in 1847 (Cunningham 1997: 70). Just prior to its failure, the railroad brought important changes to Bound Brook. Barber and Howe reported in 1844 that Bound Brook was "a thriving place and at certain seasons a very large business is done in the purchase of grain as uncommon facilities are furnished for freighting to New York either by canal or railroad" (Barber and Howe 1861: 452). Bound Brook hummed with ten stores, several mechanics, two grist mills, two tanneries, two lumber yards, two coal yards, and four taverns, as well as eighty dwellings. The population at that time numbered about 566 (Barber and Howe 1861: 452).

The E&SRR spanned the mouth of Green Brook on an embankment and bridge built in 1840. The new railroad bed and bridge extended across the south end of the millpond, just above the existing causeway and bridges carrying the Raritan Road. As a result of the new construction and alterations to the millpond, the course of Green Brook north of the Old Stone Arch Bridge was diverted to the east, creating a dogleg between the Raritan Road causeway and the railroad embankment. These alterations caused drainage problems in the area (HRI 2003a: 3)

New owners of the failed E&SRR secured two additional charters on February 24, 1847: one for the Somerville and Easton Railroad (S&ERR) and another for the Central Railroad of New Jersey (CRRNJ) (Cunningham 1997: 71). In 1849, the E&SRR and the S&ERR combined under the CRRNJ, and through service between Elizabeth and Phillipsburg began on July 2, 1852 (Holton 1992: 312). The goal was to tap the coal fields of Pennsylvania, and once the railroad reached the Delaware River, it provided an important bridge line for the major Pennsylvania coal producers and carriers seeking an outlet to the sea. The Lehigh Valley Railroad (LVRR) connected with the CRRNJ in Easton in 1855 (Greenberg and Fischer 1997: 65). The LVRR's rival, the Delaware, Lackawanna, and Western Railroad (DL&WRR) concluded a similar agreement and linked with

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the CRRNJ at Hampton in 1856 (Casey and Douglas 1951: 82). All three railroads operated symbiotically for a number of years until the DL&WRR, dissatisfied with its agreements with the CRRNJ, and anxious to secure its own route to tidewater, leased the Morris and Essex Railroad in 1868. The CRRNJ responded quickly to the loss of business by securing interests in its own Pennsylvania coal fields and acquired the Lehigh and Susquehanna Railroad to bring its own coal to market (Holton 1992: 316).

The 1873 map of Bound Brook, shown in Figure 5, illustrates the changes wrought upon the area surrounding the Old Stone Arch Bridge by the construction of the CRRNJ immediately to the north. Green Brook, labeled Bound Brook on the map, is shown flowing through a "Great Marsh" northeast of the railroad embankment; this marsh also extended between the rail line and the Raritan River. The dogleg in Green Brook, between the railroad embankment and the Raritan Road causeway, is evident. The grist mill is also shown on the map; however, documentary evidence suggests the building was no longer functioning as such by this date, having been acquired by the Easton and Amboy Railroad Company (E&ARR) in 1872 (Beers 1873; Somerset County Clerk's Office 1881; HRI 2003a: 3).

The E&ARR was formed in 1872 by the LVRR to create a direct line from the coal fields of Pennsylvania to the Port of New York. The E&ARR provided a new route across New Jersey, passing through the Raritan River valley. At the village of Bound Brook, the E&ARR met and paralleled the CRRNJ for several miles before diverging east and following the meandering Bound Brook toward a new terminal at Perth Amboy (Richard Grubb & Associates, Inc. [RGA] 2006b: 3-22-3-23).

In order to construct the rail line at the confluence of the Green Brook and the Raritan River, the marshland between the existing CRRNJ embankment and the old Raritan Road causeway was filled. Additionally, the E&ARR raised the milldam on the north side of the CRRNJ embankment approximately 18 inches to enlarge the millpond for use by the LVRR's steam locomotives. The millpond increased dramatically in size, from about ten acres to 60 acres (*New York Times* 10 July 1880; HRI 2003a: 4).

Unfortunately, these alterations to the landscape had a deleterious impact on the community: drainage problems downstream worsened, and the enlarged millpond often became stagnant. Outbreaks of malaria became commonplace in Bound Brook between 1878 and 1880, and local residents blamed the enlarged millpond and the "impure" fill used to build the railroad bed (*New York Times* 10 July 1880; HRI 2003a: 4). In 1880, a Somerset County Grand Jury indicted Robert H. Sayre, Superintendent of the LVRR, for erecting and maintaining a nuisance, and the Bound Brook Board of Health ordered the railroad to abate or remove the pond and dam, threatening to have the work done at the company's expense if it failed to comply (*New York Times* 11 July 1880, 19 September 1880). In November, the dam was removed, but problems lingered:

[T]he mill-dam [was] removed, but not to the level of the bed of the stream, and the mass of decomposing vegetable matter, which the medical experts testified generated the malaria so prevalent last Summer, and covering fully 60 acres, is still *in statu quo*...to allow the vegetable area to remain undrained, and not to cut a straight channel for the stream, as there had been before the filling up by alluvial deposits, would be to make matters still worse next Summer (*New York Times* 5 December 1880).

The LVRR ultimately cut a new channel for Green Brook, which was later widened and deepened. The resulting alignment has remained essentially the same to the present (HRI 2003a: 4).

Two maps of the Raritan Road causeway dating to the 1880s clearly illustrate these changes to the landscape. A map of land transferred from Sayre to the E&ARR in 1881, included as Figure 6, shows the conditions prior to the rerouting of Green

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Brook. This map clearly illustrates the Old Stone Arch Bridge, with buttresses on both the north and south sides, spanning the main channel of Green Brook (Somerset County Clerk's Office 1881). The 1887 "Bird's Eye View of Bound Brook and Bloomington," shown in Figure 7, depicts the Old Stone Arch Bridge spanning a backwater or drainage channel, with the main channel shifted to the east. This view also illustrates the filling of the area north of the causeway. Also notable in the view is the flattened profile of the Old Stone Arch Bridge, which had been built with a humpback profile, and the apparent raising of the bridge parapet walls, presumably to accommodate the raised level of the roadway over the bridge (Fowler 1887; HRI 2003a: 4).

Five years after the publication of Fowler's "Bird's Eye View," another significant alteration was made to the landscape with the introduction of a third rail line along the Raritan River. The Philadelphia and Reading Railroad (P&RRR) chartered the Port Reading Railroad (PRR) on November 5, 1890, as a small New Jersey branch running from Bound Brook to Perth Amboy. The PRR was created by the P&RRR to circumvent New Jersey laws against out-of-state ownership of New Jersey corporations, and the P&RRR used the PRR to quietly lease the CRRNJ in February 1892. The PRR then entered into an operating agreement with the P&RRR on November 1, 1892 (Holton 1989: 282). The PRR became an important outlet for P&RRR coal, and ultimately the P&RRR gained a controlling interest in the CRRNJ (RGA 2006b: 3-22).

Locally, the construction of the PRR resulted in a new railroad embankment south of the Old Stone Arch Bridge, between the causeway and the river. The rail line necessitated another bridge over the rerouted channel of Green Brook. The embankment incorporated a 36-inch pipe culvert that is aligned with the westerly arch of the bridge and begins approximately ten feet from the south face of the bridge and extends south, through the railroad embankment, to the river (Railroad & Canal Revaluation, PRR).

