CHAPTER 11

NIXON MILL SITE [7K-C-413]

A. Historical Detail

The Nixon Mill Site is situated on Puncheon Run (formerly known as Walker's Branch) approximately 2,100 feet (0.7 kilometers) upstream from its confluence with the St. Jones River. During the 17th century and for much of the first half of the 18th century, the lower section of Walker's Branch served as a natural property boundary. Property on the two opposing sides of the creek in the vicinity of the mill site did not come under the ownership of a single proprietor until the mid-1750s. Partly for this reason, it is believed that there was no mill site in this location -- or indeed along the entire length of Puncheon Run -- until the mid-18th century.

The first attempt to harness the water power of Walker's Branch appears to have taken place at some point between 1756 and *circa* 1780, after Thomas Nixon gained control of the property on both sides of the creek (Table 11.1) (Kent County Deed N-1 15; O-1 343). Nixon owned property on the north side of the creek as early as 1743, when he acquired a tract of 200 acres bordered on the northeast by "Jones Creek" (the St. Jones River), on the south by Walker's Branch and on the west by present-day State Street (U.S. Route 13A). At some point after his acquisition of this property, presumably in the 1740s or 1750s, Nixon built himself a house near the present-day northwest angle of the intersection of U.S. Route 13 and U.S. Route 113A within what later became the crossroads hamlet known as Cooper's Corner.

In 1756, Thomas Nixon purchased additional property on the south side of Walker's Branch from Richard Dawson (Kent County Deed O-1 343). This latter parcel is recorded as a 50-acre tract and included the Thomas Dawson House Site (see above, Chapter 10, Section A). Sometime after this purchase, it is believed that Nixon dammed the waters of Walker's Branch and constructed a fulling mill. Fulling was the process by which woolen cloth was washed and beaten with wooden mallets until it reached a required thickness, softness and pliancy. Typically, fulling was undertaken in a solution of "fuller's earth," a clayey substance with a high magnesia content, which had the ability to decolorize oils and fats, while retaining the essential fabric coloring matter (Clark 1949:168; Channing 1971:51; American Geological Institute 1974:197).

Thomas Nixon died sometime between 1779 and 1782. Through his last will and testament, dated November 18, 1779, his son, Nicholas, inherited a tract of land that straddled Walker's Branch and was situated on the east side of the county road leading from Dover to Pennel's Mill (present-day State Street [U.S. Route 13A]). Nicholas was left this parcel ".... together with all and singular houses, out-houses, tenements, fields, pastures, fulling mill, water and water courses ..." contained thereon. This is the first incontrovertible evidence of the existence of the fulling mill.

TABLE 11.1. NIXON MILL SITE: SEQUENCE OF OWNERSHIP

Ownership Tenure	Name	Acquisition Citation
1756-c.1780	Thomas Nixon	Kent Co. Deed N-1 15; Kent Co. Deed O-1 343
c.1780-1787	Nicholas Nixon and Charles Nixon	Kent Co. Will L-1 215
1787-1794	Letitia Rogerson (formerly Vandyke then Coakley)	Kent Co. Deed X-1 173
1794-1816	Richard Cooper	Kent Co. Deed E-2 139
1816-1852	Richard Jennifer Cooper	Kent Co. Will P-1 131
1852 (Mar.)	Alexander J. Taylor	Kent Co. Deed C-4 244
1852-1855	William Parran Cooper	Kent Co. Deed C-4 245
1855-1860	William R. Morris	Kent Co. Deed I-4 117

Thomas Nixon also left one of his sons (not named, but probably Nicholas' brother, Charles) a tract of land located to the west of State Street (U.S. Route 13A) which contained the original family homestead. Both of Nixon's sons and his daughter, Fidelia (Letitia), were left additional property in Dover near the courthouse. Thomas Nixon appointed his wife, Ann, and his son, Charles, as executors of his estate (Kent County Will L-1 215).

In 1787 Charles Nixon sold to his sister, Fidelia (Letitia) Rogerson (formerly Letitia Vandyke), 120 acres of land located east of the road leading from Dover to Pennel's Mill (present-day State Street) (Kent County Deed X-1 173). The property was described as a "... mill and tract of land...," and was bounded on the west by State Street and on the east by the St. Jones River. This was apparently the same parcel that was willed to Nicholas Nixon and the mill being referred to was presumably the fulling mill. The fate of Nicholas Nixon and how his inheritance came into the hands of his brother, Thomas, is unknown. Sometime between 1782 and 1794 Letitia also took control of the land on the west side of State Street, hitherto in the hands of her brother, Charles, which contained her father's house.

