



**North Carolina Department of Natural and Cultural Resources  
State Historic Preservation Office**

Ramona M. Bartos, Administrator

Governor Roy Cooper  
Secretary Susi H. Hamilton

Office of Archives and History  
Deputy Secretary Kevin Cherry

February 7, 2017

**MEMORANDUM**

**TO:** Mary Pope Furr  
Office of Human Environment  
NCDOT Division of Highways

**FROM:** Renee Gledhill-Earley *Renee Gledhill-Earley*  
Environmental Review Coordinator

**SUBJECT:** Phase IIa Bonner Bridge Replacement, B-2500, Dare County, ER 90-8304

Thank you for your recent letter transmitting the above-reference report. We have reviewed the report and concur with your finding that the remains of three 1930s wooden bridges built as the result of the re-opening of New Inlet are not eligible for listing in the National Register of Historic Places and do not contribute to the Pea Island National Wildlife Refuge (DR0607), a property that has been determined eligible for listing. The reason for this determination is the structures' lack of integrity.

We note that the information and documentation of the three structures is very well researched and presented. We would encourage your agency to consider posting portions of the report on the project's webpage as a public education element.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or [environmental.review@ncdcr.gov](mailto:environmental.review@ncdcr.gov). In all future communication concerning this project, please cite the above referenced tracking number.



PAT McCRORY  
Governor

NICHOLAS J. TENNYSON  
Secretary

Ms. Ramona Bartos  
Deputy State Historic Preservation Officer  
North Carolina Department of Natural and Cultural Resources  
4617 Mail Service Center  
Raleigh, North Carolina 27699-4617

ER 90-8304  
2 letters  
# what about  
D - yield info  
on history?  
Dec ~~11/17~~ email  
to MPF  
1/7/17

Dear Ms. Bartos:

RE: B-2500, Phase IIa Bonner Bridge Replacement, Dare County, FA# BRS-2358(15), WBS # 32635

The North Carolina Department of Transportation (NCDOT) is conducting planning studies for the above-referenced project. Please find attached two copies of the Historic Architectural Resources Survey Report, which meets the guidelines for survey procedures for NCDOT and the National Park Service. This report concludes that the remains of three 1930s wooden bridges and associated footpath/roadway within the Pea Island National Wildlife Refuge (DR0607) do not possess enough integrity to contribute to the significance of the National Register-eligible site.

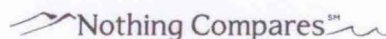
Please review the survey report and provide us with your comments. If you have any questions concerning the accompanying information, please contact Ms. Mary Pope Furr, Historic Architecture Section, (919) 707-6068.

Sincerely,

Mary Pope Furr  
Historic Architecture Section

Attachment

Cc (w/ digital attachment):  
Ron Lucas, Federal Highway Administration  
Nora McCann, NCDOT  
John Page, PB World



**HISTORIC ARCHITECTURE  
ELIGIBILITY EVALUATION REPORT:  
WOODEN BRIDGES AND FOOTPATHS/ROADWAY  
WITHIN PEA ISLAND NATIONAL WILDLIFE REFUGE**

**Phase IIa for the Replacement of the Herbert C. Bonner Bridge  
(Bridge No. 11) on NC 12 over the Oregon Inlet  
and Improvements to NC 12, Dare County**

**TIP# B-2500  
WBS# 32635  
FA# BRS-2358(15)**

**Prepared For:  
Human Environment Section  
Project Development and Environmental Analysis Unit  
North Carolina Department of Transportation**

**Prepared By:  
AECOM Technical Services of North Carolina, Inc.  
701 Corporate Center Drive  
Raleigh, NC 27607**

**Marvin A. Brown  
Principal Investigator**

**November 2016**

**HISTORIC ARCHITECTURE ELIGIBILITY EVALUATION REPORT:  
WOODEN BRIDGES AND FOOTPATHS/ROADWAY  
WITHIN PEA ISLAND NATIONAL WILDLIFE REFUGE**

**Phase IIa for the Replacement of the Herbert C. Bonner Bridge  
(Bridge No. 11) on NC 12 over the Oregon Inlet  
and Improvements to NC 12, Dare County**

**TIP# B-2500  
WBS# 32635  
FA# BRS-2358(15)**

**Prepared For:**

**Human Environment Section  
Project Development and Environmental Analysis Branch  
North Carolina Department of Transportation**

**Prepared By:**

**AECOM Technical Services of North Carolina, Inc.  
701 Corporate Center Drive  
Raleigh, NC 27607**

**Marvin A. Brown  
Principal Investigator**

**November 2016**



---

**Marvin A. Brown, Principal Investigator  
AECOM Corporation - North Carolina**

**11-29-16  
Date**

---

**Mary Pope Furr, Supervisor  
Historic Architectural Resources Section  
North Carolina Department of Transportation**

**Date**

## TABLE OF CONTENTS

TABLE OF CONTENTS .....	ii
I. PROJECT DESCRIPTION AND METHODOLOGY .....	1
II. PEA ISLAND NATIONAL WILDLIFE REFUGE: NEW INLET WOODEN BRIDGES AND FOOTPATHS/ROADWAY.....	2
A. Historic and Architectural Context .....	2
B. NRHP Eligibility of North Channel Bridge, South Channel Bridge, South Slew Bridge, and New Inlet Bridges Roadway .....	20
III. BIBLIOGRAPHY .....	37

## I. PROJECT DESCRIPTION AND METHODOLOGY

AECOM prepared this report in November 2016 in support of NCDOT's Phase IIa project for the replacement of the Herbert C. Bonner Bridge (Bridge No. 11) on NC 12 over the Oregon Inlet and improvements to NC 12 in Dare County (TIP# B-2500, WBS# 32635, FA# BRS-2358(15)). Specifically, AECOM evaluated the remains of three wooden bridges and a footpath/roadway on Pea Island (Figure 1). This effort included evaluating the National Register of Historic Places (NRHP) eligibility of the resources and providing this written report, which includes photographs of the bridge, historic and architectural contexts, assessments of eligibility, and recommendations as to whether or not the bridges and former roadway are contributing resources within the NRHP-eligible Pea Island National Wildlife Refuge (PINWR) (DR0607). The investigations complied with the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended, other state and federal regulations, and NCDOT's current *Historic Architecture Group Procedures and Work Products* and the North Carolina Historic Preservation Office's *Report Standards for Historic Structure Survey Reports/Determinations of Eligibility/ Section 106/110 Compliance Reports in North Carolina*.

As a result of its analyses, AECOM recommends that the North Channel Bridge, South Channel Bridge, South Slew Bridge, and New Inlet Bridges Roadway are not eligible for NRHP listing, either as individual resources or as contributing resources within the NRHP-eligible PINWR or any other potential historic district, due to their loss of integrity.

AECOM senior architectural historian Marvin A. Brown, who meets the Secretary of the Interior's qualifications for history and architectural history (CFR 36 CFR Part 61), conducted the fieldwork, research, and analyses, and drafted this report. As part of this effort, he visited, documented, and photographed the resources and conducted supplementary research. This effort included research in documentary and photographic collections at the North Carolina State Archives in Raleigh and the Outer Banks History Center in Manteo. Other documentary resources of particular value were historic newspapers, aerial images, coastal charts, and state reports, and modern online images of the bridges.

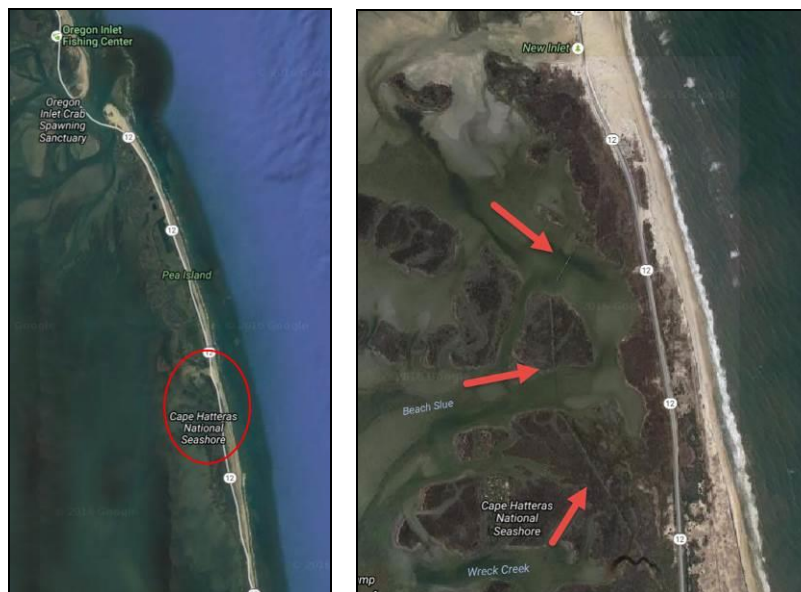



Figure 1. Project locator maps, Hyde County (source: NCDOT, Scope of Work)

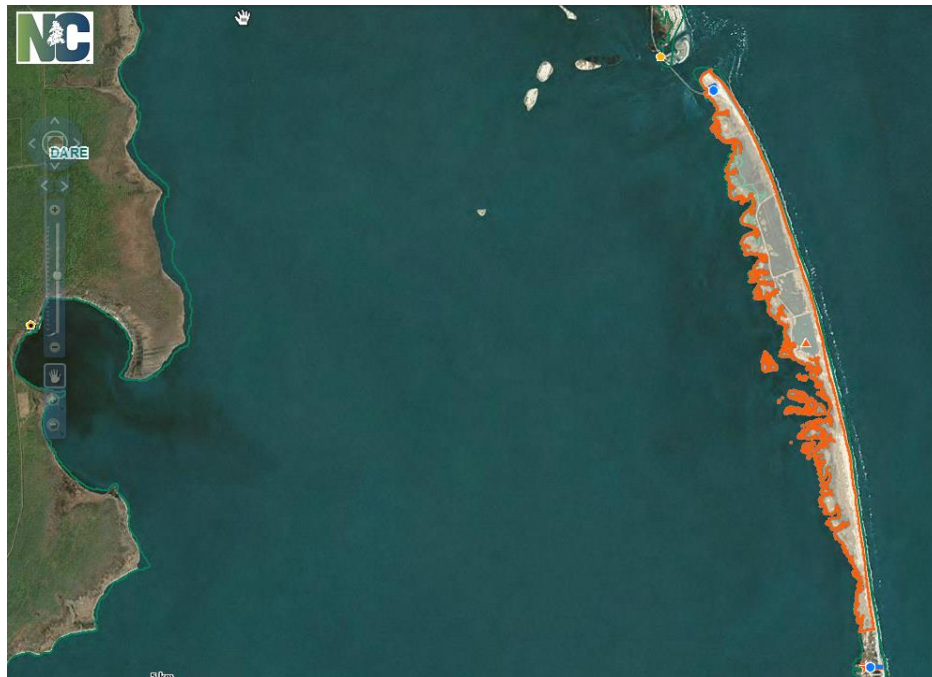


## II. PEA ISLAND NATIONAL WILDLIFE REFUGE: NEW INLET WOODEN BRIDGES AND FOOTPATHS/ROADWAY

	<b>Pea Island National Wildlife Refuge (PINWR): New Inlet wooden bridges and footpaths/roadway</b>
	Within DR0607
	Bridges and footpaths/roadway at Pamlico Sound in PINWR west of NC 12 between Oregon Inlet and Rodanthe, Dare County
	PINWR within Parcel 028727990, PIN: 074200340875
	Portions of three wooden bridges and roadway located in PINWR
PINWR determined eligible for National Register of Historic Places in 2003 under Criterion A in the areas of conservation and social history. Potential contributing status of bridges and footpaths/roadway addressed individually below.	