Nineteenth-Century Alterations to the Old Stone Arch Bridge

Few alterations to the Old Stone Arch Bridge were documented during the second half of the nineteenth century. Whereas the freeholders in both Somerset and Middlesex Counties had met only a few times a year in the early 1800s, by mid-century they were meeting with greater frequency to address the growing business of both counties. The Boards by that time were comprised of one representative from each township. In Somerset County, each of the Freeholders was authorized to act as a committee for the repair and building of bridges in his township. Work costing less than an agreed upon amount—typically, fifteen dollars (\$15.00)—could be approved by the one-man committee without consulting the Board as a whole. This method of conducting business resulted in little documentation of the repair or upkeep of existing bridges in the Freeholders' Minutes during this time period, as Board meetings typically focused instead on new construction (SCBCF 1850-1867).

The Somerset County Freeholders reported so infrequently on the status of bridge work during the mid-nineteenth century that a resolution was passed in 1867 to require the one-man bridge committees to report on the progress of projects, the number of bridges repaired, and the cost of the work in their townships (SCBCF 5 June 1867). The Freeholder from Bridgewater reported at the next meeting that ten dollars (\$10.00) was spent to cover the old arch bridge at Bound Brook (SCBCF 16 August 1867). It is unclear exactly what was meant by the term "cover": perhaps the stonework required parging or the roadway needed repair.

The new policy of reporting on bridge expenses was apparently unpopular with the majority of the Freeholders, leading to the repeal of the resolution less than a year after it passed (SCBCF 18 May 1868). As a result, the Board's minutes contain limited information on bridge repair and construction during the 1860s and 1870s. The subject of the Freeholders' spending would arise again in 1879; allegations of rampant corruption on the Board—particularly involving the replacement of the Queens

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Bridge at Bound Brook and construction of numerous bridges in Warren Township—led to the prosecution of the County Collector and two freeholders (*New York Times* 11 May 1880).

Perhaps as a result of the limited reporting by the Somerset County Freeholders, no additional repairs or alterations to the Old Stone Arch Bridge are recorded in their minutes during the mid- to late-nineteenth century. Because of the bridge's location on the county line—and thus the shared fiduciary responsibility of the two counties for its upkeep—it seems likely that no major alterations would have been made to the structure without consultation with the Middlesex County Board. Nevertheless, one notable change that may have taken place during this period was the leveling of the roadway over the bridge, to eliminate its humpback profile, and raising of the parapets to accommodate the change. This work appears to have been completed by 1887, as Fowler's "Bird's Eye View" depicts the structure with a flattened profile (Fowler 1887).

One project approved by both the Somerset and Middlesex County Freeholders had an indirect but significant impact on the Old Stone Arch Bridge. In 1893, the Borough of Bound Brook, which had been created out of Bridgewater Township two years earlier, passed an ordinance to create an easterly extension of Main Street. This new roadway was to run north of the existing rail lines and causeway and was likely an attempt to improve safety by removing vehicular and pedestrian traffic from the busy rail corridor along the river (Lehigh Valley Railroad Company of New Jersey 1893; Snyder 1969: 222). After approving the ordinance, Bound Brook Borough applied to the Somerset County Freeholders to build a bridge to carry the new roadway across Green Brook at the county line (SCBCF 26 May 1894). The Somerset and Middlesex County Boards met in May to consider the request, and in August they awarded a contract for an iron truss bridge to the New Jersey Steel and Iron Bridge Company of Trenton (SCBCF 26 May 1894, 11 June 1894, 23 June 1894; MCBCF 26 May 1894). Construction of the bridge was to begin "as soon as a road is made from Main Street in Bound Brook to the site of the west abutment" and was completed by April 1895 (SCBCF 23 June 1894, 9 April 1895). This new roadway became known as East Main Street, and the old causeway and bridges—at one time the only crossing of Green Brook in the vicinity of Bound Brook—were relegated to a secondary role in local transportation. The road over the causeway, known variously as Raritan Road, Plainfield Road, Raritan River Road, and Landing Road during the nineteenth century, later was renamed Railroad Avenue, a reflection of its diminished status as a transportation corridor after the extension of East Main Street over Green Brook (HRI 2003a: 5).

Floods of 1882 and 1896

Two major floods in Bound Brook during the late nineteenth century are worthy of note because of their impact on the railroad corridor and area surrounding the Old Stone Arch Bridge, although the structure survived both events. The first was in September 1882, when a "great rain and freshet...damaged and swept away nearly all the bridges on the County line brook" (SCBCF 27 September 1882). The *New York Times'* account of the flood describes the devastation:

The Lehigh Valley Railroad runs along the eastern river bank through the town...A bridge and a long stretch of the track were washed away... Right alongside of the Lehigh Valley Road, but further from the river, the Central Railroad of New-Jersey runs through Bound Brook. The track of this road was three feet under water. In the depot the water was two feet deep (*New York Times* 25 September 1882).

The devastation was widespread in the region, with some accounts citing Paterson and Plainfield as being the hardest hit (*Newark Daily Journal* 25 September 1882). Although some repairs to the Old Stone Arch Bridge may have been necessary, the

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Somerset County Freeholders' Minutes contain no specific references to repair or replacement of this structure³ (SCBCF 27 September 1882, 25 January 1883).

The flooding of February 1896 was equally severe and more dire in consequence, as the water sparked a fire in the local lumber yard that burned the neighboring Presbyterian Church (*New York Times* 8 February 1896). As in 1882, the area along the Raritan River was particularly hard hit:

The open flats east and west of the borough resembled...an island sea, in which the houses were islands, and the roadbed of the Central Railroad of New Jersey a long, slender promontory (*New York Times* 8 February 1896).

The Lehigh Valley and Port Reading Railroads were both "blockaded by the water," and the banks of the Delaware and Raritan Canal, on the south side of the river, were carried away in places (*New York Times* 8 February 1896).

Damage to bridges throughout Somerset County was estimated at \$35,000 (*Somerset Messenger* 12 February 1896). Although contemporary newspaper articles and the freeholders' minutes for both Somerset and Middlesex Counties list a number of damaged and destroyed bridges, the Old Stone Arch Bridge is not specifically named in these sources (*Somerset Messenger* 12 February 1896; SCBCF 11 February 1896). The Middlesex County Freeholders' Minutes estimates the cost of repairs to bridges in Piscataway Township at \$500; the list of damaged bridges includes "2 line bridges at Green Brook," although it is unclear whether either of these are the Old Stone Arch Bridge (MCBCF 17 February 1896). One of these may have been the bridge immediately to the east, over the new Green Brook main channel; in 1896, the Middlesex County Board approved construction of an iron bridge "over Green Brook near Bound Brook" (MCBCF 2 December 1896).