In 1794, William Montgomery and Letitia Coakley (formerly Fidelia Nixon, Vandyke, and then Rogerson) sold a large tract of land, essentially her father's original estate, to Richard Cooper (Kent County Deed E-2 139). This property was officially surveyed at just over 491 acres of land and contained, but did not specifically mentioned, the site of the fulling mill and all of the area that later became known as Cooper's Corner (see above, Figure 10.2). Richard Cooper is believed to have taken up residence in the house where Thomas Nixon formerly lived. This dwelling, known as the Cooper House, still stands today just north of the project area at 1068 South State Street (Heite and Heite 1986).

Richard Cooper retained ownership of the property containing the former Nixon Mill Site until his death in 1816. During his tenure, based on a reading of one prominent secondary source (Scharf 1888:1085), he may have either converted the fulling mill to a sawmill or built an entirely new mill building in its place. Cooper's last will and testament, prepared on January 23, 1816, divided his estate among his children (Kent County Will P-1 131). The land containing the site of the mill was set off to his son, Richard Jennifer Cooper. The will noted that the mill had recently burned down and that building materials and a bond owed to Richard Cooper were to be used to re-build it. Unfortunately, the will does not specify the type of mill that was then in place (Kent County Will P-1 131).

Records filed with the Kent County Chancery Court by Ezekiel Cooper, the executor of Richard Cooper's estate, indicate that in 1820 Cooper's estate was still unsettled (Kent County Chancery Court C-16). One matter that remained unresolved at this time was whether or not the mill had been re-built by Richard Cooper between January of 1816 (when he wrote his will) and September of the same year (when he finally passed away). No other pertinent primary documentation on this issue has been found and it remains uncertain whether the mill had been rebuilt and was in operation by 1820, or was still in disrepair. It is also unclear exactly what type of mill was involved. According to the late 19th-century historian, J. Thomas Scharf, the mill was never re-

built. Scharf notes instead that there was a sawmill many years ago on Puncheon Run, owned by Judge Richard Cooper and that it was abandoned about 1820. Interestingly, Scharf makes no reference whatever to the earlier Nixon fulling mill (Scharf 1888:1085).

Richard Jennifer Cooper owned the property containing the mill site until his death in 1852, whereupon it passed to his son, William Parran Cooper. The property was immediately sold to Alexander J. Taylor and then sold back again to William Parran Cooper (Kent County Deeds C-4 244 and C-4 245). The deeds describe the property as containing 200 acres situated on the north side of Walker's Branch and 23 acres on the south side of the branch. There is no mention of the mill and it is reasonable to believe that by this time it was no longer in operation. In 1855 William Parran Cooper sold the same 223 acres to William R. Morris (Kent County Deed Book I-4 117). Five years later Morris sold the 23-acre portion on the south side of Puncheon Run to Joseph D. Parker (Kent County Deed S-4 217). The deed of conveyance notes that William R. Morris retains the right to remove a fence which extends "from the south end of the old mill dam ..." Thus, in 1860, the property containing the Nixon Mill Site was once again divided by Walker's Branch (Puncheon Run) and in the hands of two separate owners, a distinction that has persisted to this day.

B. Archaeological Field Survey

The Nixon Mill Site straddles Puncheon Run (formerly known as Walker's Branch) approximately 2,100 feet upstream (0.7 kilometers) from its confluence with the St. Jones River and lies just east of the project corridor adjacent to centerline station 372+00. The section of Puncheon Run in the vicinity of the mill site is today heavily silted up and the creek, at the time of field survey (during the summer), flowed sluggishly along a meandering course in the valley floor. The present-day character of this section of the Puncheon Run valley is in part due to the former presence of a mill at this location. The mill dam, of which substantial traces survive, has served to block drainage and encourage silting. The clearing and cultivation of fields on the terraces on either side of the creek has exacerbated the silting process in the valley, allowing run-off of surrounding soils into the valley bottom during times of heavy rains. To some degree, the preservation of the mill site in the present-day landscape may be attributed to the build-up of sediment in the Puncehon Run valley on either side of the mill dam.

