INTENSIVE ARCHAEOLOGICAL SURVEY
FOX RIVER CORRIDOR
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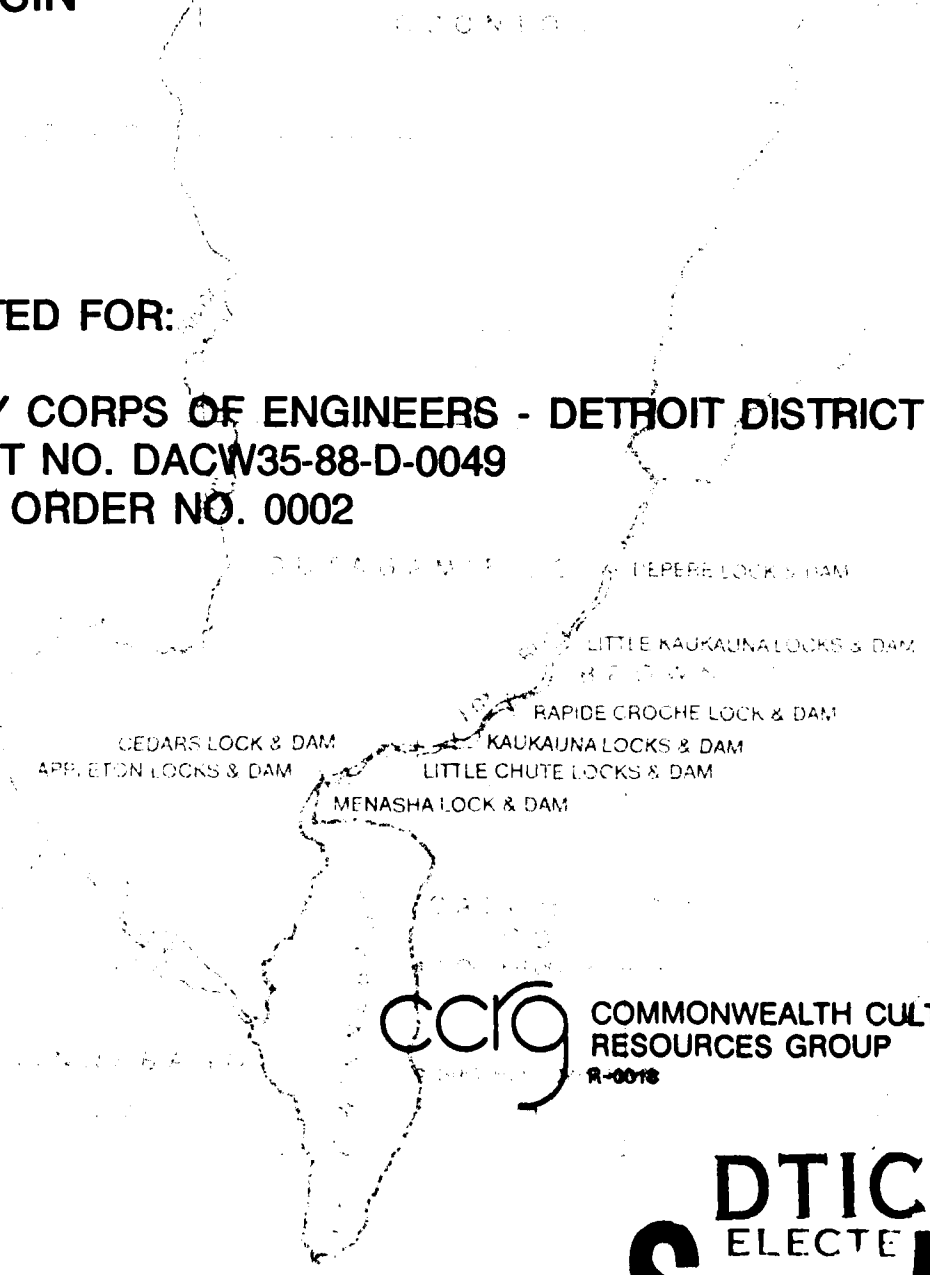

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Commonwealth Cultural Resources Group, under contract to the U.S. Army Corps of Engineers, Detroit District, conducted an intensive archaeological survey, approximately 81 acres, in conjunction with possible property disposal along the Fox River Corridor. The survey area encompassed the river corridor from Fond du Lac Harbor at Lake Winnebago to DePere, as well as Stockbridge and Brothertown Harbors, Wisconsin. Survey determined that construction activities related to the original construction and operation of the dams and locks had severely impacted the landscape. However, the survey did discover two prehistoric and one historic site, as well as eight historic loci. Sites recorded included the Menasha Lock and Osprey prehistoric sites and the Rapide Croche Lock historic site. Recommendations involving further archive research and testing are detailed in the Results and Recommendations chapter of the report.

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CHAPTER I
INTRODUCTION

Commonwealth Cultural Resources Group, as part of its continuing services contract with the U.S. Army Corps of Engineers, Detroit District, conducted an archaeological survey in connection with possible property disposal along the Fox River Corridor. The survey area includes Brown, Winnebago, and Outagamie counties as well as Stockbridge and Brothertown harbors in Calumet County, Wisconsin (Figure 1).

The project area encompasses townships and ranges from T20N R17E through T23N R20E. Parcels within the project corridor range in size from less than 1 acre to several acres in extent. The majority are narrow strips of land directly associated with locks and/or adjacent narrow bands of canal or Fox River shoreline averaging 15 meters in width. The total project area consisted of approximately 81 acres.

Field survey was conducted between April 26 and May 12, 1989, and required about 40 person-days to complete. William E. Rutter served as field director and principal author; field crew members included Steven Sanderson and James Dahlberg. The project was completed under the direction of Donald J. Weir, Principal Investigator.

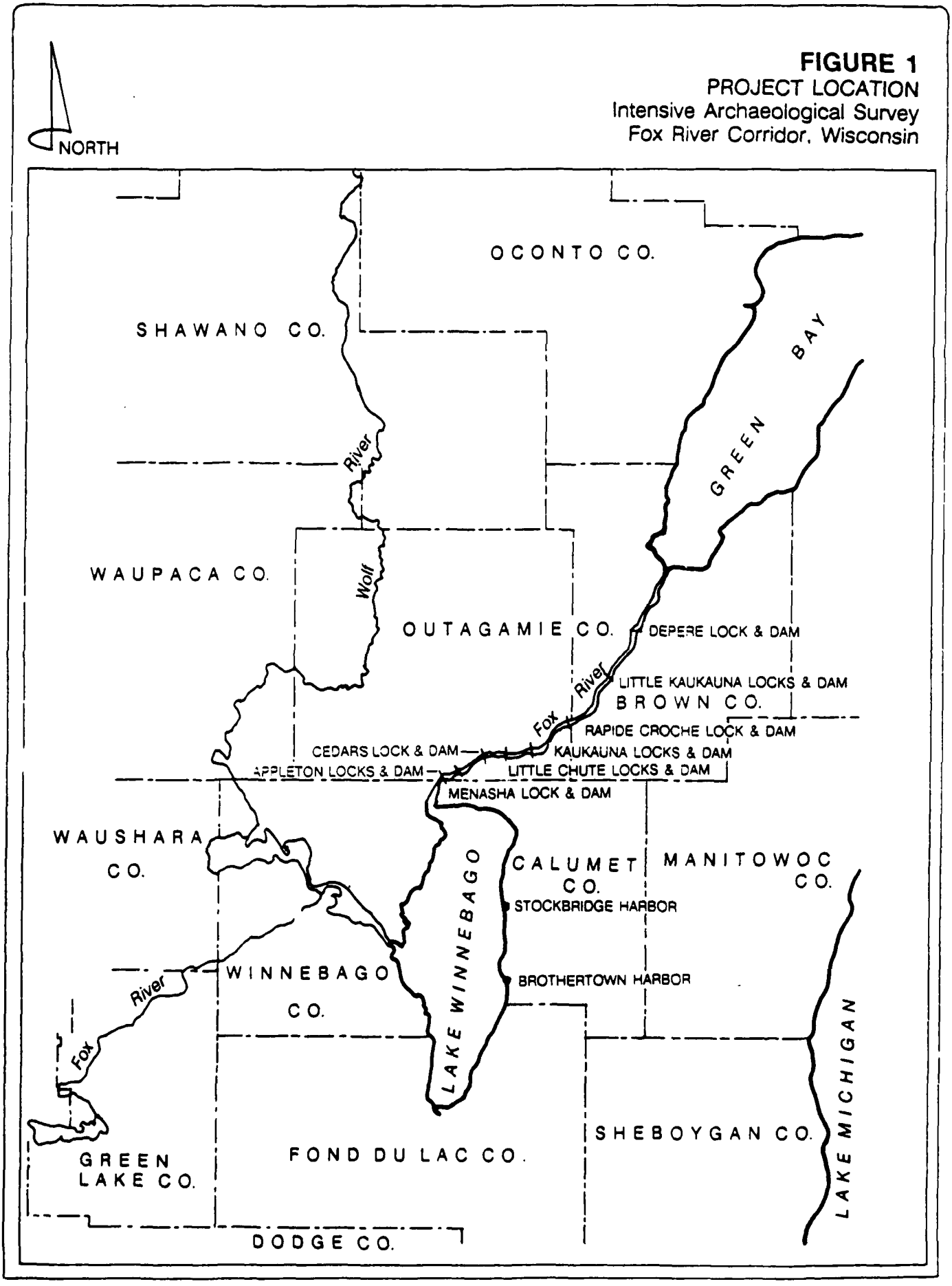


FIGURE 1
PROJECT LOCATION
Intensive Archaeological Survey
Fox River Corridor, Wisconsin

CHAPTER II
ENVIRONMENTAL AND CULTURAL BACKGROUND

ENVIRONMENTAL BACKGROUND

The study corridor, in general, is situated in the Eastern Ridges and Lowlands Physiographic Province, more specifically, a zone termed the Niagara Cuestra (Martin 1932). This area slopes northward toward Green Bay, a total cline of approximately 300 feet. Glacial deposits in the region consist primarily of Valderan drift, with deposits attributable to ancestral Lake Michigan in the vicinity of Brothertown and Stockbridge (Paull and Paull 1980:195). Soils are highly variable but are characterized as primarily heavy clay lake bed and lacustrine deposits grading to sands along the immediate lakeshore. Silt loams, somewhat poorly to well drained, are formed in reddish clay till in ground moraines. Glacial drift displays relief ranging between 50 and 150 feet, but the dominant feature is the Niagara Escarpment running from the Door Peninsula to the west shore of Lake Winnebago.

While the physical characteristics of the region had been formerly attributed to the Valderan/Great Lakean advance, recent work indicates that this advance ended further north than previously believed (Paull and Paull 1980:190). Thus, the reddish deposits found throughout the study region may be assigned to the Woodfordian advance.

Much of the modern drainage pattern of the area was formed during glacial lake stages, primarily associated with glacial Lake Oshkosh, which flowed northward via the Fox River when Green Bay was freed from glacial ice (Paull and Paull 1980). Many of the streams of this area occupy valleys much larger than expected for the size of the features, revealing scouring by glacial meltwaters as the glaciers retreated. In many areas river courses have deepened through the bedrock to expose underlying Silurian dolomite (Paull and Paull 1980:196).

The study region falls within the Canadian Biotic Province (Dice 1943), an ecological transition zone. Reconstructed vegetation series for the area reveal an oak-hickory dominance with inclusions of oak savannah and prairie in upland locales (Overstreet 1975). Deciduous forests were preeminent in other locales featuring beech, sugar maple, basswood and oaks (Finley 1976).

Animal species, important in prehistoric economies, inhabiting this zone include white tail deer, bear, moose, beaver, and snowshoe hare. Abundant avian resources include wood duck, mallard, mergansers, Canadian goose, woodcock, ruffed grouse, and swan. The most important riparian resources in both the aboriginal and Euroamerican subsistence regimen were whitefish, sturgeon, and lake trout, as well as muskellunge, walleye, pike, bass, and perch.

The proximity to the Great Lakes greatly influences the climate of the Fox River region. Reconstructed climate trends, which are of some significance in aboriginal subsistence and settlement patterns, reveal a change from wetter to drier about 9,600 years ago, and from warmer to cooler about 3,500 years ago (Overstreet 1979a). More recently, the climate has been characterized by warm, humid summers and relatively long, cold winters. The annual range of temperature between July and January is about 50 degrees, with snow cover approximately 120 days, and a frost free season of about 105 days. Precipitation averages about 32 inches per year with annual seasonal snowfall of 50 to 60 inches (Hole 1976).

ARCHAEOLOGICAL BACKGROUND

The Paleoindian period began after 10,500 B.C. in southern parts of Wisconsin as mobile hunting bands followed the retreating ice northward, and established camps on glacial Lake Algonquin shorelines and lake stage strandlines. These earliest occupants hunted Pleistocene megafauna and produced fluted projectile points. Although sites from the period are rare in northern Wisconsin, site 47-CT-30 is reported in Calumet County east of Lake Winnebago. Artifacts found at the site were manufactured from cherts and quartzite procured in eastern Ohio or northwestern Illinois as well as western Wisconsin (Mason 1986:189).

Late Paleoindian hunters, who employed unfluted lanceolate projectile points appear across Wisconsin ca. 8500 B.C. They followed game into the lush environments provided by receding levels of the Chippewa-Stanley low water stage of the Lake Michigan basin. This low water stage was as much as 400 feet below present levels, and continued until about 2500 B.C. (Evenson et. al. 1976). It ended with a rapid return to more modern levels which would have inundated most sites from the period. However, one of the more important sites from the Paleoindian period, the Renier site, occurs in Brown County. This site produced cremation burials in association with Eden and Scottsbluff projectile points (Mason 1986:189; 1981:117-121).

Sites from the late Paleoindian and ensuing Early Archaic periods represent primarily small, diffuse, single occupation episodes. Sites from the Early Archaic period in northern Wisconsin have been grouped into the Flambeau (ca. 7000 B.C.) and Minocqua (ca. 6000-5000 B.C.) phases (Salzer 1974). The appearance of the Archaic coincides with the shift to an essentially modern climate in the region. The Early Archaic stage (to ca. 3000 B.C.) is almost unrepresented in the Wisconsin site assemblage, which may be a reflection of rising lake levels or the ephemeral nature of the occupations.

The Middle Archaic period (ca. 3000 B.C-1200 B.C.) in the northern Great Lakes is marked by large, side-notched projectile points and the appearance of the Old Copper culture (Mason 1981). Of the three Old Copper sites professionally excavated, two components are in the general project region. The Oconto site in Oconto County and the

Reigh site in Winnebago County produced a variety of copper artifacts associated with burials. Numerous other Old Copper artifacts have been reported from counties within the study area, and are curated by the State Historical Society (Stoltman 1986:223).

The Late Archaic period (1200 B.C.-1 B.C.) is marked by a near absence of copper artifacts, and a switch from side-notched to stemmed forms of projectile points. The subsistence strategy for the period appears to have been based on mobile groups engaging in a seasonal round. The well known Red Ochre cremation complex occurs across Wisconsin during this period, apparently a stylistic overlay among a number of cultural groups. A number of small sites indicating general hunting and gathering occupations dating to this period occurs across the study region.

The Early Woodland period is marked by the appearance of cultigens, mound building, and ceramics. In northern Wisconsin this period is generally recognized to begin after 1 A.D., and is poorly represented with almost all state data derived from more southerly components (Boszhardt et. al. 1986). Sites in Ozaukee and Door counties have produced crude ceramics with radiocarbon dates as early as the sixth century B.C. (Boszhardt et. al. 1986:253).

The Middle Woodland period (ca. 100 B.C.-A.D. 500) is defined by the presence of Hopewell or Hopewellian ceramics, burial mounds, and material culture shifts (Mason 1981). Hopewell sites are confined to the southern part of the state. Middle Woodland occupations in the northern part of the state are poorly understood (Salzer 1986). The most important northern expressions relate to North Bay culture, defined at the Mero and Heins Creek sites on the Door Peninsula, and display use of local cherts and a lacustrine-oriented economy (Mason 1966).

The Late Woodland period, with a number of cultural expressions and developments (ca. A.D. 500 to Contact), is a complex period throughout Wisconsin. The study area is included in the area defined for the Effigy Mound culture, which is marked by distinctive mounds and cord-roughened globular vessels. Within the project area, perhaps the best known site of the period, is the High Cliff Mound Group in Calumet County (Hurley 1986:285, 292). However, the Late Woodland expression most explicitly identified with southern portions of the study corridor is the Heins Creek culture, which apparently developed out of the preceding North Bay complex (Mason 1966). Material culture includes cord-roughened ceramics and small triangular projectile points associated with an economy heavily focused on fishing in Lake Michigan (Salzer 1986:306).

Oneota Upper Mississippian occupations occurred in northern Wisconsin after ca. A.D. 900, with a subsistence strategy focused on hunting, gathering, and fishing because of the relatively short growing season. One of the most prominent expressions is the Lake Winnebago Phase (ca. A.D. 950-1500), extending from Lake Winnebago eastward to the Lake Michigan shore, although the Green Bay Phase spread across the mouth of Green Bay

to the north (Gibbon 1986:315-318). In the general study area, the Point Sable site in Brown County is an excellent example of the former culture while a nearby occupation representing the latter phase is Door County's Mero site (Mason 1981).

PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES

A number of archaeological sites in the Fox River and Brothertown-Stockbridge vicinities are recorded in the Archaeological Site Files maintained at the Wisconsin State Historical Society in Madison. Archival and historical information concerning a majority of these archaeological sites was provided by early residents of the area. Although none are recorded within the project parcel boundaries, a number are recorded adjacent to and nearby, although most apparently have been destroyed. These previously recorded sites are presented here to provide an insight into the cultural history of the immediate project vicinity. The locations of the following sites are shown on copies of USGS 7.5' topographic maps, and are included in Appendix B.

The data presented here is taken almost verbatum from the Archaeological Site Files of the State Historical Society of Wisconsin. Dates for occupations are included if provided by the site file. References included here in italics are taken directly from the site files.

Several sites were reported by landowners who had been interviewed in the local county history; they are so identified. Other sites were reported by amateur archaeologists and historians, including G. R. Fox, C. E. Brown, and W. H. Elkey, who were active in the area between 1900 and 1920.

Appleton Quadrangle

47OU26

campsite, reported in 1911 by G.R. Fox

47OU73

trading post, on state land office maps, reported by C.E. Brown in early twentieth century

47OU83

campsite, reported by G.R. Fox in 1916, at mouth of a ravine west of the foot of Pearl (O'Neill) Street

47OU85

undetermined occupation, produced large number of copper tools, mostly points and knives, at rapids of Fox River along tail race for C.E. Patten Paper Company, reported by G.R. Fox in 1911

47OU99

sugar bush, reported in Neenah Land Office records

Brotherton Quadrangle

47CT76

campsite, produced 17 grit-tempered potsherds and collared rim, chert and quartzite flakes, bone and shell, north of Harbor Drive on lakeshore, reported by Great Lakes Archaeological Research Center

47CT77

campsite, produced grit-cordmarked potsherds, chert flakes and projectile point tip, along and above lake bluff south of golf course, reported by Great Lakes Archaeological Research Center

DePere Quadrangle

47BR22

cemetery and burials, "now under Fox River", reported by C.E. Brown in 1906

47BR23

village site, reported by C.E. Brown in 1906

47BR24

mounds, reported by C.E. Brown in 1906

47BR91

village, the Schmidt site, 300 x 500 feet

47BR126

"cemetery?", produced catlinite pipe, two skulls, and brass curcific, unearthed while digging cellar beneath store, Government Lot 28 between railroad and Main Street

Wrightstown Quadrangle

47OU8

burial, produced two large copper points, found in gravel pit on former O.G. Lord land, reported by W.H. Elkey in 1905

47OU39

(See Kaukauna Quadrangle)

47OU80

undetermined occupation, produced copper spear point and stone pipes, on former P.E. Smith farm, reported by W.H. Elkey in 1919

Kaukauna Quadrangle

47OU9

oval mound, 16 x 18 feet, excavated without results, on high bank near deep ravine along river, reported by G.R. Fox in 1916

47OU213

village sites, reported by landowner G.H. Glaser in 1906, in County History (Ryan 1912:25)

47OU39

village/cemetery, human and animal bones unearthed during excavation for foundation of Thilmany Paper Company mill, on island between Fox River and government canal; burial pits with limestone slabs near U.S. Government dry dock; a double row of conical mounds on Grignon flats starting east of Outagamie Mills; four burials found at third lock dry dock; Native American village at Grignon Flats. Reported by landowner E.E. Bailey in 1902 in County History *(Ryan 1912:24; Mason in Wisconsin Archeologist 64(3-4):239-260)*

47OU72

trading post, Grignon trading post reported in State Lands File, by C.E. Brown

47OU76

undetermined occupation, copper tools (two awls, spear tips) found by quarry workers at Lindauer's Quarry on island

47OU92

trading post, village, historic Menominee, Itometa's band of Menominee although Native American Stockbridge and Munsee were also present, 1822-1832

47OU93

treaty site, Cedar Point site, Treaty of Cedars signed here in 1836, opposite Kimberly near township line

47OU96

village, reported by G.R. Fox in 1916

Neenah Quadrangle

47WN24

mounds/burials/garden beds, Fourth Ward Mounds, eight mounds, skeletal remains, garden bed, destroyed

47WN25

mounds, two elongate mounds aligned to river, obliterated

47WN26

cairn, pile of boulders and gravel 9 feet high and 100 feet in diameter, 35-50 feet west of Little Lake Butte des Morts

47WN27

mound/cemetery, Hill of the Dead site, large oval mound destroyed by Chicago and Northwestern Railroad

47WN28

council site, council meeting held by Menominee, Winnebago, and Stockbridge to apportion land, 1827

47WN30

Doty Island:

1) Smith Park - three lizard and one turtle effigy mounds
2) effigy and round mounds all along southeast portion of the island
3) historic Winnebago occupation "Houtschope", 1634-1830
4) artifacts recorded south of Smith Park
5) aboriginal corn fields east end of island

47WN31

embankment, village(?) stockade embankment, 500 feet east of Ninth Street

47WN202

campsite, James Island site, multicomponent, shallow site excavated by Lawrence University Field School in 1965, determined eligible for National Register, *Wisconsin Archaeologist 49(2):57-75*

47WN397

undetermined occupation

Stockbridge Quadrangle

47CT68

campsite, surface collection of six grit-tempered potsherds, chert, mammal bone, shell and rock, north of Highway E, east of Mill Creek, by Great Lakes Archaeological Research Center

HISTORICAL BACKGROUND

When French traders and missionaries first penetrated the region, it was inhabited by Winnebago, Chippewa and some Potawatomi. Nicolet may have been the first Euroamerican to set foot in the Fox valley in 1634. Also in 1634, Radisson and Grosliers visted the Fox River, effectively opening up the fur trade and ushering in an era of French-English competition in the New World. The Green Bay/Fox/Wisconsin river route was the primary channel for the spread of Euroamerican influence. The Jesuits soon entered the scene, and the well known Claude Jean Allouez established a number of missions in the region, including St. Francis Xavier at DePere in 1669. Later, in 1673, Fathers Joliet and Marquette became the first to traverse the Fox River route in their famous trip to the Mississippi.

The Fox River became one of the most important avenues into the upper Great Lakes. However, not all relations developed peacefully. In the early 1700s, the French sent a military expedition under Louis de Levigny to the site of modern Neenah and Menasha (Kort 1984:24). After the French and Indian War, the Fox region passed into the authority of the British in 1763 and to the Americans after the Revolutionary War. Actual control of the Fox region was not firmly established until after the War of 1812.

Settlement sporadically advanced. Dominique Ducharme, believed to be the first white settler in the Fox valley, opened a trading post at Kaukauna in the early 1790s (Kort 1984:33). The Ducharme family sold portions of their land to Augustin Grignon. In 1813 he built a trading post and house, for years the only stop between Fort Howard at Green Bay and Fort Winnebago at Portage (Ryan 1912:573). The house, which was expanded into a high-style mansion, is still standing today, adjacent to the Kaukauna Corps' property. A number of streets in town are named for these early pioneers.

The Fox River conduit permitted trade in both lawful and unlawful goods: the latter, smuggled goods, reached southern regions without paying import duties. The government established a post at Green Bay in 1816, and Fort Winnebago at the Wisconsin-Fox portage in 1828, in part to regulate the flow of this trade. The military roads which connected the forts helped to open the Fox River region to settlement.

Although the Ottawa claimed portions of the study region, the Menominee were in actual control, a fact recognized by the U.S. Government in a treaty signed at Green Bay in 1831. The treaty ceded large areas including the eastern shore of what is now

Wisconsin. In 1836 at the Treaty of the Cedars, near the Corps' Cedars Dam and Locks near Little Chute, the Native Americans in the Fox River valley ceded control of the region to the U.S. Government. The area was at various times a part of the Northwest Territory (1789), Illinois Territory (1809), Michigan Territory (1818), and Wisconsin Territory (1836). Much of the region was encompassed in a massive Brown County, which did not achieve its present boundaries until 1851.

A brief synopsis of the development of towns along the Fox River places the Corps' canal and navigation system in historical perspective. The town of Little Chute initially was the site of a small mission. The mission, situated at La Petite Chute (little waterfall), was established for the local Indians in 1832. The local priest, Father Van den Broek, returned to his native Holland with glowing reports of the Fox River area. These reports brought the emigration of a number of Dutch settlers during the late 1840s. A post office was established in 1854, a flour mill in the 1860s, and in 1899, when the Fox River canal system was entering its heyday, the settlement was incorporated as a village (Kort 1984:42).

The city of Kaukauna is the oldest settlement in Outagamie County. In 1816 it boasted the state's first water-powered grist mill. The resettlement of the Stockbridge and Brothertown Indians in the vicinity in 1822 (Wyatt 1986:14.1) helped the town's prospects, a trend accelerated by the Treaty of the Cedars (1836) which initiated a land rush of sorts. The desire for navigational improvements in the Fox and Wisconsin rivers was encouraged by the U.S. Government, although the first major undertakings were privately initiated by the Fox and Wisconsin Improvement Company. In 1855, after the canal system was operational, the Kaukauna area continued to develop rapidly. The coming of the Chicago and Northwestern Railroad in the early 1860s served as still another catalyst. Industrial concerns blossomed and the town became an important paper mill center, anchored by the Thilmany Paper Company, which continues to lease Corps' land today and traces its roots to 1883 (Kort 1984:46).

Combined Locks, initially settled in the 1830s, was named for its situation adjacent to a combination of locks in the canal. It was known as Garner's Landing. German immigrants established a settlement during the 1840s. By the late 1880s, a post office was established, although the settlement was not incorporated as a village until 1920. The economy centered on the Combined Locks Paper Company.

Kimberly, begun as Smithfield on an old Indian trail along the south side of the Fox River, enjoyed a population boom when Oneida Indians were relocated there from New York state in 1830. Later, the Dutch arrived and by 1854 the settlement rated a post office. The locale was a farming community when the Kimberly-Clark Company acquired the land and water power rights along the river. They erected a pulp and paper mill in 1889. The town's fortunes were directly linked to the growing concern, and when the settlement was incorporated in 1910 it changed its name to Kimberly.

The town of Menasha was sited to take advantage of the locale where the Fox River channel drops 10 feet entering Little Lake Butte des Morts. The island at Menasha was surveyed as early as 1833, and by the 1840s settlement was well established. A rivalry developed with the town of Neenah on the opposite shore when Congress authorized improvements to the Fox River after Wisconsin statehood in 1848. The Menasha side of the river was chosen as the location for locks and a dam after entrepreneurs offered to pay the state $5,000 for the award (Kort 1984:58). Railroads connected the town into the national grid in 1861, and industrial development expanded greatly.

Appleton was initially settled by Hippolyte Grignon, a trading agent for the American Fur Company. He erected a house and trading post near the bluffs at the beginning of a stretch of rapids at Grand Chute. There was virtually no settlement in the area when a search committee selected it as the site for Lawrence University. The area was chosen at least partially because of its potential to harness water power (Kort 1984:68). After its first buildings were completed in 1849, the growing college initiated settlement of the locale, which occurred in three clusters: Appleton, Lawesburg, and Grand Chute. The first meeting of the newly established Outagamie County occurred in Appleton in 1851 although the county seat was officially Grand Chute.

The three towns merged with the incorporation of the village of Appleton in 1853. The building of dams and canals fueled the city's growth. The growth of the Fox valley was directly linked to the development of water power, a cheap source of power for industry, and a navigable transportation network. Land transportation also was developed, including a plank road connecting the town with Kaukauna in 1852 (Ryan 1912:146). Improvement along the Fox was begun by the state in 1850 with the erection of dams across the Neenah/Menasha outlet. In 1853 authority for improvements passed to the Fox and Wisconsin River Improvement Company, succeeded by the Green Bay and Mississippi Canal Company in 1856, and the United States in 1872. The government repaired and replaced existing locks along the Fox, enlarged channels, and constructed additional locks and dams. The growth of Appleton was directly linked to improvements in the Fox River system. Industry and population expanded, creating much of the landscape visible today in the city.

CHAPTER III
SURVEY AND METHODOLOGY

Prior to field survey, archival and site file research was conducted. The professional staff at the Wisconsin State Historical Society (WSHS) in Madison, Wisconsin was consulted. Archaeological sites recorded in the WSHS site files are presented in the Archaeological Background section of this report. A number of reports of previous archaeological surveys conducted in the Fox River Corridor project vicinity are maintained on file at WSHS, and these were reviewed prior to fieldwork.

Included in this body of data are "An Archaeological Survey for the Fox River Navigation Project Disposal Sites" (Overstreet 1975), "An Archaeological and Historical Site Survey of the Middle Fox River Passageway" (Faulkner n.d.), "An Archaeological Survey of Kaukauna's Central Park in Outagamie County, Wisconsin" (Dirst 1988), and "An Archaeological Survey of the East Shore of Lake Winnebago" (Overstreet 1979b), as well as the state sponsored "Cultural Resource Management in Wisconsin, Volume 1, A Manual for Historic Properties" (Wyatt 1986). The library at the WSHS was also accessed for background information, most notably old county histories pertaining to the project region.

A complementary research project conducted by historian John Vogel documents the history and standing structures associated with the Fox River Corridor. Therefore, no architectural photodocumentation, field descriptions or inventory cards were completed for the present report. While a brief history relating to the project parcels is presented in ensuing paragraphs, the reader is referred to Vogel's in depth discussion on file at the WSHS in Madison.

Prior to and during field survey, additional background research was undertaken. Dr. Ronald Mason of Lawrence University in Appleton was contacted by telephone on April 26, May 5, and May 11, 1989. The Outagamie County Historical Society was visited and their archivist consulted. John Vogel was contacted on several occasions during this same time period to determine if he possessed information about specific sites or features identified during field survey. Local residents in various project parcel vicinities were queried about local prehistoric or historic information whenever contact was initiated. In the field and at administrative offices, Corps of Engineers' personnel were questioned about any local, verbal or archival information they might possess. Mr. Lee Vosters of the Kaukauna Office, was particularly helpful in this regard. He was interviewed on April 26, 1989.

Field survey was implemented through systematic surface examination, shovel testing and coring with a hand auger. Survey methodology consisted of surface examination of any areas offering exposure, such as eroding slopes or active shorelines. However, the primary mechanism of archaeological survey was shovel testing supplemented by augering or coring. Tests were placed in transects 10 meters apart employing a 10-meter interval.

However, after analyzing stratigraphy and results from testing several lock levees and berms which revealed a consistent pattern of totally disrupted or artificial deposition with only sporadic occurrence of utilitarian artifacts (nails and flat glass) incidental to fill and construction, a 20-meter interval was initiated on all obviously man-made lock and canal levees. This permitted control on stratigraphy and potential subsurface cultural deposits.

Initially, all tests were excavated to a depth of 70 centimeters below surface unless large root or rock obstructions inhibited completion at a lesser depth. After the first lock parcels, in areas of obviously massive disturbance or fill greater than 75 centimeters in depth, tests were completed to an average depth of 50 centimeters in an attempt to control for historic artifacts deposition whether intentionally deposited or included incidental to fill. All soils removed from the tests were passed through 1/4 inch mesh hardware cloth screen. Walls of each approximately 30 x 30 centimeter test were troweled to examine profiles, and notes were taken on stratigraphy. Occasionally, coring was implemented in the base of a shovel test to control for any potential deeply-buried cultural horizons. All tests were then immediately backfilled.

Positive shovel tests were individually marked by placing a piece of orange or red engineer's flagging tape, labeled with the appropriate test number in the backfill. In addition, positive tests at prehistoric sites were marked by placing a piece of aluminum foil on the subsoil just beneath the repositioned humus cap. All artifacts removed from tests were bagged separately, site maps were completed for all sites defined, and photographs taken.

CHAPTER IV
SURVEY RESULTS

In the following discussion, cultural deposits of intensity greater than sporadic or isolated occurrences are assigned a designation number CCR-FR-X-89. The most intensive and informative deposits which appear to achieve the threshold necessary for assigning a State of Wisconsin site number are labeled "Site", while cultural remains not achieving this threshold, but displaying attributes more intensive than isolates are labeled "Locus", as distinguished in the Survey and Methodology chapter of this report. Isolates are not designated in the following discussion but are included in the Artifact Analysis chapter and Appendix B.

Parcels are discussed in order, as shown on the Corps' project maps, from Menasha downstream to De Pere. While sites and loci are noted during discussion in the following chapter, more detailed descriptions and recommendations are presented in the Results and Recommendations chapter of this report.

MENASHA DAM

Survey at the Menasha Dam project (index map 79K, blue line map 25) began on the small parcel along the south side of the Fox River, north of Ahnaip Street, west of the bridge. The parcel is roughly 30 feet by 190 feet and is situated north of the Banta Company plant and its railroad spur. It is covered in sod with a scatter of cottonwood, and appears to be artificially contoured. The east end of the parcel is under an asphalt parking lot, used by visitors and fisherman. The north shore of this lot recently has been rebuilt with gravel fill. No tests were excavated in these areas.

Testing commenced at the base of the slope, down from the parking lot paralleling the river. A dense rock spall and cobble deposits in a matrix of clay and gravel fill were encountered. The typical test stratigraphy encountered ranged from gravel, clinkers, and silty clay loam over yellow-brown clay to 5 centimeters humus over 15 centimeters of mixed reddish clay and gravel fill over brownish-red clay. Several tests produced a light scatter of flat and bottle glass, drain tile, and wire nails, and a clinker laden fill zone about 20 to 30 centimeters below the surface. The assemblage was obviously redeposited and too diffuse to warrant loci or site designation.

