

Cultural Resources

▶ Discovering New Jersey's Transportation Past
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Acting Governor Richard J. Codey

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Commissioner Jack Lettiere

>location:

dennis township
cape may county

>resource types:

archaeological
architectural

>action:

survey/inventory
evaluation of significance



Dennis Township
Cape May County

The *Cultural Resources Digest*, published by the New Jersey Department of Transportation, summarizes information from professional studies in archaeology, history and historic architecture conducted during the development of transportation projects. Visit us at <http://www.state.nj.us/transportation/works/environment/>

Dennis Creek Landing: A Hub of 19th-Century Maritime Commerce



The Richard S. Leaming, seen here under construction about 1880 at the Leaming Shipyard, was one of many vessels built on Dennis Creek [Source: George Brewer, Jr.].

In the early 1790s, a causeway was built across Dennis Creek below Dennisville, bringing profound changes to the region. The creek would no longer be a barrier to travel and commerce, and would in fact become a major thoroughfare in its own right.

The small community of Dennis Creek Landing, where the road crossed the creek, soon became an important shipping site. Schooners brought manufactured goods from Philadelphia and beyond, and left loaded with local products such as lumber and salt hay. Shipyards at the landing built many large vessels until the end of the 19th century. There was also a gristmill at the crossing, possibly integrated into

the causeway project, ingeniously powered by the twice-daily rise and fall of the tide.

The road atop the causeway provided a new link to the communities south of the creek. The nearby villages of Dennisville and South Dennisville grew in response to the influx of traffic bound to and from the landing and points beyond.

In preparation for improvements to the intersection of N.J. Routes 47 and 83, archaeological and architectural surveys were undertaken in 2000 in a search for evidence of these activities and, if possible, to pinpoint their locations.

Dennis Creek Landing and South Dennisville

In the summer of 2000, a team of archaeologists, historians and architectural historians descended on South Dennisville and Dennis Creek Landing searching for remains of the area's history in advance of planned improvements to the intersection of Routes 47 and 83.

As researchers retrieved historical documents and maps of the area, architectural historians inventoried the surviving historic buildings, while archaeologists made a careful survey of buried and submerged remains upstream and downstream of the bridge, timing their work around the ebb and flow of the tide.

They found substantial evidence of the bustling industrial and commercial history of the area, most of which resulted from construction of a causeway across the marshes and a bridge over the creek in the 1790s. Together they became a vital link in a new land route from Cape May northward along the bay shore. A public landing was built at the crossing at the same time, bringing with it trade in raw materials (including cedar mined from the swamps) and finished goods from distant manufacturing centers.

Remains of wharves and shipyards were found on both sides of the creek downstream from the bridge, and more timber remains were found on the upstream side. Traces of the hydrosystem associated with the gristmill were also located. Architecturally, the buildings of South Dennisville reflect the prosperity that accompanied this activity.



Dennis Creek Landing about 1915. The wooden bridge at right, carrying what is now Route 47 over the creek, was replaced by the State Highway Department in 1928 [Source: George Brewer, Jr.].

Dennis Creek Landing and South Dennisville in the Age of Sail

The community of Dennis Creek Landing, also sometimes referred to as Dennis Bridge, has its origins in the early federal maritime economy of the Delaware Bay. Shortly after the Revolution, this location began to emerge as a vital locus of importing and exporting activity in the region, and soon also developed as an important shipbuilding center drawing on the vast timber resources of the interior of Cape May, Cumberland and Atlantic Counties. The landing was a critical point in the landscape: accessible both by water and by land, it was the point where manufactured goods and other necessities arrived from the outside world and locally grown resources, such as lumber (in particular, cedar), salt hay, grain and other

What is an Archaeological Survey?

A survey—a carefully planned program of field sampling—is conducted to find and evaluate archaeological remains in a defined area.

Before a shovel is put into the ground, researchers gather information on previously-identified archaeological sites in or near the study area. Archival study may also reveal the locations of long-gone buildings, railroads and canals, as well as buried utilities. This information provides guidance on where (and where not) to test.

Next, the archaeologists systematically walk the project area. If the study area is a farm field, artifacts may have been brought to the surface by plowing; these artifacts are surface-collected and their loca-

tions noted. Anomalies such as historic vegetation (which may mark a house site) are also noted. Next, small holes (shovel tests) are typically dug at pre-determined intervals. The soil from the shovel tests is sifted through quarter-inch screens and any artifacts recovered are labeled as to the location where they were found.