As the core of the mill site clearly lay outside the project corridor, archaeological field survey did not include subsurface testing. Instead, the fieldwork emphasis was placed on careful examination of the ground surface, limited clearing of vegetation, mapping and cultural landscape interpretation (Figure 11.1). The most prominent feature of the mill site is the large, tree-covered earthen dam which spans the full width of the valley for a distance of roughly 350 feet (120 meters) (Plate 11.1). The dam is oriented roughly northwest-southeast, but bows out downstream. At its base, it is roughly 25 feet (eight meters) wide and it rises roughly six feet (two meters) above the surrounding valley floor. Its present-day crest (probably within a foot or two of its original height) is at elevation 11 feet above sea level, several feet below the elevation of the

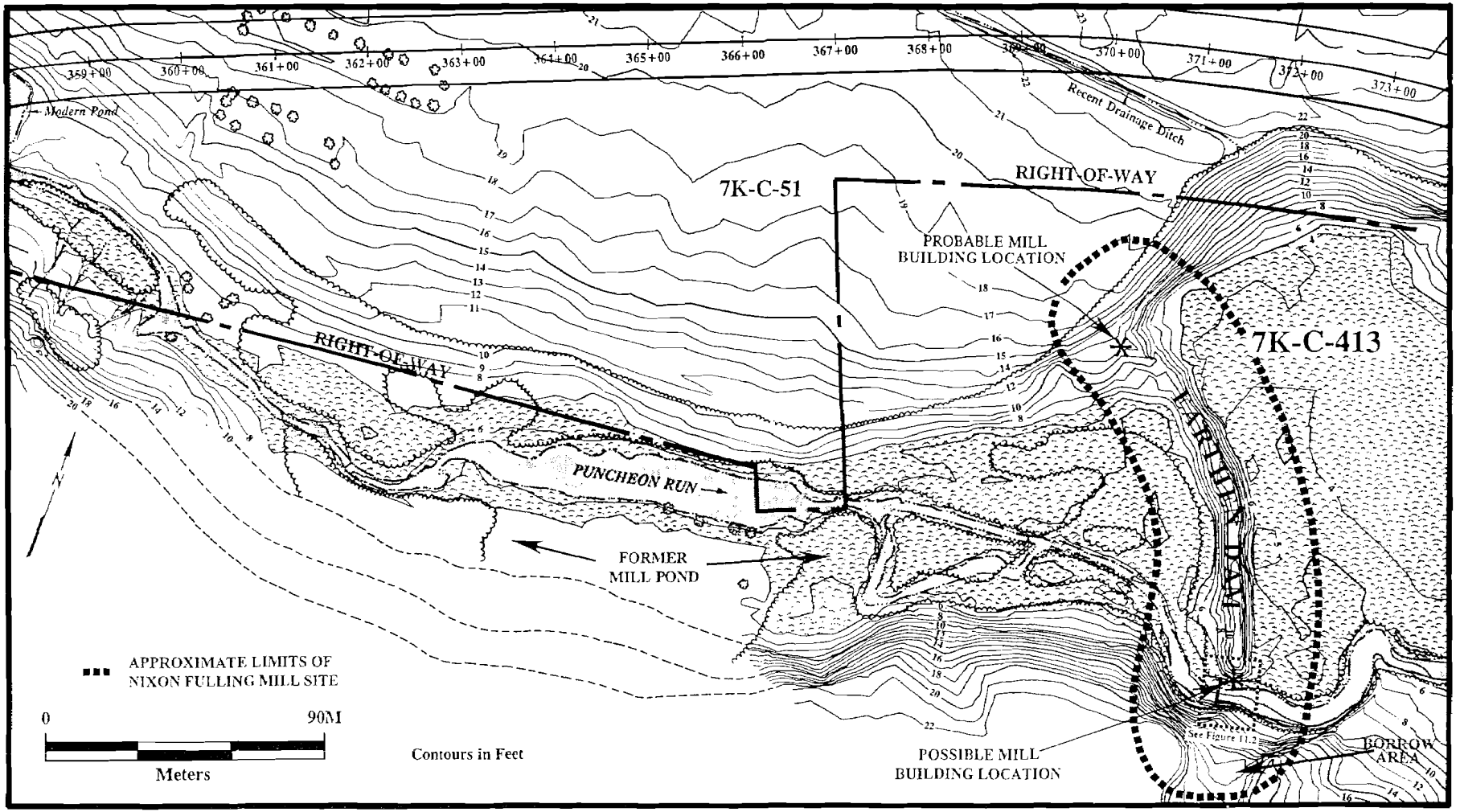


Figure 11.1. Nixon Mill Site [7K-C-413] - Site Plan.