Trolleys in Bound Brook

The turn of the twentieth century witnessed the introduction of yet another mode of transportation to Bound Brook: the electric trolley. Horse-drawn streetcars had debuted in Bound Brook as early as 1886, but the introduction of the electric system sparked fierce competition between the New York and Philadelphia Traction Company (NY&PTC) and the Brunswick Traction Company (BTC) for control of the lucrative commuter market (Van Horn 1965: 36). The NY&PTC incorporated in 1894 and planned a route through New Jersey to link its namesake cities via Camden, Trenton, New Brunswick, and Elizabeth. The route extended through Bound Brook, with service south to South Bound Brook, northwest to Somerville and northeast to Plainfield (Transportation Corporation Records n.d.: NY&PTC). The BTC incorporated a year later and proposed a route from New Brunswick to Raritan, via Bound Brook and Somerville (Transportation Corporation Records n.d.: BTC).

An 1896 map of the proposed route of the BTC trolley line through Bound Brook, shown in Figure 8, is instructive regarding the landscape surrounding the Old Stone Arch Bridge at the turn of the century. The BTC proposed to build two tracks crossing the county line, one on the "New Road" (East Main Street), and the other on the "Old Road" (Raritan Road). The proposed route along the Raritan Road employs the Old Stone Arch Bridge, which is depicted as crossing a small waterway. The roadway appears too narrow at the bridge, suggesting that perhaps the structure had not yet been widened at the time the route was surveyed (Transportation Corporation Records n.d.: BTC). Although not documented in the freeholders' minutes from either county, it seems possible that the Old Stone Arch Bridge was widened shortly after the BTC survey, perhaps as

³ The volume containing the Middlesex County Freeholders' minutes for the period 1882-1890 are presumed lost; this book is not on file with the other minute books at Rutgers University's Special Collections and University Archives in New Brunswick.

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part of a larger program of improvements to the causeway associated with the replacement of the bridge over Green Brook and in anticipation of the construction of the trolley line.

Construction of both the BTC and the NY&PTC progressed slowly, largely because of the competition between the two companies. A succession of court injunctions further hindered completion of the lines. Despite township approvals dating back as far as 1894, the companies were still seeking permission to cross county bridges in June 1898. At that time, the Freeholders of Somerset and Middlesex Counties met to consider applications from both the NY&PTC and the BTC to cross two bridges in Bound Brook, the Union Avenue Bridge and "the old stone arch bridge on the causeway near the River" (SCBCF 16 June 1898). The Freeholders approved construction of a new bridge at Union Avenue, with the cost to be shared by both counties and both trolley companies. They also approved the use of the Old Stone Arch Bridge for the trolley lines, with the provision that the companies makes necessary repairs to the bridge (SCBCF 16 June 1898). Interestingly, the plans submitted to the Secretary of State for the NY&PTC did not include a route over the Old Stone Arch Bridge; it is unclear if the company's plans were later altered, or if the NY&PTC sought to reserve the right to use the line over the bridge at a later date. The Freeholders' Minutes do not document what repairs, if any, were made to the Old Stone Arch Bridge by the trolley companies, and the trolley companies' records also lack documentation regarding work performed on the bridge.

In February 1900, the NY&PTC, BTC, and New Brunswick City Railway Company consolidated as the Middlesex and Somerset Traction Company (Transportation Corporation Records n.d.: NY&PTC). The trolleys continued to provide service in Bound Brook until 1931, when the proliferation of the automobile made the trolley system obsolete (Van Horn 1965: 36).

The Old Stone Arch Bridge in the Twentieth Century

Limited information is available about the Old Stone Arch Bridge in the early twentieth century. Fire insurance maps were published for Bound Brook beginning in 1895, but these maps do not include coverage of the old Raritan Road causeway until 1927 (Sanborn Map Company 1885, 1895, 1902, 1910, 1916, 1927). Geological survey maps published in 1898 and again in 1903 show a channel extending from the Raritan Road south to the river, suggesting that a waterway existed under the bridge as late as the turn of the twentieth century (U.S.G.S. 1898, 1903).

In 1916, the Standard Paint Company (later Ruberoid), which had its primary facility on the Delaware and Raritan Canal in South Bound Brook, built a roofing warehouse in Bound Brook (HIRI 2003a: 13). The warehouse was located on the fill north of the Raritan Road causeway, adjacent to the LVRR, and is depicted on the 1916 Sanborn map (Sanborn Map Company 1916). Although this map does not show the Raritan Road causeway, the erection of the warehouse nearby suggests that the area was completely filled by this date, and water was likely no longer flowing beneath the Old Stone Arch Bridge. The 1927 Sanborn map supports this conclusion. The map shows the Ruberoid warehouse, which by that date was used as a flooring plant, and the old Raritan Road; however, it does not show a waterway in the area between the road and the PRR (Sanborn Map Company 1927). Later maps similarly indicate that no water flowed beneath the Old Stone Arch Bridge in the mid-twentieth century (Sanborn Map Company 1948).

Despite the considerable changes to the landscape surrounding the Old Stone Arch Bridge, its continued existence is documented in several early to mid-twentieth-century sources. An article about the early roads of Somerset County published in 1912 noted that the stone bridge was then "still standing just easterly of Lehigh Valley Railroad Station at Bound Brook" (Doughty 1912: 99). A photograph of the bridge, shown in Figure 9, was included in a book published in 1936. In this photo, the area was filled on both the north and south sides of the bridge. On the north, the ground rose sharply upward from the bridge toward the Ruberoid plant; this elevation of the bridge appeared to be completely buried, with the exception

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of the parapet walls. On the south, the tops of the center and east arches were just visible above the fill, and the western arch was obscured from view (Van Sickle 1936: 81). Another photograph of the bridge was included in a book about the Old York Road published in 1965. This picture shows that, by this date, the arches were completely buried by the surrounding fill, and only the tops of the buttresses and parapet walls were visible on the south side of the roadway. A small section of the parapet wall on the north side was extant, at the approximately location of the center arch (Cawley 1965: 18).

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Boundary Description

The nominated property is a rectangle 130 feet in length, east to west, and sixty-one feet (61') in width from north to south, encompassing the bridge in its entirety at its center. The property includes an additional twenty-five feet (25') east and west of the bridge abutments, ten feet (10') north of the bridge parapets, and twenty-five feet (25') south of the bridge parapets to include the area of greatest archaeological potential surrounding the bridge. Beginning at the bridge's southwest corner, the boundary extends from a point approximately thirty-one feet (31') south and twenty-five feet (25') west of the southwest corner of the bridge abutment, then proceeds easterly in a straight line 130 feet to a point approximately thirty-one feet (31') south and twenty-five feet (25') east of the southeast corner of the bridge abutment. From thence, the boundary extends north in a straight line sixty-one feet (61'), to a point about fourteen feet (14') north of the edge of the asphalt pavement. The boundary proceeds west from this point in a straight line for 130 feet, to a point approximately fourteen feet (14') north of the asphalt pavement, then south to the point of origin.