Finally, archaeologists assess the artifacts and soil profiles to determine whether or not intact deposits are likely to survive, and by extension whether or not additional, more intensive excavations are warranted to evaluate the significance of the site. A written report completes the study.

crops, were shipped throughout the region and beyond, even as far afield as the southern states and the Caribbean.

Before the Revolutionary War era, trade in the Dennis Creek region was dispersed among a number of small landings located up and down the creek. The main channel of Dennis Creek could be crossed only with some difficulty at the location of the future Dennis Creek Landing because of the expansive swampland on either side, so settlement growth proceeded independently north and south of the stream. Shipbuilding during the 18th century seems to have been limited to Thomas Leaming, Jr.'s shipyard near the crossing of present-day Route 47 over Sluice Creek, a mile or so to the southwest. To the south, the South Dennisville area, known as Dennis Neck, was mostly under the control of the Ludlam family and became home to several generations of farming and trading Ludlams. To the north, a half mile from the creek, the village of Dennisville (later sometimes known as North Dennisville) evolved in the second half of the 18th century into a tightly-knit community with its own mill on another tributary of Dennis Creek, at the downstream end of what is today known as Johnson Pond.

Dennis Creek Landing came to life in the early 1790s, when a causeway, authorized by an act of the state legislature in 1789, was built across the main channel and the swamps that bordered it. Almost three-quarters of a mile long with a bridge over the creek at its midpoint, this causeway established a major new overland route in the region that has become vital to the move-

ment of people and goods even down to the present day. Just as important as its impact on land travel, the causeway directly spurred the construction of wharves along the banks of the creek, encouraging commercial river traffic to dock here, and before long a vibrant shipbuilding industry sprang up. A public landing on

the south bank, immediately downstream from the causeway, was a key feature of the settlement from the outset; because of it the crossing quickly became a locally important interface between land and water transportation.

The causeway not only established Dennis Creek Landing as a hub in the regional and local transportation network, but also expanded opportunities for exploiting the water power potential at this location. There is every indication that the construction of a tide mill on the causeway in the early 1790s may have been an integral part of the overall engineering project,

demonstrating that the causeway proponents were as interested in promoting agricultural processing at the landing as they were in developing the site for transportation and commercial services (and eventually also shipbuilding).

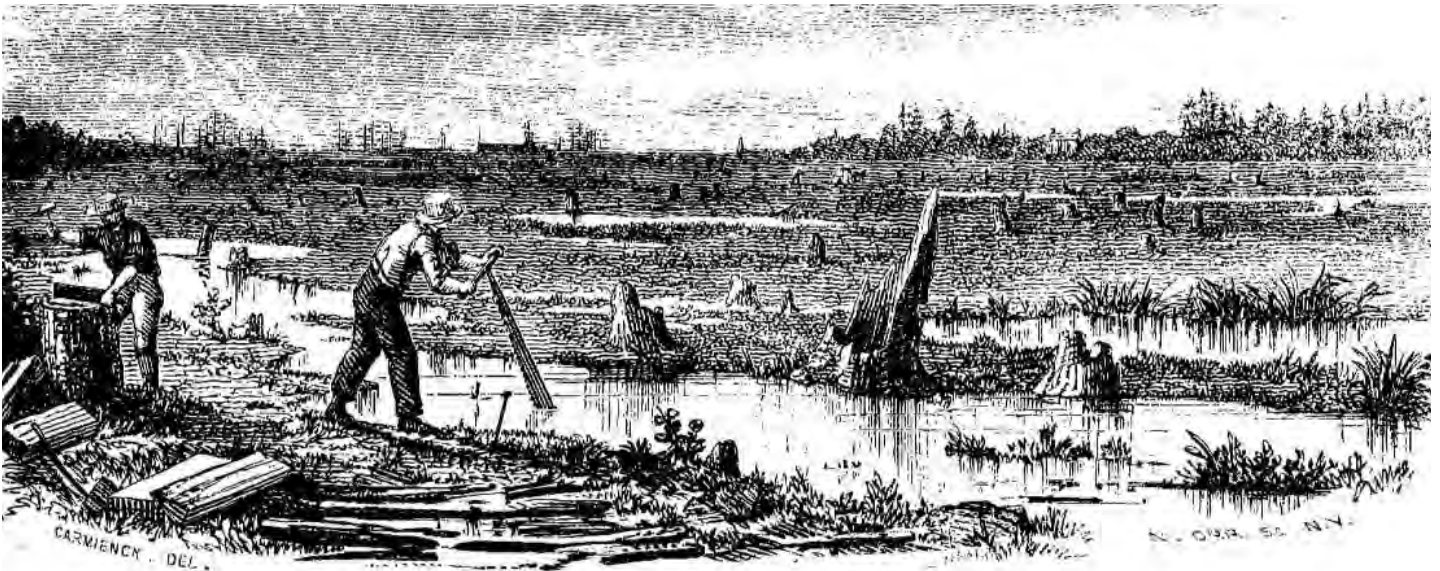
Historical documents suggest that this mill served as a gristmill and, possibly, briefly as a woolen mill. Within a few years of authorizing the construction of the causeway and the establishment of the public landing, the Assembly authorized David Johnson and James Ludlam to construct a gristmill and dam on the north branch of Dennis Creek just above the point at which the public road crossed the creek. The mill dam floodgate was to be no less than 14 feet wide and “so constructed as to allow small boats or craft, rafts of