Plate 11.1. Area B, Nixon Mill Site, view looking southeast along crest of earthen mill dam (Photographer: Frank Dunsmore, September 1994) [HRI Neg. 94015/3-25].

adjoining terraces. The dam is tied in to the valley sides at either end, and at its southern end there is a noticeable scar from a borrow pit, possibly the source of the building material used in the dam's construction.

A single breach is evident in the dam close to its southern end where Puncheon Run presently flows. Visual inspection and probing of the creek bed in this area found traces of a timber structure comprised of handhewn beams and planking assembled using mortise and tenon joints, lap joints, trenails (wooden pegs) and handwrought nails (Figure 11.2; Plate 11.2). The function of this timber structure remains uncertain, but it is most likely an integral part of the dam construction and may represent the remains of the base of a waste gate or spillway for controlling the water level in the mill pond. It is also conceivable that these are structural remains of a mill building (perhaps the base of a wheel pit), although in the opinion of this consultant this is less likely because of their situation at the less accessible southern end of the dam and the absence of flooring and foundation materials. Further investigation through excavation and dewatering could quite easily resolve the interpretation of this feature of the mill site. Probing in the area suggests that as much as three feet of silt may now overlie the original stream bed in this section of the valley.

No other obvious surface remains relating to a mill building were noted, although on topographic and documentary grounds, it is felt that the most likely spot for the mill structure would have been at the northern end of the dam (see below, for further discussion). In this area, there is a cluster of older black locust and black walnut trees which may reflect historic land use and a possible building site. The outline of the mill pond is broadly distinguishable extending upstream from the dam and coincides with the contours of the valley sides at an elevation of approximately ten feet above sea level. The pond probably covered an area of roughly ten to twelve acres. No structural features (stone revetments or timber bulkheading) were observed around the mill pond perimeter, suggesting that the valley sides were stable enough to contain the pond without any additional manmade construction. The only artifact recovered from the site during the field investigations was a handwrought spike, found in the water at the breach, although mill-related architectural and engineering evidence is clearly present in the vicinity of the dam.

C. Site Analysis

The archival record references the erection of a fulling mill on Puncheon Run sometime during the third quarter of the 18th century, most likely by Thomas Nixon, who assembled a large plantation of almost 500 acres during this period. The mill seems to have stayed in operation through the Revolutionary War era and may have continued on into the first and second decades of the 19th century when the Nixon properties came into the hands of Richard Cooper. The fulling mill was apparently no longer functional by 1816, and may even have seen a brief period of service as a sawmill around this time (see below).