### A. Historic and Architectural Context

The New Inlet area is located within the Pea Island National Wildlife Refuge (PINWR) (DR0607) on North Carolina’s Outer Banks. In 1938 the federal government established the refuge on the north end of Hatteras Island in Dare County (U.S. Fish & Wildlife Service 2016). In 2003 the PINWR was determined eligible for listing in the National Register of Historic Places (NRHP) under NRHP Criterion A in the areas of conservation and social history. It was determined to be an outstanding example of an early twentieth-century national wildlife refuge and as illustrative of the work of the Civilian Conservation Corps (CCC) to protect and revitalize natural resources on the Outer Banks during the 1930s (Mattson, Alexander and Associates 2003) (Figure 2).



**Figure 2. Pea Island National Wildlife Refuge outlined in orange extending from Oregon Inlet, at top right, to just north of Rodanthe, blue dot at bottom right (source: <http://gis.ncdcr.gov/hpweb/>)**

New Inlet (or more accurately “new inlets”) has opened, closed, and shifted over the past four centuries of recorded history. Secondary sources record New Inlet as open—with dates not necessarily precise—between 1657-1683, 1738-1922, and 1932-1945 (Stick 1956:352; Mallinson et al. 2008:5-9; Birkemeier, Dolan & Fisher 1984:6-9; Clinch et al. 2012:1-2). It has been open for brief periods at other times as well, most recently in 2011 as a result of Hurricane Irene. New Inlet is currently closed. The New Inlet bridges and roadway that are the subject of this report are connected with the last major opening period, 1932-1945.

Historically, an open New Inlet was viewed positively by local residents and the state, for it increased the value of fisheries in Pamlico Sound. A 1921 article about the opening, re-opening, and retention of inlets along the North Carolina coast described the benefits of a free-flowing New Inlet (Elizabeth City *Independent*, September 23, 1921):

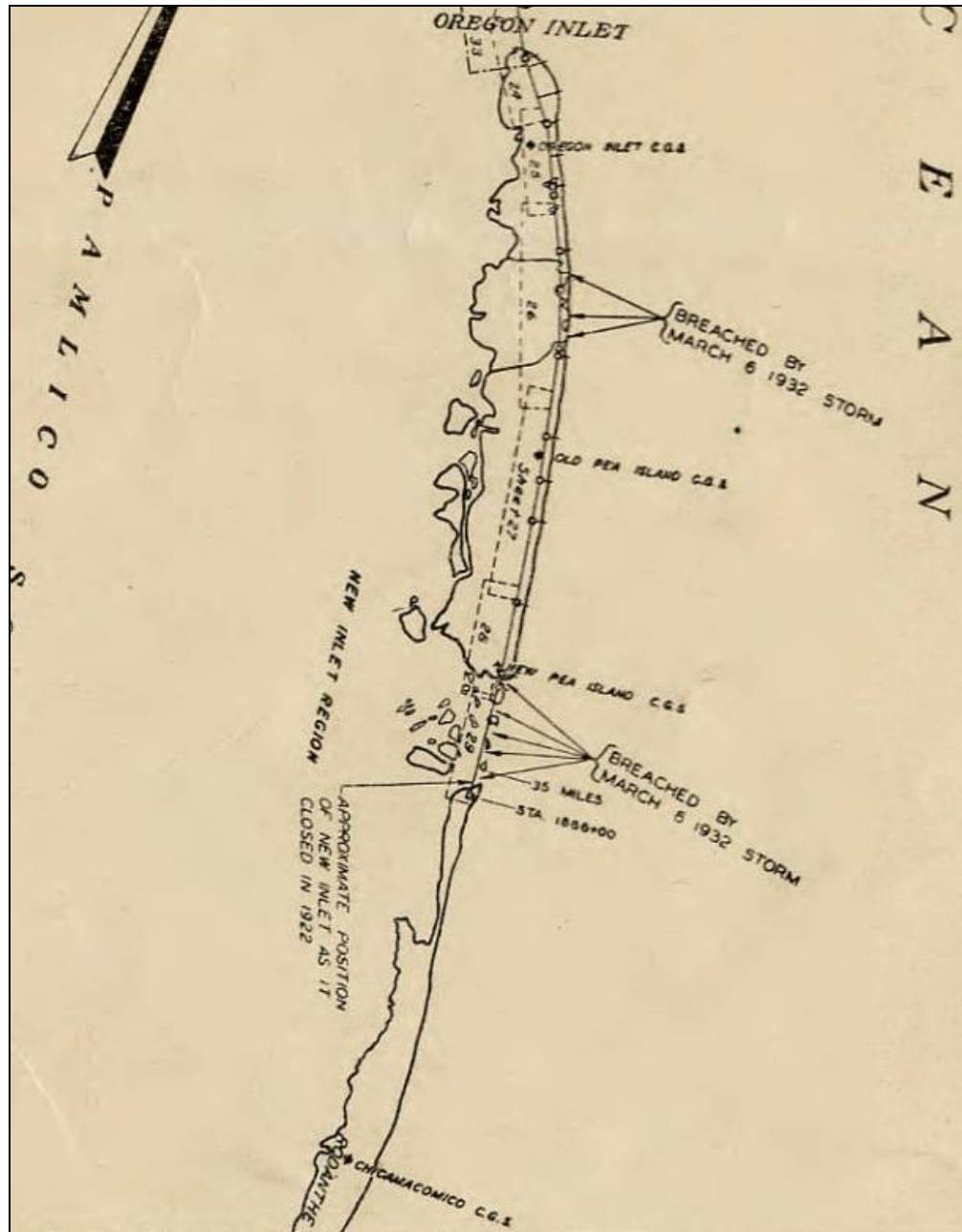
New Inlet, 15 miles South of Roanoke Island was, within the memory of living men, nearly a mile wide and navigable by ocean going ships. To-day a flat bottom skiff can hardly negotiate it and residents of the beach think nothing of driving a horse and cart across it. New Inlet was the greatest inlet for the shad fishermen of the upper sounds. Shad coming from the South in the spring would strike a long reef to the north of this inlet. Following this reef they would be led directly into this inlet and into the inland waters of Northeastern North Carolina. Shad and herring once coming [sic] thru this inlet in such schools that one could take them with a dip-net. Today the inlet is so narrow and the water so shallow that fish hesitate to come thru.

By the following year New Inlet had “completely closed and an automobile can be driven across it” (Charlotte *Observer*, April 2, 1922).

North Carolina considered an open New Inlet so important that it spent the spring of 1924 dredging a new canal for it at an expense of at least \$100,000. On October 7, 1924, the inlet reopened (Asheville *Citizen-Times*, October 19, 1924). The newly opened inlet gradually closed, however, and in late March, 1925 the State Fisheries Board abandoned efforts to dredge it back open (Asheville *Citizen-Times*, April 3, 1925). The importance of New Inlet to the Pamlico Sound fisheries played a role in the state’s decision to bridge the inlet when it reopened the following decade.

On March 6, 1932 a northeaster accomplished what the state had not been able to: it re-opened New Inlet (Albany, Oregon *Democrat-Herald*, March 8, 1932). The storm opened not only the inlet that had closed in 1922, but cut out four additional channels from the sound to the ocean immediately to the north (Burlington, NC *Daily Times-News*, March 12, 1932; North Carolina Department of Conservation and Development 1932). With fisheries in mind as well as transportation, the state promptly began planning for a means to cross rather than close the inlets (Statesville *Record*, April 19, 1932; *Beaufort News*, April 28, 1932) (Figure 3).