Boundary Justification

The boundaries for the Old Stone Arch Bridge represent the structure in its entirety as well as the immediate surrounding area, including above-ground remains and both known and predicted below-ground resources. Specifically, the boundary extends east-west to include the extent of the structure's stone wingwalls, which are visible on the bridge's south side, and an additional twenty-five-foot (25') area at both ends. Likewise, the boundary on the south extends twenty-five feet (25') beyond the known limits of the buried stone headwall on the structure's west end, which was uncovered during excavations at the site. It also extends north beyond the visible remains of the parapet wall to include the likely extent of the stone wingwalls, which are assumed to be similar to the south wingwalls in length, for a total distance of fourteen feet (14'). The additional twenty-five-foot (25') area surrounding the bridge on the east, south, and west sides is included to encompass potential archaeological remains associated with the crossing of Green Brook. Archaeological surveys in New Jersey and Delaware have located remnants of colonial fords in the vicinity of existing bridges (RGA 2006a; HRI 1997). Laid out in 1684, the Raritan Road may have had a ford over Green Brook prior to the construction of the Old Stone Arch Bridge; therefore, the boundary includes the area in which archaeological remains of a previous ford or an earlier bridge at the site might be located. The fourteen-foot (14') area north of the bridge is included for the same reason; however, the area is smaller because the existing warehouse building was constructed within the area of highest archaeological potential.

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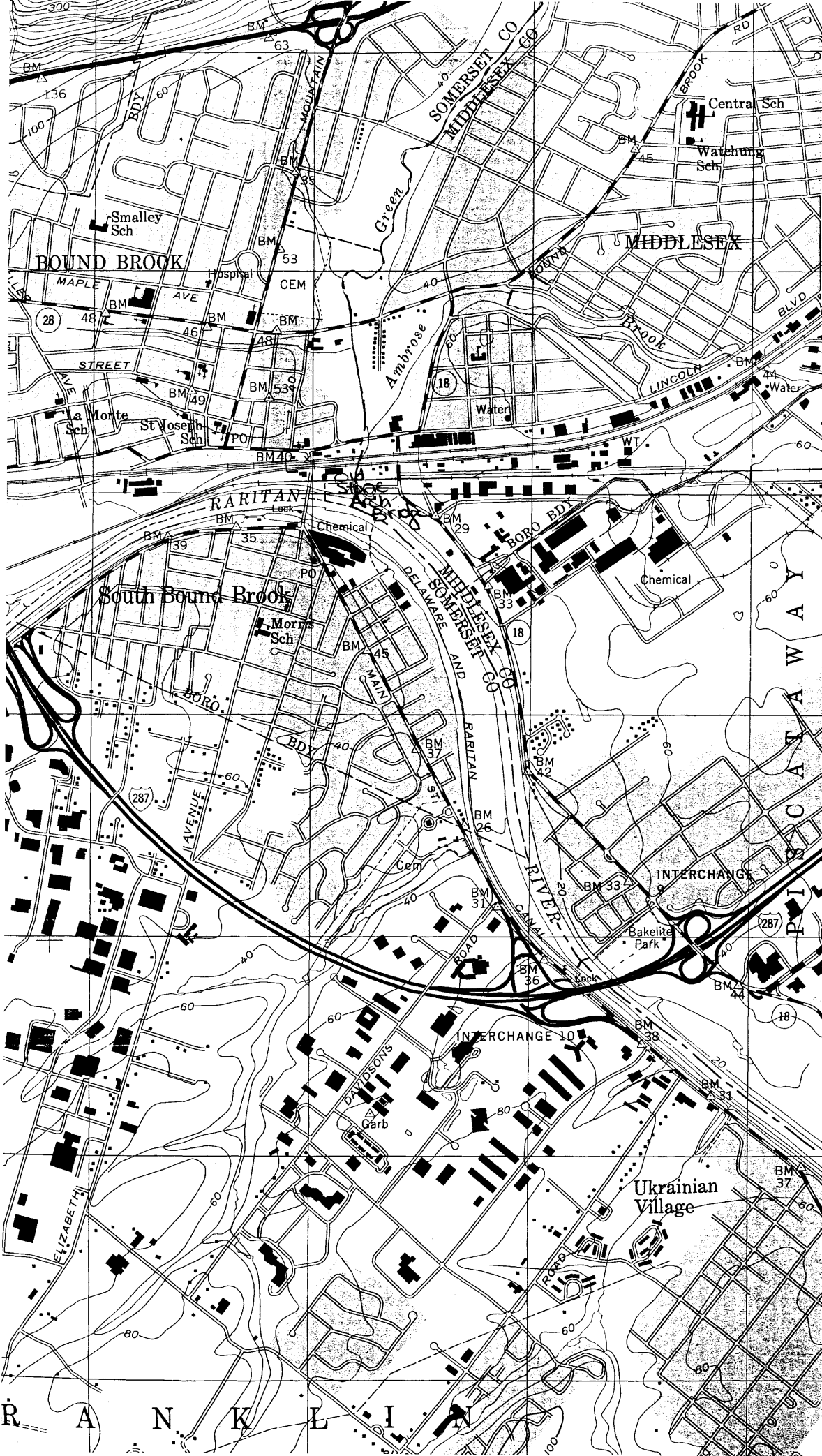
Photo Views

For all photographs

Name of Property: Old Stone Arch Bridge (Somerset County Bridge H0711)
County and State: Somerset County, New Jersey
Location of negatives: Richard Grubb & Associates, 30 North Main Street, Cranbury, NJ

1. Philip A. Hayden July 12, 2006
General view of parapet walls and central arch during excavations of south face, looking northwest.
2. Richard Grocholski July 12, 2006
Detail of east arch during excavations of south face, view looking north.
3. Philip A. Hayden July 12, 2006
View of central arch during excavations of south face, looking north.
4. Philip A. Hayden July 12, 2006
Detail of central arch voissiors and keystone, view looking north.
5. Philip A. Hayden July 12, 2006
View of underside of central arch during excavations, looking northeast.
6. Philip A. Hayden July 12, 2006
Detail of central arch and buttress, view looking northwest. Note the difference in stonework above and below arch, indicating raising of the parapet walls prior to 1887.
7. Philip A. Hayden July 12, 2006
General view of west arch and parapet walls during excavations of south face, looking north.
8. Philip A. Hayden July 12, 2006
Detail of west arch during excavations, view looking north.
9. Philip A. Hayden July 12, 2006
Detail of buttress between west and central arches, view looking northeast.
10. Richard Grocholski August 2, 2006
Detail of central arch during excavations of north face, view looking south. Note the difference between this arch and those on the south face, suggesting a widening of the bridge to the north, probably during the last decade of the nineteenth century.
11. Philip A. Hayden July 12, 2006
View looking south at headwall and culvert discovered opposite west arch during excavations on south side of bridge.