Transportation in New Jersey Before the Automobile

People and goods were in transit throughout New Jersey long before there were cars, particularly as Philadelphia and New York developed into major commercial centers. Waterways provided easy access to the interior, as demonstrated by the fact that most of the state's earliest European settlements are on navigable streams. Early roads—some of which followed the routes of Lenape trails—were primitive and generally provided access to the nearest landing, although there were three Kings Highways crossing the state.

Early in the 19th century there was a spate of private toll-road construction. These turnpikes were built by companies with the expectation that tolls would cover operating costs and generate a profit for the shareholders. The euphoria lasted only until canals and railroads emerged as competing modes of movement across the landscape.

Agitation for good roads arose at the end of the century from two unlikely sources: recreational bicyclists and farmers. The bicyclists' desire for smooth, hard riding surfaces is self-evident. Farm families could be isolated by muddy roads for weeks on end, unable to sell crops, buy supplies, attend church or other gatherings, or otherwise participate in the life of the community. These improvements coincided with the advent of affordable cars. People were more likely to buy a car if they had access to passable roads, and as the number of motorists grew there was more demand for better roads.



RAISING, OR MINING BURIED CEDAR TIMBER

The swamps around Dennisville were a prime source of cedar, used for shingles. Standing trees were harvested in the usual fashion, and ancient, submerged trees were mined from the muck, as shown in this view, until the supply was depleted at the end of the 19th century. Most of the wood was shipped out of Dennis Creek Landing [Source: Geological Survey of the State of New Jersey, 1856].

rails or other lumber to pass and repass through the same.” In addition to the mill dam, the owners of the lands along the creek above Johnson and Ludlam’s properties were instructed to “erect and keep up a dam across the creek to prevent the tide from flowing up the creek above the line of said lands.” As with the mill dam, the property owners were to construct gates in the upper dam not less than 14 feet in width to open and swing toward the westerly side of the dam, sufficient for the passage of boats and rafts. Finally, David Johnson and James Ludlam were “to cut a ditch not less than eight feet wide and two feet deep beginning at said creek above the upper dam and continuing from thence to the creek below the mill dam with a gate in said ditch to open with ebb tide....”

From this description it is evident that the gristmill was intended to be a tide mill. In its most basic form, a tide mill impounds the incoming tide in an artificial pond and, releasing water as the tide recedes, takes advantage of the difference between the water level in the pond and the water level of the creek below the dam to power the mill. The water power is free and unfailing, but the hours when the mill can operate advance about an hour a day. According to the stipulations of the act, the Dennis Creek mill was to be erected by 1793.

In addition to promoting water-powered industrial development at the landing, construction of the causeway no doubt helped to improve drainage in the marsh downstream, which in turn would have benefited the cultivation of the salt hay crop. It is assumed that there was an ongoing process of improvement of the creek channel between the bay and the landing for navigation purposes, and continuing expansion and upgrading of wharfage along the banks.

Continued economic growth through the 19th century at the landing was spurred by successive enlargements to the causeway, including replacements of the bridge and improvements to the roadway that ran atop it. Early in the century, cedar mining and the processing and shipping of lumber were a major focus of the local economy; the landing played a key role in the processing and export of these materials. However, as the quantity of available cedar diminished, the local economy shifted its emphasis later in the 19th century to shipbuilding (increasingly using imported lumber), and, to a lesser extent, to fishing and the cultivation of salt hay. In the last quarter of the 19th century, Dennis Creek Landing boasted no less than three shipyards: Diverty’s, Leaming’s and Edwards’, all downstream of the bridge. There was also a replacement gristmill

(again powered by the tide), a variety of stores and shops, warehouses and yards, and several dwellings.