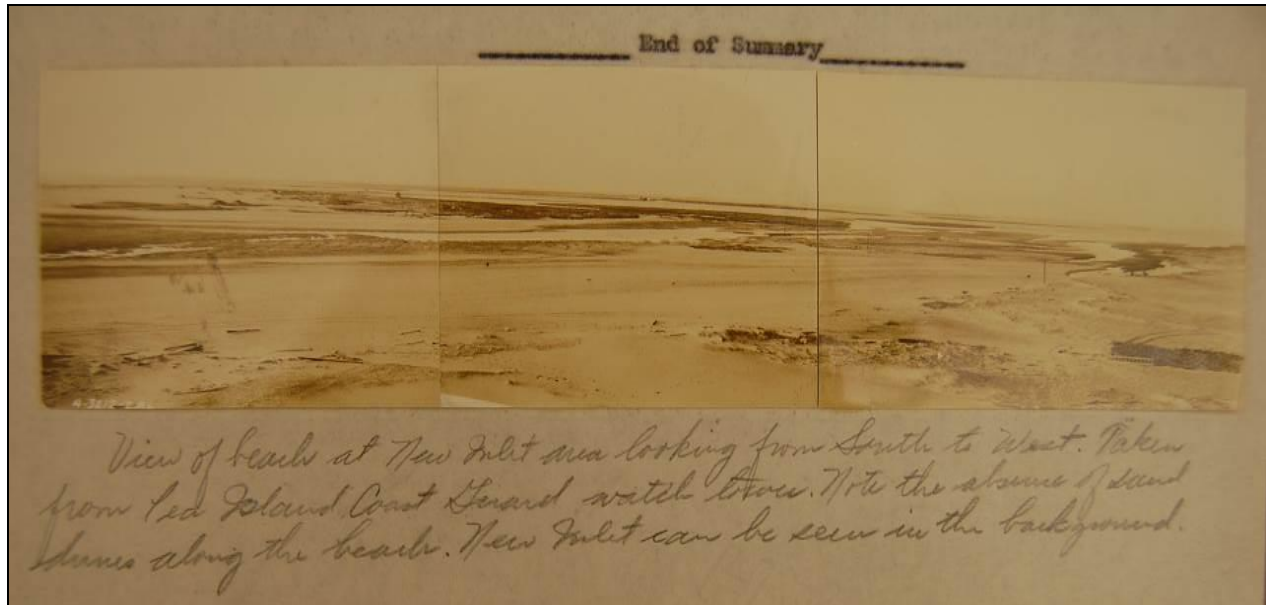
**Figure 3. Portion of 1932 state coastal study map depicting New Inlet breaches and approximate location of earlier inlet, at center (source: North Carolina Department of Conservation and Development)**

The New Inlet breaches were fluid, as they continued to shift and change throughout 1932 and 1933. A summary report of December 10, 1932 titled “Inspection of Wright Memorial Bridge—Rodanthe Region Following Storm of November 26-29, 1932” states in part (Riley 1932):

Changes in the New Inlet section were of the greatest magnitude and the greatest significance. During the months subsequent to the March storm the channel had shifted southward in its middle part and had lost in boldness. . . . New Inlet definitely had lost ground from March to November and the November storm is regarded as having been

extremely deleterious. Its present condition must be regarded as precarious and the tendency as definitely toward closure.

The report included a composite photograph of the beach and inlet at New Inlet (Figure 4).



**Figure 4. December 1932 composite photograph of New Inlet area (source: Riley inspection report)**

New Inlet was further greatly affected by the hurricane of September 15-16, 1933 that swept north through the Pamlico Sound (Hagerstown, MD *Daily Mail*, September 19, 1933; Barnes 1998:68-73). A report on inlets prepared following the hurricane stated: “New Inlet was made both wider and deeper at some points along the inlet shore line. It was also made much straighter” (U.S. Coast Guard 1933). The repeated storms and changes to New Inlet from March 1932 to September 1933 likely explain the inconsistencies in most secondary sources, which date the inlet’s reopening in either 1932 or 1933.

An undated state government report at the North Carolina State Archives addresses the economic revival of the coast. Probably written in 1935, it takes a surprisingly comprehensive and holistic approach, addressing topics including sand and erosion control, ocean inlet improvements, highway and bridge construction, public acquisition of land, and the revitalization of fisheries (North Carolina Department of Conservation and Development c1935). One section of the report concludes:

While every one of the Projects outline[d] more fully in succeeding pages has great merit, it is evident that they have far greater significance when considered as component parts of the development as a whole. With adequate provision for sand control and barrier dunes, improved transportation, establishment of public ownership, [and] rehabilitation of natural resources on both land and water the development is seen to be one of national significance, worthy of every consideration as a work of conservation, restoration and development of natural resources.

In its discussion of ocean inlet improvements, the report specifically addressed proposed work at New Inlet:

This inlet has had a varied history of opening and closing. Once opened by an artificial channel by the State of North Carolina, it was closed soon thereafter by a storm. Opened in

1932 by a storm in a different though not far removed place, it was deepened and widened by the severe storms of 1933 since which time it has maintained itself fairly well although shoaling has taken place on the inside delta. It is proposed here to construct two jetties on either side of the main channel and to straighten the largest channel through the inner delta by dredging at a cost of approximately \$280,000. The jetties are estimated to cost about \$170,000, making a total at this inlet of \$450,000.

In September 1935 the state submitted a series of projects in Washington proposing that about \$7,000,000, largely made up of federal funds, be expended in eastern North Carolina to create a national park on the coast, establish a wildfowl sanctuary south of Oregon Inlet, build roads and bridges on the Outer Banks, and rehabilitate the shellfish industry. The highway program, which accounted for nearly \$5,000,000 of the funds, called for “building five bridges spanning Albemarle sound, Alligator river, Croatan sound, Oregon and New inlets, and connecting roads fitting into the general State highway system, surfaced highways continuing down the banks from Dare county road [sic] across the two inlets and to Cape Hatteras” (*Statesville Record*, September 17, 1935). The work was to be done contemporaneously with sand fixation programs on the Outer Banks by the CCC that had already been approved. (Whether the jetties and dredging at New Inlet was included in the proposal is not clear. In any event, that this work was never done.) After four years of disruption, the New Inlet area would finally receive erosion control and a bridge or bridges.

The North Carolina State Highway and Public Works Commission, predecessor of the North Carolina Department of Transportation, built the bridges at New Inlet in 1935 or shortly thereafter. Written records of the construction were not located, but two sets of photographs survive at the North Carolina State Archives. The earlier undated set of photographs depicts the erection of three bridges over the north and south channels of the new inlet and its south slew. The bridges, all of which survive in part, were timber trestle structures. At the two structures across the north and south channels, three vertical (not battered) parallel, round, wooden posts or piles—set perpendicular to and driven down into the sound with water-jet-driven pile drivers—formed each of a long series of pile bents. The builders utilized a top-down method of construction well-suited to work in a wet area (Shearin and Jordan 2009:7). They ran the pile-driving equipment on rails atop already constructed portions of the bridges, allowing them to steadily work their way across the inlets. Diagonal sway braces crossed each other and were fastened at the center post of each bent in an X-shaped configuration for added strength. Wooden caps topped each bent and wooden stringers connected the bents and supported the wooden decking of the roadway, which is no longer extant (Figure 5 through Figure 8). A shorter, squatter, simpler structure crossed a narrow inlet south of the two larger structures called the South Slew. Its bents appear to have been formed of three vertical posts unsupported by cross braces (Figure 9). The use of pile bents was to be expected at the bridges considering their shallow watery setting. As an early twentieth-century treatise on wooden trestle bridges notes at the outset: “Pile bents are generally used where the ground is quite soft, and may either occasionally or constantly be covered with water; also where the distance from the rails to the surface of the ground is not great” (Foster 1913:1). The form remains in use to the present (see for example <http://www.timberdesignmag.com/projects/pine-eco-bridges/>).



**Figure 5. North Channel Bridge: caption reads “Pile Driver at Work”; note top-down method of construction (State Highway Commission, n.d.)**



**Figure 6. North Channel Bridge: caption reads “Showing Driver across Water of North Channel Sand Beach to Pea Island from here showing Jets at Work” (State Highway Commission, n.d.)**





**Figure 7. North Channel Bridge: caption reads “North channel from south end of Bridge” (State Highway Commission, n.d.)**



**Figure 8. South Channel Bridge: caption reads “South channel showing Camp in Distance looking North” (State Highway Commission, n.d.)**



**Figure 9. South Slew Bridge: caption reads “South Slew from North End” (State Highway Commission, n.d.)**

A second set of photographs, in a folder dated “ca.1935” by archivists, depicts the three bridges at a more complete, or finished, state of construction. The images show wooden barriers in place along the lengths of the north and south channel bridges formed of upright posts, horizontal curbs and rails, and outward diagonal braces. Sand roads approach the bridges (Figure 10 through Figure 12). The balustrade of the smaller South Slew Bridge was built of upright posts and horizontal rails lacking any diagonal bracing (Figure 13 and Figure 14).



**Figure 10. North Channel Bridge: caption reads “Main Inlet Bridge (distance) Dare Co” (State Highway Commission, ca.1935)**





**Figure 11. North Channel Bridge: caption reads “Main Inlet Bridge close Dare Co.” (State Highway Commission, ca.1935)**



**Figure 12. South Channel Bridge: caption reads “Second Bridge North End Dare Co” (State Highway Commission, ca.1935)**



**Figure 13. South Slew Bridge: caption reads “Third Bridge North End Dare Co” (State Highway Commission, ca.1935)**



**Figure 14. South Slew Bridge: caption reads “Third Bridge South End Dare Co.” (State Highway Commission, ca.1935)**

The state utilized a basic timber trestle form at the New Inlet bridges that has been common throughout much of the history of the United States. In his account of the design, construction, inspection, and maintenance of timber bridges, Ritter (1990:2—12-13) summarizes wooden trestle bridges:

A trestle is a series of beam, deck, or truss superstructures supported on timber bents. Trestles are used for long crossings when lengthy clear spans are unnecessary, impractical, or not economical. Superstructure support for trestle bridges is provided by bents

constructed of timber piles or sawn lumber frames. The spacing between bents is controlled by the span capability of the superstructure. The most common trestle configuration is a series of simply supported sawn lumber beams spanning 20 to 30 feet. Longer spans can be achieved with trusses or glulam beams.

Trestle bridges have been used in the United States since the mid-1700's. Most were constructed as railroad bridges between 1900 and 1950. In the mid-1950's, approximately 1,800 miles of timber trestles were in service on the Nation's railroads. Trestles were used for vehicle bridges through the 1950's, but their use has since declined because of the high cost of bent construction and the longer clear-span capabilities of glulam. With an average service life of 40 years or more, many treated-timber trestle bridges remain in service today.