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32°42'
32°41'
32°40'
32°39'
32°38'
32°36'
32°33'
32°30'

74°15' 74°20' 74°25'

Old Stone Arch Bridge, Somerset and Middlesex County, NJ

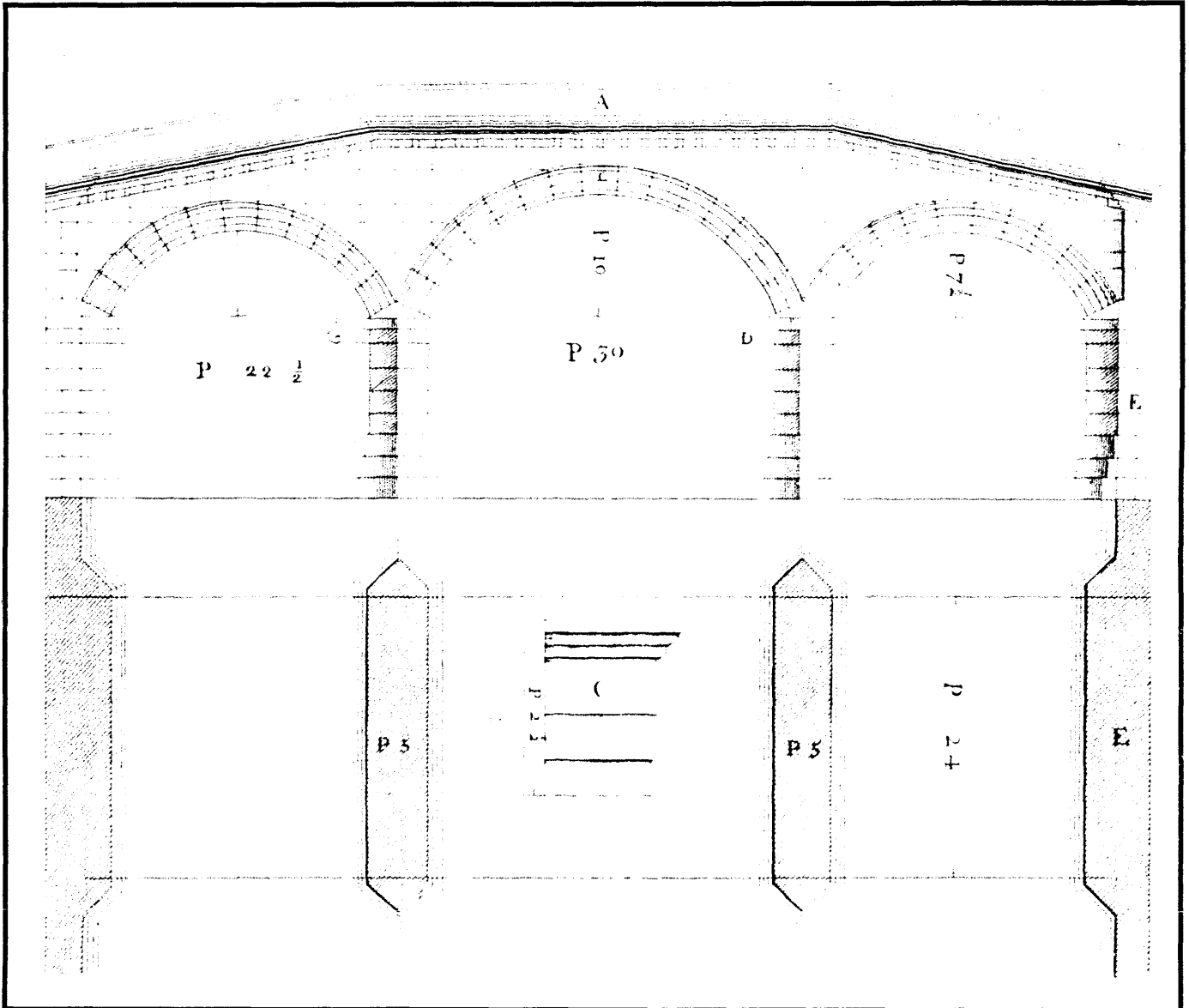
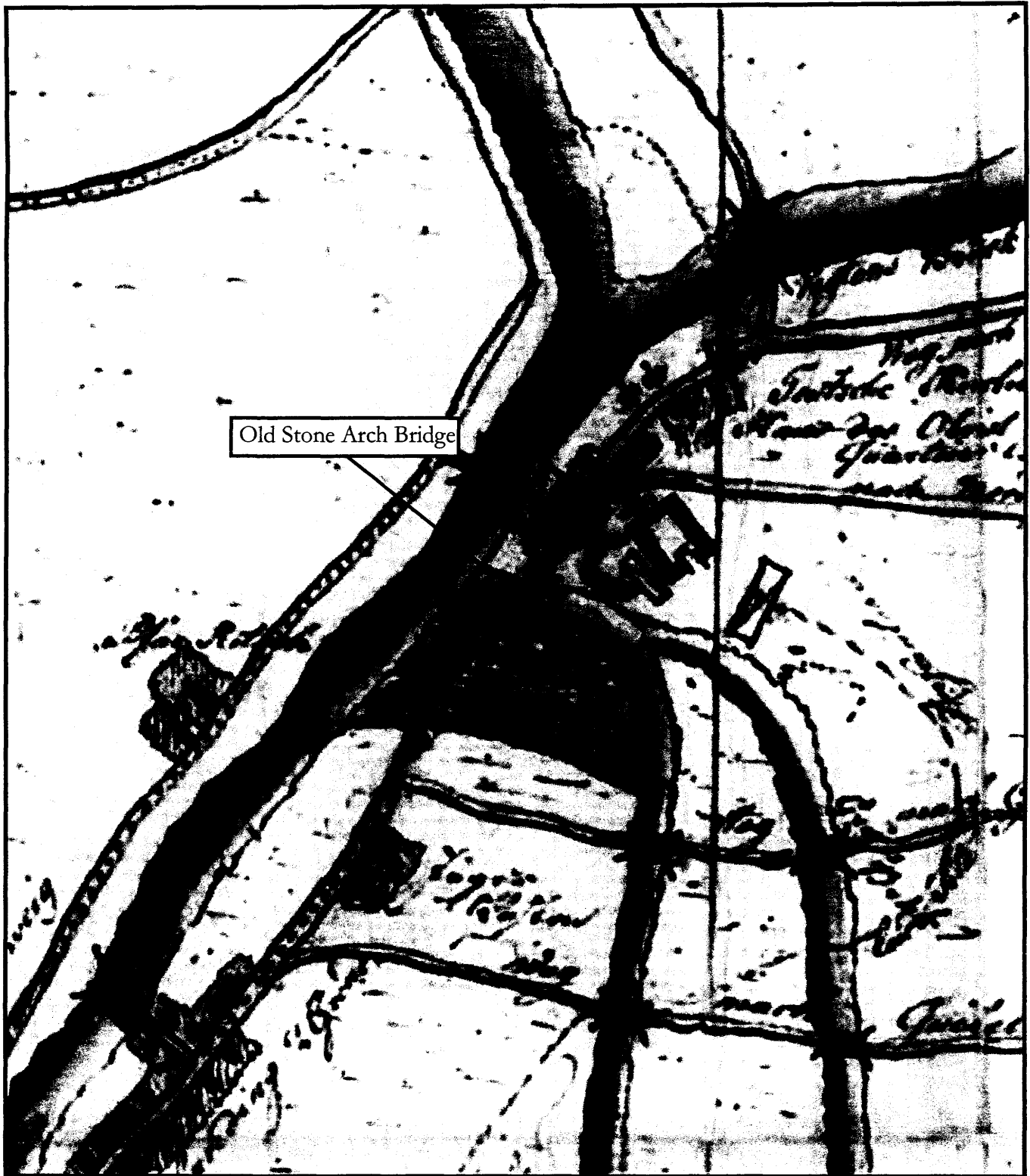


Figure 2:

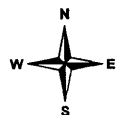
Andrea Palladio, Bridge of Vicenza (from Placzek 1965). Palladio included illustrations of several three-arch bridges in *The Four Books of Architecture*; the proportions of the central and flanking arches of the Old Stone Arch Bridge most closely resemble this example from Vicenza.