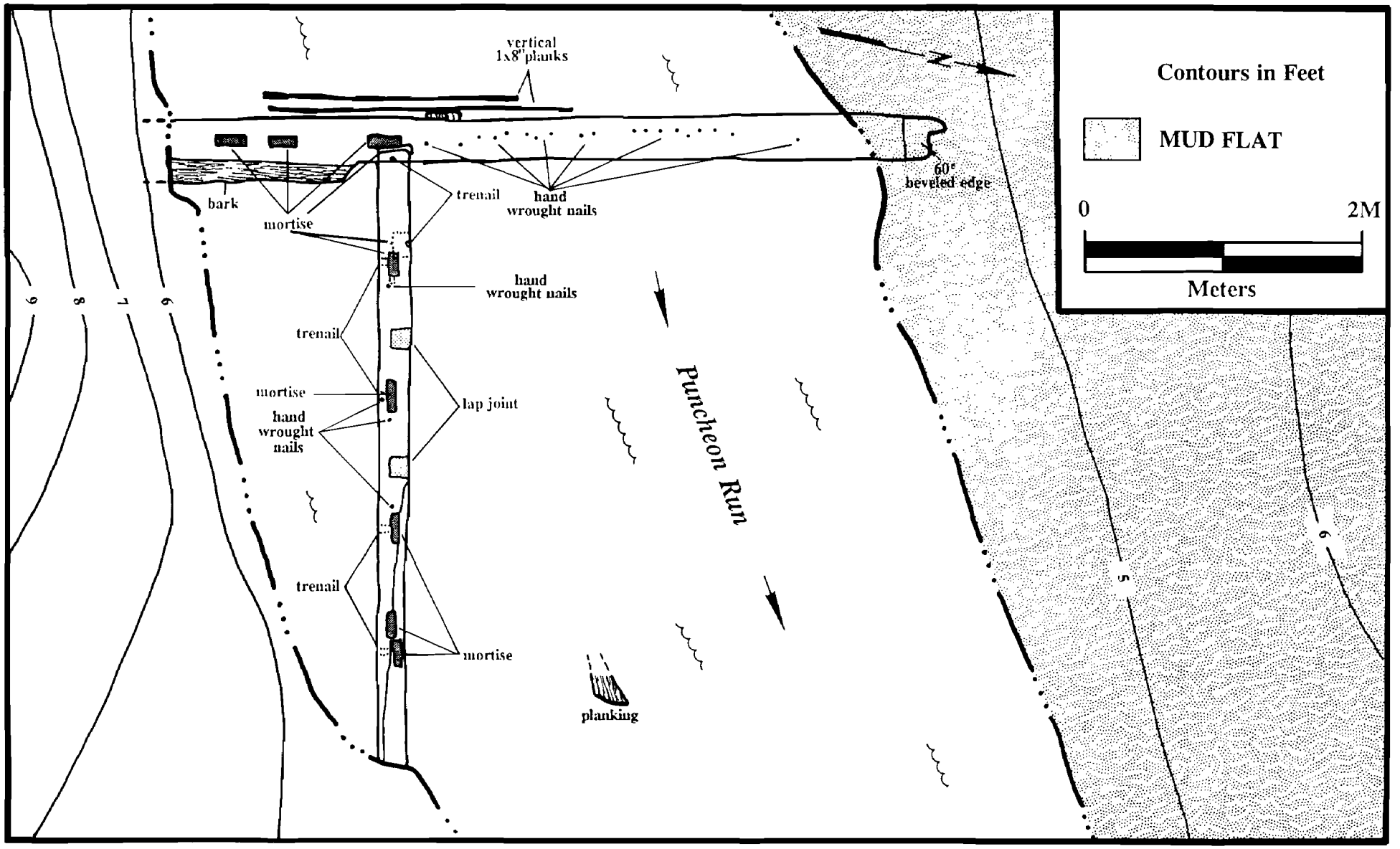


Figure 11.2. Area B, Nixon Mill Site, Detailed Plan of Timber Remains at the Southern End of the Mill Dam.

Plate 11.2. Area B, Nixon Mill Site, view looking south showing structural timbers in the bed of Puncheon Run at the southern end of the mill dam (Photographer: Frank Dunsmore, September 1994) [HRI Neg. 94015/3-7].

The basic chronology of the Nixon fulling mill matches a pattern of rural water-powered industry evident throughout much of the Mid-Atlantic region (and elsewhere along the eastern seaboard). Fulling mills were established in increasing numbers in the third quarter of the 18th century as rural settlement intensified and population growth could sustain the setting up of domestic textile manufacturing enterprises in competition with their European (principally British) counterparts. Puncheon Run, in close proximity to Dover and flowing through an area filling rapidly with farmsteads, is exactly the type of water course where one would expect to find fulling and other water-powered textile processing activities taking place in the immediate pre-Revolutionary period. Fulling remained a viable economic task in the countryside during and immediately after the war, but began to suffer around the turn of the century as mass-produced European textiles flooded the market and industrial textile manufacture took hold in New England. By the second quarter of the 19th century, the various processes by which most American woolen textiles were made -- fulling being just one of many -- were becoming increasingly mechanized and integrated. The closing down of the Nixon fulling operation thus roughly coincides with a reorientation of textile production around cotton in place of wool, large urban mills and substantially increased water powers.

The Nixon fulling mill is of interest in that it appears to have been a separate milling facility. Frequently, fulling was conducted as a secondary milling task at other types of mills (most notably, gristmills) and the fact that this was a viable independent facility implies that it may have cornered the local Dover area wool market quite effectively. Nevertheless, the fulling mill structure may not have been very large, probably being a single-story building with a simple rectangular plan and a line of fulling stocks being operated through reciprocating motion provided either by cams or tappet arms on the main horizontal shaft of a vertical water wheel (Figures 11.3 and 11.4). Even as late as the end of the 18th century, the technology of the water-powered fulling mill had changed very little from the medieval period, the basic process involving the alternate lifting, turning and striking of bundles of cloth with recumbent mallets (Weiss and Ziegler 1957).

