GRAND PORTAGE NATIONAL MONUMENT
MAINTENANCE AREA PRELIMINARY SURVEY REPORT

BY

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ACKNOWLEDGMENTS

Documents, artifacts, and stories help propel current thoughts about what happened at Grand Portage in the past. While I wish prior generations had left more, I am thankful for even the smallest crumbs of information that have allowed a stream of residents, scholars, and buffs to speculate about old sites and old times there. The accumulated voices, living traditions, and archeological findings bring greater understanding and appreciation of this awesomely scenic and historic place. I hope the present work will inspire new inquiries and discussions.

I thank park superintendent, Tim Cochrane, for authorizing and supporting the 2005 Survey Project, and my co-investigator, David Cooper, for his thoughtful and enthusiastic approach at getting the job done.

Together we thank our many industrious friends and volunteers, Jim and Sue Alling, Shane Ausprey, Shae Brown, Carolyn Howard, Jeremy Kingsbury, Karl Koster, Al and Linda Larson, Jon Sage, Randy and Roni Sushko, Collin Swift, and Steve Veit.

To all, miigwech!

During 2-9 June 2005, archeologists conducted a preliminary field survey of selected areas around the maintenance (and former seasonal housing) complex at the Grand Portage National Monument (GRPO), a park unit of the National Park Service (NPS). The survey sought material evidence of the historic fur trade, including a reported segment of the old Grand Portage and a possible contemporary trail that forded Grand Portage Creek. The survey team conducted surface and subsurface investigations, retrieved a small sample of fur trade era artifacts, and found previously unrecorded archeological features outside the designated project area.

This report discusses the methods and results of the field survey. It also reviews prior archeological investigations and scrutinizes historical information relative to the 2005 Survey Area.

The author, and archeologist David Cooper, Chief of Resource Management at the GRPO, led the field investigations. Other NPS staff and volunteers assisted the fieldwork (see Acknowledgments, above).

THE GRAND PORTAGE NATIONAL MONUMENT

The GRPO is located near the United States-Canadian Border in Cook County, in extreme northeastern Minnesota. The 709.97-acre GRPO is over eight miles long. It is bounded on the north and south by the Grand Portage Indian Reservation, on the west by the Pigeon River, and on the east by Grand Portage Bay of Lake Superior. The lakefront unit of the park is within the community of Grand Portage, home to the Grand Portage Band of Minnesota Chippewa (Ojibwe, *Anishinaabeg*). An iconic feature of the GRPO is the reconstructed North West Company (NWC) Depot set on the shore of the lake below Mount Rose.

The GRPO was established in 1958 to preserve historical properties, to protect scenic and natural values, and to foster relations and promote employment with the Grand Portage Ojibwe. At the GRPO and elsewhere the National Historic Preservation Act (P.L. 96-515) requires the NPS to identify and evaluate archeological resources on its lands to determine their eligibility for listing on the National Register of Historic Places (Birk 2005). The 2005 field survey is part of this ongoing process.

THE SURVEY AREA

The 2005 Survey Area is within the lakefront unit of the GRPO (Figure 1). Upper Road (CSAH 17) borders the survey area on the east, Grand Portage Creek (or floodplain) on the west, and West Townsite Road or BIA 9 (hereafter, “Speedy’s Road”) on the north. The south limit is a short segment of CSAH 17 lying west of where the Stone Bridge crosses Grand Portage Creek. The survey area is between UTM Zone 16 coordinates 299707/5315752 and 299675/5315956.

The visible remains of at least two old roadbeds are evident within the survey area. One is a road segment (hereafter, “Old Ford Road”) lying in a wooded area east of an old

stream crossing (hereafter, "the ford") (Figures 2 and 3). The other is a remnant of Old Upper Road (the temporal origins of which are uncertain) that now largely underlies the present Upper Road (Figure 4).

For purposes of discussion, the survey area can be divided into three parts. The *central part*, long used for park maintenance (Figure 5) and formerly, seasonal housing facilities (Figure 6), is widely disturbed. Known impacts to this area include landscaping, construction, utilities installation and maintenance, material storage, and vehicular traffic and parking (Figure 7). In the early twentieth century an Ojibwe residence and a segment of the "original" or Old Upper Road occupied the central area (Figures 8 and 9).

The *northern part* of the 2005 Survey Area is a narrow and densely wooded tract north of the maintenance complex (Figure 10). The tract lies west of the present Upper Road, above the floodplain of Grand Portage Creek. It is overlooked by the church hill, part of an elevated ridge where the Catholic Church and cemetery are now located. Within this tract, part of the Old Upper Road now forms the west ditch of Upper Road (Figure 4).

The *southern part* of the 2005 Survey Area is south and west of the maintenance complex (Figure 2). Ojibwe structures occupied this tract in the early twentieth century (Figure 11). The ground surface is uneven in this southern area, particularly south of Old Ford Road where erosion is now undercutting the east bank of Grand Portage Creek (Figure12).

PREVIOUS INVESTIGATIONS

Prior field studies have been conducted within and around the 2005 Survey Area. The most pertinent of these studies include the 1961 excavations of University of Minnesota archeologist Elden Johnson, the 1975 investigations of Minnesota Historical Society archeologist Alan Woolworth, the 1984 survey of NPS archeologist Susan Monk, the 1988-1989 survey of NPS archeologist Vergil Noble, and the 1994 observations of Bureau of Indian Affairs (BIA) archeologist Karl Hagglund.

Johnson's 1961 excavations in the southern part of the survey area were recorded in relation to the northeast corner of the Stone Bridge (Figure 13). His Test Unit 35, about 29m east-northeast of the bridge, uncovered a rectangular, "dry-coursed rock foundation" associated with a deposit of heavily burned clay. His Test Units 38-39, about 12m east-northeast of the bridge, revealed a "probable Indian house floor marked by a central fire pit and oval exterior wall." The wall was defined by *in situ* posts and post molds. In addition to physical evidence for two structures, Johnson's excavations produced artifacts (including gunflints, glass beads, nails, and a musket ball) that at the time were dated to the nineteenth century (Johnson 1961; Woolworth 1962). The 2005 survey was terminated about 15m northwest of Test Units 38-39 and 18m west of Test Unit 35 (David J. Cooper, personal communication) and therefore did not infringe on the area tested in 1961. The 2005 survey also avoided the site of nearby residential structures seen in an early 1920s photograph (Figures 11 and 13).

In 1975 Woolworth brushed out part of Old Ford Road on the east bank of Grand Portage Creek and found the "visible portion" of the road to be about 50 feet long, ten feet wide, and up to 1.5 feet deep. Through field and documentary research, Woolworth concluded that the ford was in use before 1778, that British troops may have built a small wooden bridge at the ford in that year, and that a road leading from the area of the NWC Depot likely crossed the ford or bridge to join the main stem of the Grand Portage just east of the creek (Figure 6). The ford was used until completion of the Stone Bridge in ca. 1939 (Woolworth and Woolworth 1982, II: No. 74).

In November 1984, Monk surveyed two proposed new road alignments--Road Alternates 2 and 3--that passed near or through the 2005 Survey Area below the church hill (Figure 14). A light snow coated the ground at the time of her visit. Monk did a walkover survey and shovel tested the proposed road corridors on the high ground east of Grand Portage Creek with negative results (Monk 1984).

The 1988-1989 Noble monitored the excavation of holes needed to install wooden gateposts at the overflow parking lot on the east side of Upper Road just across from the maintenance complex. Two holes were augured. Neither produced artifacts. A fill deposit in the upper levels of the soil column was probably added "during construction of the adjacent roadway." Given the proximity of the gateposts to suspected fur trade activity loci, Noble felt that this area likely "saw frequent use during the early Historic period" and recommended additional archeological review there in advance of any future park developments (Noble 1989:31).

In 1994 Hagglund conducted a reconnaissance survey to determine potential impacts that improvements to West Townsite Road might have on cultural resources. The proposed improvements included grading, bituminous surfacing, and some ditching. The south end of the road, which passes by the church cemetery and through part of the GRPO, was found to be archeologically sensitive. Hagglund suggested an alternate road alignment along a telephone transmission /water forcemain line north of the church. That alignment would eliminate the need for more southerly improvements and thus avoid impacts to the cemetery and the adjacent area of the GRPO (Hagglund 1994).

In addition, in 1969, NPS historian Erwin Thompson analyzed documentary evidence for an eighteenth-century voyageurs camp--the "Northmen's" camp--and the possible interrelationship of that former site to the 2005 Survey Area. The Northmen were winterers from the NWC's northwestern trading houses who frequented the summer rendezvous at Grand Portage. During the early 1790s, they camped apart from the Montrealers (the voyageurs from Montreal) in an area west of the creek and on either side of a road leading from the NWC Depot to the Grand Portage. Each post or brigade of Northmen camped as a separate group, "in tents of different sizes pitched at random" (Thompson 1969:65; Gates 1965:93). In the late 1790s, with the growth of the NWC, hundreds of Northmen annually congregated at the rendezvous and the size of their camp must have been "considerable" (Thompson 1969:168; Lamb 1970:98). By then some Northmen may have also pitched tents east of the creek. A Historic Base Map in Erwin Thompson's report shows the Northmen's camp spilling into the south half of the 2005

Survey Area (Figure 15). The designated camp area is arbitrary, however, and according to Thompson it is something that he has "generally located rather than specifically identified" (Thompson 1969:167).

Another unidentified feature thought to be in or near the 2005 Survey Area is a *rill* (a natural drainage or possibly a low area given to holding water) noted by the surveyor David Thompson in June 1823. According to Thompson, the rill was east of the creek and 220 yards from the lakeshore, which puts it somewhere below the church hill.

ANCIENT LANDSCAPES

Old beach ridges and erosional bluffs have long shaped human settlement and land use options in the lakefront area of Grand Portage Bay. The stepped arrangement of these features marks a succession of prior surface levels of Lake Superior or earlier glacial lakes. Geomorphologists have assigned names and dates to many of the ridges and bluffs (e.g., Phillips 2003).

The present surface of Lake Superior stands at 602-feet above mean sea level. During the Lake Minong stage, dating to around 9,500 years BP, the lake level stood at 715-feet. That higher level flooded the present lower valley of Grand Portage Creek creating a deep embayment near its mouth. A peninsula incorporating Mount Rose defined and sheltered the bay on the south. These features may have attracted Paleo-Indian peoples (Phillips 2003:19, 31), just as later shoreline configurations in this same locale invited more recent episodes of human occupation.

Several Post-Minong shorelines are identified at Grand Portage Bay between 675-feet and 582-feet amsl. Some of these features have been reworked or are now flooded (Phillips 2003:19). According to geomorphologist Brian Phillips, the former Grand Portage Store or "Trading Post" (north of Mount Rose) is on a Post-Minong surface around 675-feet. The Grand Portage Band Headquarters and school, the log-school, and the Catholic Church are on a Post-Minong surface above 660-feet (Phillips 2003:33). The eastern flanks of Mount Rose were exposed to wave action during the Nipissing transgression when the lake level was at about 636-feet (Phillips 2003:31). The GRPO Canoe Warehouse is near the elevation of the Algoma stage, which stood around 621-feet, and the Great Hall (within the reconstructed NWC Depot) is on a gentle bluff of the Sault stage, which stood around 610-feet. The 2005 Survey Area east of Grand Portage Creek involves the Algoma surface as well as adjacent higher and lower intermediate surfaces. A United States Geological Survey map (Figure 1) shows the elevation of the survey area varies from about 615-feet amsl in the south to about 640 feet in the north.

Indian peoples probably visited or occupied the area around the mouth of Grand Portage Creek from time to time during the circa 9,200-year interval between the Lake Minong stage and the first arrival of Europeans in the late 1600s A.D. However, demonstrating that probability has proven difficult. To date, no diagnostic stone tools or prehistoric ceramics have been recovered within the lakefront unit of the GRPO and no prehistoric cultural features have been verified. A possible Woodland-era, lithic scatter found at an

elevation of about 607-feet near the Superior shoreline east of the creek is considered by some researchers to be the "oldest known local archeological site" at the GRPO (Woolworth and Woolworth 1982, II). Some "cultural pit features" are reported on an elevation near the creek beyond the limits of the GRPO (Phillips 2003:34), but the exact age and purpose of the pits are presently unknown.

Beach ridge deposits at or in the vicinity of the GRPO typically range from gravel and boulders to fine sands and impermeable clays. Some are underlain at no great depth by bedrock. Areas behind or between the lower ridges at Grand Portage Bay are often poorly drained or subject to flooding (e.g., Woolworth and Johnson 1963:1). An example might be David Thompson's Rill, said in 1823 to be east of the creek and 220 yards from the lakeshore. Drainage is just one factor that has influenced settlement and land-use choices by the portage landing at the bay in postcontact times. Others, no doubt include soils, elevation, slope, viewshed, exposure, defense, distance to water, and relation to local trails. The general sparsity of prime settlement areas on the lakefront hints that some landscape features at the GRPO may have attracted recurrent human use over considerable periods of time. Any cultural remains there might help date the ancient beach ridges near the bay as well as lake-levels associated with those ridges.

TRACTS AND TRAILS

The GRPO contains the historic Grand Portage, a "carrying place" on the old Voyageurs Highway canoe route. The portage extends 8.5-miles from Lake Superior to the Pigeon River. First used by Native American/First Nation peoples, the portage was opened to commercial traffic by French traders in the early 1700s. With French capitulation in 1760, rival British traders soon swarmed the portage. After a new trading fort was built on a tract of land west of Grand Portage Creek in 1768, the erection of other outposts soon followed. The core settlement area, spread along the shoreline, likely fostered the development of a "deltaic trailhead," with branch trails leading inland from the various landings, camps, and outposts to the main portage corridor. Given the nature of the terrain, it is likely that all such trails converged somewhere below the 720-foot contour (Figure 16), which is about the suspected location of the first *posé* (resting place) on the portage inland from the lake.