Old Stone Arch Bridge

Figure 3:

1777 Johann von Ewald, Plan of Attack on Bound Brook (from Ewald 1979).



Not to Scale

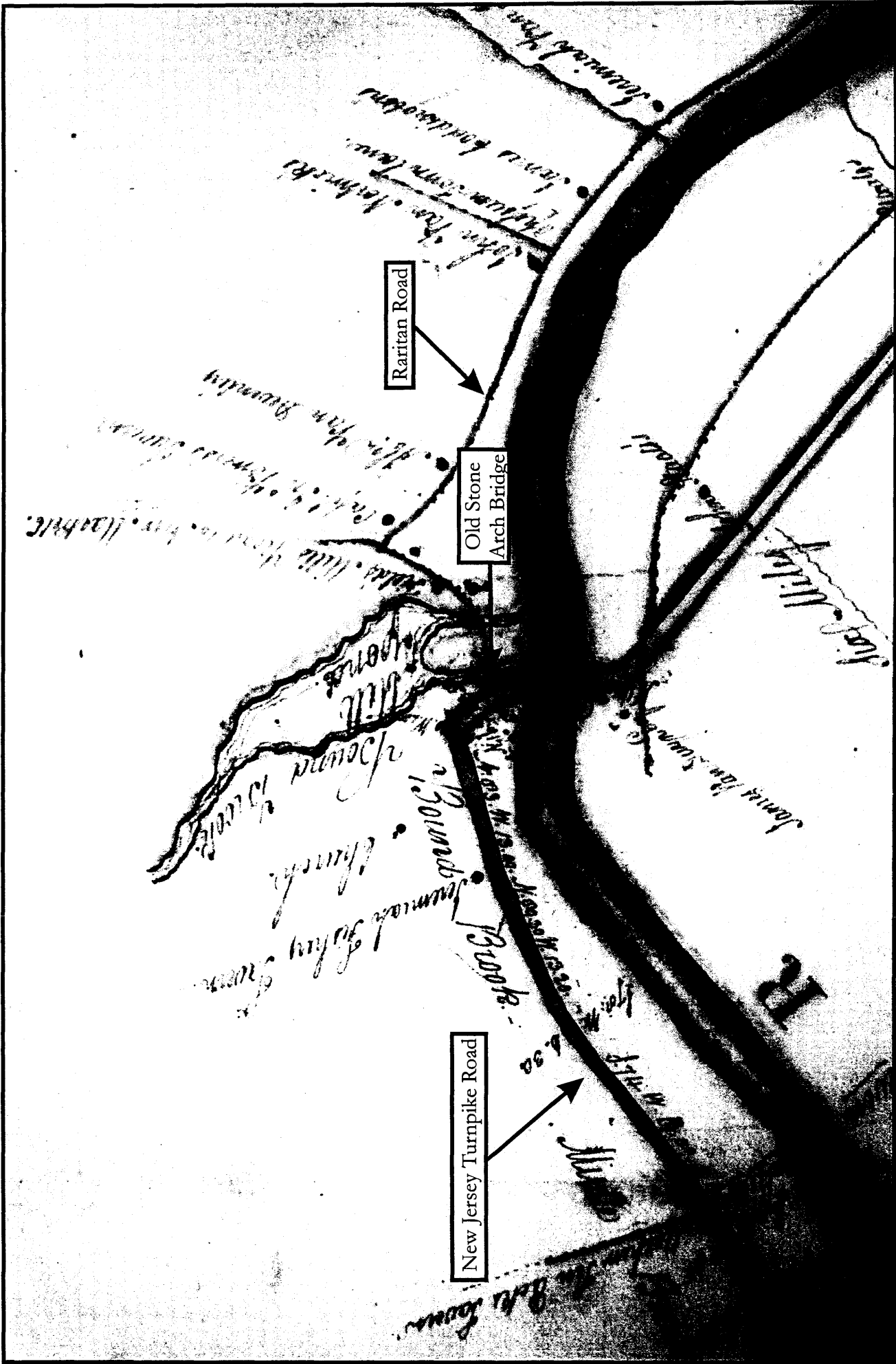
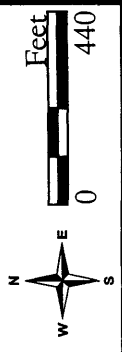


Figure 4:

1807 Henry Plum, Map of the New Jersey Turnpike Road (New Jersey State Archives, Trenton, New Jersey).



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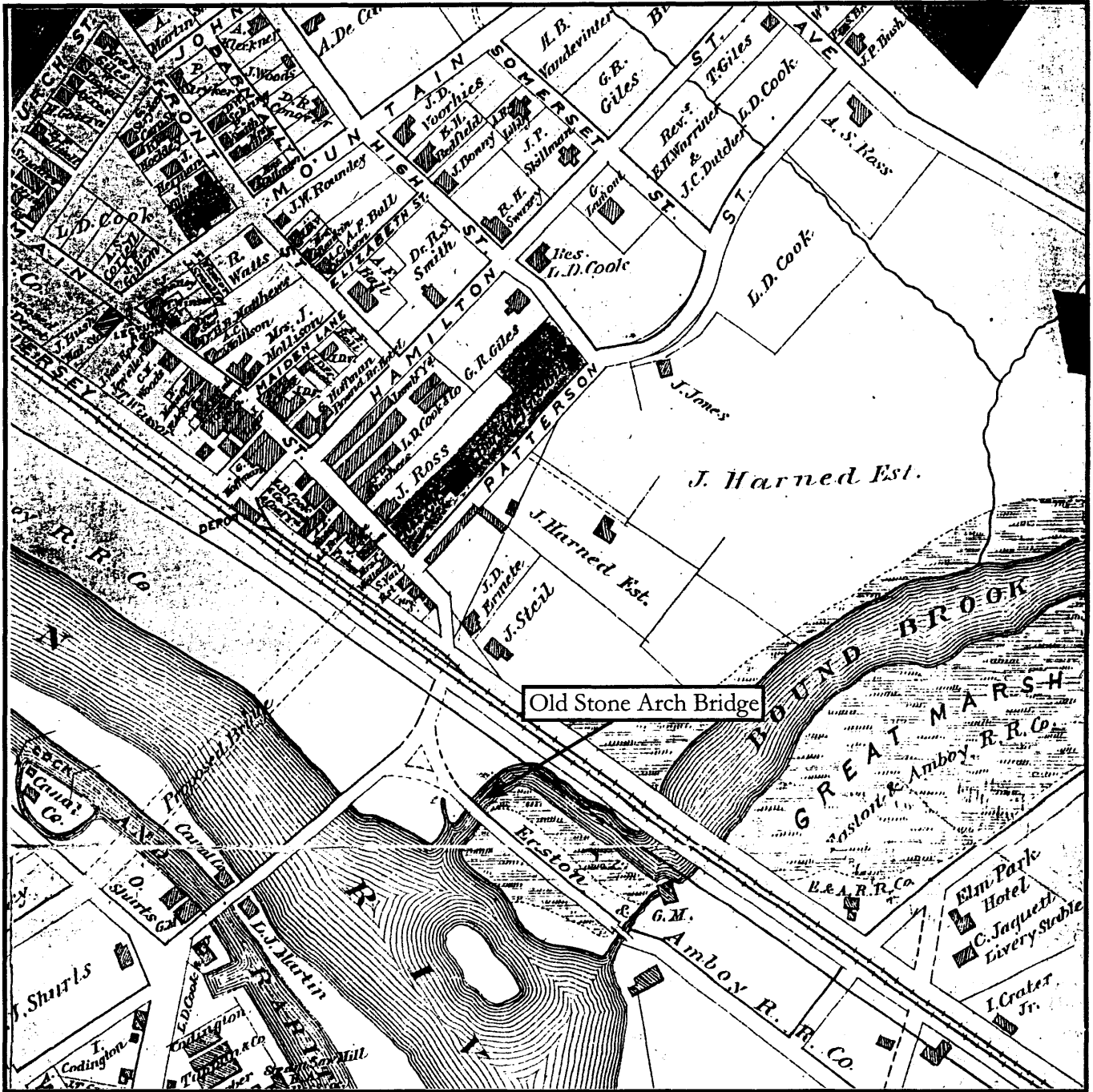
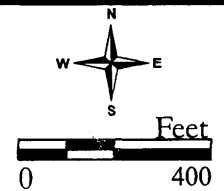