A network of corduroy roads (roads "paved" with logs laid side by side across the road) extended downstream along both banks of the creek, linking the landing to others along the main channel and its larger tributaries. An important function of these roads was their use for towing the new ship hulls down to Delaware Bay, from where they were taken to Philadelphia and other ports for final fitting and rigging. By the 1870s, Dennis Creek Landing was one of the more important shipbuilding centers on Delaware Bay, producing substantial numbers of schooners and other large sailing vessels. In the second half of the 19th century, the Dennis Creek Landing shipyards are estimated to have built upwards of 50 vessels.

The community's peak in economic prosperity came toward the end of the 19th century. With the 1890s came decline lasting into the early decades of the 20th century. In some respects, the construction and launching of the 707-ton *Thomas L. Pollard* in 1890 must have represented the pinnacle of the community's shipbuilding achievement. Today, it is difficult to imagine this immense vessel, over 50 yards long, 34 feet wide and drawing 17 feet of water, negotiating a passage down the creek, but this was a scene which had been repeated many times.

Ultimately, shipbuilding at the landing fell victim to competition from larger urban shipyards, the transition from sail to steam, and the use of iron and steel in place of wood. The gristmill closed down sometime in the early 1890s, around the same time that the Sea Coast Railroad Company con-

structed a rail line through North and South Dennisville, bypassing Dennis Creek Landing. Before long, the causeway was largely reduced to its original primary function, that of providing a crossing over the creek and tidal marsh. By the late 1920s, when the bridge over the creek was replaced for the fourth time, the landing and its related industrial and commercial facilities had all but vanished from the landscape, leaving behind a line of abandoned wharves for sporadic usage by local fishermen and recreational boaters.

The Search for Archaeological Evidence

Because of planned improvements to Route 47 and its intersection with Route 83, archaeological testing was carried out on both sides of Route 47 from County Road to approximately 200 feet north of Dennis Creek. The area of the Route 83 intersection was also included in the survey, as

were the creek banks about 400 feet upstream and downstream from the Route 47 bridge.

Fieldwork for the survey included 116 shovel tests along the road margins, but the primary effort was directed toward map-

ping wooden remains visible in the creek bed (some only at low tide) and along the banks, and trying to identify them.

Based on evidence found, there is a reasonable probability that substantial physical remains of the original embankment and earlier bridge crossings survive both beneath the existing roadway and in the tidal marsh and creek. The earlier causeway remains are likely to comprise timber pilings and cribbing, and embankment fill deposits. The bridge remains are likely to consist of structural timbers and por-

"In the second half of the 19th century, the Dennis Creek Landing shipyards are estimated to have built upwards of 50 vessels."

About Tide Mills...

Tide mills represent a rare and often overlooked component within the larger picture of water-powered industrial development along the eastern seaboard of North America. Only five tide mills are known to survive as standing buildings in the United States (four in New England and one on Long Island). Yet, in the late 18th and 19th centuries, these ingenious facilities were ranged all up and down the east coast, with particular concentrations in Maine and Nova Scotia where the large tidal fluctuations around the Bay of Fundy shoreline suited their development.

No formal studies of tide mills have taken place in the Mid-Atlantic region, but an educated guess as to their number in New Jersey would lie in the range of 20 to 30. These were distributed both along the Atlantic shoreline and, more especially, in the lower tidal sections of the Delaware, Raritan and Hackensack River drainages. Sporadic references to their existence may be found in published secondary sources and local newspapers, on historic maps, in deeds and mortgages, and in the late 19th-century statewide survey of water power undertaken by the Geological Survey of New Jersey.

tions of stone abutments; some remains of pilings were found beneath the existing bridge. Traces of the earlier bridges and causeway are likely to be present in the form of integrated structural engineering features.

Important archaeological resources related to the development of tidal water power at Dennis Creek Landing are believed to survive. Documentary and field evidence both suggest that the construction of a tide mill at the landing may actually have been an integral part of the engineering design of the causeway in the early 1790s. The site of the original tide mill (the Johnson/Ludlam gristmill), erected about 1793, is likely to have been the same as that of the more clearly documented mid-19th-century Edwards gristmill. This location is believed to be on the upstream side of the causeway, on the south bank of the creek, although a more thorough archaeological exploration would be required to confirm this supposition.