In 1778 Major Arent Schuyler De Peyster, commander of Fort Michilimackinac at the juncture of Lakes Huron and Michigan, sent British troops under Lt. Thomas Bennett to Grand Portage to keep order among the adversarial traders. Once there, the soldiers busied themselves building a fort and establishing a "Public Road." The thoroughfare apparently ran for some distance inland from the bay to allow all parties free and equal passage from the shore to some point beyond the core settlement area.

Following the American Revolution, trade activities at Grand Portage peaked under the NWC, a Montreal-based coalition of British traders. Some competitors staked the location of a new fort at Grand Portage Bay in 1793. NWC rivals later became more aggressive and in 1798 organized the XY Company (XYC) or the "New North West Company." The XYC soon followed the NWC model by opening transshipment centers

at both ends of the Grand Portage. Under growing American pressure to vacate the portage, the NWC began seeking parallel travel routes to the interior farther north. In 1798, Nor'westers reopened the old Kaministiquia canoe route between Lake Superior and Lac la Croix, and the NWC began planning its relocation to the mouth of the Dog or Kaministiquia River. By 1805 both firms had abandoned intensive use of the Grand Portage in favor of the more northerly route.

There is substantial documentation for later occupancy of the lakefront at Grand Portage Bay, particularly from the 1830s on. The present study includes the analysis of historic photographs to learn the nature and extent of "modern" developments within the area of the 2005 survey and to predetermine, as far as possible, the impacts of those developments on fur trade era resources.

THE FUR TRADE SETTLEMENT AREA

Some facilities documented at Grand Portage Bay in the late 1700s have yet to be identified on the ground. The remains of certain of these facilities may lie east of Grand Portage Creek. Of interest in this regard are some British trading establishments built before the American Revolution, the barns and corrals used by the NWC to keep horses and livestock, the XYC forts and barns from the period 1798-1805, and the exact routes of the Public Road and other trails that funneled into the Grand Portage near the bay. The 2005 survey was open to discoveries that might address these matters.

From the time of its formation, the NWC controlled the area between Grand Portage Bay and Mount Rose west of Grand Portage Creek, as well as an adjoining point of land and contiguous spaces on the east side of the creek. The only room available for competing traders was up the shore to the northeast. The core settlement area (including the NWC Depot) may have extended for as much as a half-mile along the lake (Figure 16).

Some justification for a half-mile or less distance is found in written accounts. In 1803 a trader named Paul Hervieux was at the center of a court case in which various individuals testified about conditions at Grand Portage in the summer of 1802. The proceedings tell of a clearing or open space by the mouth of Grand Portage Creek and describe the whereabouts of Hervieux's various summer camps in relation to the clearing, the lake, and rival traders. The clearing (Figure 17), which plays a considerable role in the following discussions, was bounded in front by the lake, on the southwest side by the NWC Depot, on the northeast side by a little fort called "Fort Boucher," and in the rear by the woods (Nute 1940:138). The NWC claimed possession of the clearing through its traditional use of that space as a landing and camp and trading grounds (e.g., Pendergast 1957:109; Campbell 1962:106).

Hervieux was a newcomer to Grand Portage operating under American license. Upon arriving there in July 1802 Hervieux first pitched his tents in the clearing "near the waterside" and "not more than half an acre from a little River." The "little River" is Grand Portage Creek. A half-acre distance puts Hervieux's first camp about 35-yards (104-feet) east of the creek (Figure 17) (Nute 1940:133).

The NWC jealously protected the clearing and NWC agents soon prompted Hervieux to relocate "a gunshot" distance up the shore (Nute 1940:123, 127). He then moved to a second camp about "an arpent or an arpent and a half" away (Nute 1940:128, 132, 136). An arpent is an old French linear measure equal to 191.838 English feet or about 64 yards (McDermott 1941:15-16). Hervieux thus moved up the shore between about 64 and 96 yards. As for a "gunshot," anything over 75 yards is considered a generous distance for shooting a musket offhand with any accuracy (Collin Swift, personal communication). The same "gunshot" or "arpent or an arpent and a half" distance was also judged to be a about a three-minute walk (Nute 1940:141). The move from the clearing put Hervieux's second camp just beyond the NWC-affiliated "Little Fort" or Fort Boucher (Figure 17), perhaps 30 to 60 feet east of that outpost (Nute 1940:129, 136).

At his second camp Hervieux reported another man named St. Valier Mailloux (or Mallioux) trading "about five or six arpents away" (Nute 1940:126). Thus, Mailloux's establishment was assumedly between 320 and 384 yards (959 to 1151 feet) farther up the shore (Figure 17).

Adding the maximum noted yardage (35 from the creek, 96 to the second camp, and up to 384 to Mailloux's) suggests the core settlement area could have stretched as much as 515 yards (1545 feet or almost three-tenths of a mile) along the shore east of the creek. That distance extends beyond the limits of the GRPO, but it falls well short of what is now the east line of Section 4 (Figure 16). The core settlement area east of the creek contained the pork eaters' camp, Fort Boucher, and the proposed site of Grants' Fort, as well as Mailloux's store and other facilities belonging to the XYC. Still there are unresolved claims that other fur trade developments lie well up the shore from the GRPO (e.g., Thompson 1969:168-169 and Map 5).

For example, one researcher suggests that, from prehistoric times through the year 1767, the head of the Grand Portage and the locus for local settlement were near Mount Josephine, well east of Section 4. After 1768, according to this source, the portage landing and settlement locus shifted "about one and one-half miles" westward to the area by Grand Portage Creek (Woolworth 1993:51-53, 70). Based solely on the records of Jonathan Carver who explored Grand Portage Bay in 1767, these assumptions represent a radical departure from prior assertions by the same researcher and others that French colonial traders operated more nearly in the shadow of Mount Rose between 1731 and 1761 (e.g., Woolworth and Woolworth 1982, I:26-33). If the Mount Josephine scenario is correct then few if any French materials should await discovery at the lakeshore unit of the GRPO. Conversely, if the Mount Rose scenario holds true there is a seemingly high potential for finding evidence of French presence near the mouth of Grand Portage Creek.

Obviously, Carver's survey warrants closer scrutiny. Carver, a veteran of the French and Indian War, was an alert and capable man who gained his surveying and mapmaking skills through reading books (Parker 1976:6). He also trained himself to calculate distances over water by pacing out a mile along a shoreline and then viewing and

traveling the same expanse in a canoe or bateau (Parker 1976:59). Nonetheless, his recorded estimates are as often inaccurate (Parker 1976:viii, 59).

Carver surveyed Grand Portage Bay on Monday, 20 July 1767. In mapping the bay he recorded just four traverses (here numbered 1 through 4) (Figure 18). The traverses are an apparent mix of passages (traveled courses) and sightlines. Carver rounded each traverse to the nearest mile or half-mile in length and to the nearest 22½-degrees by compass. The results are predictably crude. His Traverses 1 and 3 point to mountainous elevations back from the shoreline. Traverse 2 led directly "to the landing place" at the Grand Portage. Traverse 4 ended at the tip of Hat Point.

It is impossible to plot Carver's traverses within the bay at their given scale. It is also difficult to reconcile the length of Carver's traverses with his observation that Grand Portage Bay "is about a mile and a half deep and about so broad…being nearly square" (Parker 1976:131). The bay is actually about two miles wide and 1.25 miles deep. Other observers who early guessed the size of the bay had trouble too. For example, in 1793 the NWC clerk, John Macdonell, thought the bay was about 4.5 miles wide and three miles deep (Gates 1965:92)—a more than two-fold exaggeration.

One could explore the notion that some of Carver's traverses were meant to extend beyond the shores of the bay, but downplaying Carver's estimated distances and relying more on his compass bearings alleviates some of the complication. Indeed, this exercise is useful for reviewing much of the early historical documentation from Grand Portage. Setting aside questionable distances and emphasizing other descriptive elements left by observers often provides a more accurate understanding of the subject terrain. The goal is to develop explanatory models that consider and reconcile all available evidence.

Carver's Traverses 1 and 2 assumedly define his course of travel along the west and northwest margins of Grand Portage Bay (Figure 18). When considered together these traverses suggest that the portage landing, in 1767, was much closer to Mount Rose than to it was to Mount Josephine. Traverse 3, a sightline projecting east-northeast from the landing along the north shore of the bay, shows the landing must be well west of Hat

Survey notes recorded by Jonathan Carver at Grand Portage Bay on 20 July 1767 after entering the bay at its southwest corner (Adapted from Parker 1976:172).

Traverse	Course	Distance	Remarks &c
[1]	NW	2 Miles	"Back of this is a high mountain"
[2]	NE	1½ Miles	"This mile and half brings to the landing place and Indian castle"
[3]	ENE	1½ Miles	"Back of this is a high mountain"
[4]	ESE	3 Miles	"In this small bay is an island in the chops of it"

Point and almost certainly within Section 4. Carver's fourth bearing, a sightline looking east-southeast from the landing to the tip of Hat Point, narrows the window by seemingly anchoring the portage landing within the present area of the GRPO. While none of these interpretations are ironclad, they are more convincing than any theory that uses Carver's survey records to place the portage landing and local Indian village 1.5-miles east of Grand Portage Creek.

Carver supplemented his survey by saying that the landing was "at the bottom of the bay" (Parker 1976:131), just as John Macdonell later described it (Gates 1965:92). At the landing place in July 1767 Carver met a gathering of Ojibwe, Cree, and Assiniboine Indians waiting to meet with British traders from Michilimackinac. These groups were on friendly terms, but their camps might have been strung out for some distance along the shoreline. The following year, associates of the trader John Askin had to clear land west of Grand Portage Creek to ready that space for occupancy (Nute 1940:134). This too implies that, long before 1768, the historic portage landing and traditional settlement locus were centered just east of the creek.

JOHN ASKIN AND THE INFANT NWC

John Askin (Erskine), who likely knew Carver, was an early developer at Grand Portage and is worthy of further mention here. Born in Ireland in 1739, Askin went to North America in 1758. He was a sutler with the British army near the end of the Seven Years' War and became an Albany merchant and fur trader before moving to Michilimackinac in 1765 (Wallace 1968:425). There, through about 1780, he had a trading store, was commissary for the garrison, and farmed. There, too, he formed close ties with northwest traders Alexander Henry, James McGill, and Isaac Todd, and with the post commander, Major De Peyster (Farrell 1983:37-38). He also associated with Lt. Thomas Bennett, the post adjutant, with whom, later in life, he engaged in land speculation in Ohio and Michigan (Woolworth 1975:207). Officers at Michilimackinac were not above taking NWC bribes (e.g., Denney n.d.:12), and it is no surprise that Askin's cozy relations with De Peyster and Bennett left him perfectly positioned to give and receive special favors (Farrell 1983:38).

The growing American threat during the American Revolution hastened the consolidation of British trade interests (Thompson 1969:28). Various combinations of traders formed, and by 1778 a group of traders serving as "Gentlemen of the NWC" was transacting business through Grand Portage (Wallace 1968:4-5). Some had shifted their supply base to the portage from Michilimackinac a few years earlier (Rich 1966:72). Askin had business connections with some of the gentlemen and became an agent for the infant NWC (Wallace 1968:425). In May 1778 Askin sent them a shipment of goods, to be followed by later cargoes of provisions and alcohol. He also informed his associates that an officer and several soldiers were to "pass the summer" at the portage, and asked that a house be readied for them. It was, he insisted, "the great Company's duty to furnish a dwelling" for the troops (WHC 19:239-240). If Askin wasn't in bed with De Peyster and Bennett on this deal, he was at least fluffing their pillows.

THE LENGTHENING SHADOW OF THE NWC

Since time immemorial the Grand Portage has probably followed the shortest viable course between Grand Portage Bay and a landing on the Pigeon River. Through at least 1731, the portage followed an established Indian trail. Between 1731 and 1761, French traders probably made minor changes to the existing foot trail, like removing fallen trees or installing catwalks. In 1768, British traders associated with Askin built a fort on the lakefront west of Grand Portage Creek and opened a trail over the creek to reach the portage. Within a short time other branching trails were likely opened or enhanced by opposition traders on landscapes east of the creek. By one estimate there were as many as "four palisaded log cabins or 'forts'" there in the years preceding the American Revolution (Woolworth 1975:201). The competition became so fierce Grand Portage was portrayed as "a pent-up hornets' nest of conflicting factions intrenched in rival forts" (Bigsby 1850, II:240).

In 1778, British troops sent to maintain order among the traders established a Public Road. The unruly competition faded in 1783 with the reorganization of the NWC as a firm with sixteen shares. The following year the Nor'westers sought (and were denied) a government-sanctioned monopoly of the northwest trade through Grand Portage. Other opposition traders established new facilities at each end of the trail in 1785 but then merged with the NWC, restoring its dominance at the portage.

In 1787 the NWC apparently erected a stockade around its house (Fort Charlotte) on the Pigeon River or extended a preexisting stockade, blocking the far west end of the Grand Portage. When the rival trader, Donald MacKay, approached the fort after walking the trail from Lake Superior he found that the NWC had indeed "Shut up the Road with Picketts." MacKay was told that if he wanted to get to the river he "must make another Road." Taking matters into his own hands, MacKay cut open the gate of the fort with a "tomahawk," passed through the fort to the Pigeon River landing, and marked out a place there for his canoes (Denney n.d.:12-13).