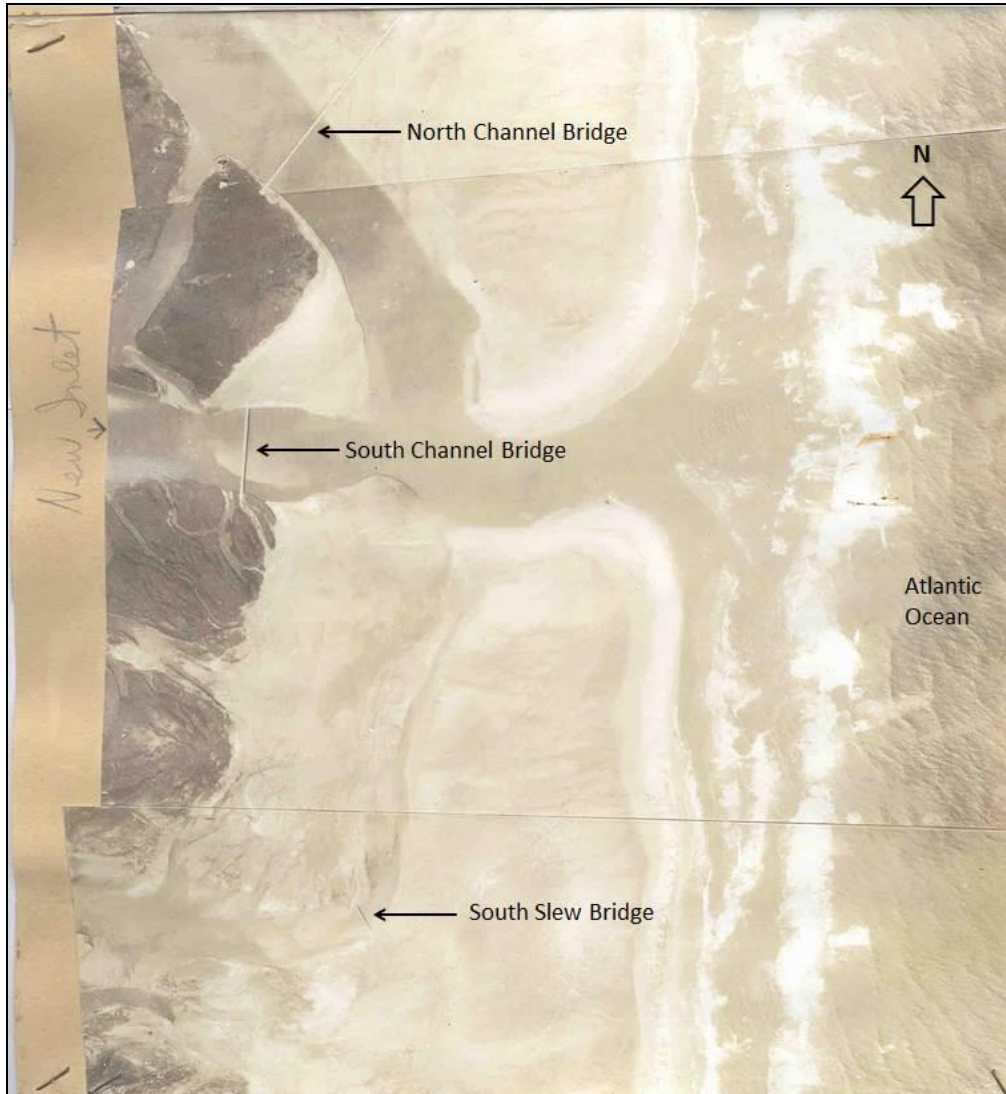
Railroads commonly constructed wooden trestle bridges (see White 1997). State highway departments in North Carolina and elsewhere used the form as well ((Smith 1920:252-272; Hool and Kinne 1924:372-401). NCDOT's Historic Bridges of North Carolina website summarizes the history of state construction of wooden bridges under the heading "timber stringer bridges" (<https://www.ncdot.gov/projects/ncbridges/historic/types/?p=16#types>):

In the 1920s the State Highway Department developed standard plans for timber stringer bridges. The bridge type has been used in North Carolina since the earliest days of settlement, simply being a series of parallel wooden beams or logs carrying a deck. Timber stringer bridges have the advantage of using an abundant natural material, but are limited in span length (about 25 feet maximum) and deteriorate rapidly unless the wood is treated. Untreated wood is generally regarded as having a lifespan of ten years in North Carolina's climate. The most common treatment since about 1900 has been creosote, which extends the life of the wood on average to between 25 and 35 years, although some bridges have been known to last considerably longer.

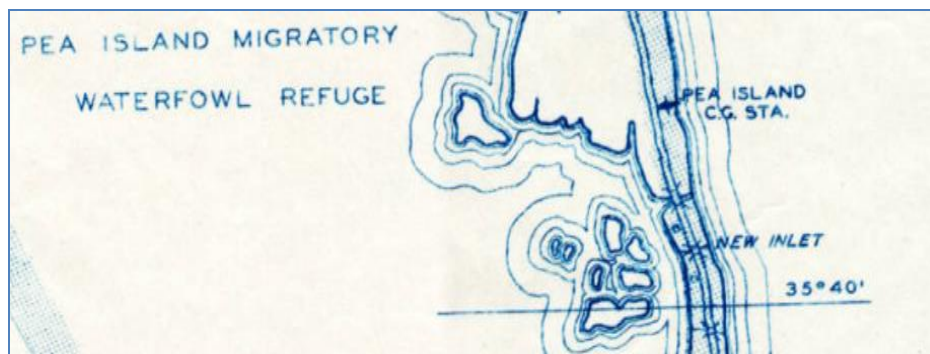
....

According to the Historic Bridge Inventory, more than 570 timber stringer bridges have pre-1961 dates of construction, but most have very little, if any, original fabric, because individual members are replaced in-kind as part of routine maintenance. . . .

The U.S. Army Corps of Engineers (USACE) took a series of aerial photographs of the Outer Banks from early 1932, following the northeaster that reopened New Inlet, through late 1938. The three New Inlet bridges are first visible on USACE aerial photographs taken in November 19, 1938 (Figure 15). (They were likely not standing during the preceding flights of 1933-1934.) The north and south channel bridges are clearly visible, but the southernmost one over the slew less so due to overexposure of the negative. While the bridges are evident, they do not appear to have any developed approach roads. Three bridges are also indicated at or near New Inlet on a 1938 highway map of Dare County (Figure 16).



**Figure 15. New Inlet breaches and bridges in 1938 with labels added (U.S. Army Corps of Engineers, November 19, 1938)**



**Figure 16. Dare County highway map, 1938 (North Carolina State Highway and Public Works Commission)**



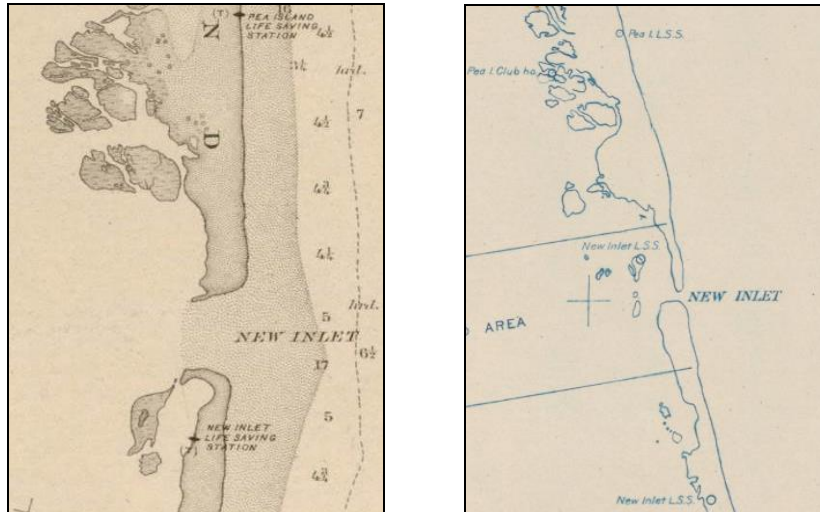
A second aerial image adds information (Figure 17). It is included in the photographic collection of Alan Eldridge, a CCC officer (Alan Eldridge Collection, 33GRF-159). During the first half of 1940, Eldridge and his family drove from Manteo to the Oregon Inlet ferry and then down sand roads to Hatteras Village. Eldridge memorialized the trip in a scrapbook that included composite aerial photographs with handwritten notations and additional photographs he took along the way. The aerial that depicts New Inlet would have been taken in 1939 or early 1940.<sup>1</sup> It clearly shows the bridges across the north and south channels of New Inlet. It also appears to depict a partially elevated roadway connecting the bridges with the main sand road that paralleled the beach to the north and south. (It is also possible that shadows, erosion, or use give the roadway the appearance of being elevated.) The South Slew Bridge beneath the bottom tape line is not apparent.



**Figure 17. Portion of ca.1939 aerial of New Inlet with North Channel Bridge in area circled on original image and South Channel Bridge below at center; note what appear to be elevated sections of roadway (Alan Eldridge Collection, 33GRF-159)**

<sup>1</sup> Eldridge's interest in and possession of high-quality aerial images and photography was not surprising. In 1945, by which time he was a lieutenant colonel and an instructor at the Air Corps Command and General Staff Office, he wrote an article detailing the particulars of effective aerial reconnaissance (Eldridge 1945).

Early twentieth century charts, the Eldridge aerial, and his annotation of it raise questions about what building or buildings were located adjacent to the southern end of the North Channel Bridge. A 1902 U.S. Coast and Geodetic Survey map depicts the New Inlet Life Saving Station to the south of New Inlet. A 1910 chart of the sounds, though, shows two New Inlet stations, one south of the inlet and one on the island that the north bridge crosses. A 1913 chart shows the same. A chart from 1911 shows a building on the island as well, but does not identify it as connected with the Coast Guard (Figure 18 and Figure 19).