Survey on the north side of the river in the 0.39 acre parcel at the east tip of the island, formed by the U.S. Canal and Fox River, east of the U.S. Paper Plant, was completed with a backhoe. The backhoe was provided by Corps of Engineers personnel who were landscaping the tract. The parcel contours and configuration above the river revealed that this area was entirely artificial to 1 meter in depth. Excavation of a 2-meter long trench to 1.25 meters in depth near the middle of the parcel revealed

70-80 centimeters of gravel, cobbles and mottled brown and reddish-brown clay fill over a mixture of reddish-brown clay and clinkers. No historic or prehistoric artifacts were encountered while troweling the profile walls.

The Menasha Locks and Dam parcel situated off the end of Broad Street, east of the confluence of the U.S. canal with the Little Lake Butte des Morts, consists of Parcel A, a 0.7 acre tract with an occupied house (82 Broad Street), a 1.2 acre tract between the house and east canal bank, and a 0.9 acre parcel west of the west canal bank. Survey commenced on Parcel A after interviewing the house occupant, a Corps employee. Parcel A is sod covered in manicured lawn. The house and garage rest on top of a ca. 1.5-meter high ridge which runs east/northeast across the parcel from the canal to private property to the east.

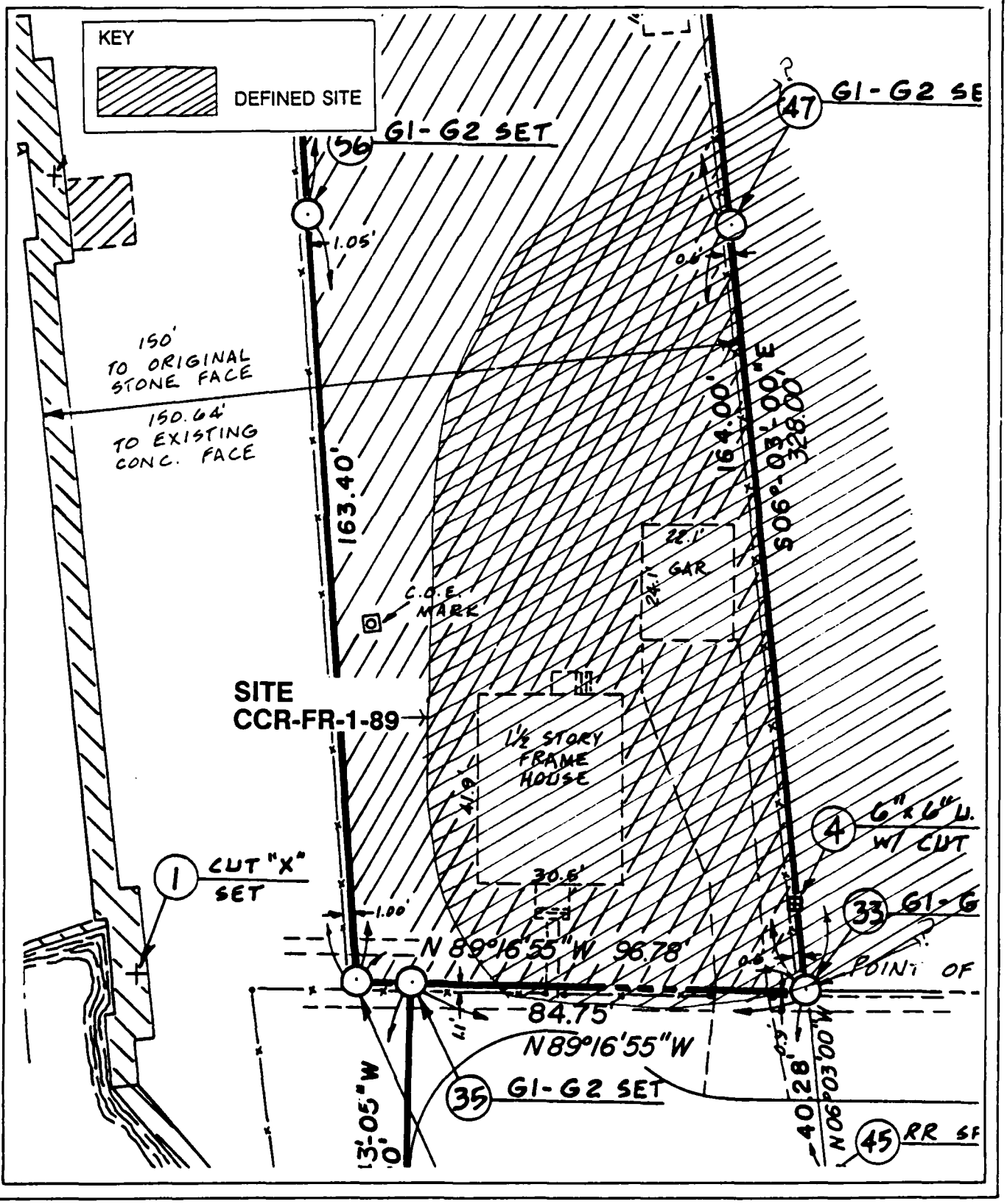
Shovel tests in the southwestern portion of the tract in transect A indicated disturbance up to the surface in mottled yellow-brown clay horizons which contained gravel and cobbles beneath a humus level, but tests further east in transects B and C, within 3 meters of the south fenceline, revealed fairly intact stratigraphy, which produced prehistoric cultural materials. Site CCR-FR-1-89, the Menasha Lock site, was defined in seven positive shovel tests (Figure 2). One area of surface exposure produced a dozen flakes, biface/projectile point (Plate 1-c), aboriginal ceramics (Plate 1-b), and burnt bone. Most positive tests, clustering in transects B and C, produced both aboriginal and historic artifacts.

The surface elevation from transect A eastward to transect C runs up slope on a natural, gradual rise so that transect C, at the east edge of Corps' Parcel A is situated about 0.5 to 1 meter above A. This rise continues and crests out on private tracts to the east. It was probably an excellent camping area overlooking the confluence of the Fox River and Lake Winnebago.

An interview on April 27, 1989, with the present occupants of the house on the survey parcel at 82 Broad Street revealed that the owner is a former lockkeeper for the Corps at Menasha. The family has lived in the house for 17 years. The property was graded both east and west of the locks on artificial slopes. He also stated that the lock was totally rebuilt with fill and excavation materials about 10 years ago. The owner said that the backyard had been graded and a pond filled in. These facts were verified by the totally disturbed stratigraphy encountered in the northern tests in transects B and C. Transect C along the fence line presented the most intact strats, while B was partially disturbed, and A revealed almost totally altered contexts.

Although the family had never found any artiacts on the property, they stated that the previous owners had found numerous artifacts (prior to recontouring of parcel yard), but they knew of no specific locales. Apparently, the former owners had found the items in a backyard garden (although not sure of location) and in landscaping beds around the house and yard. The former owners moved out of the area; both are now deceased.

FIGURE 2
SITE MAP
Menasha Locks, CCR-FR-1-89
Intensive Archaeological Survey
Fox River Corridor, Wisconsin



(Source: Detroit Corps of Engineers Project Map, Menasha Locks.)

PLATE 1
ARTIFACTS
Intensive Archaeological Survey
Fox River Corridor, Wisconsin

a. FR-1

b. FR-1

c. FR-1

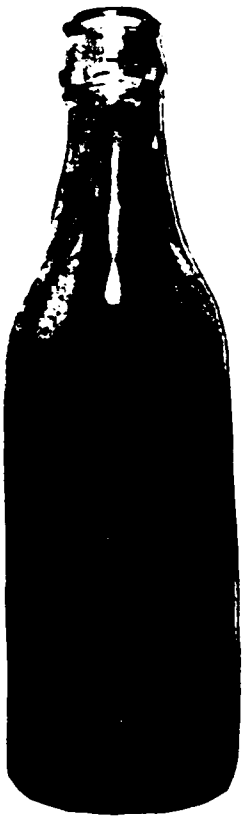
d. FR-1

e. FR-1

f. FR-8

g. FR-9

0 3CM



h. FR-11

0 3CM

a. Utilized Flake
b. Grit Tempered Pot Sherd
c. Biface Fragment (Projectile Point)
d. Flow Blue Plate Rim Fragment
e. Flow Blue Plate Rim Fragment
f. Button
g. Kaolin Pipe Bowl Fragment
h. Soda Bottle

Site CCR-FR-1-89 is a Woodland (possibly Late Woodland) period camp producing bone, burnt bone, a dozen flakes, grit-tempered ceramics (smoothed?), and a projectile point. It is situated on federal land approximately 25 meters by 50 meters and extends eastward on top of a level knoll overlooking the Fox River and Lake Butte des Morts. It appears that the site core, if it survived historic land use practices may be situated on a knoll crest on private property, east of Parcel A. (See Results and Recommendations chapter, for evaluation and a more detailed discussion concerning Site CCR-FR-1-89.)

Tests west of the fenceline, along the east side of the Menasha Lock occurred in obviously artificially contoured lawn. Transect D produced general stratigraphy of 20-25 centimeters of dark-brown clay loam and dense gravel over reddish-brown clay with some gravel, all indicating disturbed contexts. Those tests closest to the canal provided stratigraphy which included lensing of a yellowish sand and clay layer which probably reflected past canal dredging and lock construction.

Similar results were obtained from the west side of the canal. This area was covered in cottonwood and dense underbrush, and contours revealed deposition of dredging spoil. Testing was conducted in a single transect along the west side of the peninsula at the tree line above the beach to avoid layers of overburden. Possible portions of old locks (mortise and tenon beams), which were replaced in 1980, were observed along the base of the slope opposite tests 16 and 17. These are in fragments and are redeposited; no designation number was assigned.

APPLETON LOCKS

Survey of Appleton Lock #1 (index map 79H, blue line map 1, Appleton quad) began at the west end of the parcel along the south side of the U.S. Canal. This parcel is mostly an extreme slope, at least 5 meters to the water. Testing was completed through dense underbrush from the spine of the ridge at the south side of the parcel onto a lesser gradient along the north side of the ridge as it flattened out approaching the lock. General stratigraphy of 12-15 centimeters, ranging to over 20 centimeters in places, was composed of dark-brown clay loam over reddish-brown clay.

A light scatter of glass and wire nails were encountered in transect A (tests 7, 8, 10, 12). Testing was accomplished through the lawn of the lockkeeper's house. The former garden area along the west side of the house was examined because surface exposure produced clinkers, slag, and a brick inscribed "WALSH X X". Stratigraphy in the yard vicinity indicated massive filling and construction episodes. Encounters of lenses of clinkers, charcoal, and ash were not uncommon; they usually were virtually unaccompanied by artifacts, except for wire or machine cut square nails.

Loci CCR-FR-2-89 is a historic subsurface refuse scatter associated with the lockkeeper's house. It produced wire and cut square nails, flat glass, a sherd of whiteware,

metal, and burnt and unburnt bone. It is confined to the level area between the steep terrace slope and the canal edge, and extends about 75 meters east-west by 15 meters north-south. It represents a relatively sparse scatter of utilitarian artifacts apparently incidental to canal construction. (See the Results and Recommendations chapter for additional discussion.)

No testable land occurs east from the house. The only level ground between the steep terrace slope along the south part of the tract and the lock to the north is the graveled and artificially level drive to the house. Surface transects along the water's edge revealed no testable areas. The terrace crest on a golf course also revealed no testable ground or artifacts. Tests completed along the island, north of the canal and south of the flue, presented disturbed stratigraphy-lacking cultural materials.

Survey transects east to Oneida Street encountered exposure in gulley washes and an eroding area under the bridge overpass. The narrow band of Corps' land along the north side of the canal is adjacent to the Thilmany Paper Company complex, and is completely paved up to the concrete breakwater. An auger probe south of the Thilmany building revealed strats of 35 centimeters of dark-brown clay loam and gravel over reddish-brown clay to a depth of over 70 centimeters below the surface.

South of the river, the narrow part of Corps' land, east of the bridge and north of the canal, is all steep slope and breakwater to the west end of Appleton Lock #2. Tests along the contoured levee on the north side of the canal revealed that the area was entirely disturbed. Fill, with a typical stratigraphy of 20 centimeters of dense gravel and cinders over a reddish-brown clay, was encountered.

The south side of the lock presented an area of basically level terrain (about 1 meter above the water line), between the flume and the base of a steep terrace slope. It is covered in a dense undergrowth but a fisherman's path winds along the canal below. Sporadic, isolated, slope surface refuse was associated with the houses above. Shovel tests indicated disturbance, with typical stratigraphy of 20 centimeters of dark-brown clay loam over reddish-brown clay. The most interesting isolate find occurred near test B-6, a major part of a brown transfer printed tureen with maker's mark from T and R Bootes, England, dated to ca. 1900 (Kovel and Kovel 1986:12n). This vessel was atypical of the scatter in the vicinity. No other period refuse was encountered during shovel tests or surface transects, and no structural remains occurred in the vicinity. Therefore, it is, classified as an isolate. "Positive" shovel tests along the canal produced clinkers, a few wire nails, some bottle glass, and chimney glass.

Testing continued into the lawn associated with the former lockkeeper's house near Lock #3. Several positive tests were produced by a fill horizon in this vicinity. They produced wire and square nails, flat and curved glass, and metal of a density sufficient to warrant designation as Locus CCR-FR-3-89. The artifacts occurred in clinkers and ash on top of the red-brown sterile clay, and apparently were the result of incidental inclusion

during a fill episode. A diffuse scatter of artifacts and occasional pockets of cinders and clinkers, which appeared to be incidental to filling and contouring during lock and house construction, were produced. (See Results and Recommendations chapter for additional discussion.)

Tests continued east to the Lawe Street bridge and beyond, onto a mostly non-testable zone south of the lock. The zone was composed of a paved and gravel parking lot for the paper mill. Tests were completed along the north edge of the lot along the canal's south bank. They revealed a totally disturbed stratigraphy typified by 4 centimeters of dark-brown clay loam over red-brown clay. Testing to the end of the parcel, east of the lock entrance, revealed a variety of disturbed stratigraphy and isolated positive tests which indicated disposal of refuse along slopes leading down to the canal. Artifactual materials, consisting of wire nails, flat glass and clinkers, appeared to present secondary deposition and did not warrant designation as a locus or site.

Testing along the north side of the lock on the level terrace below the lock levee and along the shore of the paper mill pond revealed a dark silty loam with clinkers, coal, and ash producing a few sherds of glass, metal, and wire nails. The five positive tests in the vicinity of Lock #3 define a subsurface historic scatter of artifacts warranting designation as Locus CCR-FR-4-89. This approximately 75-meters in diameter deposit is defined as a locus primarily because of its proximity to the lock, and is basically undistinguished. (See Results and Recommendations chapter for additional discussion.)

Survey at Appleton Lock #4 (index map 79H, blue line 2, Appleton quad) commenced on the narrow (3 meters wide) strip of Corps' property, west of College Avenue on the south side of the canal. This strip is entirely covered in asphalt, gravel, and concrete breakwall. The storage tanks shown on the Corps' map have been removed. This part of the parcel was examined by surface transects in which no surface exposure was located. The portion of parcel along the south side of the canal at Lock #4 was examined by shovel test transects, which revealed disturbed soil fill stratigraphy composed of mottled clay loam and red-brown clay.

Shovel testing along the north side of the lock at the east end of the parcel encountered an area of obvious dredge spoil deposits and offered eroding bank exposure about 2 meters above the water. Artifacts observed appeared to date to ca. 1940. Test stratigraphy in this transect consisted of slag, glass, cinder, and rock to at least 35 centimeters below the surface. Tests excavated further west in the vicinity of the lock revealed a different context. Test B11, in the vicinity of the pole building at the east end of the lock, produced stratigraphy (65 centimeters) of mixed and mottled dark-brown clay loam, and gray-brown clay loam and rocks. Historic artifacts, composed almost exclusively of flat glass and wire nails, were intermixed to a depth of 50 centimeters. Tests B14a and B16 produced glass from shallower contexts, while other tests yielded stratigraphy indicative

of disturbance and fill, such as Test B13 with 22 centimeters of dark-brown clay loam over 18 centimeters of mottled dark-brown and reddish-brown clay over reddish, sterile clay.

Lee Vosters of the Corps of Engineers visited the site. He stated that a house was once located in the vicinity of the positive tests where vestiges of landscaping such as sidewalks, ornamental bushes and flowers are still evident. The house was demolished and the grounds totally altered in the 1950s, prior to completion of the College Avenue bridge rebuilding project. This process explains the disrupted soil stratigraphy and artifact scatter. No locus or site number was assigned since the material culture is diffuse and undifferentiated, and the archaeological context is totally negated. Testing continued to the west end of the parcel through totally artificial contours and disturbed stratigraphy.

The portion of the Appleton Lock #4 parcel (blue line map 3) north of Newberry Street, south of the canal was examined. The entire strip, 38 feet wide at most, consists of level and cindered railroad grade above a concrete canal breakwater, periodically choked in dense stands of brush. No tests were completed; however, testing was undertaken in the vicinity of the dam, along the north side of the Fox River near the Foremost Foods tract (blue line map 4). The narrow 10-foot wide strip, west of the mouth of the First Ward canal, produced stratigraphy indicating massive disruption. A typical test composed of 30-35 centimeters of gravel and dark silty clay with clinkers over reddish-brown sandy clay with some sand. Occassionally, a test produced a wire nail within 20 centimeters of the surface. Surface exposure at the west end of the parcel produced no artifacts. Testing east of the First Ward canal mouth provided similar stratigraphy and results, but with even greater evidence of massive fill episodes. Tests produced stratigraphy of over 60 centimeters of silty gravel, cinders, and clinkers over reddish-brown clay to depths exceeding 70 centimeters, with isolated wire nails and flat glass within 25 centimeters of the surface.