Interestingly, there is some tantalizing field evidence upstream from the causeway in the form of ditches (possibly raceways) and the remains of a dam and at least two sluice gates. These appear to be part of a hydrosystem



Looking downstream on Dennis Creek at low tide from the Route 47 bridge toward the site of the Diverty shipyard; two others were nearby. Remains of wooden bulkheads and cribbing are visible along the north bank at right. Inset: A schooner takes shape at the shipyard in this historic photograph [Sources: Hunter Research, Inc.; George Brewer, Jr.].

matching that specified for the construction of the Johnson/Ludlam gristmill in the late 18th-century documentary record. There is a strong chance of the archaeological survival of this probable two-phase (Johnson/Ludlam and Edwards) tide mill site within and immediately upstream of the causeway. In addition to the mill footprint(s), which may survive beneath the embankment, the location of such a structure on the causeway would by necessity have required some means of controlling the flow of water through the embankment, both at the mill building location and at any related flood gates. One set of flood gates may well have been installed at the bridge location; another set, whose exact position remains unclear, appears to be referenced in the 1790s mill specifications as being independent of the mill dams. In any event, the potential for tide mill-related archaeological remains beneath the causeway includes not only traces of the mill building itself, but also the possibility of timber structural remnants of raceways and flood gates.

Substantial traces survive of the landings and shipyards on both sides of the creek downstream from Route 47. Indeed, a shipwreck even lies against the south bank at the Leaming shipyard site. On the north bank, immediately upstream of the bridge, further timber remains are evident, suggesting a reasonable level of archaeological intactness just inland at the site of a storehouse and shop, which appear on historic maps. In all of these cases, while only the smallest sliver of



South Dennisville as mapped by the U. S. Coast Survey in 1842.

What Happens to the Artifacts?

A typical archaeological investigation can yield from a few dozen to many thousands of artifacts, depending on the size and complexity of the area of inquiry and the intensity of the study. Some types of material, such as bricks, mortar or coal ash, are noted in the field as to quantity, provenience and location, then discarded. Inherently informative types of artifacts, such as stone tools, ceramics and coins, are labeled as to their provenience, then taken to an archaeological laboratory where they are cleaned, numbered, and catalogued into a database. Some choice artifacts may undergo conservation, especially those that might eventually be displayed in a museum. Information about the artifacts is included in the written report prepared by archaeologists after they have finished their field and laboratory studies.

When a report is complete, the artifacts are packed in museum-quality storage cabinets and delivered, with a complete written inventory, to the New Jersey State Museum for long-term care, display, and/or future research. Alternatively, NJDOT has in the past transferred custody of artifacts to a responsible local organization (such as a historical society) at their request for safekeeping and display.

archaeological data is visible along the bed and edges of the creek during the brief window of low tide, it is possible to predict with some confidence that there is a high potential for the survival of significant archaeological deposits within and beneath the fill placed alongside the causeway on top of the tidal marsh, and this assessment can be extended to all of the sites identified as lying further from the creek along the line of the causeway. Collectively, deposits associated with these sites are likely to encapsulate a century or more of valuable information about the commercial, industrial and residential history of Dennis Creek Landing with exceptional survival of organic materials (especially timber structural remains, wood artifacts, and textiles) in this nearly water-logged environment.

Architecturally, research revealed that throughout the 18th century and into the first decades of the 19th century, the site present-day South Dennisville (the fast ground south of where the causeway would cross the creek) was largely the private domain of the Ludlam family. With the construction of new causeways and bridges over the north and south branches of Dennis Creek after 1789, and the re-routing of the stage route through South Dennisville about

1800, the complexion of the local economy (and with it, the cultural landscape) changed dramatically. James J. Ludlam erected a blacksmith shop and tavern to take advantage of the new highway traffic, and new houses began sprouting up around the intersection of the main Bayshore Road and County Road and along both sides of the Bayshore Road, southward towards Goshen. By the 1870 the main proponents of Dennisville's maritime and commercial interests had made South Dennisville their principal place of residence. The owners of the three shipyards, J.H. Ludlam, R.S. Leaming and L. Edwards, all occupied houses on the Bayshore Road to the south of the creek. Maps of the time show buildings lining both Route 47/Delsea Drive/Bayshore Road and County Road, many of them labeled with the names of ships' captains and families involved in the shipbuilding industry.

Today South Dennisville is notable for its surviving body of 19th-century and early 20th-century architecture. Since it was home to families who had prospered as a result of the developments at Dennis Creek Landing, the buildings are evocative of South Dennisville's significant historical associations with the regional shipbuilding and cedar harvesting industries, coastal trade, and the economic and political development of Cape May County during the 19th century.