In the absence of excavation, it remains uncertain precisely where the fulling mill was located. In the opinion of this consultant, the most likely spot for the mill building would have been at the northern end of the dam. There is limited, tenuous documentary and topographic support for postulating this as the mill location. The fact that the larger part of the Nixon family plantation was on the north side of Puncheon Run might suggest that the mill would have been located on this side of the river for ease of accessibility. Also, the reference within a deed of 1860 to a fence extending "from the south end of the dam" is notable for not making any mention of a mill building, and may point to a mill location at the opposite northern end of the dam. Topographically, a stronger case may be made for the mill being on the north side of the creek. The terrace slopes down less steeply to the river on the left bank and there is a platform-like area at the northern end of the dam where a mill building could have been situated and reached by a lane from the west. In contrast, the terrace edge at the southern end of the dam slopes down

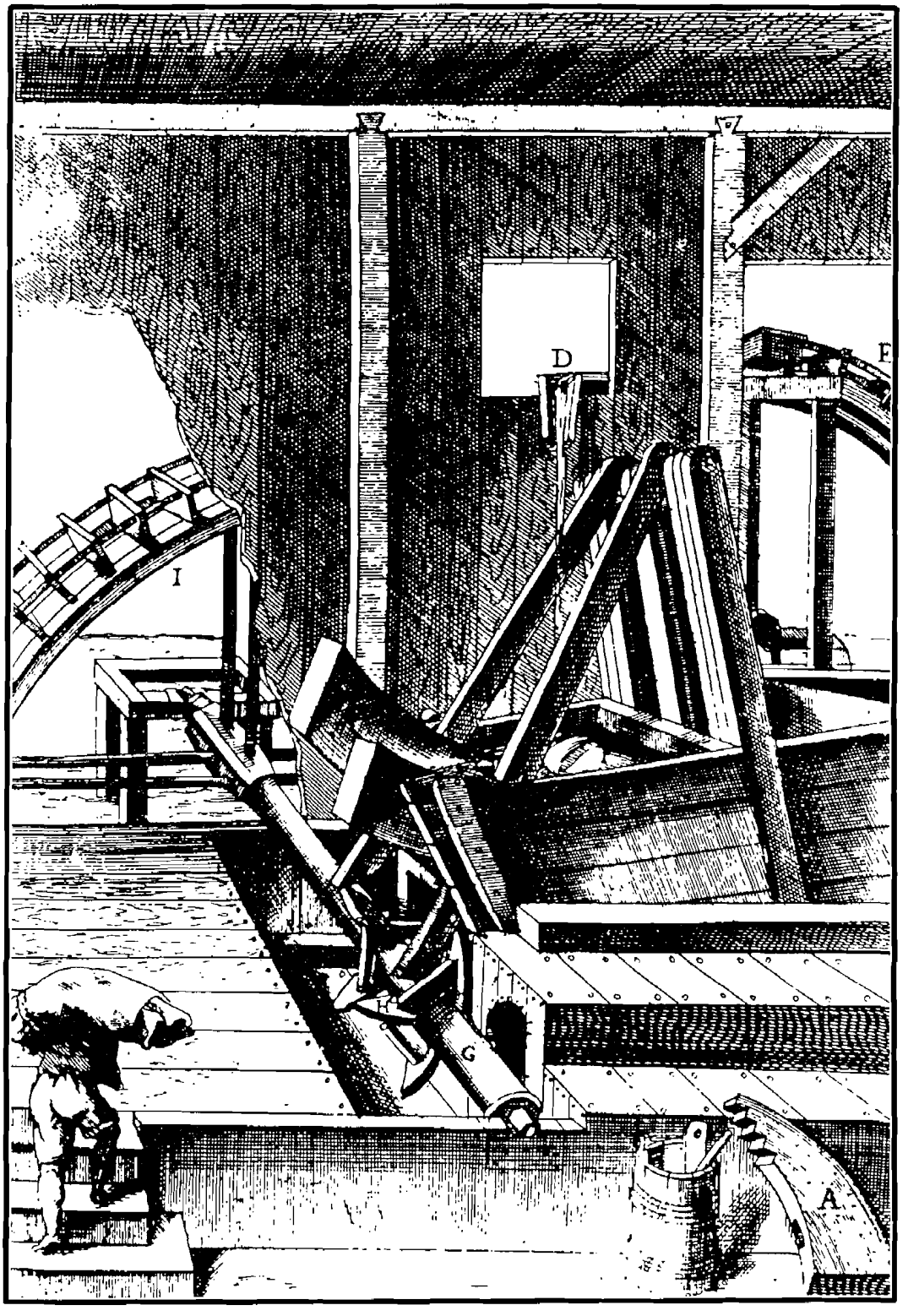
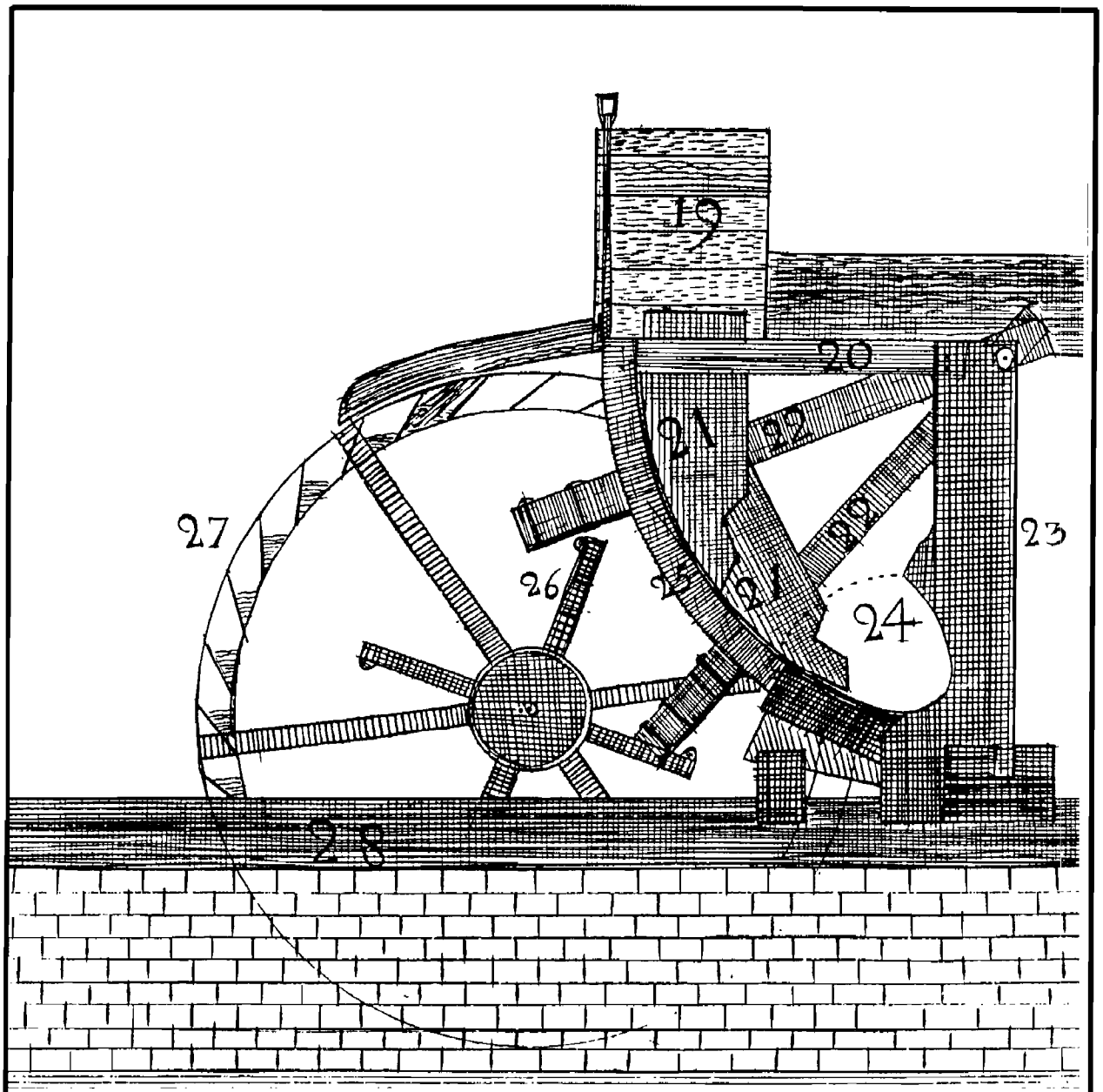


Figure 11.3. Zonca, Vittorio. Illustration of a Fulling Mill. 1607. Source: Weiss and Ziegler 1957.