**Figure 18. Portions of 1902 chart of Oregon Inlet to Cape Hatteras, at left, and 1910 Croatan and Roanoke Sounds and Part of Pamlico Sound chart, at right (U.S. Coast and Geodetic Survey)**



**Figure 19. Portions of 1911 Pamlico Sound chart, at left, and 1913 chart of Oregon Inlet to Cape Hatteras, at right (U.S. Coast and Geodetic Survey)**



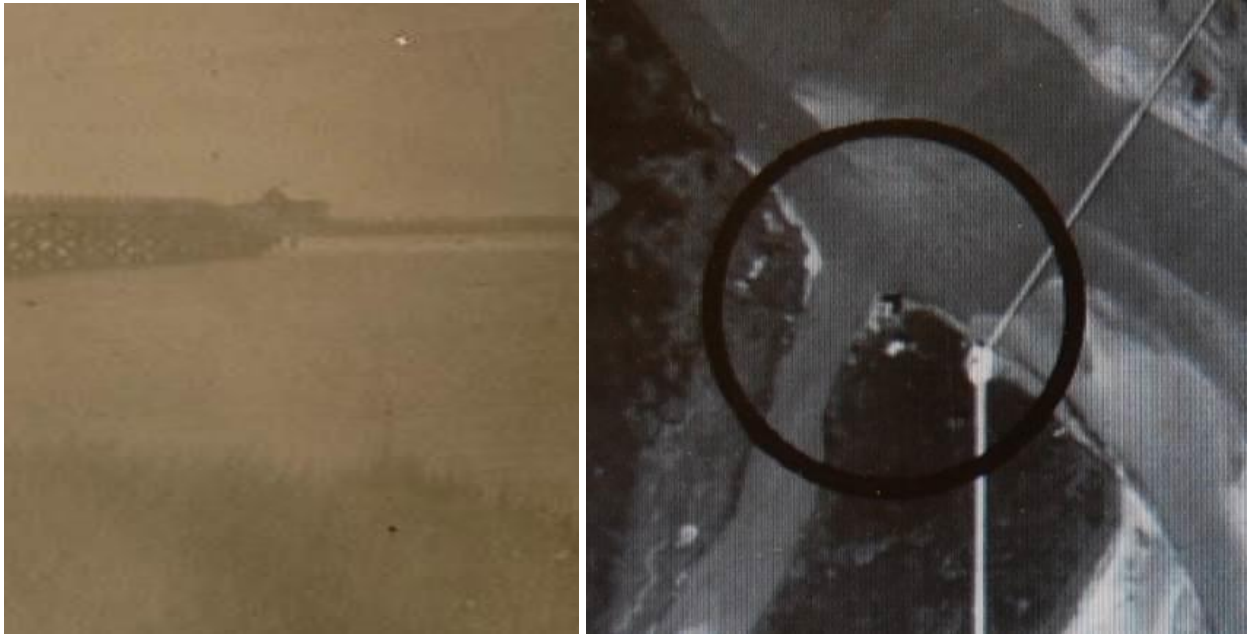
The New Inlet Life Saving Station was relatively short-lived and did have multiple locations. It was built about 1882 two-and-a-half miles south of New Inlet and relocated to a spot a mile south of the inlet in 1887 or 1888. In 1896 it was abandoned due to storm damage and rebuilt in 1897. The storm surge from a hurricane in November 1904 reportedly swept away or burned the station in 1904 and killed some crew members or seamen. In 1908 the station was abandoned again and relocated to a site two miles north of Chicamacomico. The Coast Guard decommissioned and finally abandoned the station in 1916 (U.S. Life Saving Stations, Outer Banks; Barnes 1998:64).

The historical record does not indicate that the New Inlet station was sited along the Pamlico Sound, which would have been an odd location for a service dedicated, on the Outer Banks, to ocean rescues. However, no images of the station in any of its incarnations survive and its precise appearance and locations are not known.

The building or buildings adjacent to the North Channel Bridge were almost certainly home to the hunting and fishing camp of St. Clair Midgett. The first set of State Highway Commission photographs, from about 1935, depicts a gable-roofed building with an interior chimney stack on the island that it calls a "Camp." This is the same building shown on the ca.1939 Eldridge aerial, which Eldridge circled and labeled as "New Inlet and St. Clair Midgett's fishing camp" (Figure 20). St. Clair Midgett (1893-1965) was the son of Tilman F. Midgette (1858-1931). Both father and son had or claimed interests in small grassy islands, known as "lumps" in local parlance, on the sound side of New Inlet. In August 1921, T.F. Midgett laid claim to a "lump known as the St. Clair lump abreast of New Inlet" (*Elizabeth City Independent*, August 12, 1921). St. Clair Midgett's hunting camp was reportedly located on "Jack Shoal grass," a lump in the sound at New Inlet (see (Garrity-Blake et al. 2005a:90). St. Clair Midgette placed an advertisement in *Forest and Stream* magazine in December 1922 that stated:

NOTICE TO SPORTSMEN WANTING TO shoot wild geese, black brant and ducks on the shoals abreast of Old New Inlet. Season opens November 1st. Make your reservations ahead. Prices reasonable. Address St. Clair Midgett, Rodanthe, N.C.

Outer Banks photographer Michael Halminski captured the frame, gable-end, central-chimney St. Clair Midgett "fish camp" (as he called it) in 1982, when it was largely intact, and in January 1985, by which date it had "dropped from its foundation into the water." According to his account, this building and a smaller camp building to its northwest were washed completely away in September 1985 by Hurricane Gloria (Michael Halminski Photography website 2015) (Figure 21 and Figure 22).



**Figure 20.** Close ups of mid-1930s photograph of South Channel Bridge with building, at left (State Highway Commission, n.d.), and of ca.1939 aerial, at right, with building or buildings at northwest tip of lump (Alan Eldridge Collection, 33GRF-159)



**Figure 21.** Looking southwest across north channel at bridge and St. Clair Midgett fish camp (photographer: Michael Halminski, 1982)



**Figure 22. St. Clair Midgett fish camp building off its foundation in the water (photographer: Michael Halminski, January 1985)**

As the ca.1939 Eldridge aerial indicates, New Inlet had begun to close by the late 1930s. The *Beaufort News* reported on January 12, 1941:

When opening in March 1932, it was a good half mile wide on the ocean side, with branches running into the sound. Now New Inlet is nearly closed, and only a narrow slit at the ocean remains to let the water through, as a result of steady northeasters this winter, and past winters.

...

Nature it seems, is handling the situation to suit itself, and inlets only come and go as nature wills. Building of sand fences with consequent raising of the beach level is believed to have had much to do with New Inlet filling up.

The demise of New Inlet was slow, however. In late summer 1944, in the wake of a hurricane and exceptionally high tides, “New Inlet, last opened by the storm of 1933, and closed gradually by 1941, was reopened with a width of about 1,000 yards . . .” (Burlington, NC *Daily Times-News*, September 16, 1944).

By 1950 New Inlet had fully, if not permanently, closed. North Carolina built and ultimately paved a road the length of Hatteras Island—NC 12—after World War II that did not extend into west toward the sound. Beginning in Hatteras Village, the state completed a 17.3-mile section east through Frisco and Buxton and



north on to Avon in 1948. It finished a 17.8-mile segment from Avon north to Rodanthe in 1950. By September 1952 it had paved the remaining 12.4 miles to the north to Oregon Inlet (McAllister 2009:168; *Belhaven Pilot*, June 19, 1952; *Statesville Daily Record*, September 1, 1952). This road, as it does at present, extended north-south parallel to the Atlantic, rather than curving away from the beach (Figure 23). From no later than 1952, therefore, the New Inlet bridges have been left untended in Pamlico Sound.

### Road Built on Outer Banks



The only road on the Outer Banks of North Carolina—from Hatteras to Avon, a distance of 17 miles—will be dedicated August 4 during Coast Guard Day celebration at Hatteras. Here's a section of the new road. Outer Bankers might well make much ado over the little strip of pavement. It's the first they've had in their 400-year history. (AP Photo).

**Figure 23. Outer Bankers and vehicles enjoying paved road on Hatteras Island (Carteret County *News-Times*, August 3, 1948)**

## **B. NRHP Eligibility of North Channel Bridge, South Channel Bridge, South Slew Bridge, and New Inlet Bridges Roadway**

By ca.1940 there were four or five components of the bridge and road network at New Inlet: the North Channel Bridge; the South Channel Bridge; the South Slew Bridge; the road connecting the bridges with the main sand thoroughfare north and south of the New Inlet breaches; and, perhaps, elevated portions of the bridge road. Any elevated portions of the former roadway are no longer apparent. This assessment therefore addresses the potential NRHP eligibility of the three bridges and the road, which are identified, for clarity, as the North Channel Bridge, South Channel Bridge, South Slew Bridge, and the New Inlet Bridges Road.

The NRHP eligibility report for PINWR evaluated it in part as follows (Mattson, Alexander and Associates 2003):

The Pea Island National Wildlife Refuge is recommended as eligible for the National Register under Criterion A in the area of conservation and social history. The refuge is an outstanding example of the national wildlife refuges that arose during the early twentieth century. With its man-made dikes and dunes, the sanctuary also illustrates the efforts of the Civilian Conservation Corps on the Outer Banks to protect and revitalize natural resources.

PINWR was determined eligible under Criterion A within the recommended areas of significance in 2003.

Although left unmaintained for at least 65 years, the three bridges continue to stand, in part, in Pamlico Sound (Figure 24). The north and south channel bridges can be viewed from NC 12 but, as some of the following photographs show, are best seen from a boat or kayak (Figure 26 through Figure 35). The South Slew Bridge, about five pile bents of which survive, is not apparent from the road and even difficult to identify in aerial photographs. It is depicted below through a series of bird's-eye aerial views (Figure 36 and Figure 37). Much of the path of the New Inlet Bridges Road is visible in aerial photographs. However, at ground level it is almost completely obscured by chest-high tangles of grasses. From the ground it is unrecognizable as a former roadway.

The 2003 eligibility report did not address the New Inlet bridges and roadway, either individually or as potential contributing resources to the PINWR. However, solely on the basis of their significance, the resources could potentially be eligible for NRHP listing as contributing to the PINWR. Whether they are NRHP-eligible, however, depends on whether they possess sufficient integrity to support such significance. The integrity of each resource is addressed following the photographs below, which visually address their retention or loss of integrity of location, design, setting, materials, workmanship, feeling, and association.