The following year, the NWC boldly requested (and was denied) a special land grant to remake the entire Grand Portage trail into a private wagon road. Beyond claiming ownership to the segment of road at Fort Charlotte, the NWC may have also begun to assume proprietary rights to certain "built" sections of the trail that it improved or kept in repair. Indeed, the Nor'westers so dominated the use of the trail by the late 1780s they flattered themselves by thinking of it as a company road. To avoid running the NWC gauntlet at the portage some opposition traders began taking a southerly route to the northwest through what is now central Minnesota--by way of Fond du Lac, Sandy Lake, the Crow Wing and Leaf Rivers, Otter Tail, the Red River, and Pembina.

In 1793 John Macdonell said, "Every improvement at…[Grand Portage Bay] appertains to the North West Company." At the same time, the Nor'westers continued their dominance at the upper landing on the Pigeon River (Gates 1965:94, 97). When John Tanner and his adopted Ojibwe family brought their furs from Fort Charlotte to Lake

Superior one year in the 1790's they were so fearful of NWC interference they tried to avoid the "trader's road" when crossing the portage (James 1956:51).

The XYC formed in 1798 and quickly muscled in at Grand Portage. A NWC agent lamented that the XYC was "very industrious in picking up men" at Montreal for the northwest trade (Pendergast 1957:109). Within short order the XYC built transshipment facilities at both trailheads.

By 1803 the Nor'westers had moved from Grand Portage to Kaministikwia. Thereafter, the reorganized NWC had but a token outpost at Grand Portage Bay. In 1806 when rival traders set out to cross the portage, the NWC dropped trees to block the road. Earlier improvements on the portage trail were also allowed to deteriorate. In 1822 William Morrison of the American Fur Company said the portage had gone unused for so many years that it was hardly passable (Lass 1980:38). The Grand Portage was not closed for long, however, as it saw continued if only sporadic use throughout the remainder of the nineteenth century.

THE PORTAGE, PORTAGE LANDING, AND DEPOT TRAILS

Some of the best early descriptions of the Grand Portage, dating to the 1790s and later, are left by men sympathetic to the NWC—particularly the celebrated David Thompson. Thompson made his most detailed surveys in the 1820s, long after the NWC left Grand Portage and shortly after the demise of the company itself (Cooper 2004). By then old bridges on the portage were probably gone, and the "old causeways that once crossed the swampy places," were "entirely rotten, full of holes and dangerous" (Thiessen n.d.:7). Thompson's surveys make no mention of other trails intersecting the Grand Portage though such are known from other sources.

According to Thompson, in the 1820s the portage "road" began on the shore of the bay near the mouth of Grand Portage Creek (Figure 19) and ran northward to the hill where the church and cemetery are now located. From there the trail went around the west side of the hill, generally paralleling the creek as it ascended to higher ground (Figure 20). Thompson said the portage was "very Hilly" at its lower end and at first ran "along the cut in the Hills" on side elevations above the creek. At about the 740-foot contour the trail veered away from the meandering stream to follow a more direct route to a gap in the rock ridges a mile or so back from the lake (Figure 16). This trail alignment, from the lake to the 740-foot contour, will for present purposes be termed the *main portage*. For purposes of this report, that part of the main portage lying between the lake and the church hill may also be referred to as the *portage landing road*.

As already noted, in 1768 traders built a fort on the lakefront west of the creek that later become the NWC Depot. To access the main portage from the fort the traders had one or more formal trails that crossed the creek and perhaps some informal ones as well. One formal trail ran from a gate at the northeast angle of the Depot and crossed the creek at no great distance from the lake. The same trail went through the Depot to the "west gate" on the opposite side completing a passage to the lake. This road might be called the *depot*

trail. The NWC maintained the depot trail as a private access to the main portage. In 1798 when David Thompson surveyed the trail from the west gate, through the fort, and onto the Pigeon River, he called that course "the Grand Portage" (Figure 21) (Thompson 1969:78).

Photographs from the early 1900s show footpaths traversing the creek northeast of the old NWC Depot site and reveal that such trails did not necessarily intersect the streambed at right angles (Figures 8 and 11). One prominent crossing seen in these photographs is a ford set perpendicular to the stream. The location is so accommodating for purposes of a stream crossing that at least one historian has called it "a natural ford" (e.g., Gilman 1992:8). While its origins and history are uncertain, the ford did see great use prior to about 1939 or 1940 when the Stone Bridge was completed downstream.
Alan Woolworth's 1975 investigations led him to conclude that the ford was in use before 1778 and that it (or possibly a bridge at the ford) later became the Nor'westers' primary stream crossing to the main portage. Old Ford Road, a segment of roadway now preserved east of the ford, is assumed by Woolworth to be part of the NWC's depot trail (Figure 6). Woolworth observed that Old Ford Road extended just 50 feet east of the creek and assumed that the old depot trail intersected the main portage there (Woolworth and Woolworth 1982, I:258). This scenario draws the main portage close to the creek and even onto the creek's floodplain north of the present maintenance shop (Figures 6 and 20). If Woolworth is correct, then parts of the main portage and the depot trail must run right through the 2005 Survey Area, and their intersection must lie within the survey area as well.

THE PUBLIC ROAD

So, what and where was the enigmatic Public Road? The earliest reference to the road is found in the postscript of a letter written by Major De Peyster at Michilmackinac in 1779. De Peyster wrote on behalf of his subaltern, Lt. Thomas Bennett, of the King's 8th Regiment of Foot. Bennett was stationed at Grand Portage in the summer of 1778, and he was now seeking recompense for "laying out and directing the route at the Portage" (WHC 11:123; Thompson 1969:30-31). No other contemporary accounts of Bennett's road activities are known to survive.

Some readers take De Peyster's words to mean that Bennett was responsible for laying out *and constructing* the Public Road (Woolworth and Woolworth 1982, I:258; NPS 2003:169), and they credit Bennett's men for actually *building* the road (e.g., Woolworth 1975:205; Woolworth and Woolworth 1982, I:12; Woolworth 1993:53). No evidence is presented to support these claims. Even if Bennett had ordered his men to build a road such work could not have been extensive. He had but a small force at Grand Portage (one sergeant, five privates, and seven Canadian civilian *engagés*); his goal was to build an outpost, befriend Indians, and ensure the cooperation and allegiance of traders (Armour and Widder 1978:77; WHC 11:112); and there is no indication that he had proper equipment, work animals, and expertise for road construction. Beyond that, his expedition arrived at Grand Portage in June 1778, left in August, and did not return. During that brief time his men labored at constructing a fort (Woolworth 1975; Armour

and Widder 1978:77; Gilman 1992:55); an outpost that apparently later became the NWC-affiliated "Little Fort" or Fort Boucher.

The most detailed description of the Public Road is found in the 1803 testimony of Daniel Sutherland. An experienced fur trader, Sutherland had once been a partner in the NWC before joining the XYC. He apparently first went to Grand Portage in 1788 (Nute 1940:137). Sutherland described the aforementioned clearing by the mouth of Grand Portage Creek and said the Public Road passed through that open space "to the North side of the Portage" (Nute 1940:138-139).

Past researchers provide a medley of possible interpretations regarding the nature, course, and length of the Public Road. Some have it either following the portage-landing road north from the lakeshore or taking a separate line to merge with the main portage some distance inland (e.g., Woolworth and Woolworth 1982, I:258, 267). They have the Public Road ending by the ford (e.g., Woolworth 1975:205; Woolworth and Woolworth 1982, I:47; II:No.74), running beyond the ford to the foot of the church hill (e.g., Woolworth and Woolworth 1982, I:67), or going around the hill on the northwest (Woolworth and Woolworth 1982, I:258; NPS 2003:169) or northeast sides (Woolworth 1993:52).

It is even suggested that Bennett and his men "laid out a road across the portage," all the way to the Pigeon River (Buck 1931:7). Is that what Sutherland meant when he said the Public Road led "to the North side of the Portage?" Maybe. But De Peyster specifically says that Bennett was involved with directing the route *at the portage* not directing the route *of the portage* (or at least the entire portage). "At the portage," as used by De Peyster, likely means "at the settlement" on Grand Portage Bay. If Bennett directed the route through the settlement and not far beyond, then the designated Public Road would, by definition, be confined to an area near the lake.

For the Public Road to lead to the portage suggests that it had to somehow be separate or distinct from the portage to begin with. By saying the Public Road led "to the North side of the Portage," Sutherland again seems to describe a short corridor; perhaps one that converged on the main portage on the "north" (northeast) side of the creek, on the north side of the clearing, or (as will be discussed at greater length later in this report) on the north side of what is now the church hill.

Sutherland also testified that, "a Cart may pass in the said [Public] Road from the Beach to the little River" (Nute 1940:139). This statement reveals that, in 1802, the Public Road was suited for cart traffic and that the road (or a section of road suited for carts) went at least as far as Grand Portage Creek (the "Little River"). A public road designed for commercial use might logically intersect the creek at only one of two places. One place is between the church hill and the lake within the area of the aforementioned clearing (Figure 17). That could be at the ford or somewhere nearby. The party most likely to take a cart from a landing east of the creek to a nearby stream crossing would be Nor'westers bound for the NWC Depot.

A second possible intersection for the Public Road and creek is where the main portage crosses the northeast fork of Grand Portage Creek beyond the high rock ridges, about 1.5 miles inland from the lake. This option makes little sense. In 1822 when the American surveyor, Joseph Delafield, numbered the stream crossings on the portage above Lake Superior, he called the northeast fork the "First River." As far as is known, that branch of the creek was never referred to as the "Little River." In 1802 it would also have been strange to emphasize that carts could pass from the lake to the northeast fork. The northeast fork was hardly a common or worthy destination for carts, and besides, long before Sutherland's testimony the NWC had run carts over the entire length of the Grand Portage.

Based on available evidence, the Public Road can likely be thought of as an access that provided free passage to all comers between the lake and the main portage. Bennett appears to have defined and marked the corridor before declaring it an open thoroughfare. Bennett's men may have worked to improve the designated roadway, but most labor probably came from the traders and most specifically men attached to the NWC. The NWC had already bore some expense in accommodating the troops at Grand Portage, and it had the greatest need and incentive for having a cart path leading from the lake towards a nearby stream crossing. By facilitating such a Public Road, the NWC may have already anticipated its larger goal of getting a government-approved trade monopoly through Grand Portage and a special land grant to remake the portage into a private wagon road.

Sutherland seems to settle the argument over who actually built the Public Road by voicing his opinion that it was *made by the NWC*—or an early version of that firm that predated the 1783 organization (Nute 1940:139).

From these sketchy details it is perhaps safe to say the Public Road began at the shore and ran through the clearing to link either with the main portage or the depot trail, or both. This fuels speculation that some part of the road may enter, cross through, or pass near the 2005 Survey Area (e.g., Phillips 2003:33-34). Whatever improvements were made to the road in 1778 might now be impossible to identify or to differentiate from later road developments. Indeed, physical evidence of most trails in use near the lakefront in the eighteenth century is almost certainly obscured, modified, or erased by more recent activities.

THE FIRST XYC "FORT" AT GRAND PORTAGE BAY

The exact placement of XYC facilities at Grand Portage Bay has often been guessed but never reconciled. Some researchers put the "traditional" XYC area near the lake just east of Grand Portage Creek (Thompson 1969:165) or report "evidence" that the ruins of an XYC Depot may be "under the present seasonal housing and maintenance facilities" (NPS 2003:169; Thompson 1969: 169 and Map 5). Others have XYC facilities well up the shore, eastward of the GRPO (Woolworth and Woolworth 1982, I:261; Thompson 1969:169). Obviously, no review of fur trade resources in the vicinity of the 2005 Survey Area would be complete without a discussion of XYC operations at Grand Portage Bay.

Early events foreshadowed the emergence of the XYC. In 1793 the traders David and Peter Grant, sworn enemies of the NWC, determined to build a fort at the portage. Accordingly, they marked the four corners of a proposed fort "between two and three hundred yards to the East of the N.W. Fort beyond the Pork eaters camp" (Gates 1965:94; Thompson 1969:81). The NWC fort in this instance is unquestionably the NWC Depot. The Pork eaters' (Montrealers') camp was in the clearing east of the creek (Figure 17) (Thompson 1969:167). Within the area of the camp and the clearing was the portage landing later mapped by David Thompson (Figure 19). Just northeast of the portage landing was a house or "little fort," perhaps the same one earlier built as a cooperative effort by the NWC and British troops. The Hervieux court proceedings put this facility (Fort Boucher) within about 125 yards of the creek. The site of the Grants' proposed fort was a short distance farther up the shore in an area southeast of the Speedy's Road-Upper Road intersection and south-southwest of the log-school (Figure 17).

The Grants' proposed fort was never built. Nonetheless, the site *chosen* for the fort offers some intriguing insights. So does the fact that the selected site was not in the clearing by the creek. The clearing was a traditional, summer-gathering place for NWC voyageurs and the launching pad for many an outfit that crossed the Grand Portage. As already noted, it was jealously protected by the NWC. By not intruding on the clearing, the Grants avoided heated confrontation with the NWC (as later experienced by Hervieux) and the harassment of Montrealers and others who camped there. The clearing was a minefield of controversy destined to remain an "unoccupied" and "open" space through the end of NWC operations at the portage (Nute 1940:132-133).

Areas up the shore northeastward from the clearing were far less contentious. The spot selected by the Grants to build upon had a range of desirable qualities that are still evident today (despite considerable shoreline erosion). The chosen site was approachable from the lake, adaptable as a landing, suitably elevated and drained for use as a fort site, available for development, and easily connected by a short overland trail to the main portage. Together with Hervieux's tale of forced relocation to a second camp, the Grants' prior claim to the same general area puts the little fort (Fort Boucher) at the eastern limits of NWC territorial aspirations on Grand Portage Bay.