Figure 5:

1873 F.W. Beers, *Atlas of Somerset County, New Jersey.*



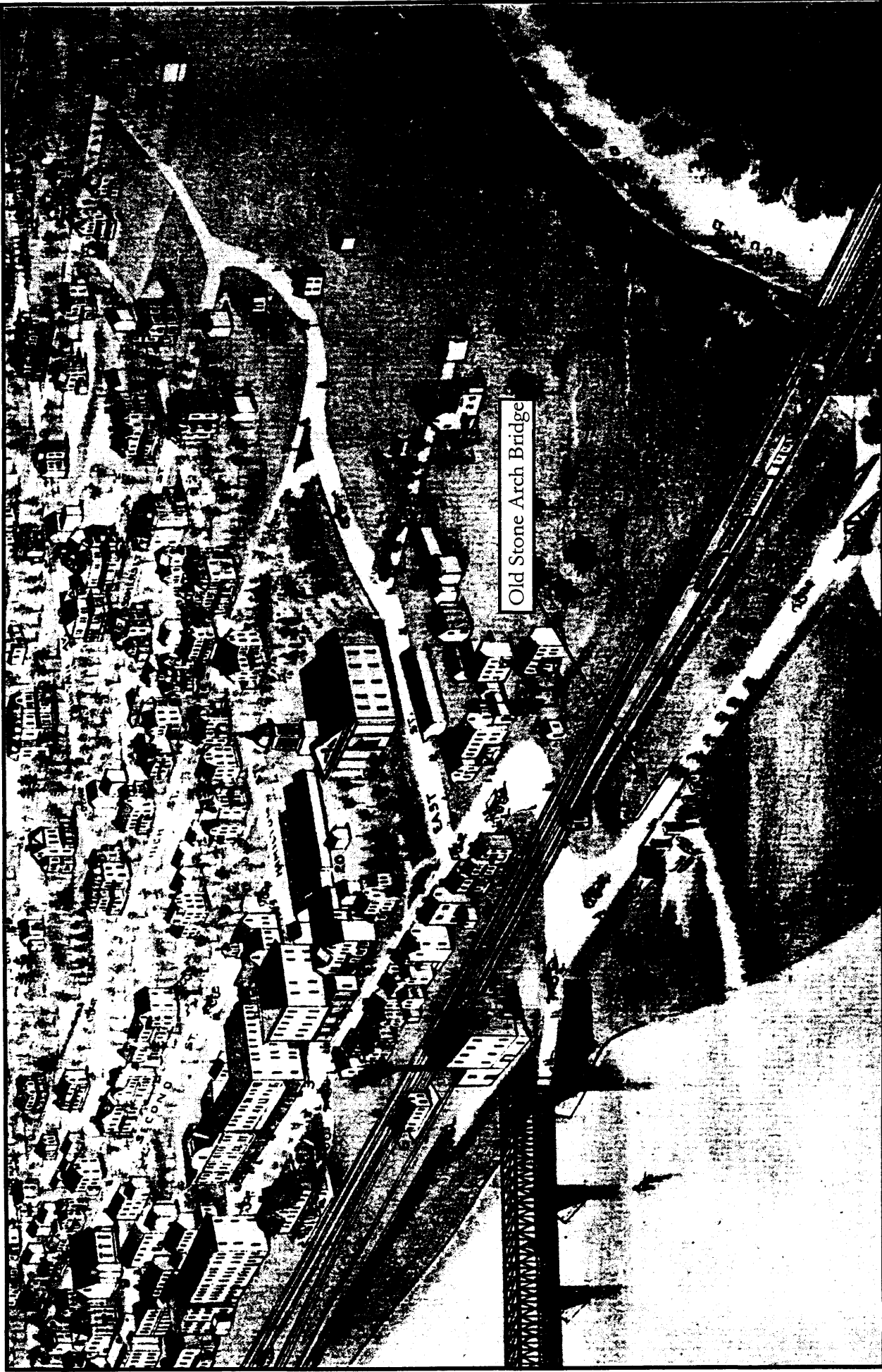


Figure 7:

1887 T. M. Fowler, Bird's Eye View of Bound Brook and Bloomington. This view clearly depicts the Old Stone Arch Bridge and the filling of the Green Brook channel northeast of the bridge by the Lehigh Valley Railroad.