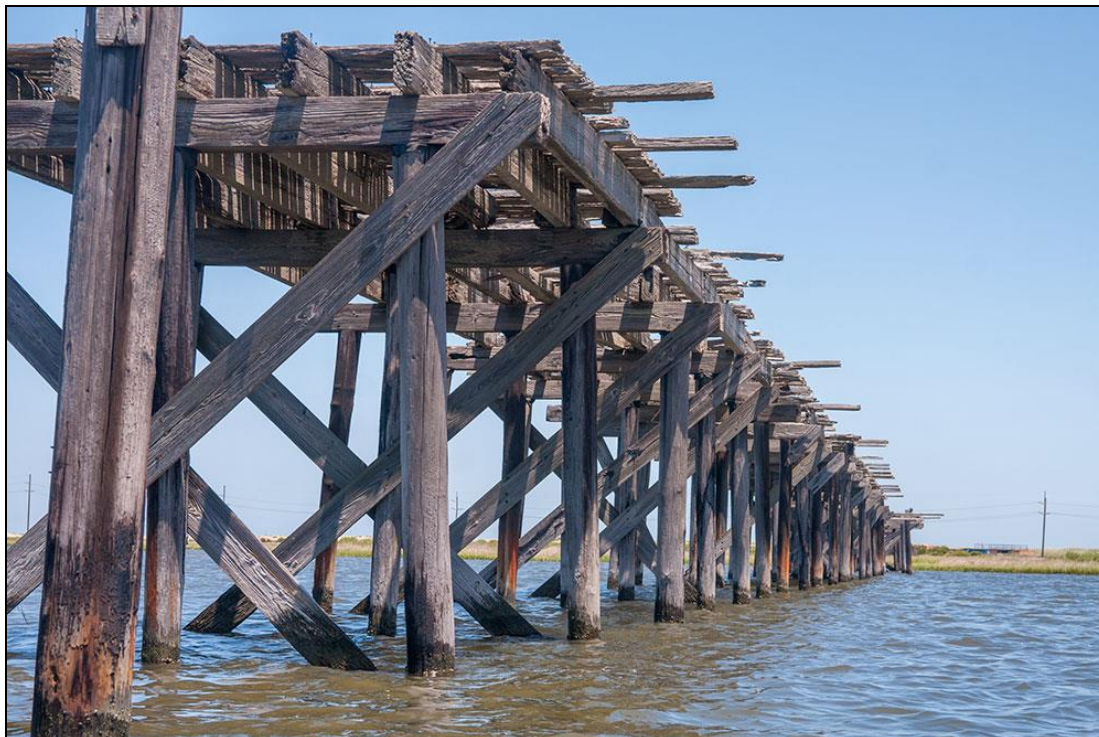


**Figure 24. Modern aerial photograph with resources labeled**





**Figure 25. Close up modern aerial view of North Channel Bridge**



**Figure 26. Pile bents of North Channel Bridge from Pamlico Sound (photographer: Michael Henderson, January 30, 2016)**



**Figure 27. Stringers and deck of North Channel Bridge from Pamlico Sound (photographer: Michael Henderson, January 30, 2016)**





**Figure 28. Southern end of North Channel Bridge from NC 12 (photographer: Marvin Brown, November 9, 2016)**



**Figure 29. Southern and central sections of North Channel Bridge from NC 12 (photographer: Marvin Brown, November 9, 2016)**



**Figure 30. Northern section of North Channel Bridge from NC 12 (photographer: Marvin Brown, November 9, 2016)**



**Figure 31. Northern section of North Channel Bridge from NC 12 (photographer: Marvin Brown, November 9, 2016)**



**Figure 32. Close up modern aerial view of South Channel Bridge**



**Figure 33. South Channel Bridge from Pamlico Sound (photographer: Dan M. on Panoramio, 2010)**





**Figure 34. South Channel Bridge from NC 12 (photographer: Marvin Brown, November 9, 2016)**



**Figure 35. South Channel Bridge from NC 12 (photographer: Marvin Brown, November 9, 2016)**






**Figure 36. Modern bird's-eye aerial photographs of South Slew Bridge with north at top at left image and south at top at right**



**Figure 37. Modern bird's-eye aerial photographs of South Slew Bridge with east at top at left image and west at top at right**

	<b>North Channel Bridge</b>
	Within NRHP-eligible Pea Island National Wildlife Refuge (DR0607)
	Surviving pile bents and some superstructure elements of bridge in Pamlico Sound in PINWR, west of NC 12 between Oregon Inlet and Rodanthe, Dare County
	Center point of bridge within channel at Latitude 35.675390, Longitude 75.484543 (within Parcel 028727990, PIN 074200340875)
	Ca.1935
	Recommended not eligible for National Register listing due to loss of all seven NRHP elements of integrity

### National Register of Historic Places Evaluation

The New Inlet North Channel Bridge is a potentially significant contributing resource to the NRHP-eligible Pea Island National Wildlife Refuge for its association with the efforts of North Carolina—through its highways, conservation, and economic development arms, as well as through its successful efforts to bring the CCC to the Outer Banks—to control and utilize Pea Island. However, due to the loss of the large majority of its physical features, the North Channel Bridge is recommended as not having sufficient integrity to support NRHP eligibility either individually; as a contributing part of the PINWR; or as part of any other potential historic district.

The North Carolina State Highway and Public Works Commission built three bridges, including the North Channel Bridge, and a road between them about 1935. This construction on the Pamlico Sound side of Pea Island allowed traffic to pass across new inlets cut by storms between Oregon Inlet and Rodanthe. The bridges and road were active until the late 1940s or early 1950s, when they were abandoned in favor of a rebuilt road near the site of current NC 12 that paralleled the Atlantic Ocean.


The North Channel Bridge was erected as a timber trestle structure. Its long series of pile bents were formed of three vertical (not battered), parallel, round, wooden posts. Diagonal sway braces were fastened at the center post of its taller bents in an X-shaped configuration. Shallower bents near the bridge's approaches may have been erected without diagonal braces. Wooden caps topped each bent and wooden stringers connected the bents and supported the wooden decking of the roadway. Historic photographs depict wooden barriers—no longer in place—along the length of the bridge formed of upright posts, horizontal curbs and rails, and outward diagonal braces. The bridge was constructed by a top-down method of construction with its piles driven into the ground by water-jet-powered pile drivers. The choice of wooden trestle construction at the site was standard, for pile bents at the time were generally used in wet or water-covered soft ground, where the distance from the deck to the ground surface was not great. The top-down method of construction, well-suited for crossing water, was also common. The bridge—elevated just above the sound and designed to carry light traffic—was a quite basic and likely unnoteworthy example of a timber trestle (Parsons Brinckerhoff and Engineering and Industrial Heritage 2005; Ritter 1990).

The bridge, which has not been maintained for at least 65 years, has lost its integrity of design, materials, and workmanship. Its barrier rails are gone, as is almost all of its deck. Heavily deteriorated wooden caps and stringers survive in part atop and across most of the bents of its largest southern section. Its northern

section retains only its piles. Almost all of the bridge's piles continue to stand, though a few have lost a post. Most of the bents retain one or both of their sway braces. In addition to losing its physical integrity, the bridge no longer retains its associational integrity. It stands on the place where it was constructed, but the loss of its associated roadway and the reduction of its companion bridges to piles has had a negative effect on its integrity of location and setting. Due to the loss of its associated roadway and intact bridges, it also no longer retains its integrity of feeling and association. In summary, the North Channel Bridge is believed to have lost all seven of its NRHP attributes of integrity and therefore does not have the integrity to support its listing in the NRHP under any area of significance, either individually or as part of any historic district.

<b>NORTH CHANNEL BRIDGE</b>		
<b>Element of Integrity</b>	<b>Level of Integrity</b>	<b>Assessment</b>
Location	Medium	Surviving components remain in place where constructed, though in changed setting without intact associated bridges and roadway.
Design	Low	Has lost all barrier rails and almost all decking, many stringers, caps, and sway braces, and some piles.
Setting	Low	Setting greatly changed through loss of intact associated bridges and roadway.
Materials	Low	Has lost all barrier rails and almost all decking, many stringers, caps, and sway braces, and some piles.
Workmanship	Low	Has lost all barrier rails and almost all decking, many stringers, caps, and sway braces, and some piles.
Feeling	Low	Heavily diminished through loss of barrier rails and almost all decking, many stringers, caps, and sway braces, and some piles, as well as by loss of intact associated bridges and roadway.
Association	Low	Heavily diminished through loss of barrier rails and almost all decking, many stringers, caps, and sway braces, and some piles, as well as by loss of intact associated bridges and roadway.



	<b>South Channel Bridge</b>
	Within NRHP-eligible Pea Island National Wildlife Refuge (DR0607)
	Surviving pile bents of bridge in Pamlico Sound in PINWR, west of NC 12 between Oregon Inlet and Rodanthe, Dare County
	Center point of bridge within channel at Latitude 35.670468, Longitude 75.484977 (within Parcel 028727990, PIN 074200340875)
	Ca.1935
	Recommended not eligible for National Register listing due to loss of all seven NRHP elements of integrity

The New Inlet South Channel Bridge is a potentially significant contributing resource to the NRHP-eligible Pea Island National Wildlife Refuge for its association with the efforts of North Carolina—through its highways, conservation, and economic development arms, as well as through its successful efforts to bring the CCC to the Outer Banks—to control and utilize Pea Island. However, due to loss of almost all physical features, the South Channel Bridge is recommended as not having sufficient integrity to support NRHP eligibility either individually; as a contributing part of the PINWR; or as part of any other potential historic district.

The State Highway and Public Works Commission built three bridges, including the South Channel Bridge, and a road between them ca.1935. This construction on the Pamlico Sound side of Pea Island allowed traffic to pass across new inlets cut by storms between Oregon Inlet and Rodanthe. The bridges and road were active until the late 1940s or early 1950s, when they were abandoned in favor of a rebuilt road that paralleled the Atlantic Ocean near the site of current NC 12.


The South Channel Bridge was erected as a timber trestle structure. Its pile bents were formed of three vertical (not battered), parallel, round, wooden posts. Diagonal sway braces were fastened at the center post of its taller bents in an X-shaped configuration. Shallower bents near the bridge's approaches may have been erected without diagonal braces. Wooden caps topped each bent and wooden stringers connected the bents and supported the wooden decking of the roadway. Historic photographs depict wooden barriers—no longer in place—along the length of the bridge formed of upright posts, horizontal curbs and rails, and outward diagonal braces. The bridge was constructed by a top-down method of construction with its piles driven into the ground by water-jet-powered pile drivers. The choice of wooden trestle construction at the site was standard, for pile bents at the time were generally used in wet or water-covered soft ground, where the distance from the deck to the ground surface was not great. The top-down method of construction, well-suited for crossing water, was also common. The bridge—elevated just above the sound and designed to carry light traffic—was a quite basic and likely unnotable example of a timber trestle (Parsons Brinckerhoff and Engineering and Industrial Heritage 2005; Ritter 1990).

The bridge, not maintained for at least 65 years, has lost its integrity of design, materials, and workmanship. Its barrier rails, deck, stringers, and almost all caps and sway braces are gone. Its surviving components are essentially just unbraced bents. In addition to losing its physical integrity, the bridge no longer retains its associational integrity. It stands on the place where it was constructed, but the loss of its associated roadway and the reduction of its companion bridges to piles and bits of superstructure have negatively affected its integrity of location and setting. Due to the loss of its associated roadway and intact



bridges, it also no longer retains its integrity of feeling and association. In summary, the South Channel Bridge is believed to have lost all seven of its NRHP attributes of integrity and therefore does not have the integrity to support its listing in the NRHP under any area of significance, either individually or as part of any historic district.