By 1800 the NWC was already preparing to move to Kaministiquia. That summer, the NWC clerk, Daniel Harmon, said, "it was only three years since" the XYC first "made an establishment" at Grand Portage (Harmon 1903:15). "Three years since" might be construed as 1797. However, archeologist G. Hubert Smith has shown that by counting 1798, 1799, *and 1800*, the three-year look back could just as easily correspond to 1798, the year the XYC formally organized (Smith 1961). Just what developments the XYC or its constituent firms may have made at the portage in either year is unknown.

There is greater knowledge of early NWC developments east of the creek. The NWC outfitted Joseph Lecuyer to trade there from 1794 through 1798, and Boucher (Bouché) replaced him in 1799. At first, Boucher may have worked in arrangement with a NWC agent named Joseph Faniant (Fainant, Fannante, Fanieant, etc.) (Pendergast 1957:109). In any case, these men traded liquor and dry goods (like "capotes, jackets, and breeches").

Coincident with Boucher's arrival, St. Valier Mailloux also began a similar operation, under agreement with the XYC (Peers and Schenck 2002:213). At the time, the great companies segregated their men during the summer rendezvous to curb fighting, fraternization, and promiscuous trading with rival agents—particularly for rum (Nute 1940:126, 133, 140-143, 146-147). Mailloux's operations were said to be conveniently near the NWC canoe camp (Pendergast 1957:109). Lecuyer and Boucher catered primarily to NWC engagés, and Mailloux mainly to XYC employees, but each actually welcomed transactions with just about anyone. Paul Hervieux, who began trading at Grand Portage under American license in 1802, also sold to all comers. For reasons of discretion, crossover trading was often done "secretly at night" (Nute 1940:128-129).

Such trading activities typically required formal structures. Lecuyer operated from a "little house" or NWC company store on the eastern margin of the clearing. The house may have been the one earlier built by that firm as part of a cooperative venture with British troops. Boucher later occupied the same site and probably the same house. Hervieux, when at his second camp, east of Boucher's, in 1802 (Figure 17), stored his goods in "a little cabin covered with bark" (Nute 1940:136). Because he and the other traders had houses, Mailloux must have had one, too. If so, his house likely belonged to the XYC, and it probably stood somewhere near the XYC landing and Depot (Figure 17). Hervieux, who, in 1802, was able to sell "his goods freely to the men of the new company" (Nute 1940:136), traded nearby. The area between Boucher's and the XYC developments formed a buffer between NWC and XYC interests on the bay. Hervieux's cabin was likely within this DMZ.

Not coincidentally, the first definite record of XYC facilities at the portage dates to 1799. That summer, according to the celebrated trader-explorer Alexander Mackenzie, NWC rivals erected a "Hangard [store] & House" at some undisclosed location by the bay (Thompson 1969:89). The presence of these structures riled the NWC. So did the development of an XYC fort at the upper end the portage, within spitting distance of the NWC's Fort Charlotte. The latter two forts stood like bookends at the Pigeon River, side-by-side on opposite banks of Snow Creek. The XYC was no shrinking violet. Its sudden and aggressive ingress caused the Nor'westers to think the XYers might soon try to occupy the clearing at the mouth of Grand Portage Creek. In response, the NWC began to "make matters as difficult as possible" for the their new neighbors (Thompson 1969:91-92). Part of the NWC's strategy in 1799 may have been to install or reinforce a stockade around Boucher's house, making it the "Little Fort" or Boucher's Fort.

Nor'wester Daniel Harmon made his initial visit to Grand Portage in June 1800. In his journal first published twenty years later he described the bay, Grand Portage Island, Mount Rose, and the NWC's big depot. Edited versions of his journal put an XYC fort *about* two hundred rods from the NWC Depot (Harmon 1820:40; 1903:15; 1905:15), while the autograph version has it *within* two hundred rods (Lamb 1957:20; Thompson 1969:96).

Two hundred rods is equal to 1100 yards, 3300 feet, or just over six-tenths of a mile. At face value, rods seems a strange choice of measurement to guess a distance that might be

better expressed as some fraction of a mile. Likewise, 200 rods could easily be a copyist error for 100 rods or 200 yards (Smith 1961). It is certainly anomalous, for no other contemporary observer places the XYC fort at Grand Portage so far to the northeast. A distance of 200 rods up the shore from the NWC Depot would have the XYC fort well outside the known fur trade settlement area at the bay (Figure 16) and beyond what is now the east line of Section 4 as well. The great distance to the portage from that remote locale would also unnecessarily add to the labor and expense of portaging. Considering the in-your-face attitude the XYers displayed on the Pigeon River and elsewhere in the northwest, such a location seems wholly uncharacteristic of that firm.

Did Harmon really mean or have the necessary skill to say that the XYC fort was 200 rods up the shore (northeast) from the NWC Depot? A casual scan of Harmon's journal reveals 17 instances in which he gives distances in rods (see table below). Most of his notations, relating to things like the width of rivers and the size of forts, define distances of 30 rods or less. Three other notations describe distances between 60 and 70 rods (up to 1155 feet or two-tenths of a mile). As seen in his inflated dimensions for the NWC Depot, even at short distances Harmon's estimates can be exaggerated.

The remaining four notations (italicized) involve distances that locate forts in relation to other nearby forts or water features. Three of the fort-location estimates are patently rounded to 200 rods. That includes Harmon's placement of the XYC fort at Grand Portage Bay. Rather than instill confidence in his observational skills, this revelation makes Harmon's use of 200 rods seem like a generic measure—more a standard wild

Distances measured in rods, derived from Daniel Harmon's Journal (Harmon 1903).

Measurement(s)	**Application**	**Page No.**
10 rods broad	River width	113
10 to 12 rods wide	River width	3
About 11 rods wide	River width	30
12 or 15 rods broad	River width	20
About 30 rods wide	River width	141
Flooded river about 60 rods broad	River width	95
60 to 70 rods wide	River width	240
About 70 rods in breadth	River width	141
{Several] Rods from dry land	Point within a river	97
Come within a few rods of them	Approaching Buffalo	42
Came within 10 rods of the fort	Approaching Buffalo	46
16 rods long by 12 in breadth	Fort size	33
24 by 30 rods	Fort size (NWC Depot GRPO)	15
Fort about 200 rods from another fort	*Fort location (XYC Fort GRPO)*	*15*
Fort is 200 rods from another fort	*Fort location*	*117*
Fort about 200 rods from outlet	*Fort location*	*160*
Lake is 400-500 rods below the fort	*Fort location*	*114*

guess than a studied approximation. His fondness for 200, appears again in his description of the Saskatchewan River, which he said was "about two hundred fathoms broad" (Harmon 1903:115)

Happily, Harmon gives some measurements that are readily compared with other sources, including dimensions that exaggerate the size of the NWC Depot by up to twenty-five percent. More telling is his estimate intended to give the location of the NWC fort (later Fort William) on the Kaministiquia or Dog River. According to Harmon, the Kaministiquia fort was "about four or five hundred rods" above the mouth of the river (Harmon 1903:114). A distance of 400 rods (2200 yards) is equal to 1¼ miles, and 500 rods (2750 yards) equals 1.56 miles. In other words, Harmon estimated the fort was between 1¼ and 1½ miles up the river from Lake Superior.

Near its mouth the Kaministiquia River divides into three channels. The NWC built its fort on the north side of the dominant North Channel. In 1802 the British military engineer, Capt. R. H. Bruyère, determined the North Channel to be just ¾-mile long. On a map, he shows the NWC fort about one-quarter of the way up the North Channel, a distance probably less than ¼-mile (under 80 rods) from the river's mouth (Morrison 2001:26). Later, Dr. John Bigsby, a British member of the Joint International Boundary Commission, put the fort "800 yards" (145 rods or 0.45-miles) from the lake (Bigsby 1850:230). George Heriot, the deputy postmaster general of Canada, also implied that the distance was less than ½-mile (Heriot 1971:205), while Joseph Delafield, an American agent with the Joint Boundary Commission said the fort was just "a little distance" up the river (Delafield 1943:400). For sure, some other writers put the fort nearly a mile or as much as a mile above the lake (e.g., Long 1978:230; Coues 1965, I:220n; Morrison 2001:25), but not even their guesses approach the 1¼ and 1½ miles distances fronted by Harmon. Indeed, by comparison, Harmon's claim that the XYC fort and the NWC Depot at Grand Portage Bay stood as much as 200 rods apart could easily be a two or three fold exaggeration.

If the distance between the two forts was one-half of 200 rods (550 yards), the XYC fort site might be near the east boundary of the GRPO. If the distance was one-third of 200 rods (i.e., 366 yards) the XYC fort site might be in the area of the present NPS equipment boneyard (Figure 17). Though obviously speculative, these figures are more compatible with other contemporary estimates of the fort's location on the bay.

The Hervieux court proceedings, which tell of conditions at Grand Portage Bay in 1802, fail to mention XYC facilities other than Mailloux's establishment. Some readers see this omission as further evidence that the XYC's developments were somewhere much farther to the east, where Harmon's estimate of 200 rods seems to suggest (e.g., Figure 15). It is now clear, however, that the proceedings simply ignore XYC affairs at the bay as being outside the legal issues under review.

In 1801 the XYC had "Forts *& other buildings* at both ends of the Portage" (Thompson 1969:104, emphasis added). By 1802, according to Donald Sutherland, the XYC facilities at Grand Portage included a barn and living quarters for a farmer (Thompson 1969:111).

Is it possible the XYC opened lands well to the east for gardens and for access to building materials, firewood, or hay crops, but kept its main depot closer to the portage? Like the NWC, the XYC apparently had horses or oxen to shuttle supplies and materials over the portage to the Pigeon River. If the XYC's "farm" were somewhere up the shore, but not the XYC fort, the added distance to the main portage would be of little concern.

The NWC held its last rendezvous at Grand Portage in 1802. In that same year the newly knighted Sir Alexander Mackenzie became fully allied with the XYC and attended its summer gathering at the portage. So did the novice XYC clerk, George Nelson.

In June 1802, according to Nelson, the XYC "had a few buildings, a few hundred yards to the East of the N. W C^{o} *below* the hill" (Peers and Schenck 2002:42). A question that immediately comes to mind for many researchers is where, east of the creek, is there a hill within a "few hundred yards" of the NWC Depot?" If one assumes that "a few hundred yards" equates to 200-300 yards, then the best answer is likely somewhere below what is now the church hill. Such a location could have been aside the main portage in 1802, and distinctly in-the-face of the NWC.

Interestingly, while mapping the perimeters of the 2005 Survey Area on 3 June 2005, the author stumbled onto some possible old building sites at the foot of the church hill, just north of Speedy's Road. These include a large depression and an earthen berm, and what appear to be some small platforms cut into the slope of the hill. All of the observed features lie within "Area A" (Figure 22) beyond the limits of the present survey and were not further explored (although the berm was mapped: see, Figure 4). If the features mark a building complex in use in 1802, the structures would almost certainly be noted and identified in the 1803 Hervieux court proceedings; however, they are not.

Also, while exploring the lower end of Speedy's Road at the southwest side of the church hill the survey team encountered a series of depressions on what appears to be an ancient terrace just below the church cemetery and just beyond the limits of the GRPO (Figure 22). Though difficult to judge from 20-foot contour USGS topographic maps, the terrace appears to stand at about 650-feet. A literature review reveals that BIA archeologist Karl Hagglund noted these same depressions in 1994 and thought they might be unmarked graves (Hagglund 1994). The quick perusal by the 2005 survey team noted a distinct similarity between the depressions and ancient Pukaskwa (Puckasaw) Pits seen elsewhere along the North Shore of Lake Superior. If the features are such pits, then they might result from Paleo-Indian activity around the mouth of Grand Portage Creek and they could be among the oldest known archeological sites at Grand Portage Bay, in the vicinity of the GRPO.

Whatever secrets the pits and the Area A features might hold there is ample reason to suspect the XYC established its initial bayside depot elsewhere. This scenario looms large if one simply shifts the starting point of this exercise. Nelson indicated that the XYC buildings were east of the NWC (not specifically the NWC Depot), and he was at Grand Portage when Boucher's Fort marked the eastern limits of NWC oversight at the bay. Perhaps, the XYC buildings Nelson saw "*below* the hill" were a few hundred yards

east of that little fort rather than the NWC Depot, as commonly believed. A place a few hundred (200-300) yards east of Boucher's Fort would fall "below" the log-school ridge. It might be at or near the present NPS equipment boneyard where archeologists have detected a locus of fur trade materials at a site on La Plante Knoll (Figure 17). According to archeologist Vergil Noble, that site (21CK12) has yielded "abundant late eighteenth- or early nineteenth-century materials, seems to be relatively undisturbed and may contain intact early Historic period cultural features" (Noble 1989:33; Birk 2005). The quandary is, if the initial XYC fort was in the area of the NPS boneyard, why is it not acknowledged in the 1803 court proceedings? The answer, again, is that the court case did not involve the XYC.

So, what was the nature of the first XYC Depot? Mackenzie reports the construction of a "Hangard & House" at the bay in 1799, and Harmon has an XYC fort there by 1800. Nelson notes only a few XYC buildings as late as 1802, but later implies that they were enclosed within a fort. There seems little doubt that all of these individuals are describing the same complex, which, whether actually surrounded by pickets or not, was likely called a "fort."

THE SECOND XYC FORT AT GRAND PORTAGE BAY

Nelson continued his recollections of June 1802 by adding that the XYC was then "busy building a very fine 'fort' upon the hill" (Peers and Schenck 2002:42). The inferred location for this second fort is above the buildings or fort he observed "*below* the hill." None of this is mentioned in the 1803 court proceedings. The push to erect a new hilltop fort may have come from Mackenzie, the new namesake of the XYC (or Alexander Mackenzie and Company) who thought the older buildings below the hill were inadequate (Gilman 1992:85).