Informants from the Foremost Foods plant, Plant Manager Marvin Lemker and Peter Devine, interviewed on May 3, 1989, stated that the end of this tract consisted of fill with fly ash from the old plant furnaces. They further stated that the company replaced the plant's coal-fired boiler with an oil-fired one in 1970; therefore, the fly ash and fill deposits encountered in shovel tests predate this period. Neither person had ever heard of aboriginal artifacts from the vicinity, although a large anchor, "determined by experts" to have been built by the Cape Anne Anchor Works prior to 1865, was pulled from the river bottom off the plant site when the Corps lowered the water level several years ago. Other tests completed along the parcel revealed various contexts of fill deposition, basically 15 to 20 centimeters of cinders and rock fill over reddish-brown clay.

CEDARS LOCKS AND DAM

Survey of the Cedars Locks and Dam at Kimberly (index map 79G2, blue line map 10, Little Chute quad), a 0.33-acre parcel, off the end of Main Street was attempted. However, access to this parcel was not achieved, because the entire tract has been

incorporated into heavy industrial activity. It serves as a decking yard, and is covered completely in gravel, supporting piles of sawn logs and a variety of heavy equipment.

Survey of the Cedars Lock parcel (index map 79G, blue line map 9 Kaukauna quad) commenced on the north side of the lock in a small pasture northwest of a house. Test stratigraphy consisted of 35 to 50 centimeters of dark-brown clay loam or mottled clay fill above a shallow water table. Tests in the pasture produced several wire nails, flat glass, bottle glass, and a sherd of plain whiteware, which serve as the initial component of Loci CCR-FR-5-89. Although tests along the base of the lock levee revealed the occurrence of cinders or fly ash lens lacking cultural materials, testing along the crest of the lock levee near the former lockeeper's house produced a sparse scatter composed mainly of glass and nails. Thus, the positive tests at Locus FR-5 extend over an area approximately 125 meters in diameter, although lack of diversity and density define it as a locus rather than a site. (See Results and Recommendations chapter for additional discussion.)

Testing further east through a contoured trailer park lawn on the north side of the lock generally produced stratigraphy of 20 centimeters of dark-brown clay loam over 15 centimeters of mottled dark-brown clay loam, and medium-brown clay over yellowish-brown clay with dense gravel and rocks. Tests ceased at the edge of a narrow peninsula composed of rock and clay dredging spoil piles, which were examined in surface transects. The only item of note was an isolate find of a sherd of blue shell edge ware, which was recovered from test D36 in disturbed contexts, and unassociated with structural remains or features. Test transects on the south side of the lock presented essentially similar contexts and were culturally sterile.

LITTLE CHUTE LOCKS

Survey at Little Chute Locks in the vicinity of the Guard Lock, (index map 79F4, blue line map 24, Kaukauna quad) began in the northwest portion of a parcel north of the canal, in an area now virtually incorporated into a private, landscaped yard owned by the Santkuyl family. (The parcel north of the junction of Mill and Monroe streets is now covered with gravel and asphalt streets and parking lot, so no survey was conducted there.) Testing through the Santkuyl yard produced disturbed stratigraphy ranging from 20 centimeters of dark-brown clay loam and rocks over brown clay and dense rock matrix to over 25 centimeters of dark-brown silty loam and dense rock. Two tests, however, produced subsurface historic artifacts at some depth.

These positive tests are designated as Locus CCR-FR-6-89 because they produced a variety of artifacts, apparently associated with filling episodes. Conversation with informants indicates that this site may be on the periphery of a zone long used as a dumping ground by the town. The few positive tests did not define a dense subsurface deposition required to merit site designation. (See Results and Recommendations chapter for additional discussion.)

Testing eastward from Mill Street through the front yard of the former lockkeeper's house, a Dutch Colonial Revival produced stratigraphy of clay fill almost to the surface, although 10 to 15 centimeters of dark-brown clay loam horizon were defined intermittently beneath the humus. Incidental artifacts such as wire nails or flat glass were encountered occasionally. Test A13 produced a wire spike at a depth of 60 centimeters in strats of 40 centimeters of reddish-brown mottled clay over 28 centimeters of dark gray-brown sandy clay over reddish-brown sterile clay, apparently associated with house construction and site improvement. A buried fill horizon was indicated. Tests A15 and B3 produced similar stratigraphy with extremely diffuse historic artifacts. Tests further east along a narrow road-cut terrace revealed level terrain to be the result of slope excavation and road construction.

Testing continued through the parcel marked "Reserved Water Lots" on the Corps' project map. The parcel was a steep slope which descended eastward to the lawn of Doyle Park, and then southward along the east parcel edge. General stratigraphy was composed of 40 centimeters of light reddish-brown clay over 20 centimeters of dark-brown clay loam over reddish-brown clay. The buried 20-centimeter thick dark, possible A horizon, produced a thin scatter of artifacts including recent sheet plastic. These soils may have resulted from grading and covering with fill for the park, or perhaps were run off from the large earthen lock and dam levee.

The survey area on the south side of the spillway and lock is less than 10 meters wide and is artificially contoured. Tests presented uniform stratigraphy with reddish-brown mottled clay to a depth of over 1 meter. All were culturally sterile. Tests in the vicinity of the shed, along the south side of the lock near the west end of the parcel, did produce some artifacts and different stratigraphy. Test E3 produced strats of 15 centimeters of dark-brown clay loam over reddish-brown sterile clay, with the upper soil horizon providing a variety of utilitarian iron and steel artifacts such as nails, spikes, bolts, nuts, and strap metal. These appear to present a waste disposal episode associated with a utility shed which appeared to be less than 50 years old. Due to the lack of research value and relative recency, no locus or site number was assigned to this positive test.

Testing continued east from the spillway and second lock onto the Doyle Park lawn. The general stratigraphy encountered ranged from 14 centimeters of dark-brown clay over reddish-brown clay with gravel to 35 centimeters of mottled dark and light reddish-brown clay loam over reddish-brown clay, indicating fill in the vicinity of the shallow park lagoon. The culturally sterile fill stratigraphy continued further east; however, testing ceased because informant, Lee Vosters of the Corps, stated that this level area was formerly all bog and had been filled in to create a recreation area. The fact that this zone had not been platted when surrounding lots were set off, probably in the late nineteenth century, indicates it was probably not habitable, verifying Vosters' account.

Testing south of the platted area along the north side of the canal was conducted in a sloping area which produced stratigraphy of a thin humus layer over reddish-

brown clay and mixed dark-brown clay. A couple of isolated glass sherds were found within 15 centimeters of the surface. The steep slopes of the canal grade offered good exposure in the reddish-brown clay rising 3 meters to level, private tracts. Surface examination and profile cuts in the narrow (less than 10 meters wide) Corps' strip failed to encounter any cultural materials. Transects were conducted along the base and at midpoint of the slope. This placed tests occasionally in less sloping terrain. These tests appeared to indicate more intact stratigraphy, generally producing a 5-centimeter humus layer over 10 to 15 centimeters of dark-brown clay loam over reddish brown clay.

Examination of the south side of the canal revealed that the entire Corps' tract is built up as a massive 20 meter-wide by 3 meter-high levee separating the canal from the Fox River. Cores augered into it produced profiles of solid reddish-brown clay. This feature was examined almost entirely by surface transects until the vicinity of Lock #2 where testing inside the lock fence produced general stratigraphy of 25-30 centimeters of mottled reddish-brown and dark-brown clay over 20-25 centimeters of dark-brown clay loam with gravel and clinkers fill horizon over reddish-brown clay. The sparse cultural materials encountered in the fill horizon included cut bone and flat glass, as well as aluminum foil and plastic, indicating a post-1945 date of deposition. No site or locus number was assigned.

Testing continued in the vicinity of the former lockkeeper's house (index map 79F1, blue line map 21, Kaukauna quad) in the yard north of the combined locks and inside a fenced area. The general stratigraphy encountered consisted of about 20 centimeters of dark-brown clay loam over reddish-brown clay, with occasional isolated artifacts such as, wire nails originating within the upper 25 centimeters of the surface. Exposure offered by the former garden beds near the house presented clinkers and small sherds of flat glass, which were not collected.

Tests along the south side of the lock and canal presented similar results with the exception of plastic and rubber originating in the upper 10 centimeters of test C1, and the upper 15 centimeters of test C6, which yielded wire spikes, bottle and flat glass, whiteware, and bathroom tile in a matrix of dense gravel and cinders/fly ash over reddish-brown clay. Due to the sparse nature and relative recency of deposits, no locus or site number was assigned to these tests. Surface transects were completed outside the fenced area along both sides of the canal. Testing was not necessary because the north side is dredge, construction spoil, and rocks about 2 meters high, while the south side is narrow dredge spoil deposits and artificial in origin. Intermittent exposure offered no cultural materials.

KAUKAUNA LOCKS

Survey of the Kaukauna Locks began with the 2.95-acre parcel between the Fox River and Kaukauna Power Canal (index map 79D, blue line map 19, Kaukauna quad). Testing was conducted in a westerly direction from the east end of the parcel. Tests in

transect A, paralleling the edge of the breakwater above the canal, produced general stratigraphy of 5 centimeters of humus over 10 to 15 centimeters of thick mottled dark-brown and reddish-brown hardpacked clay over a gravel and mottled dark-brown clay with fly ash, clinkers, and dense rocks. Other tests presented similar variations of the mixed stratigraphic theme, differing primarily in depth of dense rock and gravel with fly ash horizon, although the hardpacked clay became more of an obstacle to the west. Some of the fill horizons are probably associated with a former tail race indicated on the Corps' project maps, since test C7 produced a wire nail from a depth of 60 centimeters below the surface. In general, cultural materials were sparse and sporadically encountered, and included bottle glass and plastic.

Survey across the river in the Kaukauna Guard Lock parcel, south of the canal, (index map 79D, blue line map 18, Kaukauna quad) discerned that the southern portion of the parcel is actually a narrow spoil and revetment line composed of fill about 2 to 3 meters above the river surface. Tests verified the total artificial stratigraphy of 15 centimeters of medium-brown clay loam over reddish-brown clay fill with some gravel. Periodic surface exposure offered by eroding slopes and breakwaters revealed continuation of fill and a total lack of cultural materials.

Surface transects on the steep slope at the east end of the parcel and on the north side of the canal were examined for exposure. Shovel tests were excavated on a level area along the edge of the canal beneath the steep slope up to the buildings and houses of Kaukauna. This slope is about 5 meters high, and is covered in recent surface refuse. Tests in the vicinity presented stratigraphy of 15 centimeters of brown clay loam over reddish-brown clay, and perhaps reflected run off from the gradient. Tests conducted west of Lawe Street revealed disturbed and fill stratigraphy consisting primarily of 45 centimeters of reddish-brown clay and mottled brownish clay and clinkers, metal and plastic. Other tests produced a few isolated artifacts which may be older. It appears that the overgrown terrace along the canal is actually a leveled area or route constructed from borrow and fill when the canal was in operation.

Testing east from the new Island Street lift bridge towards Kaukauna Lock #1 (index map 79D, blue line map 17, Kaukauna quad) along the north side of the canal at the base of a long slope revealed a consistent and extensive zone of subsurface historic artifact deposition, which originated in contexts that indicate extensive construction and fill. This deposit is defined as Locus CCR-FR-7-89. General stratigraphy consisted of 20 to 25 centimeters of dark brown clay loam over 21 centimeters of mottled dark brown and red-brown clay fill with clinkers over reddish-brown clay.

Positive shovel tests defined the locus over an area approximately 200 by 15 meters and clustering 15 to 45 centimeters below the surface. It is not defined as a site because the artifact scatter is basically uninformative (mostly flat glass and nails), and occurs primarily as isolates. (See Results and Recommendations chapter for additional discussion.)

The zone along the south side of the canal, west from Lock #1 was tested and discovered to be mottled clay fill, although the paved road for the Thilmeny Paper Company occupies much of this area.

The area at the fence around the first lock is all fill levee. It was examined by surface transects until testing resumed in the vicinity of the former lockkeeper's house, east of the end of Division Street (index map 79D, blue line map 16, Kaukauna quad). Transects were completed eastward across a level area and on a grassy slope of ca. 30 degrees. Tests produced general stratigraphy of humus over 15 centimeters of mottled dark-brown and red-brown clay over 55 plus centimeters of very dark-brown to black silty clay; some tests revealed a more restricted silty clay layer, narrowing to 40 centimeters over a reddish-brown clay.

The extent of this dark silty clay indicates it is probably redeposited fill, perhaps dredged up from the canal and used to build up areas adjacent to the canal. A sparse scatter of non-diagnostic historic artifacts (glass, nails) originated in the silty clay, although four tests produced enough cultural material near the lockkeeper's house to define Locus CCR-FR-8-89. (For additional discussion see the Results and Recommendations chapter of this report.)

Testing continued eastward along the canal-side gravel road and slope, which displayed a varying gradient. The more level areas were subject to tests and presented varying stratigraphy, perhaps indicating slumping and run off. Tests revealed up to 40 centimeters of dark brown clay loam over 5 centimeters of light-tan silty clay over reddish-brown clay on the slope. Testing results became more typical near the gravel road where 10 centimeters of dark-brown clay loam over reddish-brown clay were encountered. All tests were culturally sterile.

Tests in the vicinity of Kaukauna Lock #2 again indicated disrupted contexts and fill episodes, with a typically culturally sterile test composed of 10 centimeters of dense gravel and dark-brown clay loam over reddish-brown clay. Tests within the lock fence differed somewhat, presenting stratigraphy of 15 centimeters of dark-brown clay loam over reddish-brown clay. Tests B2 and B6 produced wire nails. As is the case in virtually every lock tested, dense deposits of stone construction debris, produced when fitting the quarried stone into the lock, inhibited excavation. It appears that this stone matrix eventually had been covered with soil overburden which today is covered in sod; testing through it remains a difficult task. West from the lock, surface transects were completed back to Lock #1 without additional tests because the zone south of the lock levee consists of a ditch and fill.

Tests also were conducted east from Kaukauna Lock #2 (index map 79D, blue line map 15, Kaukauna quad) along a slight slope north of the canal and on the level area along it. Typical stratigraphy in the vicinity produced 15-20 centimeters of dark-brown clay loam and clinkers over 15-25 centimeters of mottled red-brown and gray silty

loam over reddish-brown clay. A light scatter of artifacts was encountered in fill horizons from near the surface to a maximum of ca. 45 centimeters, with most occurring 15--35 centimeters below surface. It consisted of nails, earthenware and iron pieces. These materials appear to result from casual discard in fill and refuse incidental to the nearby railroad grade. Therefore, they were treated as isolates, and neither a locus nor site number was assigned.

Tests and visual inspection of the zone along the south side of the canal revealed that this area consisted of virtually impenetrable, hardpacked fill and rock. Examination of the bank of a ditch cut through the parcel indicated that mottled reddish-brown clay and rock continued to a depth of at least 75 centimeters. This stratigraphy was repeated in the area west of the railroad grade. That part of the parcel, along the south side of the canal basin, is leased to Thilmany Paper Company and consists of a levee and railroad grade associated with the plant; it is not testable.

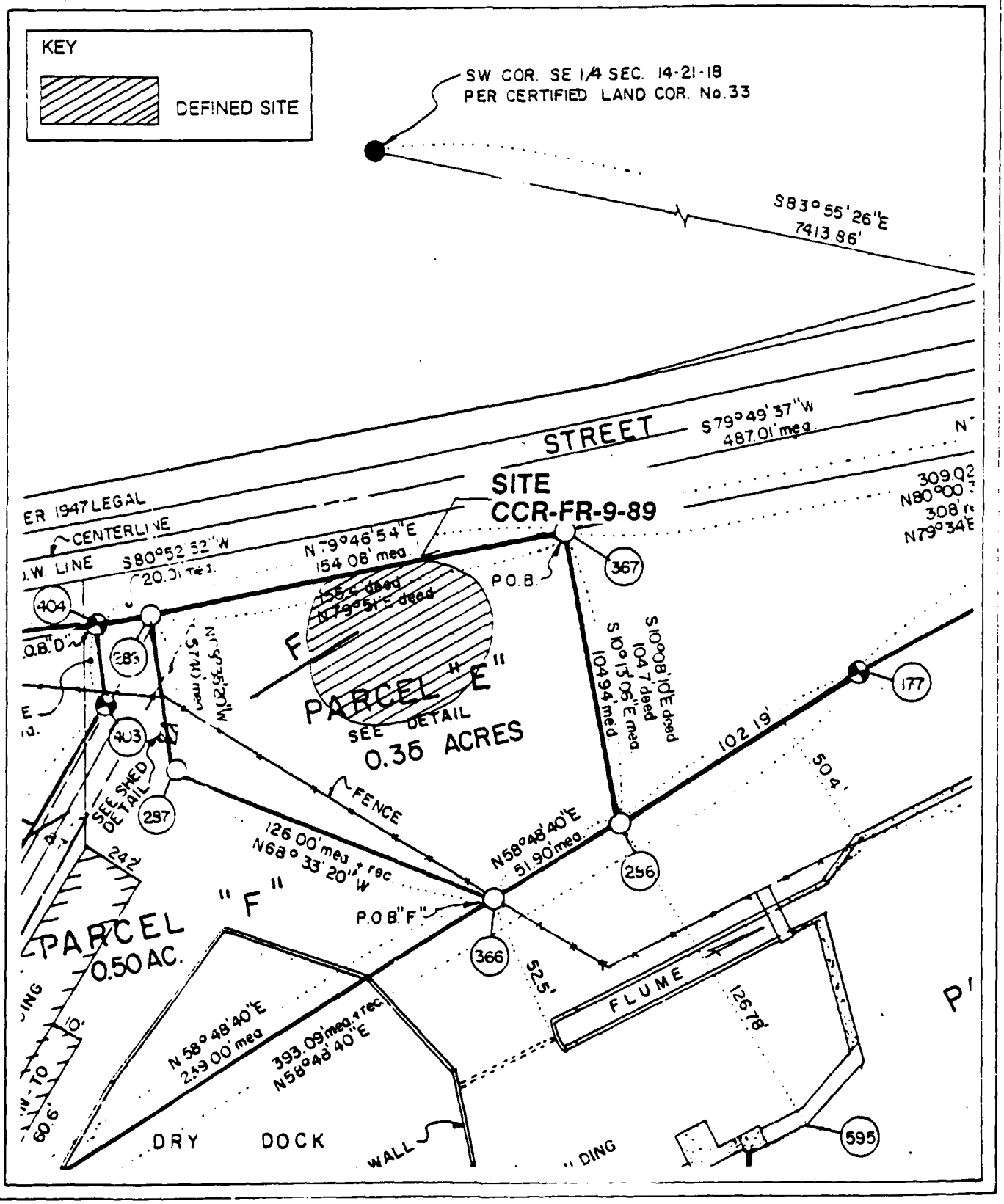
Survey at Kaukauna Lock #4 (index map 79D, blue line map 14, Kaukauna quad) commenced with shovel testing west from the foot bridge along the north side of the canal along a fill levee. Test stratigraphy revealed a range of fill contexts such as 8-10 centimeters of dark clay loam over 50 centimeters-plus of mottled reddish-brown clay, as well as some lenses of silty clay. This area was basically devoid of artifacts.