<b>SOUTH CHANNEL BRIDGE</b>		
<b>Element of Integrity</b>	<b>Level of Integrity</b>	<b>Assessment</b>
Location	Medium	Limited surviving components remain in place where constructed, though in changed setting without associated intact bridges and roadway.
Design	Low	Has lost all barrier rails, decking, and stringers, and many caps and sway braces.
Setting	Low	Setting greatly changed through loss of intact associated bridges and roadway.
Materials	Low	Has lost all barrier rails, decking, and stringers, and many caps and sway braces.
Workmanship	Low	Has lost all barrier rails, decking, and stringers, and many caps and sway braces.
Feeling	Low	Heavily diminished through loss of all barrier rails, decking, and stringers, and many caps and sway braces, as well as loss of intact associated bridges and roadway.
Association	Low	Heavily diminished through loss of all barrier rails, decking, and stringers, and many caps and sway braces, as well as loss of intact associated bridges and roadway.

	<b>South Slew Bridge</b>
	Within NRHP-eligible Pea Island National Wildlife Refuge (DR0607)
	Some surviving pile bents of bridge in Pamlico Sound in PINWR, west of NC 12 between Oregon Inlet and Rodanthe, Dare County
	Center point of bridge within channel at Latitude 35.663854, Longitude 75.481641 (within Parcel 028727990, PIN: 074200340875)
	Ca.1935
	Recommended not eligible for National Register listing due to loss of all seven NRHP elements of integrity

The South Slew Channel Bridge is a potentially significant contributing resource to the NRHP-eligible Pea Island National Wildlife Refuge for its association with the efforts of North Carolina—through its highways, conservation, and economic development arms, as well as through its successful efforts to bring the CCC to the Outer Banks—to control and utilize Pea Island. However, due to the loss of almost all of its physical features, the South Slew Bridge is recommended as not having sufficient integrity to support NRHP eligibility either individually; as a contributing part of the PINWR; or as part of any other potential historic district.


The State Highway and Public Works Commission built three bridges, including the South Slew Bridge, and a road between them ca.1935. This construction on the Pamlico Sound side of Pea Island allowed traffic to pass across new inlets cut by storms between Oregon Inlet and Rodanthe. The bridges and road were active until the late 1940s or early 1950s, when they were abandoned in favor of a rebuilt road near the site of current NC 12 that paralleled the Atlantic Ocean.

The South Slew Bridge was erected as a timber trestle structure. Pairs of vertical (not battered), parallel, round, wooden posts formed its bents. Unlike the bridges at the north and south channels, it lacked any diagonal sway braces. Wooden caps topped each bent and wooden stringers connected the bents and supported the wooden decking of the roadway. Historic photographs depict wooden barriers along the length of the bridge formed of upright posts and horizontal rails without any additional bracing. The bridge was likely constructed by a top-down method of construction with its piles driven into the ground by water-jet-powered pile drivers. The choice of wooden trestle construction at the site was standard, for pile bents at the time were generally used in wet or water-covered soft ground, where the distance from the deck to the ground surface was not great. The top-down method of construction, well-suited for crossing water, was also common. The bridge—elevated just above the sound with but two posts per bent and designed to carry light traffic—was a particularly basic and likely unnotable example of a timber trestle (Parsons Brinckerhoff and Engineering and Industrial Heritage 2005; Ritter 1990).

Not maintained for more than 65 years, the bridge has lost its integrity of design, materials, and workmanship. Its barrier rails, deck, stringers, and caps are gone. Its surviving components are limited to five unbraced bents. What happened to the remainder of the bridge, which was many bents longer, is not known. In addition to losing its physical integrity, the bridge no longer retains its associational integrity. It stands on the place where it was constructed, but the loss of its intact associated roadway and the reduction of its companion bridges to piles and pieces of superstructure have negatively affected its integrity of location and setting. Due to the loss of its associated roadway and intact associated bridges, it also no longer retains its integrity of feeling and association. In summary, the South Slew Bridge is

believed to have lost all seven of its NRHP attributes of integrity and therefore does not have the integrity to support its listing in the NRHP under any area of significance, either individually or as part of any historic district.

<b>SOUTH SLEW BRIDGE</b>		
<b>Element of Integrity</b>	<b>Level of Integrity</b>	<b>Assessment</b>
Location	Medium	Limited surviving components remain in place where constructed, though in changed setting without intact associated bridges and roadway.
Design	Low	Has lost all barrier rails, decking, stringers, and caps, and many of its bents. Consists solely, aboveground, of five bents.
Setting	Low	Setting greatly changed through loss of intact associated bridges and roadway.
Materials	Low	Has lost all barrier rails, decking, stringers, and caps, and many of its bents. Consists solely, aboveground, of five bents.
Workmanship	Low	Has lost all barrier rails, decking, stringers, and caps, and many of its bents. Consists solely, aboveground, of five bents.
Feeling	Low	Heavily diminished through loss of all barrier rails, decking, stringers, and caps, and many of its bents, as well as loss of intact associated bridges and roadway.
Association	Low	Heavily diminished through loss of all barrier rails, decking, stringers, and caps, and many of its bents, as well as loss of intact associated bridges and roadway.

	<p><b>New Inlet Bridges Roadway</b></p>
	<p>Within NRHP-eligible Pea Island National Wildlife Refuge (DR0607)</p>
	<p>Surviving path of roadway connecting North Channel, South Channel, and South Slew bridges with NC 12 in Pamlico Sound in PINWR, west of NC 12 between Oregon Inlet and Rodanthe, Dare County</p>
	<p>Runs between three bridges and NC 12 at north (at Longitude 35.680787, Latitude 75.482635) and NC 12 at south (at Longitude 35.661251, Latitude 75.478857) (within Parcel 028727990, PIN 074200340875)</p>
	<p>Ca.1935</p>
<p>Recommended not eligible for National Register listing due to loss of integrity</p>	

The New Inlet Bridges Roadway is a potentially significant contributing resource to the NRHP-eligible Pea Island National Wildlife Refuge for its association with the efforts of North Carolina—through its highways, conservation, and economic development arms, as well as through its successful efforts to bring the CCC to the Outer Banks—to control and utilize Pea Island. However, due to loss of all built features, the roadway is recommended as not having sufficient integrity to support NRHP eligibility either individually; as a contributing part of the PINWR; or as part of any other potential historic district.

The State Highway and Public Works Commission built three bridges and a roadway connecting them with the intact path of current NC 12 about 1935. This construction on the Pamlico Sound side of Pea Island allowed traffic to pass across new inlets cut by storms between Oregon Inlet and Rodanthe. The bridges and road were active until the late 1940s or early 1950s, when they were abandoned in favor of a rebuilt road near the site of current NC 12 that paralleled the Atlantic Ocean.

The early appearance of the roadway is not clear. According to historic photographs, when the bridges were erected it was simply a sand path. It appears to still be of sand in a November 1938 aerial image. However, an aerial photograph taken ca.1939 suggests that the road was in part elevated. (It is also possible that shadows, erosion, or use give the roadway the appearance of elevation.) Currently the roadway is not apparent at ground level. Only from the air is a linear pathway visible. This path runs in sections: southwest from NC 12 to the north end of and across the North Channel Bridge; south across a lump or island from the south end of that bridge to the piles of the South Channel Bridge; and south across that bridge and then southeast back towards NC 12. However, its path on either side of the South Slew Bridge is not clear, for it runs to the east of that bridge, rather than connecting with it.

The path that appears to be a roadway may in part have been the route of telephone lines, particularly south of the lump. Mid-1930s photographs of the South Slew Bridge include telephone poles in the distance (Figure 9 and Figure 13, above). Further, an image looking south from the south end of the lump, though of limited quality, clearly shows telephone poles marching south into the distance (Figure 38).





**Figure 38. Mid-1930s photograph captioned “Showing south channel & South Slew from south end of north channel”; note line of telephone poles at far left (State Highway Commission, n.d.)**

The roadway, unmaintained for more than 60 years, has lost its integrity of design, materials, and workmanship. Its path is heavily overgrown and only apparent from the air. Any elevated sections it may have had are lost or covered. In addition to losing its physical integrity, the roadway no longer retains its associational integrity. It stands on the place where it was constructed (although its southern path is not clear), but the reduction of the bridges it served to pile bents and bits of superstructure have negatively affected its integrity of location and setting. Due to the loss of its physical features and intact bridges, it also no longer retains its integrity of feeling and association. In summary, the New Inlet Bridges Roadway is believed to have lost all seven of its NRHP attributes of integrity and therefore does not have the integrity to support its listing in NRHP under any area of significance, either individually or as part of any historic district.

<b>NEW INLET BRIDGES ROADWAY</b>		
<b>Element of Integrity</b>	<b>Level of Integrity</b>	<b>Assessment</b>
Location	Medium	Appears to remain in place where built, except at south where route is unclear.
Design	Low	Has lost all design features.
Setting	Low	Setting greatly changed through loss of design features and intact associated bridges.
Materials	Low	Has lost all materials.
Workmanship	Low	Has lost all design features and materials.
Feeling	Low	Heavily diminished through loss of all design features and materials and of associated intact bridges.
Association	Low	Heavily diminished through loss of all design features and materials and of associated intact bridges.

---

### III. BIBLIOGRAPHY

Barnes, Jay

1998 *North Carolina's Hurricane History*. Revised and updated edition. Chapel Hill: The University of North Carolina Press.

*Beaufort [NC] News*

1932 "New Inlet." April 28, 1932.

Birkemeier, William, Robert Dolan & Nina Fisher

1984 "The Evolution of a Barrier Island: 1930-1980." *Journal of the American Shore & Beach Preservation Association*, Vol. 52, No. 2 (April 1984), pp.2-12. Accessed November 2016 at [http://www.frf.usace.army.mil/aerial1930/pdf/evolution\\_of\\_a\\_barrier\\_island.pdf](http://www.frf.usace.army.mil/aerial1930/pdf/evolution_of_a_barrier_island.pdf).

*Carteret County News-Times*

1948 "Road Built on Outer Banks." August 3, 1948.

*Citizen-Times [Asheville, NC]*

1924 "'New Inlet' One of State's Historical Spots is Opened Up to State Once More." October 19, 1924.