Nelson went on to say that at Grand Portage in 1802 some men left the NWC to work for the XYC. As these malcontents readied XYC canoes on the shore to go to their new wintering stations, a NWC agent approached them and started an argument. Mackenzie, Nelson, and others were having dinner in the nearby XYC Depot at the time, when, according to Nelson, "some of the People *ran up* to inform us that M^{r} Duncan M^{c}Gillivray was *at our beach* attempting to carry off those men" (Peers and Schenck 2002:45, emphasis added). This firsthand account infers that the XYC canoe landing was at a beach (and not a rocky shore) that probably lay directly opposite (south of) the company's main structures (e.g., Figure 17).

In 1803 Thomas Vercheres de Boucherville, a young French Canadian clerk with the XYC, arrived on his first trip to Grand Portage. Upon landing, De Boucherville got his personal belongings ashore, and "carried them *up to the fort*" (emphasis added). He said the fort "had been built by the North West Company," but he obviously meant the "New North West" or XY Company, for the NWC had by then generally vacated its depot and its Fort Boucher and moved to Kaminstikwia. De Boucherville added that the fort was, "Situated on the brow of a sloping hill" from which the view "was very fine" (Thompson 1969:118). The upper part of the log-school ridge north of the NPS boneyard would

easily fit that bill, but so might the church hill. Both features, the ridge and the hill, are parts of a Post-Minong surface above the 660-feet contour (Figure 17).

De Boucherville gives the best-known firsthand description of the hilltop fort. Unfortunately, his reminiscences were put down more that forty years after the fact. In any case, he recalls that the fort was surrounded by "palisades of tall cedar pickets with bastions at the four corners. Within the enclosure were several good buildings…and towering over all was an immense flagstaff" (Thompson 1969:118).

When George Nelson returned to Grand Portage again on June 29 1804, he was received and treated "very kindly" by Mailloux. He tented nearby, and the next morning when he arose he "went up to the upper Fort" (Peers and Schenck 2002:170). This indicates that Mailloux's establishment was still in operation and probably at its original spot close to the XYC's landing, shoreline tent camp, and first fort. It hints, again, that the "upper Fort" is most likely somewhere more or less behind/above/north of this complex.

In his volume, *Travels Through the Canadas*, first published in 1807, George Heriot, the deputy postmaster general of Canada, gives a secondhand description of the depots at Grand Portage Bay. According to Heriot, the NWC Depot included a "large picketed fort" with three gates, two guardhouses, and extensive ranges of buildings for stores and dwellings, as well as a sizeable canoe-yard for building canoes. Heriot put the "establishment of the new company," meaning the XYC, "about a quarter of a mile from that of the old" NWC. The XYC Depot "consisted of a fort, picketed, and of buildings on the same plan as those of the latter, but upon a more circumscribed scale" (Heriot 1971:204). Heriot was referring to the XYC's hilltop fort. His estimate of "about a quarter of a mile" would easily put the hilltop fort on what is now the church hill or somewhere near the log school on the adjacent log-school ridge (Figure 17).

Some new evidence for an old fort, unavailable to previous scholars, is found in Dr. Douglass Houghton's 1840 field notes/diary. Houghton was the surgeon, naturalist, and geologist for Henry Schoolcraft's expedition to the Mississippi Headwaters in 1832, and he later became the first state geologist of Michigan (Nute 1944). Writing about Grand Portage in 1840, Houghton said:

> This place was originally one of the strong points in the Northern Fur trade of the French & the remains of their establishment are still visible upon a beautifully elevated spot at a Short distance from the bay which it overlooks…The extent of the old French establishment shows the importance it held in those days [Houghton 1840].

The old French establishment or "Old Fort" on Houghton's 1840-field map (Figure 23) could easily be the site of the second XYC fort. The map shows the fort well east of the portage and American Fur Company's (AFC) facilities, and set back from the shore in an area where (though not shown) the terrain is elevated. The designated place can hardly be confused with the church hill, which is adjacent to the main portage and more directly north of the AFC developments. The more likely location is atop the log-school ridge,

which is certainly "a beautifully elevated spot" (Figure 17). The vantage gave the fort a panoramic view of the lakefront and the entire bay. It also allowed the XYers to literally look down their noses at the NWC. Conversely, when seen from below, the imposing walls and commanding height of the hilltop sanctuary gave it an aura of wealth, authority, and innovation; qualities almost certain to impress Indians and rival traders alike.

It should be noted that, after Houghton returned to Detroit in 1840, he transcribed his Grand Portage field notes and map into another volume. His second-generation map has caused some scholars to conclude that Houghton's "Old French Fort" is the remains of the first XYC compound at the bay, the XYC post built "in 1797." That fort, they say, is the same one Daniel Harmon placed "about two hundred rods east of the NWC establishment" (e.g., Peters 2003:106, 111n14).

THE PHASES OF XYC DEVELOPMENTS

The XYC had two forts at Grand Portage Bay between 1798 and 1805. They were built in two phases, east of the creek. The forts were more confined and "much smaller" than the nearby NWC Depot (e.g., Heriot 1971:204; Campbell 1957:124).

The first phase of XYC operations (1798-1802) coincides with the formation and early development of that firm. During this initial phase the XYC carved a niche within the core settlement area at Grand Portage Bay. The primary Phase I facilities likely included stores, shops, and dwelling(s), and possibly a mess hall and kitchen, perhaps all set off by a fence or stockade. On the shore opposite this central compound was a beach used as a canoe landing. Near the landing was the XYC-affiliated canteen/store operated in summers by St. Valier Mailloux. The company also had farm buildings, but the relationship between these structures and the central compound is unknown.

Available evidence places the Phase I facilities northeast of Boucher's Fort, below a hill, and near the lake. The actual sites of the Phase I developments are yet undetermined. The highest priority location for the central compound, the canoe landing, and Mailloux store sites is somewhere near the NPS boneyard or the eastern limits of the park (Figure 17). Mailloux's store may have defined the southwest or northeast margins of the main XYC complex. Secondary facilities, like farm structures, could lie up the shore or somewhere inland. Researchers who make no adjustment for Harmon's claim of 200 rods would have the Phase I facilities farther to the northeast, even beyond the east line of Section 4 (e.g., Thompson 1969:Map 5; Woolworth and Woolworth 1982, I:175). G. Hubert Smith suggests that any search for early XYC facilities at the bay might do well to focus on areas below the 630-foot contour (Smith 1961). That seems a logical place to start.

The second phase of XYC operations at the bay (1802-1805) involve the construction, use, and abandonment of a second fort. The Phase II fort was apparently more extensive and, no doubt, better planned than the first. It stood on the brow of a hill, possibly north of and overlooking the Phase I facilities. When construction of the new hilltop fort began, desirable shoreline property near the portage was at a premium. Rather than excite bloody confrontation with the NWC by infringing of the clearing, or moving a greater distance

up the shore northeast of their Phase I facilities, the XYers chose to build their new fort inland as a "second tier development."

The new fort was designed to showcase Alexander Mackenzie's wealth as well as the company's maturing optimism and determination. Ironically, the fort was obsolete before construction began, and it might never have been fully completed. The NWC pulled its major operations out of Grand Portage by 1803, the XYC merged with the NWC in 1804, and the XYers left Grand Portage after their summer rendezvous and closing inventory of 1805 (White 1977:13).

A high priority search area for the hilltop fort site is on the log-school ridge northward of the NPS equipment boneyard and possibly at or very near the place now occupied by the old log-school. If the hilltop fort was intended to more directly overlook the main portage and insult passing Nor'westers, then the more likely site is atop the church hill. This conclusion is hardly unique; scholars have long pinpointed both of these locations as potential sites for the fort (e.g., Smith 1961; Woolworth and Woolworth 1982, I:175; Gilman 1992:85).

The two XYC fort sites were bustling with workers during summers, thinly occupied during winters, and abandoned after just a few years. Nonetheless, each site should contain quantities of habitation debris such as personal or business items and durable food wastes. Artifacts and ecofacts might appear in loci, groupings, or profiles might help to define past human activities and activity areas. Each site should also contain archeological features like collapsed fireplaces, trash middens, palisade and building trenches, and storage and trash pits. Unfortunately, one potential site for the hilltop fort—the old log-school property—was considerably landscaped in about 1935-1936 to prepare a level platform on which to build the log school complex (Figure 22). The landscaping apparently involved cutting and filling with a bulldozer or road patrol. As early as 1961 G. Hubert Smith felt some remains might have survived such treatment either as the intact, lower levels of subsurface features or as *in situ* deposits buried under layers of fill (Smith 1961). Even if no cultural remains endured the landscaping operations, meaningful concentrations of materials might still be found on the side slopes of the reconfigured hill.

RETHINKING THE TRAILS AT GRAND PORTAGE BAY

The NWC's main commercial thoroughfares in the core settlement area at Grand Portage Bay were the depot trail and the portage-landing road (a segment of the main portage). The Public Road may have overlain the portage-landing road or it could have been a third branch in this system. Each of these trails began on the shore of Lake Superior within 100 yards or so of Grand Portage Creek. It is generally assumed that a short distance inland all three funneled into the main portage trail, which ran northward between the church hill and the creek. The NWC dominated this trailhead from the mid 1780s through 1802. Conceivably, their control extended further inland, perhaps up portage to beyond the 680-foot contour or even closer to the first posé (resting place) a half-mile from the lake.

David Thompson consistently placed the Grand Portage on the west side of the church hill (Figure 19). However, Thompson was associated with the NWC so when conducting his surveys he may have purposely disregarded any branch or bypass trails that were not germane to its operation. Is it possible that the trail noted by Thompson west of the hill was only opened in 1768 as a road leading inland from new trading houses west of the creek? Could the segment of trail west of the hill been claimed by the NWC sometime later as a private thoroughfare? Could the original portage trail have gone around the east side of the church hill? Could there have been two primary traffic lanes around the church hill during the fur trade era, one that ran up the west side and another on the east side? In fact, there is reason to suspect that a trail, perhaps an auxiliary trail, a wagon road, or even the Public Road, at some time, did run around the east side of the hill.

In the late 1700s, up the shore from Boucher's Fort, beyond the domain of the NWC, another system of trails led inland from fur trade era landings, shore camps, and trading houses. Some scholars believe these trails stretched westward, veering from the shore to merge with the main portage below the church hill, from where they followed the main portage northward (e.g., Woolworth and Woolworth 1982, I:67; Woolworth 1993:52).

Conversely, some or all of the trails could have climbed the slopes of the log-school ridge or gone up the east side of the church hill to intersect the main portage farther inland. Such alternative routes might have allowed Indians and traders to slip unnoticed into the hills, thereby avoiding the direct scrutiny or insults of rivals or spies. Particularly for persons camped well up the shore from the main portage landing, independent feeder trails would seemingly offer the most direct, convenient, and efficient routes to the interior. If such trails did exist, all likely connected with the main portage somewhere below the first posé (Figure 16).

The XYC's canoe landing was on a beach opposite its Phase I fort, perhaps somewhere by the present NPS boneyard or the east boundary of the park (Figure 17). To walk from that locale to the foot (south end) of the church hill is no farther than walking to the foot of the hill from the west gate of the NWC Depot via the depot trail. Early on, however, the XYers may have opened a trail from their canoe landing that passed by the west end of the log-school ridge to connect with what shows on Figure 17 as the "Bypass Trail." To walk from the XYC landing to the first posé via that route would actually be shorter than walking to the first posé from the west gate of the NWC Depot via the depot trail.

In any case, in 1802, when the XYers began building their hilltop fort, they probably opened a direct trail from their canoe landing upslope to that facility. The initial plan could have been to go from the established canoe landing by the shortest distance past the first fort and then straight up the hill to the new fort. At least that is the impression one gets from reading George Nelson's 1802 mention of XYC forts "below" and "upon" the hill (see page 21, above).

By the following year things had changed. The NWC's withdrawal from Grand Portage in 1803 gave the XYC plenty of freedom and opportunity to adjust its operations and territorial prerogatives. Among other things, the XYC may have taken control of the old

NWC store, Fort Boucher (Woolworth 1975:205n19), or whatever was left of that seemingly abandoned outpost, including, possibly, just the space it once occupied.

When XYer Thomas De Boucherville landed at Grand Portage in 1803 and walked up to the new XYC fort, he thought the fort was "over a mile from the landing" (Thompson 1969:118). The estimate of a mile between the landing and the hilltop fort seems a gross exaggeration, and for present purposes will be treated as such. A one-mile walk from the shore, for example, would bring one to the second posé on the Grand Portage. Such a claim would likely not be made if De Boucherville had simply walked from the original XYC canoe landing directly upslope to a fort on the brow of the log-school ridge.

Although uncertain, after the NWC left Grand Portage the XYC may have shifted its canoe landing to the one in the coveted clearing by Grand Portage Creek. From there, XYers bound for the interior could have gone directly up the main portage on the west side of the church hill to the first posé and beyond. From there, too, another trail might have diverged from the main portage at the foot of the church hill and run up the east side of that hill to the XYC Phase II fort. That trail to the hilltop fort could be twice as long as a direct course from the bay but it might have the advantage of ascending a gentler slope and, at least in its lower reaches, would follow an old, established road. If fully exposed to view from the portage landing, as it might have been, that trail could give the impression of being "over a mile" in length.

Once the XYers gained the elevation of their hilltop fort it seems unlikely that they would backtrack or descend again to the foot of the church hill before traveling up portage to the Pigeon River. It would be easier and more logical to just cut across country north of the church hill to intersect the portage. The rather gentle terrain lying between the 680 and 720-feet contours in that vicinity provides a fitting surface for such a cutoff. Following heavy use by the XYC this imagined "Bypass Trail" (Figure 17) could have remained a notable route between the lake and the first posé for some years after the XYers left Grand Portage. Indeed, the lingering presence of such a trail on the east side of the church hill could have been an added incentive for building the Catholic Church on the hill in 1865 (Woolworth 1965:310). As already noted, the envisioned Bypass Trail could have connected with an earlier trail leading inland from the original XYC canoe landing.