Parcel E, north of the dry dock, was tested in a series of north-south transects between the lock fence and Augustine Road. Most tests in the southern portion of the parcel encountered stone fragments (canal construction debris?) in the upper 40 centimeters and were mixed through a matrix of very dark-brown clay loam. The northwest corner of the parcel approaching the drive into the Corps' office was contoured, and presented disturbed contexts of gravel and light-brown sandy clay.

Site CCR-FR-9-89, the Osprey site, is a prehistoric site located in Parcel E, east of the Corps' Kaukauna office (Figure 3). It was defined in four positive shovel tests. Test stratigraphy revealed that the aboriginal cultural materials originated in a dark-black silty loam which, in places, is buried under a reddish-brown clay horizon. Tests produced less than a dozen flakes, at least one of which is utilized, a core fragment, and burnt bone as well as some historic materials, including a kaolin pipe bowl fragment displaying a shield type motif (Plate 1-g). The site appears to represent a small camp site at which additional fieldwork may produce cultural or temporal diagnostics. (See Results and Recommendations chapter for additional discussion.)

Testing continued through the fenced area of Kaukauna Lock #3 on the limited level area below the lock/drydock levee south of the flume. It produced 12 centimeters of dark-brown clay loam over mottled reddish-brown clay. Other tests in the vicinity revealed total fill and disturbance through mottled clay contexts (such as that on the south side of the lock on both sides of the spillway) and revealed dense rock fragments (construction related) to a depth of 35 centimeters beneath the humus, extending

FIGURE 3
SITE MAP
Kaukauna Locks, CCR-FR-9-89
Intensive Archaeological Survey
Fox River Corridor, Wisconsin



(Source: Detroit Corps of Engineers Project Map, Fox River Navigation Project, Sheet 4 of 8.)

into and through a mottled reddish-brown and dark-brown clay. All tests were culturally sterile. The zone south of the fenced Corps' property is leased to Thilmany Paper Company, and is now graded level and buried under bituminous gravel, a coal pile, and an almost continuous yard of discarded equipment and machinery. No testing was completed. The area extending east of this tract, south of the canal, is 1.5 meters above the water line, and is a levee constructed of rock and fill offering intermittent surface exposure. No testing was conducted.

Testing east from Kaukauna Lock #4, north of the overflow canal and south of the spillway on a level area beneath the levee produced general stratigraphy of 15-20 centimeters of dark-brown clay loam and cinders mottled with some reddish-brown clay over dark-black silty clay fill. All tests were culturally sterile. No tests were conducted on the narrow levee and rip-rap zone between the main canal and overflow canal, which was composed of fill and spoil. Tests on the south side of the lock produced typical stratigraphy of 25 centimeters of mottled reddish-brown clay with dense rock (construction) fragments. No artifacts were encountered. The tract south of Lock #4 is leased to Thilmany Paper Company for equipment storage and is graded gravel.

Survey eastward to Kaukauna Lock #5 was limited on both sides of the canal since the Corps' property consists basically of 10-meter wide levees, composed half of sloping banks with rip-rap offering sporadic areas of eroding surface exposure. Surface transects found nothing and no testing was conducted since the levee is at least 2 meters above the ground surface associated with Grignon Mansion. Grignon Mansion is across Augustine Street, and was built in 1837 on what is the area's original surface grade.

The Kaukauna Lock #5 vicinity was investigated in four test transects in the limited level terrain available. Areas of surface exposure were examined, and general test stratigraphy consisted of 15 to 20 centimeters of dark-brown clay loam over reddish-brown mottled clay fill; it was culturally sterile. Tests south of the lock at the base of the levee produced stratigraphy ranging from 20 to 30 centimeters of canal debris rock in a matrix of mottled reddish-brown and dark-brown clay to others presenting 10 centimeters of mottled yellow-brown and red-brown silty clay over mottled reddish-brown with some yellow-brown silty clay fill deposits. All tests were culturally sterile. Tests at the north edge of the overflow stream also presented fill strata consisting of very wet and heavy reddish-brown clay mottled in some tests with light-brown and gray clays. Surface examination of the eroding shoreline in the vicinity indicated that the entire parcel was fill.

RAPIDE CROCHE PARCEL

Survey of the Rapide Croche parcel (index map 79C, blue line map 28, Wrightstown quad) began on the north side of the lock in Parcel A in terrain covered in dense shoreline debris which leads up a knoll into thick underbrush. While the test on the shoreline produced a wire nail from mottled clay fill contexts, initial tests on the knoll

revealed intact stratigraphy averaging 15 centimeters of dark-brown clay loam over light reddish-brown silty clay. Test A2 yielded several pieces of embossed porcelain plate and test B2 a wire nail, both within 10 centimeters of the surface. Tests completed in the level and artificially flattened terrain associated with the lock and lockkeeper's house yard generally produced stratigraphy of 10 to 15 centimeters of light reddish-brown and dark-brown mottled clay hardpan over reddish-brown clay. A former garden area offered a large area of good exposure, but transects recovered only a single wire nail from a shovel test west of the lockkeeper's house, and a couple of sherds of bottle and flat glass 50 meters east of the house.

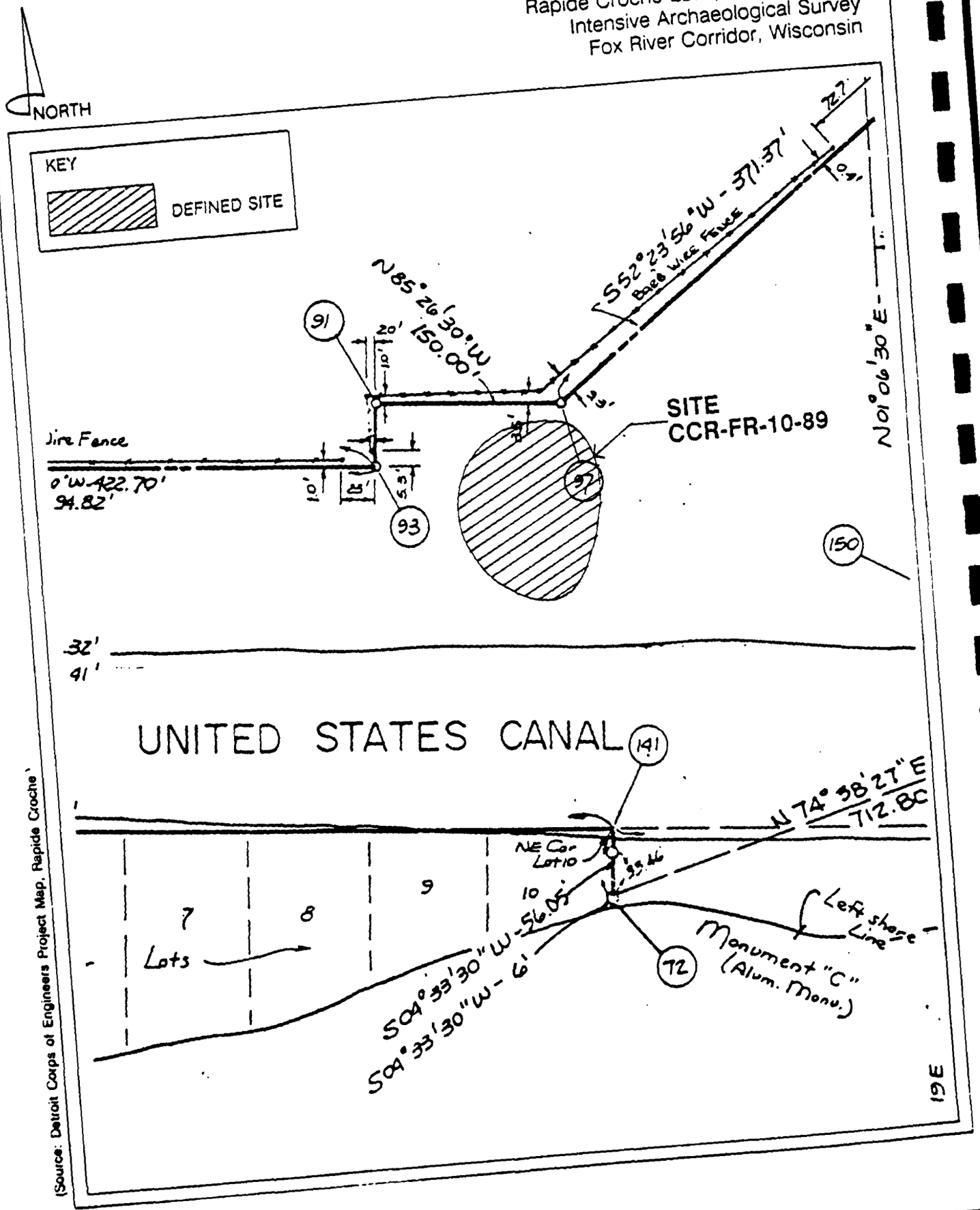
Testing into a second growth timbered area east of the lawn area along the north side of the canal revealed the terrain had been altered through conversion into artificial terraces cut by small gullies which produced disturbed mottled clay stratigraphy. In this area, the Rapide Croche Lock site, Site CCR-FR-10-89, was recorded, the only historic occupation recorded during the present survey which includes structural features (Figure 4). It is situated about 100 meters west from the Corps' gate at the access road, and about 175 to 200 meters east of the present lock and former lockkeeper's house. It consists of two structural features and associated surface refuse, and may be related to the original lock facilities at Rapide Croche. (See Results and Recommendations chapter for additional discussion.)

Examination of the rest of the parcel along the canal east of the sit,e and the narrow band of Corps' land along the canal revealed the terrain is entirely sloped with no evidence of the former (ca. 1899) lock site. The fenced area around the lock consists of levee fill over 1 meter above the surrounding terrain; tests revealed reddish-brown clay fill. Surface transects along the south side of the canal in the vicinity opposite site FR-10 found no evidence of either a former lock structure or associated building remains. Survey crews did note a refuse disposal area, possibly related to the lockkeeper's house, on reserved water lots south of the lock outside the survey parcel. No site number was assigned.

LITTLE KAUKAUNA LOCK AND DAM

Survey at the Little Kaukauna Lock and Dam (index map 79B, blue line map 20, DePere quad) on the peninsula between the canals, along the north side of the lock, revealed disturbed contexts. Tests along the canal levee about 2 meters above the water encountered spoil and rock with a typical stratigraphy of 10 to 15 centimeters of dense rocks and cobbles in dark-black silty clay over 10 centimeters of dark-black silty clay over light-brown clay and rocks. All tests were sterile. Tests in the contoured lock lawn produced sterile, mottled light-brown and reddish-brown clay hardpan fill, but those in the landscaped yard of the former lockkeeper's house presented stratigraphy of 20 centimeters of mottled dark-brown and light-brown clay loam over a dense rock fragment and cobble layer which produced a light scatter of artifacts, including a brick fragment, flat glass, strap metal and a wire nail. Along the yard edge near the canal, two pet grave headstones, flat

FIGURE 4
SITE MAP
Rapide Croche Lock, CCR-FR-10-89
Intensive Archaeological Survey
Fox River Corridor, Wisconsin



(Source: Detroit Corps of Engineers Project Map, Rapide Croche')

rocks painted white with red lettering "Mooch/ 1968-1981/ (illegible)" and "Friskie/ 1969-1983/ Our Loved Friend" were noted.

Testing in the dense underbrush east of the yard revealed repeated disturbed contexts with a typical stratigraphy of 30 centimeters of dark-brown clay loam and rocks over mottled brown and light-gray, brown clay with gravel, with sparse historic scatter (two machine-cut square spikes) in upper soil horizons. Integrity of the deposits was challenged by the fact that test B9 produced plastic in the gravelly zone beneath the dark clay loam. The area designated as "part of old lock" on the Corps' project maps is an ashlar coursed limestone lock wall, which is now part of the breakwall of the existing lock approach.

Testing on the "island" south of the lock about 3 meters above the water on the rip-rap produced mottled brown and reddish-brown hard-packed clay. Tests were sterile except for a single wire nail. Surface exposure offered by eroding slopes and trench backdirt from a recently buried electrical conduit did not produce cultural materials.

DEPERE LOCK

Survey of DePere Lock (index map 1-1, blue line map 7, DePere quad) revealed that the area on the north side of the lock to the east consists of a gravel and asphalt drive and parking area, while the remainder of the narrow parcel to the tail race is all levee slope. No shovel testing was completed, but a surface transect was conducted.

Shovel test transects along the south side of the canal along the base of the lock levee/berm approaching the Fox River produced stratigraphy ranging from 15 to 20 centimeters of dark-black silty, sandy clay over 25 to 30 centimeters of dark-brown silty clay over reddish-brown clay to mottled dark-brown gray and medium-brown sand fill to a rock layer at 50 centimeters below the surface. All tests except test A5 (machine-cut square nail) were sterile, and exposure offered by the eroding levee base along the shoreline also produced negative results. The zone west of the railroad roundtable is a spoil deposit and rock strewn peninsula mounded up to 3 meters above the surrounding terrain. No tests were feasible here.

Testing along the south side of the lock occurred on a filled levee, and produced stratigraphy of mottled reddish-brown clay hardpan. The context changed somewhat upon approaching and entering the yard of the former lockkeeper's house, with stratigraphy of 13 centimeters of gray-brown clay loam over 10 centimeters of reddish-brown and dark-brown mottled clay over 20 centimeters of reddish-brown clay loam over gravel and cinders in a clay matrix. Complex stratigraphy presented in the area appears to indicate disturbance and filling during canal and house construction. Several tests produced artifacts, including flat glass and wire nails from the upper 10 centimeters, while surface transects on the Fox River slope along the west wall of the house produced a scatter of whiteware, bottle glass, and metal.

Several pieces of cut bone were noted in a flower bed at the southeast corner of the house, but they were not collected. The material assemblage was not extensive nor informative enough to warrant locus or site designation. Testing continued along the narrow levee/dike between the canal and river to the end of the parcel. All tests produced clay fill stratigraphy and were sterile.

BROTHERTOWN HARBOR

Survey of the Brothertown Harbor parcel (index 79N, blue line map 8, Brothertown quad) revealed that a stone breakwater obscured some of the survey zone along the southern shore of the eastern portion of the harbor. In general the parcel is open with large cottonwood; a gravel road loops across the center of the parcel. The road and eroding banks around the peninsula offered some limited exposure which indicated that most of the peninsula consists of clay and rock fill about 1.5 meters above the water line. Typical shovel test stratigraphy was mottled-brown and gray-brown "dirty" sand to a rock matrix encountered at ca. 55 centimeters below the surface. The eastern portion of the survey parcel along the shoreline is a sloping area consists of stone rip-rap and a narrow band of grass leading to a narrow peninsula composed entirely of gravel and fill. Two probes and attempted shovel tests on it would not penetrate its surface.

STOCKBRIDGE HARBOR

Survey of the Stockbridge Harbor parcel (index map 79M, blue line map 29, Stockbridge quad) revealed that the northwest corner of the tract is about 90 percent-covered in asphalt for boat access. Eroding banks examined for exposure indicated that the entire landform is composed of fill, with an old asphalt layer visible about 30 centimeters below the present surface. Most of the non-asphalt portion of the peninsula is taken up in slope and rip-rap. Tests placed around the periphery of the asphalt displayed stratigraphic disturbance, typified by mottled-brown sand and rock to a depth of 25 to 30 centimeters, where large rocks impeded excavation. All tests were sterile.