1925 "The Closed Inlet." April 3, 1925.

Clinch, Adam S., Emily R. Russ, Ross C. Oliver, Helena Mitsova & Margery F. Overton

2012 "Hurricane Irene and the Pea Island Breach: Pre-storm site characterization and storm surge estimation using geospatial technologies." *Shore & Beach*, Vol. 80, No. 2 (Spring 2012), pp.1-10. Accessed November 2016 at [https://geospatial.ncsu.edu/osgeorel/publications/clinck\\_shorepaper2012.pdf](https://geospatial.ncsu.edu/osgeorel/publications/clinck_shorepaper2012.pdf).

*Daily Mail [Hagerstown, MD]*

1933 "Livelihood Swept Away." September 19, 1933.

*Daily Record [Statesville, NC]*

1952 "Around Capitol Square." September 1, 1952.

*Daily Times-News [Burlington, NC]*

1924 "Storms Rip Damages Along Carolina Coast." March 12, 1932.

1944 "Manteo Inundated to Depth of Six Feet by Hurricane Setting Record for Section." September 16, 1944.

*Democrat-Herald [Albany, OR]*

1932 "Wind Ravages Found Severe." March 8, 1932.

Eldridge, Alan, Collection

Collection of photographs of Alan Eldridge, an officer with the Civilian Conservation Corps, consisting largely of photographs of the CCC on the Outer Banks. Located at the Outer Banks History Center, 33GRF-159.

Eldridge, Alan M.

1945 "Aerial Reconnaissance." *Military Review*. Volume XXV, No. 7 (October 1945), pp.67-76.

*Forest and Stream*

1922 Advertisement for St. Clair Midgett hunting camp. Volume XCII, No. 12 (December 1922), p.572.

Foster, Wolcott Cronk

1913 *A Treatise on Wooden Trestle Bridges and their Concrete Substitutes, According to the Present Practice on American Railroads*. Fourth revised and enlarged edition. New York: J. Wiley and Sons, Inc. Accessed November 2016 at <https://ia802704.us.archive.org/30/items/treatisewooden00fostrich/treatisewooden00fostrich.pdf>.

Garrity-Blake, Barbara, Julie Burke, Susan West & Jennifer Miller

2005a *An Ethnohistorical Description of the Eight Villages adjoining Cape Hatteras National Seashore and Interpretive Themes of History and Heritage*. Final Technical Report, Volume One. Prepared by Impact Assessment, Inc. for the Cape Hatteras National Seashore. Accessed November 2016 at <http://archive.org/details/finaltechnicalre00impa>.

2005b *An Ethnohistorical Description of the Eight Villages adjoining Cape Hatteras National Seashore and Interpretive Themes of History and Heritage*. Final Technical Report, Volume Two. Prepared by Impact Assessment, Inc. for the Cape Hatteras National Seashore. November 2005. Accessed November 2016 at [http://www.nps.gov/ethnography/research/docs/caha\\_ethno\\_v2.pdf](http://www.nps.gov/ethnography/research/docs/caha_ethno_v2.pdf).

Hool, George A., and W.S. Kinne, editors

1924 *Steel and Timber Structures*. New York: McGraw Hill Book Company, Inc.

*Independent* [Elizabeth City, NC]

1921 "Dynamite May Offer Solution to Problem of Opening Inlets." September 23, 1921.

Ketchum, Milo Smith

1920 *The Design of Highway Bridges of Steel, Timber and Concrete*. Second Edition. New York: McGraw-Hill Book Company, Inc.

McAllister, Ray

2009 *Hatteras Island, Keeper of the Outer Banks*. Winston-Salem: John F. Blair.

Mallinson, David J., Stephen J. Culver, Stanley R. Riggs, J.P. Walsh, Dorothea Ames & Curtis W. Smith

2008 "Past, Present and Future Inlets of the Outer Banks Barrier Islands, North Carolina." Department of Geological Sciences, Thomas Harriot College of Arts and Sciences and Institute for Coastal Science and Policy, East Carolina University. Accessed November 2016 at [https://www.ecu.edu/icsp/ICSP/Reports\\_files/PastPresentAndFutureInletsDec2008.pdf](https://www.ecu.edu/icsp/ICSP/Reports_files/PastPresentAndFutureInletsDec2008.pdf).

Mattson, Alexander and Associates, Inc.

2003 “Supplemental Draft Environmental Impact Statement, Phase II Architectural Survey Report of Pea Island National Wildlife Refuge, Herbert C. Bonner Bridge Replacement Project, Dare County, TIP No. B-2500.” Prepared for Parsons, Brinckerhoff, Quade and Douglas, Inc., July 8, 2003. Copy on file at the North Carolina Department of Transportation, Raleigh.

Michael Halminski Photography website

2015 “New Inlet.” Photographs of St. Clair Midgett camp. Accessed November 2016 at <http://photoblog.michaelhalminski.com/?s=new+inlet>.

National Center for Wood Transportation Structures

2010 “Field Performance of Timber Bridges: A National Study.” Accessed November 2016 at [http://www.woodcenter.org/docs/TB\\_Performance\\_Study\\_4719-013.pdf](http://www.woodcenter.org/docs/TB_Performance_Study_4719-013.pdf).

North Carolina Department of Conservation and Development

1932 “Index Map to Coastal Study, Wright Memorial Bridge–Rodanthe Region. Beach and Inlet Cross Sections.” Accessed November 2016 at <http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/1403/rec/45>.

c1935 Undated report addressing comprehensive coastal development. Located at North Carolina State Archives at MARS Id: 86-23 in folder labeled “N.C. Coastal Development.”

North Carolina Department of Transportation

2013 Historic Bridges of North Carolina website. Entry on timber stringer bridges accessed November 2016 at <https://www.ncdot.gov/projects/ncbridges/historic/types/?p=16#types>.

North Carolina State Highway and Public Works Commission

1932 “Dare County, North Carolina [Highway Map].” Accessed November 2016 at <http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/471/rec/47>.

North Carolina State Highway Commission

Photographs File. Set of photographs of New Inlet bridges under construction located at North Carolina State Archives at MARS Id: 64.68 in Box 3, folder labeled “Dare Co./Bridge Construction.”

Photographs File. Set of photographs of New Inlet bridges located at North Carolina State Archives at MARS Id: 64.68 in Box 4, folder labeled “New Inlet Bridges ca 1935.”

1938 “Dare County, North Carolina [Highway Map]. Accessed November 2016 at <http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/471/rec/47>.

*Observer* [Charlotte, NC]

1922 “Fish Industry is North Carolina’s Pot of Gold at End of the Rainbow.” April 2, 1922.



## Parsons Brinckerhoff and Engineering and Industrial Heritage

2005 "A Context for Common Historic Bridge Types." NCHRP Project 25-25, Task 15." Prepared for National Cooperative Highway Research Program, Transportation Research Council, National Research Council, October 2005. Accessed November 2016 at [http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25\(15\)\\_FR.pdf](http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25(15)_FR.pdf).

*Pilot* [Belhaven, NC]

1952 "Tourists Swarm to Hatteras Island." June 19, 1952.

*Record* [Statesville, NC]

1932 "Bridge may be Built Across New Inlet Created by Storm." April 19, 1932.

1935 "Projects Going Forward in East." September 17, 1935.

## Riley, W.H.

1932 "Inspection of Wright Memorial Bridge—Rodanthe Region Following Storm of November 26-29, 1932." Report dated December 10, 1932. Located at North Carolina State Archives in Department of Conservation and Development files at MARS Id: 86-23 in folder labeled "Dare Coast-1933."

## Ritter, Michael

1990 "Timber Bridges: Design, Construction, Inspection, and Maintenance." Washington: United States Department of Agriculture, Forest Service. Accessed November 2016 at [http://www.woodcenter.org/docs/em7700\\_8--entire-publication.pdf](http://www.woodcenter.org/docs/em7700_8--entire-publication.pdf).

## Shearin, Tom, and Wally Jordan

2009 "A Bridge Building Machine: True Top Down Construction." *ASHE Scanner*, Winter 2009, p.7. Accessed November 2016 at <http://www.ashe.pro/scanner/WinterScanner2009.pdf>.

## Stick, David

1958 *The Outer Banks of North Carolina, 1584-1958*. Chapel Hill: The University of North Carolina Press.

## U.S. Army Corps of Engineers

1938 Composite aerial photograph from north side of Oregon Inlet to just south of Salvo. Set8b\_1138\_S3. November 19, 1938. Accessed November 2016 at [http://www.frf.usace.army.mil/aerial/1930/Set8b\\_1138\\_S3.jpg](http://www.frf.usace.army.mil/aerial/1930/Set8b_1138_S3.jpg).

## U.S. Coast and Geodetic Survey

1881 "Coast Chart No. 139 from Oregon Inlet to Cape Hatteras." Accessed November 2016 at <http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/1316/rec/18>.

1902 "From Oregon Inlet to Cape Hatteras, North Carolina." Accessed November 2016 at <http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/815/rec/30>.

1910 "Croatan and Roanoke Sounds and Part of Pamlico Sound." Accessed November 2016 at <http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/1050/rec/36>.

1911 “Pamlico Sound, North Carolina, Eastern Sheet.” Accessed November 2016 at <http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/947/rec/37>.

1913 “Coast Chart No. 139 from Oregon Inlet to Cape Hatteras.” Accessed November 2016 at <http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/2727/rec/38>.

#### U.S. Coast Guard

1933 “Report on Inlets Following Storm of September 15-16, 1933 (As Furnished by U.S. Coast Guard).” Located at North Carolina State Archives in Department of Conservation and Development files at MARS Id: 86-23 in folder labeled “Dare Coast-1933.”

#### U.S. Fish & Wildlife Service

c2016 “Pea Island National Wildlife Refuge” fact sheet. Accessed November 2016 at <https://www.fws.gov/southeast/pubs/facts/pldcon.pdf>.

#### U.S. Life Saving Stations, Outer Banks

History of New Inlet Life Saving Station. Located at the Outer Banks History Center, 33MSS-63, 25D2, folder 1:3.14.

#### White, B.D.

1997 “Typical Bridge Building Practices on the RGS.” Rio Grande Southern Railroad Technical Information Page, Vol. 1 (September 1997). Accessed November 2016 at <http://riograndesouthern.com/RGSTechPages/rgstec1.htm>.