Probably all major fur trade era trails at Grand Portage are the children of earlier Indian paths. It is possible that the original portage or an alternate trail went up the east side of the church hill or that the Public Road blazed commercial use of that same route. Remember Sutherland's statement that the Public Road passed "to the North side of the Portage" (Nute 1940:139)? Well, if the Public Road led from the lake to the foot of the hill and then continued on, hooking northeastward around the hill to merge with the main portage farther inland that could be considered its "north side." Theoretically then, an ancient Indian trail, the Public Road, and the XYC's hilltop fort trail could be forerunners of the present Upper Road.

Unfortunately, there is little in the way of documentary evidence to support speculations about an early trail on the east side of the church hill. An exception might be a map of

Grand Portage drawn by United States Army Lieutenant George Washington Whistler in the 1820s.

Whistler, who was destined to become one of the most celebrated civil engineers of his time, began life as an army brat. He was born at Fort Wayne Indiana on 19 May 1800, spent much of his childhood at Fort Dearborn, and entered military service as a cadet at age 14. Whistler graduated from the United States Military Academy at West Point in July 1819 a trained engineer and a Second Lieutenant in the Corps of Artillery. He was noted for his skills in projective geometry, and got the nickname, "Pipes," from his mastery of the flute. Whistler worked as a topographer in 1819-21, and the following year was Assistant Professor of Drawing at West Point. In 1822 he was recruited to serve on a United States Commission to trace the international boundary between Lake Superior and Lake of the Woods, a position he held through 1828. In 1829 Whistler was promoted to First Lieutenant. He later got involved in railroad design and construction and resigned his commission in 1833. From 1842 to 1849 Whistler designed and built the first Russian railway, a line connecting Moscow with St Petersburg. He died in Russia in 1849 while supervising the construction of that railway.

Whistler's "Grand Portage Map" is less celebrated than his son, the noted artist James Abbott McNeill Whistler who painted the iconic image of the "Artist's Mother" (better known today as "Whistler's Mother"). At this writing it is unclear to the author if James Whistler also made the oil portrait of his dad—what might be called "Whistler's Father"—now held by the Freer Gallery of the Smithsonian Institution (Figure 24).

George Whistler, too, had a "remarkable artistic talent." In 1818, while still a cadet, he drew a strikingly handsome topographical map of the academy at West Point, using pen and ink with watercolor (Schwartz and Ehrenburg 2001:242-243, 252-253).

George Whistler's "Grand Portage Map" (Figure 25) is a fine example of the hachure method of cartographic representation in which elevations are inferred but not quantified. Hachures are series of short, parallel lines drawn to show rising or sloping surfaces. The hachures are laid down in the direction of maximum slope. In the hands of an expert, the thickness and spacing of hachures further defines the coarseness of the terrain. In contrast, contours are imaginary lines that connect all points of the same elevation (Thrower 1972:169-170). Some examples of modern contour maps appear in this report as Figures 1, 15, 16, and 17. In 1822, before contouring was adopted as the standard for topographic mapping, Whistler collaborated in drawing a defensive plan for Salem Massachusetts. The plan shows side-by-side comparative renderings of the same landscape; one map with contours and the other with hachures (Thrower 1972:90-92).

There is no doubt that George Washington Whistler was an accomplished observer and surveyor when he passed over the Grand Portage in 1822. Though only 22 years of age at the time, he was assigned to prepare maps for the U.S. Boundary Commission under the leadership of the 24-year old, chief surveyor, James Ferguson. According to historian William Lass, Whistler and Ferguson set out from Fort William in the summer of 1822 and headed down the North Shore of Lake Superior to the mouth of the Pigeon River.

After completing some explorations there, they went on to Grand Portage. On August 7 the two men fixed the latitude and longitude of the portage landing at the bay. On August 12 they did the same at the west end of the portage. The time in between was apparently given over to mapping the portage and the ambient terrain. They later continued surveying up the Pigeon River and along other waterways farther to the northwest (Lass 1980:38, 40). A regional map (one of a series) produced from this fieldwork includes the Grand Portage or what is referred to here as the "Grand Portage Map." Whistler signed the map as "Draftsman & Asst. Surveyor."

Many scholars have admired Whistler's "Grand Portage Map," but apparently none have analyzed its content. Versions of the map in NPS cultural resource studies are redrawn or xerographic copies ill-suited for this purpose. In any case, Whistler's map is commonly seen as further evidence that the Grand Portage, from the eighteenth century on, ran up the west side of the church hill. That judgment might now be in need of revision.

During his 1824 survey Thompson recorded a traverse of 63 courses when crossing the portage, along with notes on terrain features, like rills, ascents, and descents. Despite problems usually associated with open traverses, time-based coursing, changes in magnetic declination, possible recording errors, etc., his 1824 survey provides a "reasonably accurate" overall representation of the historic trail (Cooper 2004:179, 181). Another appraisal states that the 1820s Thompson and Whistler/Ferguson surveys bear a close resemblance, particularly with regard to the course of the portage (Woolworth 1993:35). While these surveys are sufficiently accurate for their initial, intended, purpose and do provide exacting descriptions of selected portage segments (e.g., Cooper 2004:183), the comparative resemblance is only generally true when the results are viewed at a large scale. Close examination of the eastern trailhead areas of the surveys shows what appear to be major discrepancies between the surveys of 1822 (Figure 25) and 1824 (Figure 19). For example, Thompson has the portage closing on Grand Portage Creek about 450 yards (a quarter mile) inland from the lake, while at that same distance Whistler shows the trail and the creek widely separated.

Whistler illustrates continuous topographic features on his map with hachures. The printed version of Whistler's map available to the author has the scale of one-inch to a mile. Even at that scale there is plenty to see. Indeed, keeping in mind that Whistler and Ferguson had just a few days to explore and map the vast, rugged, and forested, portage-area landscape in late summer, in the thick of mosquito season, the level of detail on Whistler's map, particularly near the lake, is quite remarkable. The map gives no indication of XYC sites near the lakefront, but it does include a credible rendering of the creek and the old NWC Depot site at the foot of Mount Rose (Figure 25). It also shows the XYC and NWC fort sites at the west end of the portage.

Comparing the eastern trailhead area of Whistler's map with a modern USGS quadrangle map reveals many points of correspondence. The details of this inquiry are too extensive to cover here and will be the subject of another paper. Suffice it to say that Whistler's map strongly suggests he surveyed a trail that passed up the east side of the church hill. From there the trail apparently crossed less sloping terrain to link up with the main

portage again farther inland, possibly at about what is now the center of Section 4, below the 720-foot contour and the first posé. Whatever the case, there is little doubt that a principal segment of the Grand Portage—whether described as the main portage, the portage landing road, the Public Road, or any other name—ran very close to the 2005 Survey Area during the fur trade era.

THE 2005 SURVEY

The 2005 survey sought physical evidence of historic fur trade activities in an area of a reported section of the main portage (north of the maintenance shop) and a possible associated ford across Grand Portage Creek (south of the shop). The field investigations included remote sensing, targeted ground truthing, and shovel testing. A pedestrian survey was used to locate surface features, explore the setting of the project area, and establish mapping points. All map work was done using a tape and compass.

A map of the *northern part* of the survey area is anchored by a one-inch, GRPO Boundary Marker pipe set at the S-1/16 Corner of Section 4, Township 63 North-Range 6 East. The pipe is on the floodplain west of Grand Portage Creek, 9.9m south of a NPS footbridge (Figure 4; Appendix A). Metal spikes were driven at points A, B, C, D, and E on the high ground east of the creek. Pins B and E delimit the ends of the baseline used for remote sensing and shovel testing. The baseline has two sectors. The north sector, between Pins B and D, is on a magnetic bearing of N185. The bearing of the south sector, between Pins D and E, is N200.

A map of the *southern part* of the survey area is anchored by the northeast end of the Stone Bridge, a hydrant near the maintenance shop, Pin F (a spike set on the south edge of Old Ford Road 3.4m from the east edge of the creek), and other pins set in relation to these points (Figure 2, Appendix A).

Parts of the survey area were scanned using a White DFX (E-Series)™ metal detector equipped with an 8.5-inch DFX coil. The detector was operated in a non-discriminating mode to detect ferrous and non-ferrous metal objects with an estimated detection depth of 20cm (about eight inches). The many trees and dense brush in the survey area also reduced the horizontal coverage of the scan. All detected, metal targets were exposed through careful hand excavation guided by White Bullseye Pinpointer™ detectors (Figure 26). Some non-metallic artifacts of glass, ceramic, and plastic were also encountered during this process. All artifacts observed on the ground surface or detected through remote sensing are recorded in Appendices B and C.

The survey involved the excavation of eight shovel tests (STs). Five of the tests (ST1 through ST5) were placed in the *northern part* of the survey area (e.g., Figure 10). ST1 contained modern, beer bottle fragments, but the remaining *northern* tests were negative. Three tests (ST6 through ST8) were opened in the *southern part* (e.g., Figure 3), and all produced late nineteenth or early twentieth century cultural materials. None of the eight tests yielded fur trade era artifacts, and no cultural materials were found below a depth of 30cm. Soil profiles were recorded for each test (Appendix D).

THE ARTIFACTS

A total of 496 artifacts was recorded during the 2005 survey. Only eight of these items (less than two percent) were exposed in shovel tests (Appendix D). Of the 488 artifacts revealed through remote sensing and surface observation, 163 artifacts (33-percent) were found in the *northern part* of the survey area (Appendix B) and 325 (66-percent) were found in the *southern part* (Appendix C). Only 17 of the 496 artifacts were collected; four from the *northern part* and 13 from the *southern part*. Thus, only three percent of the total recorded artifacts were actually recovered.

The *northern part* of the survey area produced very few artifacts that might be related to the fur trade. Indeed, all four of the collected items are incomplete and could be late nineteenth century materials or heirlooms still in use during the twentieth century. Notable in this regard are part of a thimble (Figure 27A), part of a pair of "blacksmith" tongs, a knife blade fragment, and a wrought-iron chisel. Most prevalent in the *northern* area was modern litter apparently discarded piecemeal by travelers on the adjacent Upper Road. Nearby banks of the creek floodplain obviously strewn with dumped trash were not examined.

The *southern part* of the survey area yielded a somewhat broader, yet modest sample of possible fur trade era materials, including two buttons (one flat with a soldered eye, the other spunback), part of a serpent side plate (Figure 27C), a two-tined dining fork (Figure 27D), eight wrought nails, one wrought spike (Figure 27E), four scraps of cupreous kettle metal, a grater fashioned from kettle metal (Figure 28), a possible kettle bail fragment, and a lock for a cassette or small chest (Figure 29).

Most of these suspected fur trade artifacts were found east of the creek, within 15m of Pin F on the north and south sides of Old Ford Road (Figure 13). Within that radius, the artifacts were thinly scattered with a density averaging about one fur trade era artifact per 28 square meters. The artifact distribution does not appear to result from trailside littering along the margins of Old Ford Road, and some of the distribution extends into areas of irregular ground surface south of the road that are ill suited for camping. Nonetheless, the artifact profile and distribution are not inconsistent with materials found in posé loci farther inland along the main portage and could conceivably result from seasonal camping activities such as a summer rendezvous camp. Erwin Thompson's 1969 Historic Base Map shows the conjectured location of fur trade era cultural resources in the lake unit of the GRPO and suggests the NWC's Northmen's campsite might fall partly within the 2005 Survey Area (Figure 15). Unfortunately, no period features or distinct artifact concentrations were revealed during the survey that might bolster the argument for episodic, fur trade era camping in this locale. That is not to say such evidence doesn't exist. The 2005 remote-sensing scan was designed to detect the presence, nature, and distribution of metal artifacts, rather than subsurface features like fire pits. The exposed distribution of possible fur trade artifacts may also reflect a sampling bias, since the locus of these finds was more heavily examined than adjacent areas during the survey. In any case, the fieldwork and attendant documentary research suggest the entire *southern part* of the survey area was considerably disturbed and contaminated by later events.

More commonly found in the southern parcel is nineteenth and early twentieth century structural debris like machine-cut and wire nails, spikes, bolts, screws, and window glass, and assorted household materials like woodstove and frying pan fragments, bottle glass and ceramic fragments, and part of a kerosene lantern. Objects of personal adornment included a cheap, cigar-band style, finger ring, a hairpin, and a brooch (Figure 30). Other observed items include fence staples, a horseshoe and ox shoe (both machine-made), animal shoe nails, a three-tined pitchfork, and lead, fish net sinkers. Much of this debris results from historic Ojibwe habitations and outbuildings pictured in early twentieth century photographs (e.g., Figures 8 and 11).

The survey also uncovered two boot calks or spikes (such as used on loggers' boots), one near Old Ford Road and the other north of the maintenance shop (Figure 27B).

THE FEATURES

As already noted, parts of two abandoned roadways lie within the 2005 Survey Area. One is a segment of Old Ford Road east of the ford. The other is a part of Old Upper Road (or an extension of Speedy's Road) now largely overlain by the present Upper Road.

Old Ford Road cuts into the ground surface and is ramped from the creek to a point on that road 15.4m (or about 50-feet) N50 from the creek, or about 12m N50 of the aforementioned Pin F (Figures 2 and 26). The bed of Old Ford Road is actually visible from the creek to beyond Pin G, a point 35m N50 from Pin F. The visible roadbed thus extends for at least 130 feet N50 from the creek to where it is obscured by dense vegetation very close to the west ditch of the present Upper Road. The visible segment of roadbed is arrow straight.