Surface transects were completed on the narrow strip (less than 10 meters wide) of Corps' land around the harbor to the eastern parcel and revealed surface exposure and artifacts on the 45 degree slope which was 3 meters in height. Locus CCR-FR-11-89 was encountered in a ca. 4 to 5 meter in diameter cluster of historic artifacts, north of survey point 9, which included a flow blue plate rim and other artifacts. A light diffuse refuse scatter continued west from this point to near the end of the parcel at survey point 46. The scatter consisted of solder dot and open-top cans, bottles and other artifacts. This deposit is probably associated with a house still standing on private property, east of the Corps' land. (See Results and Recommendations chapter for additional discussion.)

Shovel tests in the southwest portion of the parcel in the wooded area on top of the sharp slope to Lake Winnebago revealed typical stratigraphy of 7 to 10 centimeters of dark-brown clay loam over 45 to 50 centimeters of dark-brown clay over reddish-brown clay. All tests were culturally sterile.

CHAPTER V
ARTIFACT ANALYSIS

PREHISTORIC ARTIFACTS

The following methodology was employed in the analysis of prehistoric cultural materials. Each lithic artifact was examined to group it by raw material, size, and reduction stage. Each flake was examined for the occurrence of a platform, and any evidence of utilization or retouching. Appendix A provides data on each piece of debitage by site, and includes provenience, reduction stage, length, width, thickness, color and structure, and luster. Specific artifacts are discussed under individual site headings.

All artifacts were washed and dried prior to analysis. Each site was processed as a unit to retain site integrity. The collection from each site was then rough-sorted, based on morphological traits prior to final analysis and entry as data.

Identification of lithic sources, when possible, was based on examination of raw material type (e.g., chert, quartzite), color and intensity (e.g., light-gray), and lithic structure (e.g., mottled, banded, homogeneous). In addition, the presence of fossils and spicules was noted.

The specific raw material sources for many of the artifacts that were recovered from prehistoric sites are unidentified, but this is not unexpected. It is likely that prehistoric occupants of these sites utilized locally available, glacial cobble sources from eroding tills and stream courses. Thus, a wide range of exotic sources is to be expected. Most of the sites produced a range of banded and mottled, medium lustrous light- and dark-gray cherts, although many specimens ranged to light blue-gray in color. Structure was primarily homogeneous, although some specimens displayed spicule-fossil inclusions. Varieties of dull-lustered, mottled light-tan and beige, poor quality chert also occurred frequently.

Although the raw material types discussed above encompass the majority of sources utilized at prehistoric sites recorded during the present survey, the total range is revealed by examination of the tables in Appendix A. No specific identification of sources is attempted; however, it appears that much of the material may originate in glacial cobble available in the region's moraines and Pleistocene features.

Of note is the low occurrence of shatter and block flakes relative to flat and retouch thinning flakes at sites. This coupled with the low percentage of primary and secondary reduction flakes indicates the relatively late stage of tool production at these sites. A high blocky to flat flake ratio or primary/ secondary to tertiary flake ratio might indicate quarrying or large core reduction at a site. Instead, final tool completion,

maintenance, and reconditioning are indicated at most sites. This conclusion is further supported by examination of the size of the debitage recovered from all sites.

The primary goal of prehistoric artifact analysis is to provide an objective summary of each site's assemblage in order to define temporal, functional, and cultural relationships. This facilitates evaluation of the site's significance, particularly in terms of National Register status, as well as producing a data set amenable to comparison with other archaeological sites.

Of course, material culture from Phase I surveys or even Phase II test excavations may be incomplete and biased. Problems inherent in preliminary investigations include accurate determination of site function and chronology. Possible exceptions may be isolate finds, particularly curated tools lost or abandoned during specific procurement or processing activities. Still, functional interpretations for such a find are tenuous at best, and temporal evaluation of a "diagnostic" artifact may be based on regional typology stretched beyond valid parameters.

HISTORIC ARTIFACTS

A variety of historic artifacts were recovered from sites addressed during survey of the Fox River Corridor. All materials encountered in shovel tests were retained. In the surface contexts, only diagnostic artifacts and items that could be considered attractive to relic collectors were collected by field teams. The number of specific diagnostic artifacts discussed in this section of the report is not great due to the basically utilitarian nature of most of the assemblage (i.e., nails and glass). Some metal artifacts were so corroded as to be unidentifiable. They are treated as miscellaneous metal.

Many historic artifacts commonly encountered in the Fox River region can supply general temporal parameters. These artifacts are ubiquitous on late nineteenth and early twentieth century sites in Wisconsin, and in the interests of curation are not usually recovered during surveys, but are duly recorded.

The most common artifacts on late historic sites in the Fox River assemblage are produced from metal. The most utilitarian artifact, the nail, can supply general dating parameters. Wire nails were first manufactured around 1875, and rapidly gained acceptance, surpassing cut square nails in popularity by 1890 (Fontana and Greenleaf 1962:55). They composed 75 percent of the typical nail assemblage by 1895 (Gillio, Levine and Scott 1980:4). Most northern Great Lakes' sites that display a mixture of wire and cut nails date between 1875 and 1890 (Hulse 1977:10).

Sanitary cans are perhaps the most widespread metal artifact encountered at sites. In general, the sanitary/open-top variety of can occurs after ca. 1904, and replaces the hole-in-cap type by the 1920s. Another easily recognizable metal container, the pocket-size tobacco tin, becomes prevalent at historic occupations after 1913 (Clark 1977).

Solder dot condensed milk cans appear after the turn of the century and continue in use to modern times (Busch 1981:98).

Graniteware, or enamelware, is a metal utilitarian tableware. It was valued at logging camps and early residential occupations because its light weight permitted easy shipping. Also, it was virtually indestructible. Such items occur most frequently at post-1890 occupations on historic sites recorded during a survey of the St. Croix area in Wisconsin (Weir 1979). They also are commonly advertised in turn-of-the-century retail catalogues (Amory 1969; Schroeder 1971). Auto parts noted on northern Great Lakes' sites can safely be attributed to post-1915, and more probably post-date 1920.

Glass and ceramic artifacts can provide general dating parameters, even without specific motifs or maker's marks, based on manufacturing technique. Body sherds of salt-glazed crockery can usually be attributed to pre-1900 sites, while slip-glazed varieties generally occur on post-1900 occupations (Barber 1893). Bottles embossed "Federal Law Forbids Sale or Reuse of This Bottle" appeared at the repeal of Prohibition (1933) and continued in manufacture until 1964 (Munsey 1970:126).

Bottle fragments and glass color also provide temporal insights. Prior to World War I, hand finishing of bottlenecks was replaced by machine tooling, resulting in the diagnostic alteration of neck seams (Fontana and Greenleaf 1962:100). The Owens bottle machine, patented in 1904, permitted mass production of small mouthed bottles (i.e., crown top). These bottles were widespread by 1912, although interval stopper bottles continued in use up into the 1920s, when laws were passed prohibiting them (Munsey 1970:105).

CHAPTER VI
RESULTS AND RECOMMENDATIONS

MENASHA DAM

Site CCR-FR-1-89, the Menasha Lock site, was defined in seven positive shovel tests and one area of surface exposure, extending east from a point about 25 meters east of the Menasha Lock and north from Broad Street. Testing was confined to Corps' property at 82 Broad Street. Test B1 produced both aboriginal and historic artifacts, with the latter generally originating in the upper portions of the test. Aboriginal artifacts consisted of several flakes, recovered from the humus layer to a depth approaching 50 centimeters below the surface, a biface/projectile point (Plate 1-c), and a grit tempered potsherd (Plate 1-b) from about 60 centimeters below the surface. Also recovered were fragments of mammal bone which may be aboriginal in origin. Although the stratigraphy appeared to be minimally disturbed, recent historic cultural material was recovered in very diffuse amounts from depths to about 80-90 centimeters below the surface. It is possible that some of these materials originated in wall scrapings from upper levels, or they may indicate some filling activity or root or rodent intrusions.

Test C1, near the driveway, produced aboriginal artifacts from the humus to a depth of 40 centimeters below the surface, from apparently intact natural soil horizons. Recent historic materials (less than 100 years old) were most numerous to about 20 centimeters below the surface and were intermixed with a few aboriginal artifacts, while purely prehistoric cultural materials were recovered from the very dark-brown (Munsell 10YR2/2) clay loam in contexts 20 to 40 centimeters below the surface. This horizon overlay is a sterile yellowish-brown (Munsell 10YR5/6) clay. Prehistoric artifacts recovered include a half-dozen chert flakes, the biface/projectile point, and burnt and unburnt bone which originated in the mixed prehistoric and historic contexts.

The surface elevation from transect A eastward to transect C runs up slope on a natural, gradual rise so that transect C, at the east edge of Corps' Parcel A, is situated about 0.5 to 1 meter above A. This rise continues on and crests out on private tracts to the east. It was probably an excellent camping area in the past, overlooking the confluence of the Fox River and Lake Winnebago. However, tests in the vicinity of the house indicated stratigraphy ranging from partially to totally disturbed with increasing disruption further north below the elevation which the house occupies.

As noted in the Survey Results chapter, an interview with the present occupants of the parcel revealed a great deal of surface contour alteration of the survey parcel. This was verified in the shovel test stratigraphy. Still, some zones of what appeared to be fairly intact contexts were encountered. Transect C along the east fence line presented the most intact stratigraphy, while B was partially disturbed, and A revealed almost totally altered contexts.

Although the family had never found any artifacts on the property, they stated that the previous owners had found numerous artifacts (prior to recontouring of parcel yard), but they did not know of any specific locales. Apparently, the former owners had found the items in a backyard garden (although not sure of location), and in beds around the house and yard associated with the extensive landscaping of the grounds. The former owners moved out of the area and both are now deceased.

Test C2, east of the house near the driveway, produced a prehistoric flake from disturbed contexts of mottled very dark-gray brown (Munsell 10YR3/2) loamy clay and dark yellowish-brown (10YR4/6) clay to a depth of over 55 centimeters below the surface. Test B2 was also excavated in somewhat more intact contexts, near the edge of the upper ridge occupied by the house, but was culturally sterile. Test B3 was excavated near the middle of the yard on a slight rise which appears to be a remnant of the original, pre-yard reconstruction, lower terrace beneath the house, created by lock reconstruction. It presented relatively intact stratigraphy, and produced a few prehistoric flakes.

Transects continued north to the edge of the inlet with relatively intact contexts encountered in transect B through the lower intact terrace beneath the upper house terrace. Test B4 provided stratigraphy of humus over dark-brown clay loam over yellowish-brown clay and produced a piece of flat glass and a burnt bone fragment, which is problematically aboriginal.

Transect C, along the fence line, provided the only consistent stratigraphically-intact zone in Parcel A. This transect is on a slope leading up to a level ridge crest on private property to the east, where the core of the site may be situated. Tests C3 and C4 near the fence and south of a mulberry(?) tree produced aboriginal flakes with an unburnt bone fragment, also recovered from the latter test; however this is not explicitly aboriginal in origin, because C4 also produced a wire nail. Exposure in the vicinity of the tree produced three more flakes (although only two were collected) in surface contexts. Test C6, north of a small shed, produced fragments of burnt bone. These also are not unambiguously prehistoric since the area was "contaminated" by historic artifacts.

Stratigraphy of the C transect was generally 10 to 14 centimeters of humus and dark-brown clay loam over a yellowish-brown gritty clay. Prehistoric cultural materials all originated in the dark-brown clay loam horizon. Tests northward in this transect toward the inlet presented intact stratigraphy, but were culturally sterile in terms of prehistoric materials. These tests were downslope and continued off the decending ridge landform where the core of the site is located to the east and south. All tests producing aboriginal materials were marked by placing aluminum foil in each test unit beneath the replaced sod cap. Each test area also was marked with labeled flagging tape ("C4", etc.).

Site CCR-FR-1-89 is a Woodland (possibly Late Woodland) period camp, which produced bone, burnt bone, 20 flakes including one utilized and one quartz flake, a

grit-tempered plain, smoothed ceramic sherd (Plate 1-b), and a biface/projectile point fragment ((Plate 1-c). It extends over an area on federal land, approximately 25 by 50 meters, eastward on top of a level knoll overlooking the Fox River and Lake Butte des Morts. It appears that the site core, if it survived historic land use practices, may be situated on the knoll crest on private property east of parcel A. It is probable that the present survey encompasses the periphery, i.e., the west and northwest portions of the site, a zone which still produced a number of diagnostic artifacts.

Although it will be difficult to assess this site's National Register significance until survey is undertaken on the private parcel to the east, this site is one of the few reported in the vicinity, and the fact that the periphery produced diagnostic artifacts indicates that it presents good research potential, with the possibility of subsurface features revealed by burnt bone. Curated diagnostics, the variety of artifacts, and the possibility of features appear to indicate a site of some permanence.

Site CCR-FR-1-89 is important because few intact sites along this segment of the Fox River have been investigated professionally. Many have been destroyed by urban development and historical land use practices in the Fox cities region. The zones most attractive for aboriginal settlement also were those appealing to Euroamerican development. From such a perspective, surviving aboriginal sites producing diagnostics accrue added importance for explaining prehistoric lifeways. Thus, although much of site FR-1 appears to extend onto a private tract to the east, based on topography and landform, it presents a rare opportunity for professional research into a poorly represented facet of the region's prehistory.

APPLETON LOCKS

Testing through the lawn of the lockkeeper's house encountered a light scatter of glass and wire nails, initially defining Locus CCR-FR-2-89, in transect A (tests 7, 8, 10, 12). The former garden area along the west side of the house was examined because surface exposure produced clinkers, slag, and a brick inscribed "WALSH X X". Stratigraphy in the yard vicinity indicated massive filling and construction episodes. Encountering lenses of clinkers, charcoal, and ash was not uncommon. They usually were unaccompanied by artifacts except for wire or machine-cut square nails.

Locus CCR-FR-2-89 is a historic subsurface refuse scatter associated with the lockkeeper's house, centering about test A14. It produced wire and cut square nails, flat glass, a sherd of whiteware, metal, and burnt and unburnt bone. The nearby lock is a coursed ashlar sandstone structure. The house is remodeled but features a rubble stone foundation, the same vintage as the lock. The locus may be dated by the combination of wire and machine-cut nails, and canal occupation to the late nineteenth and early twentieth centuries. It is confined to the level area between the steep terrace slope and the canal edge, in the vicinity of the house, extending approximately 75 meters east-west by 15 meters north-south. This locus, from purely an archaeological context, did not achieve the

threshold of artifact density, variety, or contextual preservation to merit assigning a site number. However, it is directly associated with a potentially significant architectural resource, the lockkeeper's house. At present, the significance of FR-2 must await the evaluation of the structure. It can only be evaluated in terms of the residence's significance. Such a determination is beyond the scope of this project.

Testing continued into the lawn associated with the former lockkeeper's house near Lock #3. Several positive tests were conducted in this vicinity, producing wire nails, and flat and curved glass, thus initiating definition of Locus CCR-FR-3-89. Test B32 encountered a fill horizon which included ash, cinder, clinkers, and utilitarian artifacts such as wire and machine-cut square nails, miscellaneous metal, and bottle glass. Its stratigraphy was 32 centimeters of dark-brown clay loam over 5 centimeters of mottled dark-brown and reddish-brown clay, over 17 centimeters of dense clinker, coal, ash, and artifacts with reddish-brown and gray-brown mottled clay, over sterile reddish-brown clay. The artifacts lay on top of the red brown sterile clay and apparently result from incidental inclusion during a fill episode.

In sum, tests 30, 32, 32A, and 37 produced a diffuse scatter of artifacts and occasional pockets of cinders and clinkers which appeared to be incidental to filling and contouring during lock and house construction. Locus CCR-FR-3-89 is confined to a level terrace along the lock, extending from east of the lockkeeper's house westward into the woods, covering an area about 15 x 75 meters. Due to the lack of material culture density and variety, as well as the presence of disturbed contexts, this locus does not achieve the threshold of site designation. No further research is recommended.

Testing on the north side of the lock along the level terrace below the lock levee and along the shore of the paper mill pond generally revealed a dark silty loam with clinkers, coal and ash producing a few sherds of glass, metal, and wire nails. The five positive tests in the vicinity of Lock #3 (A43, A50, C5, C7, C8), with three north and two south of the lock, revealed a diffuse subsurface historic scatter of utilitarian artifacts warranting designation as Locus CCR-FR-4-89. This widely scattered refuse deposit is associated with Lock #3 and extends over an area about 75 meters in diameter. Once again, the nature of this scatter and its apparently incidental deposition relating to lock construction and operation determines that this locus does not achieve the site designation threshold. No further research is recommended.

CEDARS LOCKS AND DAM

Survey of the Cedars Lock parcel (index map 79G, blue line map 9, Kaukauna quad) commenced on the north side of the lock in a small pasture northwest of a house. Test stratigraphy consisted of 35 to 50 centimeters of dark-brown clay loam or mottled clay fill above a shallow water table. Tests A1, B1, C1, C2, and C3 produced several wire nails, flat glass, bottle glass, and a sherd of plain whiteware. Although these artifacts appear to

be deposited as the result of fill, the dispersion is consistent enough to warrant designation as Loci CCR-FR-5-89.

In further defining the locus, testing along the contoured upper terrace of the lock levee in the vicinity of the Dutch Colonial Revival (former lockkeeper's) house produced different stratigraphy as well as a sparse scatter of artifacts. While tests D11, 16, 18, 21, and 23 produced in total less than a half-dozen artifacts composed mainly of flat glass and wire nails, with a single machine-cut square nail, the artifact producing context encountered ranged from 18 centimeters to over 50 centimeters of dark-brown clay loam over the reddish-brown clay.