19 Penstock, water-gate and spout of an overshot fulling mill.
20 One of the three interties, that are framed one end into the front side of the top of the stock block, the other ends into the tops of the three circular pieces that guide the mallets.
21 The two mallets, four feet, three inches long, 21 inches wide, eight inches thick.
22 handles and mallets. A roller passes through them, eight inches from the upper ends. The other ends go through the mallets and have each on their under side an iron plate faced with steel, two feet long, three inches wide, fastened by screw-bolts, for the tappet-arms to rub against while lifting the mallets.
23 Stock post.
24 Stock where cloth is beaten, planked on each side, as high as dotted line. Inside of stock 18 inches wide at bottom, 19 inches at top, and two feet deep.
25 One of three circular guides for the mallets.
26 Tappet-arms, five feet, six inches long, 21 inches each side the shaft, 12 inches wide, four inches thick.
27 Overshoit water wheel
28 One of the three fills.

Figure 11.4. Evans, Oliver. Illustration of a Fulling Mill. 1795. Source: Evans 1795.

sharply and it is difficult to see a suitable spot where a building could have been placed and made accessible by road. As noted above, the structural remains in the creek bed near the southern end of the dam are thought most likely to be evidence of a waste gate or spillway.

Finally, the possibility of this site also serving as the location of a sawmill in the early 19th century deserves a brief discussion. First, there is only a single secondary reference to the existence of a sawmill on Puncheon Run and it is by no means certain that 1). this is the location in question and 2). the sawmill has not been confused with the fulling mill. While not impossible that the fulling mill could have been converted into a sawmill, such a remodeling would have required a substantial alteration of the site. Although late 18th/early 19th-century sawmills (with up-and-down saws) and fulling mills (with their stocks) would both have employed a reciprocating action, the buildings within which the machinery would have been housed would probably have been quite different. Sawmills typically are long, narrow structures with deep wheel pits; fulling mills were less complex in mechanical terms and far smaller in size. For a fulling mill to be converted into a sawmill would have required extensive modification of the site. On balance, one must remain suspicious of the secondary reference to the sawmill and demand stronger primary documentation and field evidence before accepting this as fact. One possibility that should not be ruled out, however, is that the timber remains at the southern end of the dam could relate to a sawmill (or indeed a fulling mill) structure.

D. Evaluation of Significance

Since the core of the Nixon Mill Site lies outside the project corridor and was not subjected to subsurface investigation, a full evaluation of this archaeological resource is not offered. Based on the archival evidence pertaining to the mill and visible surface remains at the site, if the resource -- and specifically, the mill building -- is substantially intact below ground, a preliminary evaluation may be offered that the Nixon Mill Site is eligible for inclusion in the National Register of Historic Places under Criterion D for its potential to yield important information about the rural economy of Kent County, woolen manufacture and water-powered industry in the second half of the 18th century. The approximate limits of the potentially significant portions of this resource are shown in Figure 11.1.

E. Assessment Of Impact

As defined in Figure 11.1, the Nixon Mill Site lies outside the project corridor and will not be directly affected by the proposed project actions. However, there is some prospect of the mill site being indirectly affected by drainage features of the proposed highway improvements. The creation of storm water retention basins along the corridor and the related release of storm water into Puncheon Run may have the effect of accelerating erosion of archaeological features of the mill site. In particular, the timber remains at the southern of the dam (and to a lesser extent, the

earthen dam itself) would be susceptible to changes in river flow. The suggested location for the mill building at the northern end of the dam may be unaffected by changes in river flow along the Puncheon Run drainage.

F. Recommendations

Consideration should be given to making design adjustments to highway-related drainage improvements along the south side of the Puncheon Run Connector corridor which may have an effect on the Nixon Mill Site. To avoid exacerbating erosion of the mill site, the post-construction flow of water along Puncheon Run should match as closely as possible the pre-construction drainage characteristics of the creek. If the integrity of the mill site cannot be maintained, it is recommended that a program of archaeological data recovery be undertaken focussing on retrieving information at the southern end of the dam where timber remains are presently visible. Mechanically-assisted and manual trenching across the line of the dam should aim to recover structural information about the construction of the dam and the timber feature in the creek bed. Effective data recovery will require some means of dewatering, possibly involving a coffer dam and temporary diversion of the creek through the site in such a manner that will not damage the archaeological information being recovered. It is also recommended that the northern end of the dam and the hypothesized mill building location be securely fenced during construction. Analysis and reporting of any data recovery activity should aim to place the Nixon Mill Site in an appropriate historic context as per the research goals of the Management Plan for Delaware's Historical Archaeological Resources (De Cunzo and Catts 1990:130).