In 1975 Alan Woolworth determined that the remains of Old Ford Road extended just 50 feet east of the creek. Based on that observation he assumed that the NWC's old depot trail intersected the main portage precisely there (Figure 6), at a location well within the 2005 Survey Area. The present research reveals that Woolworth recognized only the ramped part of the road and did not see the visible continuation of that corridor farther to the northeast. The 2005 discovery undermines the basis for his premise that the main portage passed more or less directly through the maintenance shop area.

The 2005 field survey identified a segment of the "original" or Old Upper Road (or an extension of Speedy's Road) in the west ditch of the present Upper Road, east and northeast of the maintenance shop (Figures 4 and 9). No artifacts found within that old road corridor date to the fur trade era. Unlike a modern road (such as the present Upper Road), the old roadbed cuts into the ground surface. The depth and breadth of the incised road suggest considerable cash and energy expenditures in road construction and hint of enduring problems with rutting, drainage, and snow removal. The combined footprints of the old and present Upper Roads now heavily impact the most probable route of the main portage and Public Road south of the church hill. If any evidence of those trails or fur trade era use of those trails survives it is likely buried or disturbed by the robust, paved, corridor of the present Upper Road.

CONCLUSIONS AND RECOMMENDATIONS

In June 2005 archeologists conducted field investigations in selected parts of the maintenance shop survey area to search for evidence of historic fur trade trails and activities. The fieldwork involved surface reconnaissance, remote sensing, and the excavation of eight shovel tests. None of the tests produced fur trade era artifacts or evidence of cultural features. Remote sensing scans and ground-truthing exposed 496 artifacts, the vast majority of which are modern. Only 17 possible fur trade items were collected. No prehistoric materials were found.

The *northern part* of the survey area, a heavily wooded tract north of the maintenance shop, was found to be basically devoid of metallic fur trade materials. The only surface feature noted there is a remnant of what might be called Old Upper Road, an incised roadbed partly within the ditch of, and partly underlying, the present Upper Road. Other than modern debris, no dateable materials were found in association with this old roadbed. Speculatively, it could be part of an early trail that followed the route of the main portage or the Public Road.

The *central part* of the survey area is widely disturbed by various historic developments and uses. This parcel incorporates the maintenance shop and the former locations of seasonal housing trailers, along with driveways, parking areas, septic and water main systems, and other modern features. Parts of the creek bank in this area have been leveled and extended westward onto the creek floodplain. No large, fur trade era deposits are likely to survive in this area, though it is possible that displaced fur trade materials might be present, as well as some scattered pockets of *in situ* artifact-bearing soils.

The *southern part* of the survey area holds the greatest number of artifacts and has the greatest potential for conducting further fur trade investigations. A thin and rather diverse scatter of fur trade materials found in proximity to the ford may be vestigial to British era camping activities. Prior archeological investigations and early photographs reveal the presence of numerous historic structures on this parcel. Some of the structures and deposits might date to the fur trade era, but most are associated with later Ojibwe houses and outbuildings. The most visible surface features in this area are the ford and a 130-foot segment of Old Ford Road. A section of the creek bank south of the ford, being undercut by the stream, is in need of additional stabilization.

The 2005 Survey demonstrates the desirability for further research and discussions focusing on landforms and early cultural resources and events within the lakeshore unit of the GRPO. In some cases, the areas of interest for this work extend beyond the limits of the park and will require continued cooperation and interchange between the GRPO and the Grand Portage Ojibwe community. Other researchers have also proposed many of the same recommendations given here:

1. There is obvious need for more detailed mapping and analysis of relic beach ridges and erosional bluffs on the terrain above Grand Portage Bay (Phillips 2003:31). More precise definition and dating of these natural features can explain local, Holocene, water level

fluctuations and help to unravel the long and complex history of human experiences and interactions at Grand Portage. It might also facilitate the development of predictive models regarding site and resource locations on local landscapes.

2. There is further need to identify, trace, and date various fur trade era trails and roads within the deltaic trailhead area at Grand Portage (Figure 17). This work is a logical extension of ongoing investigations elsewhere on the main portage. One logical goal is to determine the course and period of use or abandonment of early trails on the east, west, and north sides of the church hill. This could also involve an expanded or intensified search for the Phase I and II XYC fort sites. Some principal areas of interest for this research lie outside the boundaries of the park. Conducting meaningful surveys along certain trail corridors will also be challenged by the impacts of modern land use. The bed of Upper Road, for example, is built up and paved. That part of the main portage now known as Speedy's Road is also disfigured by modern road construction.

As part of this exercise, new signage or markers should be installed to indicate the route of the historic main portage trail, at least in the area between the lakeshore and the foot of the church hill. This work might require additional testing for ground disturbance, particularly if the reconstructed portage trail is laid out parallel to the extant Upper Road.

3. Another trail initiative should be to locate any extant field records, notebooks, or correspondence left from the surveys of James Ferguson and George Washington Whistler at Grand Portage in August 1822. While the level of detail on Whistler's published "Grand Portage Map" is quite remarkable, the accuracy of certain representations on the map, including the course of the portage trail, is still open to question.

4. Plans are underway to remove the NPS maintenance shop from its present high visibility and intrusive setting to a new location. When such is done, any efforts to restore landscapes at the shop and parking area should include further archeological testing and monitoring.

5. The ford and the segment of Old Ford Road lying east of the creek should be brushed out and interpreted. On a more ambitious scale, much of the forest and brush vegetation within the 2005 Survey Area could be thinned or removed to recreate the open space of the former historic clearing near the mouth of Grand Portage Creek.

6. There is ongoing need to stabilize the east bank of Grand Portage Creek between the ford and the stone bridge. Some of the eroding landscape has archeological potentials.

7. Archeological features located during the 2005 survey on the southern margins of the church hill should be further examined and evaluated. These include possible ancient Pukaskwa Pits on the ancient terrace by the cemetery, and historic building sites within "Area A" (Figure 22).

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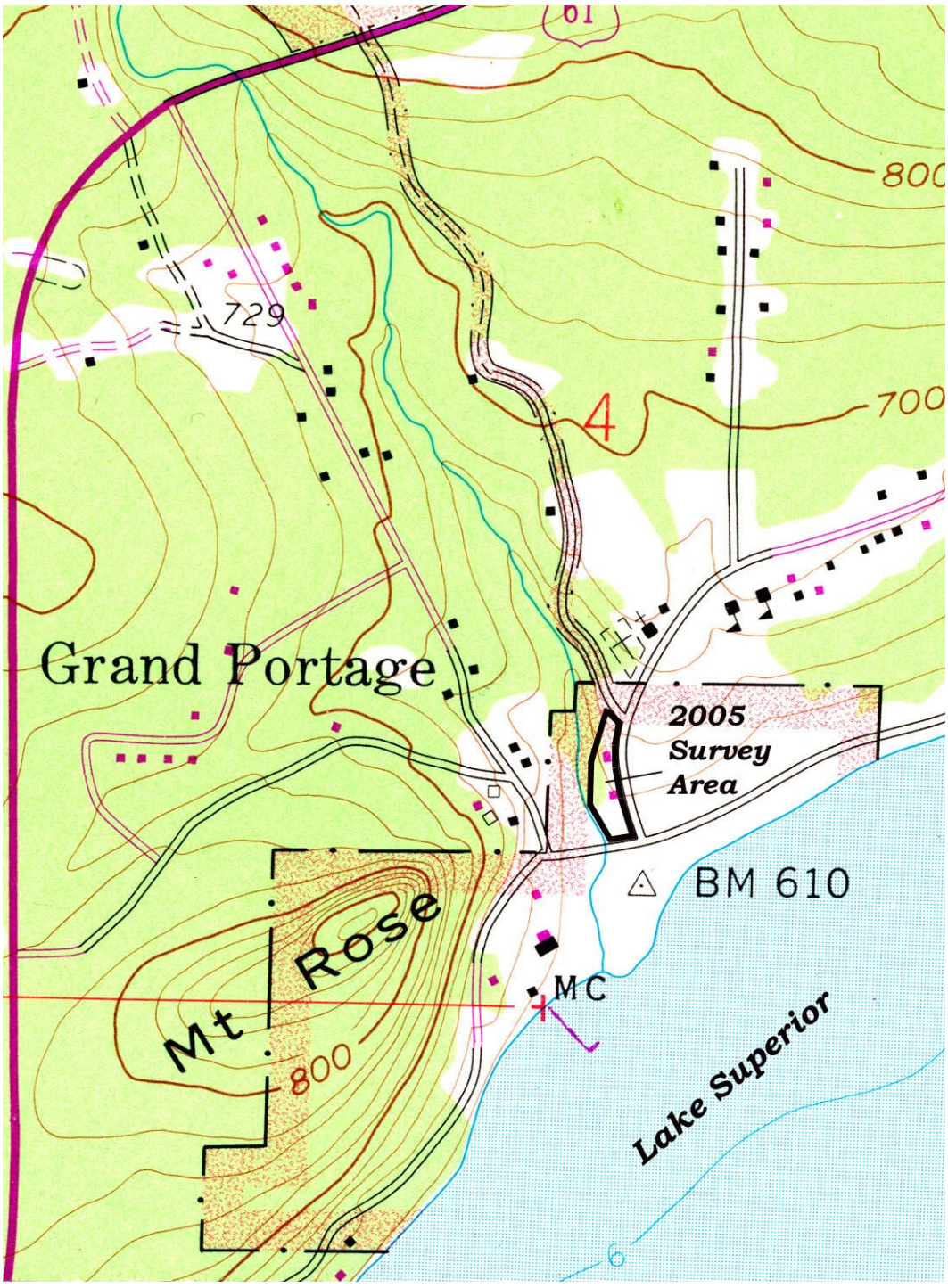

Figure 1. Map showing the 2005 Survey Area within the lakefront unit of the Grand Portage National Monument. The survey area lies between the floodplain of Grand Portage Creek and a segment of Upper Road. Approximate scale: One inch = 250 yards. (Adapted from: Grand Portage, Minn. 1959, Photo-revised 1976, USGS Quadrangle, 7.5 min.).

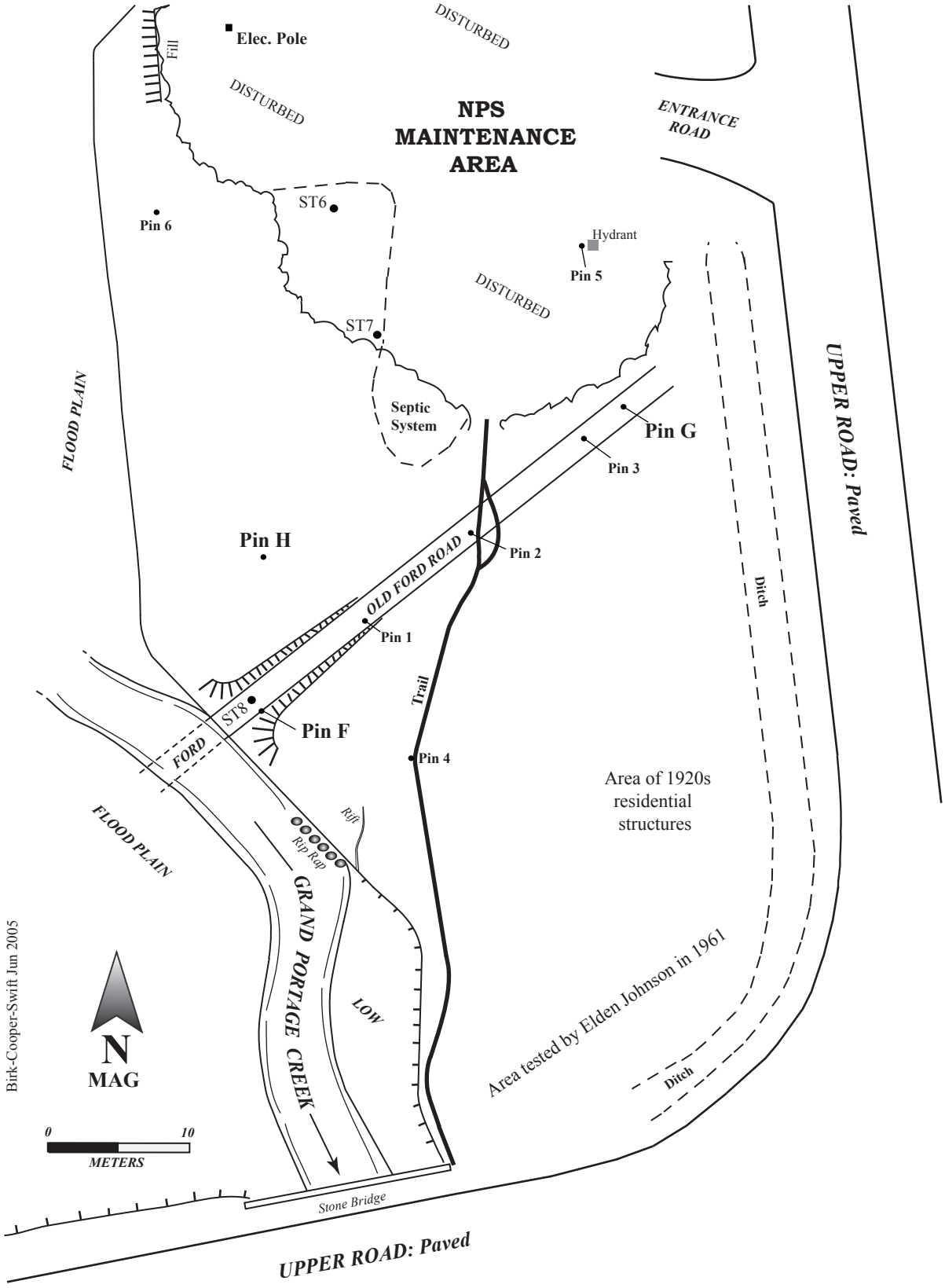

Figure 2. Map showing the central and southern parts of the 2005 Survey Area. The 2005 survey here focused on examining archeological potentials on the south and west margins of the Maintenance Shop clearing in upland areas around the old ford and Old Ford Road. The areas of the 1920s residential structures and the 1961 tests were avoided.