Thus, the positive tests ranged from the low pasture to the upper levee near the house, to the base of the lock levee over an area approximately 125 meters in diameter. While a total of ten positive tests at initial impression appears substantial, fewer than two dozen artifacts were secured, and most of these were flat glass and wire nails. Due to the stratigraphic variability indicative of subsurface disturbance, the extremely dispersed pattern of the positive tests, and the diffuse and uninformative character of the artifact assemblage, Locus CCR-FR-5-89 does not achieve the designation threshold necessary to be defined as a site. No further research is recommended.

LITTLE CHUTE LOCKS

Locus CCR-FR-6-89 was initially encountered in Test A9, near Monroe Street north of the draw bridge. It produced 25 centimeters of dark-brown silty and clay loam over 35 centimeters of medium-brown sandy loam and sand with gravel and clinkers yielding flat and bottle glass, whiteware, and an apparent baby carriage rubber-rimmed wheel at ca. 50 centimeters below the surface. Test B1 produced similar stratigraphy with china, glass, and metal. Other tests in the vicinity proved sterile.

Conversation on May 5, 1989, with the occupant of the adjacent parcel, Mrs. Santkuyl, revealed that her house was built partially into the steep terrace slope and that foundation excavations had exposed dense rock strata and "truckloads of junk." Informant Lee Vosters of the Corps had mentioned that this parcel might be in the vicinity of the old Little Chute town dump. It should be noted that Mrs. Santkuyl had never heard of any aboriginal artifacts being found in the vicinity.

These two positive tests are designated as a locus because they produced a variety of artifacts at some depth, although the stratigraphy appears to indicate filling episodes. This locus may occur along what informants reported as the periphery of the old Little Chute town dump, although the artifact density and variety is minimal. It is conceivable that unpatterned opportunistic filling of waterfront property occurred, with the most densely utilized dumping grounds situated on the large slope to the north, leading up to the town of Little Chute. This would explain Mrs. Santkuyl's deposits. In any event, the two positive tests did not define a dense subsurface deposition expected of a town dump,

and it appears that the actual core lies to the north on private land. This locus does not warrant site designation and no further research is recommended.

KAUKAUNA LOCKS

Testing east from the new Island Street lift bridge towards Kaukauna Lock #1 (index map 79D, blue line map 17, Kaukauna quad) along the north side of the canal, at the base of a long slope, revealed a consistent and extensive zone of subsurface historic artifact deposition defined as Locus CCR-FR-7-89. Its context indicates extensive construction and fill, with general stratigraphy consisting of 20 to 25 centimeters of dark-brown clay loam over 20 to 25 centimeters of mottled dark-brown and red-brown clay fill with clinkers over reddish-brown clay.

A total of 17 of the 18 10-meter interval tests from test A2 west to test A10 were positive, defining Locus CCR-FR-7-89, an approximately 200 x 15 meter area. This subsurface scatter, clustering 15 to 45 centimeters below the surface in various clay horizons but occurring into the humus zone from a mottled clay horizon, was not defined as a site because the artifact scatter consists mostly of flat glass and nails (wire and square), although bone, bottle glass, and iron pieces also were recovered. Many of these artifacts occurred as isolates in a test, apparently indicative of incidental inclusion in fill horizons associated with building or stabilizing the canal. No further research is recommended.

Locus CCR-FR-8-89 was defined in the vicinity of the former lockkeeper's house, east of the end of Division Street. Transects were completed eastward across a level area and on a grassy slope, with tests producing general stratigraphy of humus over 15 centimeters of mottled dark-brown and red-brown clay over 55 plus centimeters of very dark-brown to black silty clay; some tests revealed a more restricted silty clay layer, narrowing to 40 centimeters over a reddish-brown clay.

The extent of this dark silty clay indicates it is probably redeposited fill, perhaps dredged from the canal and used to build up areas adjacent to the canal. A sparse scatter of nondiagnostic historic artifacts (glass, nails) originated in the silty clay, but test D2, in the yard of the lockkeeper's house, produced a bone four-hole button (Plate 1-f) from ca. 50 centimeters below the surface. Tests D1, D4, and D5 also produced a few nails and brick fragments, but no cultural materials were encountered below ca. 55 centimeters.

In total, four shovel tests (D1, D2, D4, D5) define Locus CCR-FR-8-89, a subsurface occupation approximately 25 x 75 meters in extent. It is termed as a locus rather than a site because it was defined in a very limited number of tests. It also produced a rather uninformative artifact assemblage from what appears to be redeposited context. The tests are not treated as isolates because of their proximity to each other as well as to the former lockkeeper's buildings at Kaukauna Lock #1. No further research is recommended.

Site CCR-FR-9-89 was defined in a series of positive shovel tests in Parcel E, north of the dry dock, between the Corps' fence and Augustine Road. This site, the Osprey site, is a prehistoric site defined in four positive shovel tests in the north central portion of Parcel E, about 9 meters south of Augustine Road, about 20 meters east of the entrance to the Corps' Kaukauna office. A site base line was created along Augustine Road, employing the mailbox posts at 1013 and 1017 Augustine as datum points. The initial positive 10-meter interval test was test C4. Other defining tests radiated out from it employing a 5-meter interval.

Test stratigraphy revealed that the aboriginal cultural materials originated in a very dark-brown (Munsell 10YR2/2) silty loam which in places is buried under a reddish-brown clay horizon. This silty loam may be a buried A horizon. Other tests in the vicinity generally produced the very dark-brown silty loam from the humus zone to over 40 centimeters below the surface, beneath which the silty loam contains increasing amounts of rocks and gravel to depths over 50 centimeters below the surface. All rested on a culturally sterile yellowish-brown (10YR5/6) sand, rock and gravel mixture. Cultural materials were recovered from within 10 centimeters of the surface to the base of the silty loam. It appears that the site is associated with an at least partially buried A horizon, ranging from 30 to 45 centimeters below the surface.

Test C4 produced several flakes from the possible buried A horizon and 5-meter interval tests C4a, C4b, C4c, C4d, C4e, and C4f radiated out from it. Test C4a was 5 meters south/southeast from C4 and 5 meters north/northwest from sterile 10-meter interval test C3. It produced several flakes within 10 centimeters of the present surface in the very dark-brown silty loam. At 53 centimeters below the surface, it produced a kaolin pipe bowl fragment consisting of a shield-type motif (Plate 1-g) (See Artifact Analysis chapter and Appendix A). Whether this indicates contextual disturbance through large scale filling episodes or something as minor as root or rodent intrusion is uncertain.

Test C4b was excavated about 10 meters east of test 4, primarily to check stratigraphy near the edge of Parcel E. It was culturally sterile but produced a buried horizon of dark-brown clay loam under fill. Test C4c, 5 meters east of test C4a, was culturally sterile and produced apparently intact stratigraphy of continuous very dark-brown clay loam. Test C4d, 5 meters west of test C4a, produced a piece of shatter and stratigraphy similar to Test C4e, which produced stratigraphy of 14 centimeters of very dark-brown clay loam with minimal reddish mottling over black silty clay to a depth of 52 centimeters below the surface where large cobbles were encountered. The latter test was artifactually sterile, although it produced a piece of unburnt bone and a lump of clay. Culturally sterile test C4f was 5 meters west of test C4d at the base of the slope up to the Corps' yard, and produced 30 centimeters of dark-brown clay loam over 14 centimeters mottled of reddish and brown silty loam.

Thus, only tests C4 and C4b displayed an horizon of very dark-brown silty loam; a possible buried A horizon, perhaps revealing limited filling of low or undulating areas in Parcel E to completely level it. Other tests produced the same very dark-brown silty loam extending from the humus layer to an undisturbed B horizon. These latter tests lacking fill produced flakes from within 10 centimeters of the surface, while tests C4 and C4b yielded flakes only from the buried horizon.

The Osprey site thus produced shatter, a possible utilized flake, and a half-dozen flakes and possible faunal remains from four positive shovel tests defining site limits about 10 meters in diameter. The presence of the bone, utilized flake, and a shatter fragment reveal a range of activity, and indicate Site CCR-FR-9-89 may be a small campsite. All positive tests were flagged by partially burying orange flagging tape marked with the test number, and by placing aluminum foil under the sod cap at the top of test.

Additional testing is recommended to more accurately define the stratigraphic context of the site, i.e., to discern the degree of disturbance hinted at by the buried kaolin pipe fragment. In addition, the site offers a rare opportunity to professionally examine a prehistoric campsite with the potential to produce either subsurface features or cultural diagnostics in a heavily urbanized setting. As noted in the discussion of the Menasha Lock site, CCR-FR-1-89, most such loci have been destroyed by historic Euroamerican land use patterns.

Perhaps, what is most import in determining the significance of an apparently small site is its proximity to previously recorded site 47OU39. This site has been reported variously as burial pits "near U.S. government dry dock," mounds "on Grignon flats," burials found "at third lock at dry dock," and Native American village "on Grignon flats" (See Archaeological Background section of this report). Site FR-9 is situated near the dry dock and lock on a level terrace below the Grignon Mansion, apparently conforming at least to a peripheral area of site OU39. If, indeed the Osprey site does define a surviving portion of this previously recorded aboriginal occupation, it accrues added importance because of its potential association with archival and historical data. Additional data may be secured by Phase II excavations which would clarify this relationship.

RAPIDE CROCHE PARCEL

Site CCR-FR-10-89, the Rapide Croche Lock site, was encountered while surveying into a second-growth timbered area, east of the lawn of the former lockkeeper's house on the north side of the canal. The terrain had been altered through conversion into artificial terraces, cut by small gullies which produced disturbed mottled clay stratigraphy. This site is a historic occupation that includes structural features. It is situated about 15 meters south of survey point 97 on the Corps' project maps where the barbed wire fence and road bend from NE-SW to E-W. This is about 175 meters east on the road from the garage at the lockkeeper's house, 100-110 meters west from the Corps' gate at the access road, and extends to within 10 meters of the canal shore.

The site consists of structure A, a poured concrete bermed foundation 1.75 meters square with walls 6 inches thick and aligned N-S-E-W. It is located about 15 meters south of the gravel access road, and is filled with secondary deposition broken concrete chunks.

Structure B is about 10 meters south of A on the next artificial terrace. It is an uncoursed rubble foundation partially excavated into the terrace slope to a depth of about 1 meter along the north and east walls. Its south and west walls are partially collapsed, but the original dimensions of the structure are discernible through foundation remains and level areas. Its dimensions are approximately 10 x 15 meters with a 2 x 2 meter unit attached to its northeast corner. The partially banked foundation walls extend 5 meters south from the edge of the terrace. Large broken sections of poured concrete floor or walk occur along the structure's south wall.

About 3 meters south of the southern edge of the structure, on a lower terrace, are the remains of several 16-inch square mortared uncoursed rubble footings, two of which are dislocated and/or in fragments. Adjacent and south of these footings, encompassing an area about 10 meters wide, is a scatter of structural debris composed almost exclusively of rubble, although several quarried ashlar blocks with quarry tool marks were observed. In a heaped-up area about 4 meters west of structure B, a 1.5-inch diameter pipe emerges from the ground and is exposed for 15 meters. While shovel tests in the vicinity were all negative, surface collection in the good exposure offered by the Rapide Croche Lock site recovered fruit jar sherds, an embossed beaded whiteware plate rim, and a few slightly scalloped plain plate rims.

The remains of a former graded road leads west from site FR-10, about 40 meters, until it reaches the east edge of the lockkeeper's yard. This old trail may once have led to the lock or house. This site is probably directly related to the Rapide Croche lock operation; however, it is situated such that it is more directly related to the old, original locks which were east of the present locks, about 300 feet east of site FR-10 according to the Corps' project maps on file in Kaukauna. This lock position is noted in 1899 survey field notes, and it is conceivable that site FR-10 may be lock operation facilities or a lockkeeper's house abandoned after the original locks were rebuilt in the nineteenth century.

Survey along the canal east from the site in the narrow band of Corps' land encountered no evidence of the former (ca. 1899) lock. Surface transects along the south side of the canal in the vicinity opposite site FR-10 found no evidence of either the former lock structure or associated building remains. Therefore, the site parameters are approximately 50 meters N-S by 25 meters E-W (excluding possible relationship to lockkeeper's house and modern canal).

The Rapide Croche Lock site is important as representing one of the few remaining opportunities to study lock-associated facilities which possibly predate U.S. Government administration of the waterway. It would represent the initiation of private commerce along the corridor and exemplify a significant aspect of the region's history and economic development. Most such sites associated with locks in the system have been totally obliterated by either lock or facility reconstruction or urban sprawl. The site should be subjected to archival research to clarify its age and origin. Limited Phase II archaeological test excavations might provide material data on daily life at this potentially early and important historic occupation.

LITTLE KAUKAUNA LOCK AND DAM

No archaeological sites or loci were defined in this parcel. No further work is recommended.

DEPERE LOCK

No archaeological sites or loci were defined in this parcel. No further work is recommended.

BROTHERTON HARBOR

No archaeological sites or loci were defined in this parcel. No further work is recommended.

STOCKBRIDGE HARBOR

Locus CCR-FR-11-89 was defined during survey along the narrow strip (less than 10 meters wide) of Corps' land around Stockbridge Harbor. The area surveyed is a 45-degree slope, 3 meters in height. This locus was defined as a ca. four to five meters in diameter cluster of historic artifacts north of survey point 9, and included a flow blue plate rim and other artifacts. A diffuse refuse scatter continued west from this point to near the end of the parcel at survey point 46, consisting of a few complete bottles ("Chitton Bottling Works/ Chitton, Wisconsin"), sherds of condiment, crown top soda, and beer bottles, all with machine tooled lips. These artifacts appear to be associated with the house standing on private land east of the Corps' property. The house is of a type which appears to date to the mid- to late-nineteenth century. However, since the actual historic occupation is on a private tract and only a portion of the midden areas occur on Corps' property, the refuse recorded was not designated as a site. All shovel tests on Corps' property in the vicinity of Locus FR-11 were culturally sterile. The significance of this refuse deposit can only be determined when the structure and deposits on the private land are addressed. Such an evaluation is beyond the scope of this project.

CONCLUSION

Two final notes and recommendations: First, a pattern is discernible when reviewing the prehistoric sites recorded during this survey. A vast majority of the tracts surveyed in the present project are massively disturbed, i.e., consist of impacted canal and lock construction zones, levees, spoil disposal and fill. Any prehistoric sites in these areas have been destroyed. However, those Corps' parcels, somewhat removed from direct association with the locks and comprised of fairly level land, appear to present good prehistoric site potential in relation to the Fox River.

Such is the case at the Menasha Lock site and the Osprey site, recorded in virtually the only parcels somewhat isolated from massive canal impacts. Unfortunately, almost all of the present survey is confined to zones directly adjacent to the canal. This almost guarantees totally disturbed and/or filled contexts. Test results and documentation of stratigraphy from the present project argue that in future surveys shovel testing should focus on Corps' property situated in areas somewhat removed from direct association with the canal and locks.

Second, although the scope of this involved solely archaeological resources, potentially significant architectural resources should be briefly mentioned. Many of the former lockkeepers' houses encountered during the survey are similar or identical in style and construction, with the Dutch Colonial Revival being favored. It appears that these were built from a basic standard plan, which is either a government issue or perhaps represents stock houses ordered from some of the prefabricated suppliers such as Sears Roebuck or Aladdin out of Bay City, Michigan. In recent years architectural historians have displayed increased interest in this genre of housing, popular ca. 1890-1930. It was not an uncommon practice for companies and agencies to buy and erect such housing during the heyday of prefabricated suppliers. After the turn of the century, the Dutch Colonial Revival was a favored design. If, indeed, the former lockkeepers' houses represent such prefabricated housing, they will take on architectural significance, and this possibility should be researched.