Not to Scale

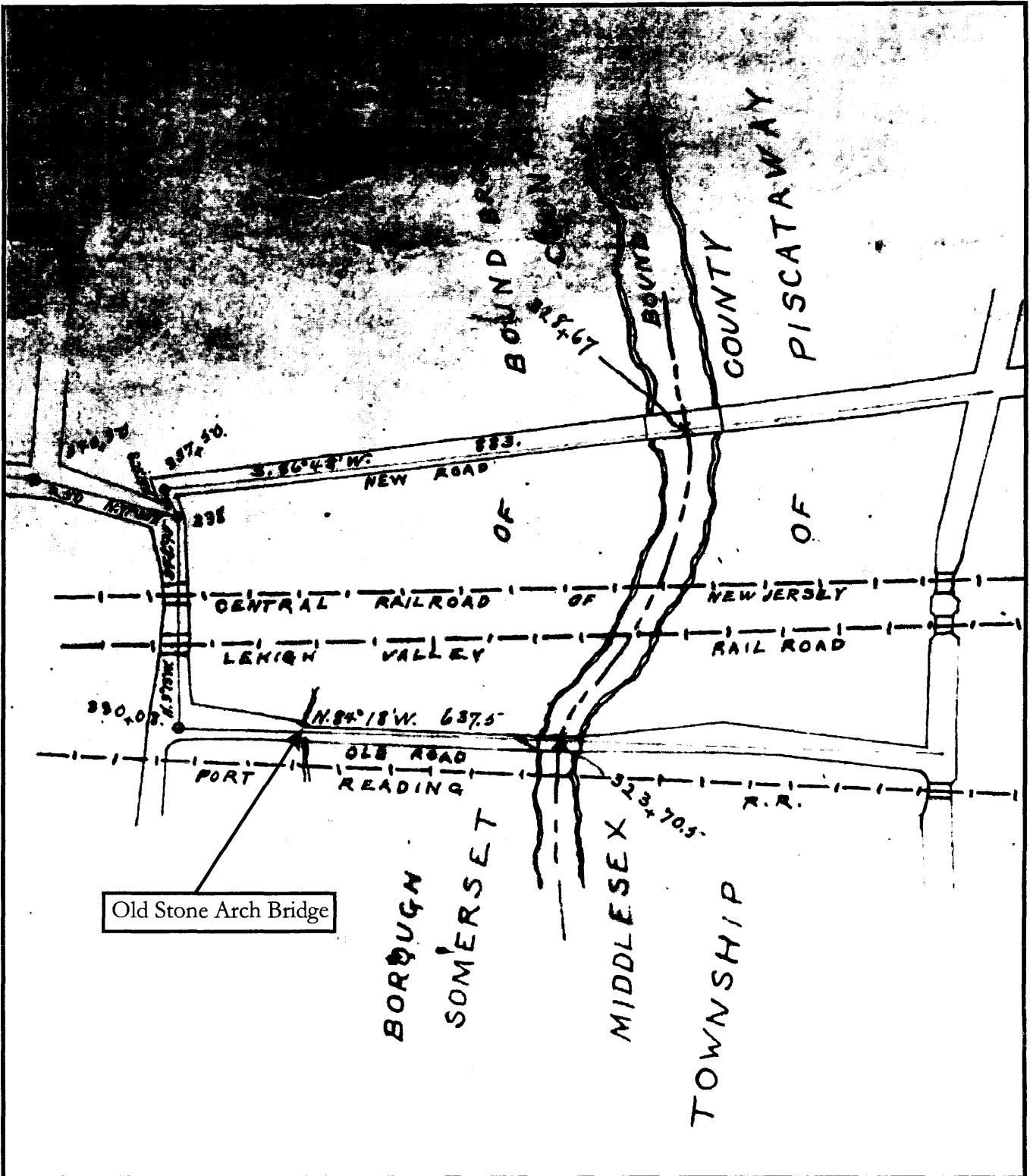
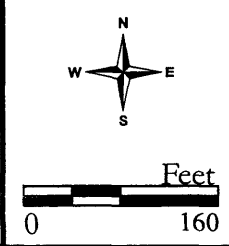


Figure 8:

1896 Brunswick Traction Company, Map Showing the Proposed Route of the Line of the Brunswick Traction Co. in the Borough of Bound Brook (New Jersey State Archives, Trenton, New Jersey).

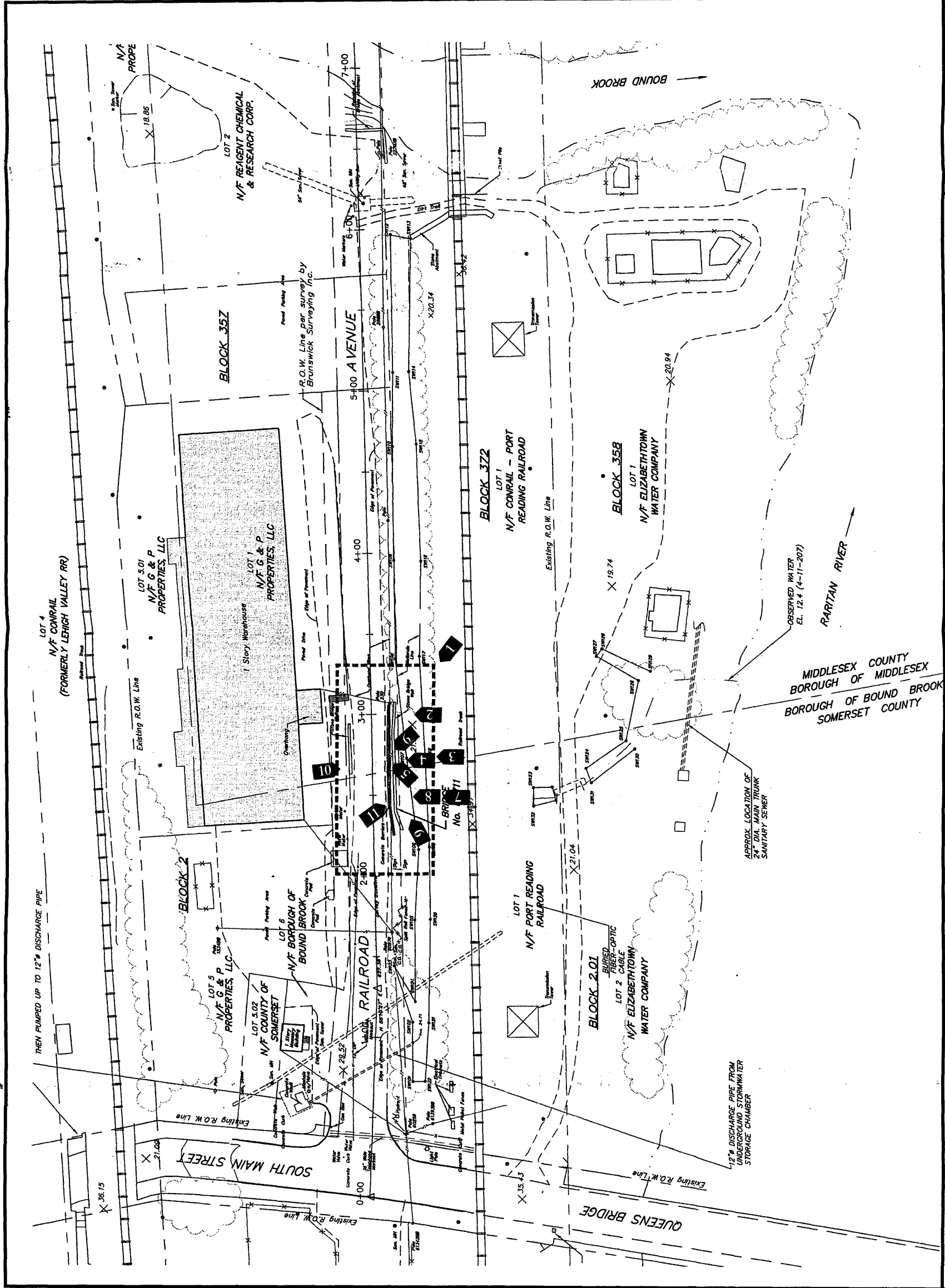


Old Stone Arch Bridge, Somerset and Middlesex Counties, NJ



Figure 9:

The Old Stone Arch Bridge at Bound Brook (from Van Sickle 1936). Note that the tops of the central and east arches are just visible above ground level in the foreground, on the bridge's south side.



--- National Register Boundary
 [Black Arrow] Photo Location and Direction



Figure 10: Boundary and photo location map.