The James J. Ludlam House was built around 1820. It is a well-preserved example of early-19th-century Cape May County domestic architecture, demonstrating the long-lived influence of the Federal period in local vernacular architecture [Source: Hunter Research, Inc.].

Project: N.J. Route 47 [Sections 4D and 5E] Improvements to the Intersection with N.J. Route 83

Location: Route 47 from Route 83 to north of Dennis Creek, Dennis Township, Cape May County

Date: Summer 2000

Consultant: Hunter Research, Inc., 120 West State Street, Trenton, NJ 08608

For More Information...

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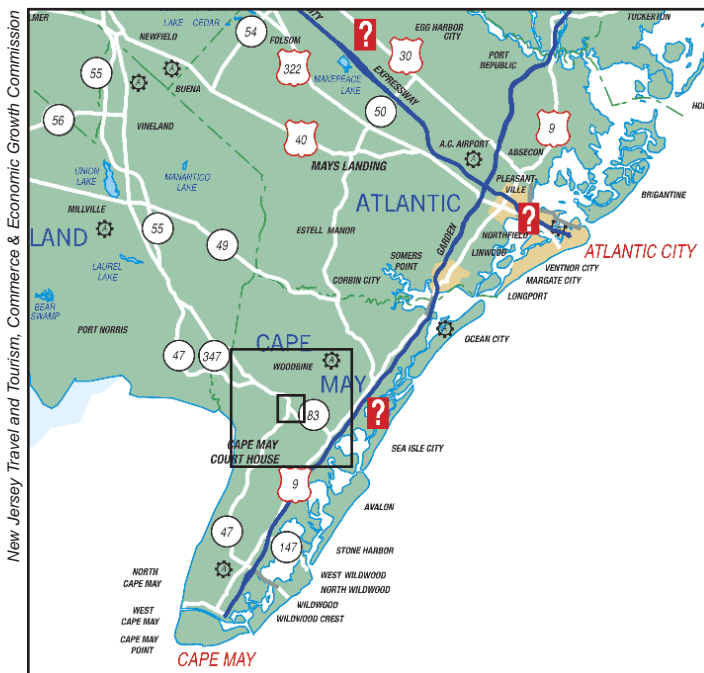
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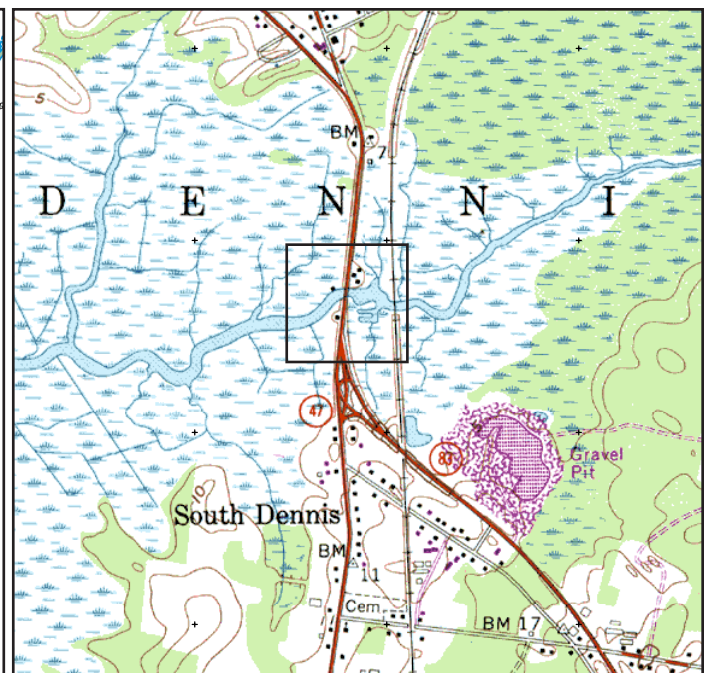
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Additional information on transportation projects and historic preservation is available from the Division of Environmental Resources, New Jersey Department of Transportation (<http://www.state.nj.us/transportation/works/environment/overview.htm>), the Federal Highway Administration (<http://www.fhwa.dot.gov/environment/archaeology/index.htm>), the New Jersey Historic Preservation Office (<http://www.state.nj.us/dep/hpo/2protection/njreview.htm>), and the Advisory Council on Historic Preservation (<http://www.achp.gov/work106.html>).



Project vicinity map



Area of detail