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APPENDIX A

ARTIFACT ANALYSIS

Table A-1
Prehistoric Tools

CCR-FR-1-89

Shovel Test B1

Utilized flake, dull light gray homogeneous chert, fs4 2 7.8x14.0x7.0mm, working edge 9.5mm (Plate 1-a)

Shovel Test B1

Pottery sherd, body sherd, plain smoothed surface, grit fs4, tempered, light gray-buff, 28.6x24.5x 5.9mm (Plate 1-b)

Shovel Test C1

Biface fragment (projectile point), distal segment, fs5 lustrous homogeneous medium gray chert, serrated blade, 19.4x17.6x2.0mm (Plate 1-c)

Table A-2
Lithic Debitage

Key:
B-Block
F-Flat
Sh-Shatter
fs-Field Serial Number

P-Primary
S-Secondary
T-Tertiary

Site	Test	Reduction Stage	Flake Type	Dimensions(mms) L	W	T	Remarks
CCR-FR-1-89							
	B1	T	F	16.4	10.8	3.8	lustrous gray homogeneous chert
	C1	S	F	25.6	23.3	5.6	dull light tan white chert, brown cortex
	C1	S	F	11.4	9.4	2.6	dull light tan white homogeneous chert, brown cortex
	C1	T	F	23.7	17.0	8.2	dull light tan white homogeneous chert
	C1	T	F	20.1	7.1	4.0	dull light tan white homogeneous chert
	C1	T	F	18.5	7.6	4.2	dull light tan white homogeneous chert
	C1	T	F	9.3	6.8	1.0	dull light tan white homogeneous chert
	C1	T	F	15.4	15.3	2.5	dull light and dark gray mottled chert
	C1	T	F	12.7	8.5	1.7	dull light and dark gray mottled chert

Table A-2
(Continued)

Site	Test	Reduction Stage	Flake Type	Dimensions(mms) L	W	T	Remarks
	C1	T	F	8.0	6.9	1.1	dull light and dark gray mottled chert
	C1	T	F	8.8	8.6	0.8	lustrous homogeneous gray chert
	C1	T	F	10.0	7.7	2.9	opaque/white quartz
	C2	T	F	19.7	16.7	2.9	dull white and light blue gray mottled chert
	B3	S	F	22.8	14.0	4.6	dull light gray homogeneous chert, brown cortex
	B3	T	F	14.6	11.2	1.9	dull white and light blue gray mottled chert
	C3	T	F	18.5	13.9	4.5	lustrous gray and light blue gray mottled chert
	C4	S	F	17.6	14.5	5.1	lustrous gray and light blue gray mottled chert, brown cortex
	Surf	T	F	17.7	10.8	4.5	dull light gray and white mottled chert
	Surf	T	F	13.5	5.4	1.6	lustrous medium gray and white mottled chert

Table A-2
(Continued)

Site	Test	Reduction Stage	Flake Type	Dimensions(mms) L	W	T	Remarks
CCR-FR9-89							
	C4	T	F	11.5	8.5	1.0	dull light gray homogeneous chert
	C4	T	F	13.8	8.6	3.1	dull light gray homogeneous chert
	C4	T	F	9.5	8.1	1.6	lustrous homogeneous light blue gray chert
	C4a	T	F	10.3	7.8	1.4	lustrous light gray and tan white mottled chert
	C4a	S	F	13.4	7.8	4.8	lustrous light gray and tan white mottled chert, brown cortex
	C4a	S	F	19.1	14.4	2.5	dull tan gray homogeneous chert, brown cortex
	C4d	T	Sh	11.3	11.2	7.0	lustrous light blue gray and white mottled chert

Table A-3
Animal Bone in Tests
(possibly aboriginal but mixed contexts)

Key:
B-Block
F-Flat
Sh-Shatter
fs-Field Serial Number

P-Primary
S-Secondary
T-Tertiary

Site	Test	Provenience Type	Remarks
CCR-FR-1-89			
	B1	fs4	5 mammal bone fragments (1 burnt)
	C1	fs5	3 mammal bone fragments (1 tooth)
	B4	fs10	1 burnt bone fragment
	C4	fs12	1 bone fragment
	C6	fs14	5 burnt bone fragments
CCR-FR-9-89			
	C4e	fs107	1 mammal bone fragment

Table A-4
Historic Artifacts

Measurements for nails are for length unless otherwise noted, curved glass is defined as bottle glass. and bottle glass which is not specified is body glass. Color of glass is clear unless otherwise noted.

Fs	Test	Artifact
1	D	2 sherds flat glass
		2 sherds glazed sewer tile
2	G	5 sherds flat glass
		3 sherds bottle glass (2 aqua, 1 brown)
		1 wire nail, 3"
		1 wire nail, 3.5"
		2 brick fragments (1 burnt)
		4 fragments unidentifiable metal
Site FR-1 (Fs 3-16)		
3	A1	2 miscellaneous metal
4	B1	10 sherds flat glass
		2 sherds bottle glass (1 brown)
		1 sherd pressed pattern glass
		2 sherds slip-glazed stoneware
		1 machine-cut square nail, 1"
		1 machine-cut square nail, 1.5"
		1 square nail fragment
		10 miscellaneous metal slag
5	C1	9 sherds flat glass
		2 sherds flow blue plate rim (Plate 1d, 1e) ca. 1830-1890
		1 sherd blue slip-glazed earthenware
		2 machine-cut square nails, 4"
		1 machine-cut square nail, 2"
		1 miscellaneous metal
6	C2	1 sherd flat glass
		1 sherd plain whiteware
		1 wire nail, 1.5"
		1 1940 penny
7	A4	1 sherd flat glass
8	B2	1 machine-cut square nail, 3"
		1 wire nail, 4" slag

Table A-4
(Continued)

Fs	Test	Artifact
9	B3	1 sherd flat glass
11	C3	1 wire nail, 1.5"
		1 machine-cut square spike fragment
		5 miscellaneous metal slag
12	C4	4 wire nails, 1"
15	C7	4 bottle base sherds, partial kick up, dark olive
		2 miscellaneous metal
16	C8	1 sherd lantern chimney glass
17	D9	1 wire fragment
Locus CCR-FR-2-89 (Fs 18-22)		
18	A7	1 sherd bottle glass (brown)
		1 wire nail, 3.5"
19	A8	1 sherd bottle glass
20	A10	5 sherds bottle glass
21	A12	2 bone fragments
22	A13	1 sherd bottle glass
		1 cream slip-glazed stoneware
		6 machine-cut square nails, 6.5"
		2 machine-cut square nails, 5"
		3 machine-cut square nails, 4"
		2 wire nails, 5"
		3 wire nails, 4"
		4 wire nails, 3"
		1 wire nail, 2"
		18 nail fragments
		1 jack (ball and jack game)
		5 miscellaneous metal
		2 bone fragments
		2 charcoal
23	B6	1 tureen fragment, brown transfer printed, two handles, 3"/77cm high, 7"/180mm square base maker's mark "shield device/ ROYAL PREMIUM/ R BOOTE/ ENGLAND/ LAHORE/ shield device (IV/4 Rd J/ C)/ REGISTERED "

Table A-4
(Continued)

Fs	Test	Artifact
24	B15	1 sherd bottle glass
		1 wire nail, 5"
Locus CCR-FR-3-89 (Fs 25-28, 33)		
25	B30	1 sherd flat glass
		2 sherds bottle glass
		1 wire nail, 5.5"
26	B32	1 sherd crown-top bottle neck
		21 sherds bottle glass
		2 machine-cut square nails, 4.5"
		3 machine-cut square nails, 3"
		3 machine-cut square nails, 1.5"
		1 wire nail, 5"
		3 wire nails, 1.5"
		4 nail fragments
		1 screw, 0.75"
		1 iron coat hook
		2 miscellaneous metal slag
27	B32a	1 sherd flat glass
		2 wire nails, 3"
		1 nail fragment
28	B37	1 sherd flat glass
33	B43	1 screw, 0.75"
		2 miscellaneous metal
Locus CCR-FR-4-89 (Fs 29-32)		
29	C8	1 sherd bottle glass
		1 wire nail, 4.5"
30	C7	1 sherd flat glass
		1 wire nail, 4"
31	C5	7 shoe/boot sole and heel fragments, wire tacks
32	B50	2 sherds slip glazed stoneware
		2 miscellaneous metal

Table A-4
(Continued)

Fs	Test	Artifact
34	B2	3 sherds bottle glass, 1 with partial seam
35	B11	2 sherds flat glass 1 sherd bottle glass 1 wire nail, 6.5" 2 wire nails, 5" 3 wire nails, 1.5" 1 nail fragment slag
36	B14a	1 sherd, glass tube, 4" x 1/4" diameter
37	B1	1 sherd flat glass 2 sherds bottle glass 1 sherd slip-glazed earthenware 1 miscellaneous metal
38	A5	2 sherds bottle glass 1 machine-cut square nail, 1.5" 1 wire nail, 1.5" 1 sherd plain whiteware
39	A6	1 sherd lantern chimney glass
40	A1	1 machine-cut square nail, 2" 1 wire nail, 4" 1 wire nail, 3" 2 wire nails, 2.5" 1 brick fragment slag
Locus CCR-FR-5-89 (Fs 41-60)		
41	A13	1 sherd flat glass 6 sherds bottle glass 1 wire nail, 3" 1 wire nail, 2" 1 sherd plain whiteware
42	B1	1 machine-cut square nail, 6"

Table A-4
(Continued)

Fs	Test	Artifact
43	C1	1 sherd flat glass
44	C2	1 sherd plain whiteware
		2 miscellaneous metal
45	C3	1 sherd bottle glass (brown)
46	D11	1 wire nail, 2.5"
47	D16	1 nail fragment
48	D18	1 square nail fragment
49	D21	1 wire nail, 3"
50	D23	2 sherds bottle glass
(fs 51-58 not assigned)		
59	D34	1 sherd glass screw jar rim
60	D36	1 sherd flat glass
		1 sherd blue shell edge ware plate
Locus CCR-FR-6-89 (Fs 61-62)		
61	A91	1 nail fragment
		1 sherd plain whiteware
		1 sherd light gray slip stoneware
		1 bakelite smoking pipe bit
		1 eight-spoked metal wheel with rubber rim, 175mm diameter (for wagon or baby carriage?)
		1 cut bone fragment
62	B1	6 sherds bottle glass (1 aqua, 1 green)
		1 sherd plain whiteware
		2 fragments wire
63	A13	1 wire nail, 6"
64	A15	5 sherds bottle glass (brown, 1 vessel)
		1 wire nail, 1.5"
65	B3	2 cut bone fragments
66	C3	1 sherd flat glass

Table A-4
(Continued)

Fs	Test	Artifact
67	E3	1 wire nail, 7.5"
		1 wire nail, 4.5"
		1 wire nail, 3"
		1 wire nail, 2.5"
		3 wire nails, 2"
		6 bolts(?) (1" diameter, 2" long)
		1 washer, 32mm diameter
		2 miscellaneous metal
68	B1	1 sherd bottle glass (green)
69	C7	2 sherds flat glass
		3 sherds bottle glass
		5 sherds beige glazed bathroom tile
		1 wire nail, 4"
		1 wire nail, 1.5"
		1 fragment barbed wire
		2 brick fragments
		1 miscellaneous metal
70	E2	1 sherd flat glass
		2 sherds bottle glass (1 brown)
		2 wire nails, 1"
		1 sherd plain whiteware
71	E13	1 sherd plain whiteware
72	A1	1 wire nail fragment
73	A2	1 wire nail, 5"
		2 wire nails, 4"
		1 cut bone fragment
74	A9	1 wire nail, 5"
75	A11	1 wire nail, 5"

Table B-1
(Continued)

Fs	Test	Artifact
76	C7	2 sherds flat glass
		10 sherds bottle glass (2 green)
		3 sherds plain whiteware
		1 machine-cut square nail, 8"
		1 machine-cut square nail, 7"
		1 wire nail, 4"
		1 wire nail fragment
		1 brick fragment
		1 miscellaneous metal
		1 chunk red melted plastic
Locus CCR-FR-7-89 (Fs 77-94)		
77	A1a	1 sherd flat glass
		2 machine-cut square nails
		2 wire nail fragments
		1 sherd plain whiteware
		1 metal wall coat hook
78	A1b	3 sherds flat glass
		14 sherds bottle glass (1 aqua, 5 brown)
		1 machine-cut square nail, 7"
		1 machine-cut square nail, 2"
		1 wire nail, 5"
		1 wire nail, 2.5"
		1 wire nail, 1.5"
		6 nail fragments
		1 sherd plain whiteware
		1 lump wall plaster
79	A1c	1 sherd flat glass
		4 nail fragments
		1 washer, 13mm diameter
		2 fragments brick
		4 cut bone fragments
80	A1d	1 sherd flat glass
		1 sherd glass bottle base, embossed "804/8"
		1 machine-cut square nail, 3"
		1 nail fragment

Table A-4
(Continued)

Fs	Test	Artifact
		1 sherd plain whiteware
		1 bone fragment
		1 miscellaneous metal
81	A1e	1 sherd bottle glass
		2 wire nails, 1.5"
		1 nail fragment
		1 brick fragment
82	A1f	2 sherds bottle glass (aqua)
		2 sherds lantern chimney glass
		1 machine-cut square nail, 2"
		1 brick fragment
83	A1g	4 sherds flat glass
		3 sherds bottle glass
		1 machine-cut square nail, 1.5"
		1 wire nail, 3"
		11 miscellaneous metal
		1 brick fragment
		1 bone fragment
84	A1h	1 sherd bottle glass (brown)
		1 wire nail, 3"
85	A1i	2 sherds bottle glass (1 brown)
86	A1k	1 wire nail, 2.5"
		1 sherd yellow glazed earthenware
		1 brick fragment
87	A1l	1 sherd bottle glass
		43 small pieces miscellaneous metal
88	A1m	1 sherd bottle glass
		21 small pieces miscellaneous metal
89	A1n	1 sherd flat glass
		1 sherd, machine-tooled glass bottle neck, blob top, aqua
		6 nail fragments
		6 brick fragments
90	A1o	4 sherds flat glass
		1 bolt, 7"
		3 nail fragments
		1 miscellaneous metal
91	A1	3 sherds flat glass

Table A-4
(Continued)

Fs	Test	Artifact
		1 machine-cut square nail, 4"
		1 nail fragment
		3 sherds plain whiteware
		1 brick fragment
92	A2	4 sherds flat glass
		10 sherds bottle glass (2 brown)
		1 machine-cut square nail, 4"
		1 screw, 0.75"
		2 sherds yellow slip-glazed eathernware
		2 pieces plastic pocket comb
		4 miscellaneous metal
93	A5	1 sherd flat glass
		1 sherd glass bottle base, embossed "McC" manufactured by William McCulley and Co., prior to 1886 (Toulouse 1972:mark 367)
		1 machine-cut square nail, 6"
		1 machine-cut square nail, 1.5"
93	A5	1 wire nail, 4"
		1 sherd plain whiteware
		1 22 caliber rifle shell
		1 miscellaneous metal
94	A7	2 sherds flat glass
		1 machine-cut square nail, 10"
		2 machine-cut square nails, 4"
		1 machine-cut square nail, 3"
		3 wire nails, 5"
		1 wire nail, 3"
		1 wire nail, 2"
		2 pieces miscellaneous metal
		2 sherds plain whiteware slag
Locus CCR-FR-8-89 (Fs 95-98)		
95	D1	1 sherd bottle glass (very dark olive-green)
		5 miscellaneous metal

Table A-4
(Continued)

Fs	Test	Artifact
96	D2	1 sherd flat glass
		7 machine-cut square nail fragments
		1 wire nail, 6"
		2 wire nails, 4"
		1 wire nail, 3"
		1 wire nail 1.5"
		1 four-hole bone button, 17mm/0.7" diameter (Plate 1f)
		2 miscellaneous metal
97	D5	1 machine-cut square nail, 4"
		1 nail fragment
		1 brick fragment
98	D4	2 machine-cut square nails, 4"
		1 wire nail, 1.5"
		1 sherd lantern chimney glass
99	B2	1 wire nail, 3"
100	B6	1 wire nail, 3"
101	B1	1 machine-cut square nail, 1"
		2 nail fragments
		2 sherds brown slip-glazed stoneware
		2 miscellaneous metal
102	B3	1 sherd flat glass
		2 machine-cut square nails, 4"
		4 bone fragments
		1 miscellaneous metal
103	B4	7 sherds bottle glass (one vessel)
		1 machine-cut square nail, 6"
		1 machine-cut square nail, 3.5"
		1 nail fragment
		1 miscellaneous metal

Table A-4
(Continued)

Fs	Test	Artifact
Site CCR-FR-9-89 (Fs 104-108; also see Prehistoric Artifacts)		
105	C4a	1 kaolin pipe bowl fragment, shield motif, 28.8mm/1.1" estimated bowl height, 16.8mm/.7" estimated diameter (Plate 1g) 1942 Mercury dime
107	C4e	2 brick fragments
108	C4b	1 sherd plain whiteware
109	A7	1 wire nail fragment
110	A2	1 whiteware plate rim, embossed beaded motif 2 sherds decalcomania floral overglaze motif whiteware 4 sherds plain porcelain
111	B8	1 small bone fragment
112	C9	2 bone fragments slag
113	D10	2 sherds bottle glass
114	D12	2 sherds flat glass 1 cut bone fragment
Site CCR-FR-10-89 (Fs 115)		
115	surf	3 sherds bottle glass 1 glass bottle base sherd, oval, embossed "PAT/D-93116/9-CL", 36.7mm/1.45"x16.6mm/0.7" 2 sherds slightly scalloped whiteware plate rims with embossed beaded motif
116	A1	1 wire nail, 4.5"
117	C2	1 wire nail, 5"
118	B8	1 machine-cut square spike, 10" 1 machine-cut square spike fragment

Table A-4
(Continued)

Fs	Test	Artifact
119	C3	3 wire nails, 3"
120	A4a	1 sherd flat glass
121	surf	1 sherd flat glass 3 sherds bottle glass (1 aqua, 1 amethyst) 3 sherds plain whiteware 1 wire handle or paper holder 1 ceramic insulator 1 kaolin pipe bowl fragment, plain113 D102 sherds bottle glass
122	A5	1 machine-cut square nail, 2.5"
123	B1	2 sherds flat glass 1 sherd bottle glass 1 wire nail, 2.5" 1 brick fragment 1 miscellaneous metal

Locus CCR-FR-11-89 (Fs 124, 125)

124	surf	1 machine-tooled bottle neck, aqua 1 soda bottle, crown-top, embossed "CHILTON BOTTLING WORKS/ CHILTON. WI/ CONTENTS 7 FL. OZ", 20cm/6.5" tall (Plate 1h) ca. 1905-1945
125	surf/ locus A	5 body sherds plain whiteware, bowl, single vessel 1 body sherd plain whiteware, plate 2 plain whiteware plate rims, single vessel 1 whiteware, embossed beaded edge motif 1 fragmentary sherd transfer printed whiteware