Figure 3. This north view shows the old ford crossing on Grand Portage Creek about 120-feet upstream from the Stone Bridge. The ford intersects the creek at a right angle. NPS volunteers, Carolyn Howard and Collin Swift are excavating Shovel Test 8 (ST8) in the bed of the Old Ford Road on the creek's east bank. (Digital photo by the author, 6 June 2005).

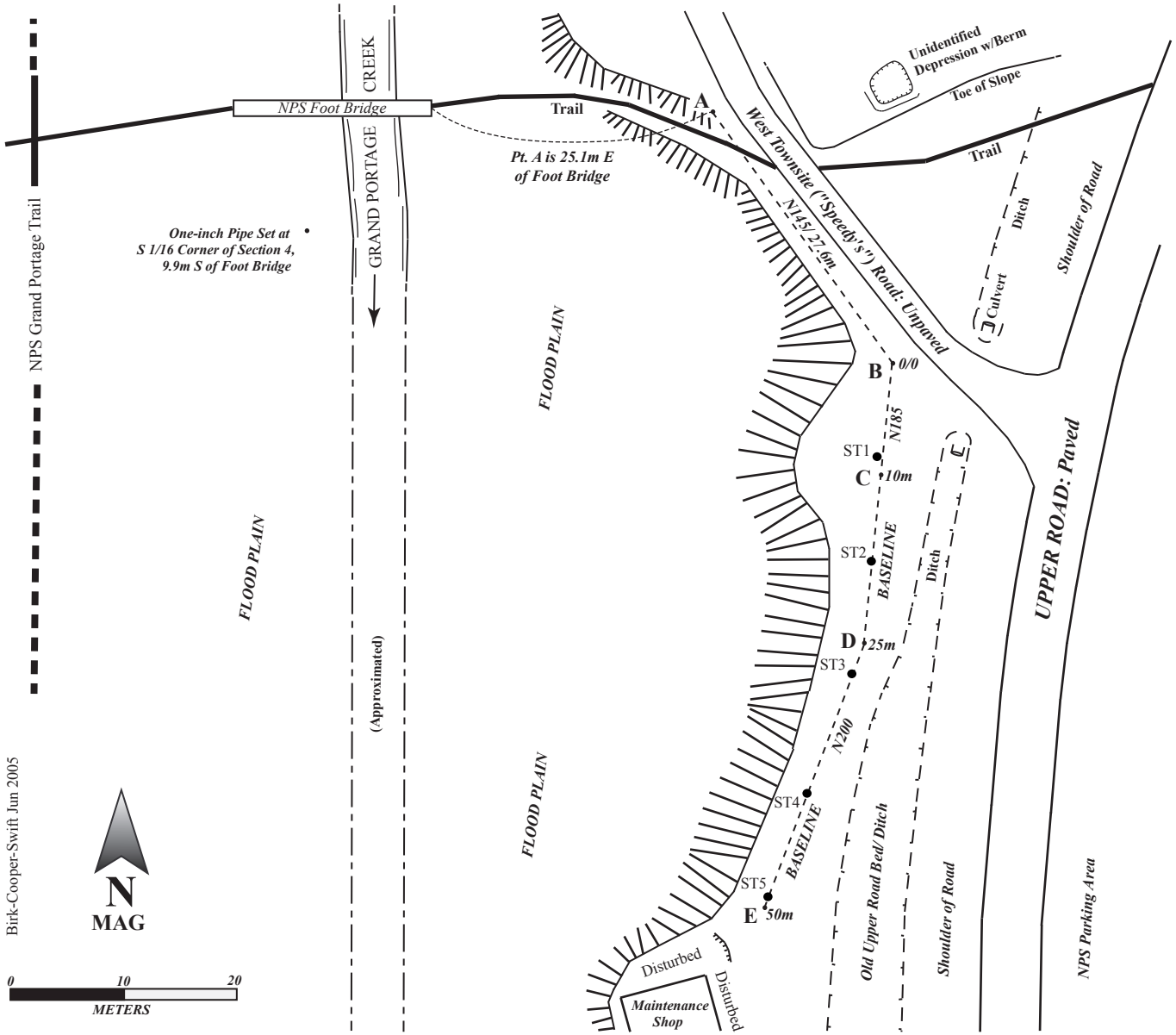

Figure 4. Map showing the northern part of the 2005 Survey Area. The 2005 remote sensing and shovel test survey on this parcel was conducted on the upper terrace along and on either side of the baseline extending from Pin B southward to Pin E.

Figure 5. This north view shows the parking lot and buildings at the NPS Maintenance Shop complex. The densely wooded area to the left (west) of the buildings is the floodplain of Grand Portage Creek. Visible through the trees to the right (east) of the buildings is the raised and paved surface of Upper Road. Modern earthmoving and land-use activities have considerably disturbed the areas of the road, the buildings, and the parking lot. (Digital photo by the author, 29 October 2005).

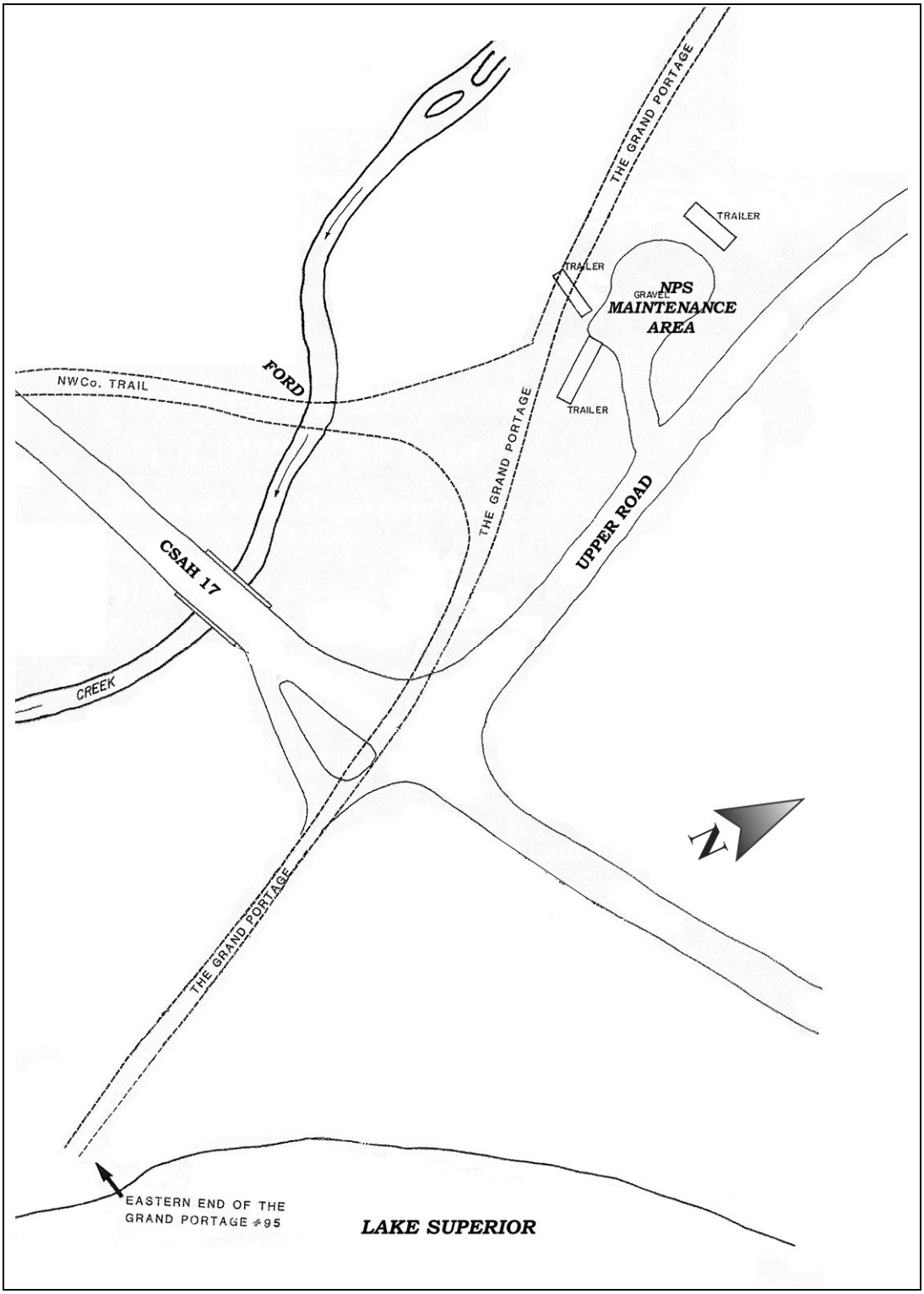

Figure 6. This portion of a 1979 Cultural Resource Management Base Map of the GRPO shows a possible route of the Grand Portage through the NPS Maintenance Area. At the time this map was made that area was occupied by mobile homes used for NPS seasonal housing (Adapted from: Hamilton, Graham, and Norris 2005: Figure 12).

Figure 7. This northwest view shows hydrant replacement work in the parking lot clearing south of the Maintenance Shop in October 2004. The backhoe excavations, monitored by NPS management staff, uncovered a mix of apparent late-nineteenth century household debris in previously disturbed soil contexts. Among the observed materials were pieces of spiral-fractured, mammalian bone, machine-cut and wire nails, stoneware crockery (including some RED WING), transfer-print ceramics, brown bottle glass, and other materials. (Digital photo by the author, 20 October 2004).

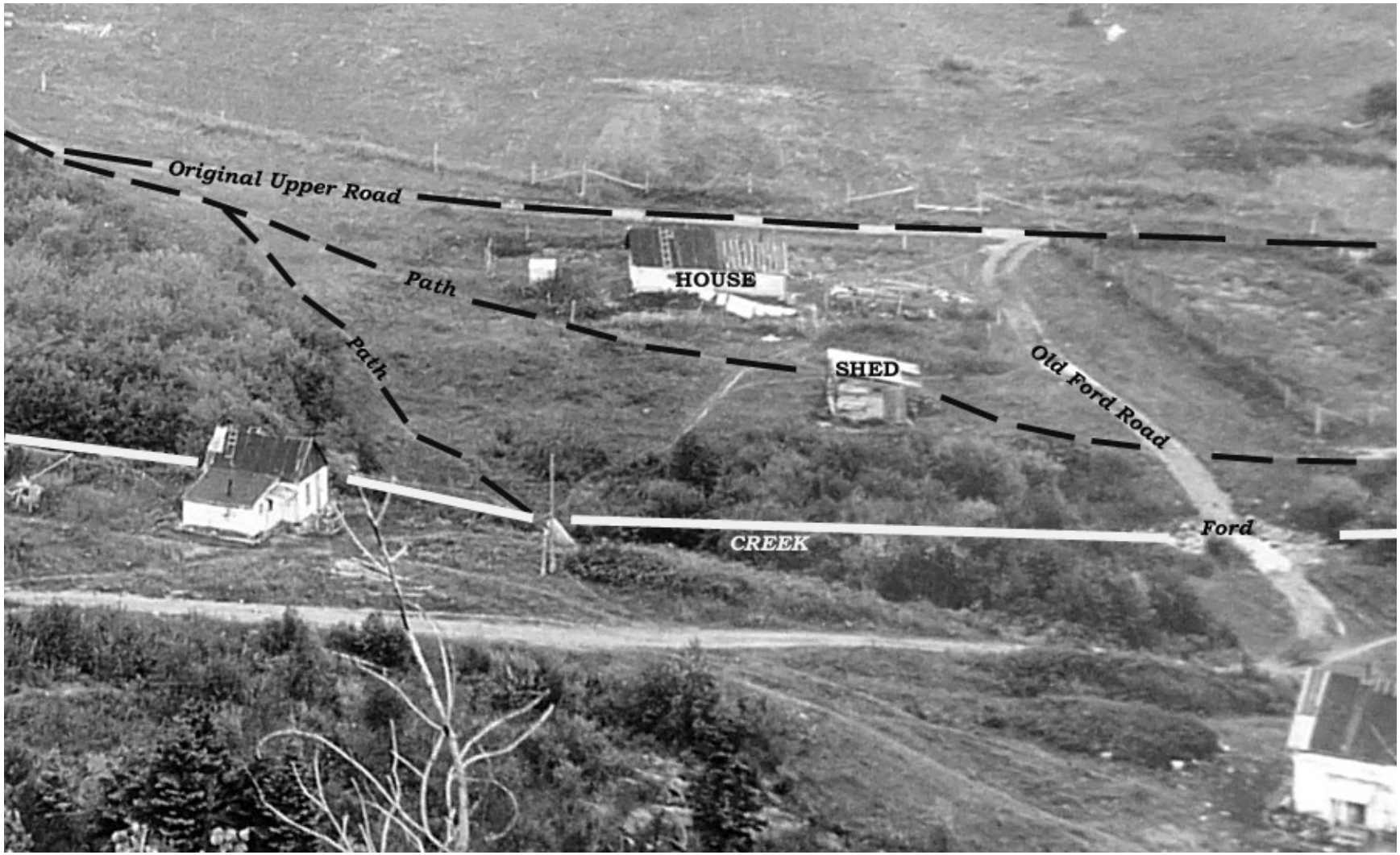

Figure 8. This early 1920s view looking eastwards from Mount Rose shows roads, pathways, and structures in the central part of the 2005 Survey Area. The “Original Upper Road” could overlie the historic Grand Portage/Public Road, just as Old Ford Road or any of the other paths might be part of the historic depot trail (Photo courtesy: Minnesota Historical Society).

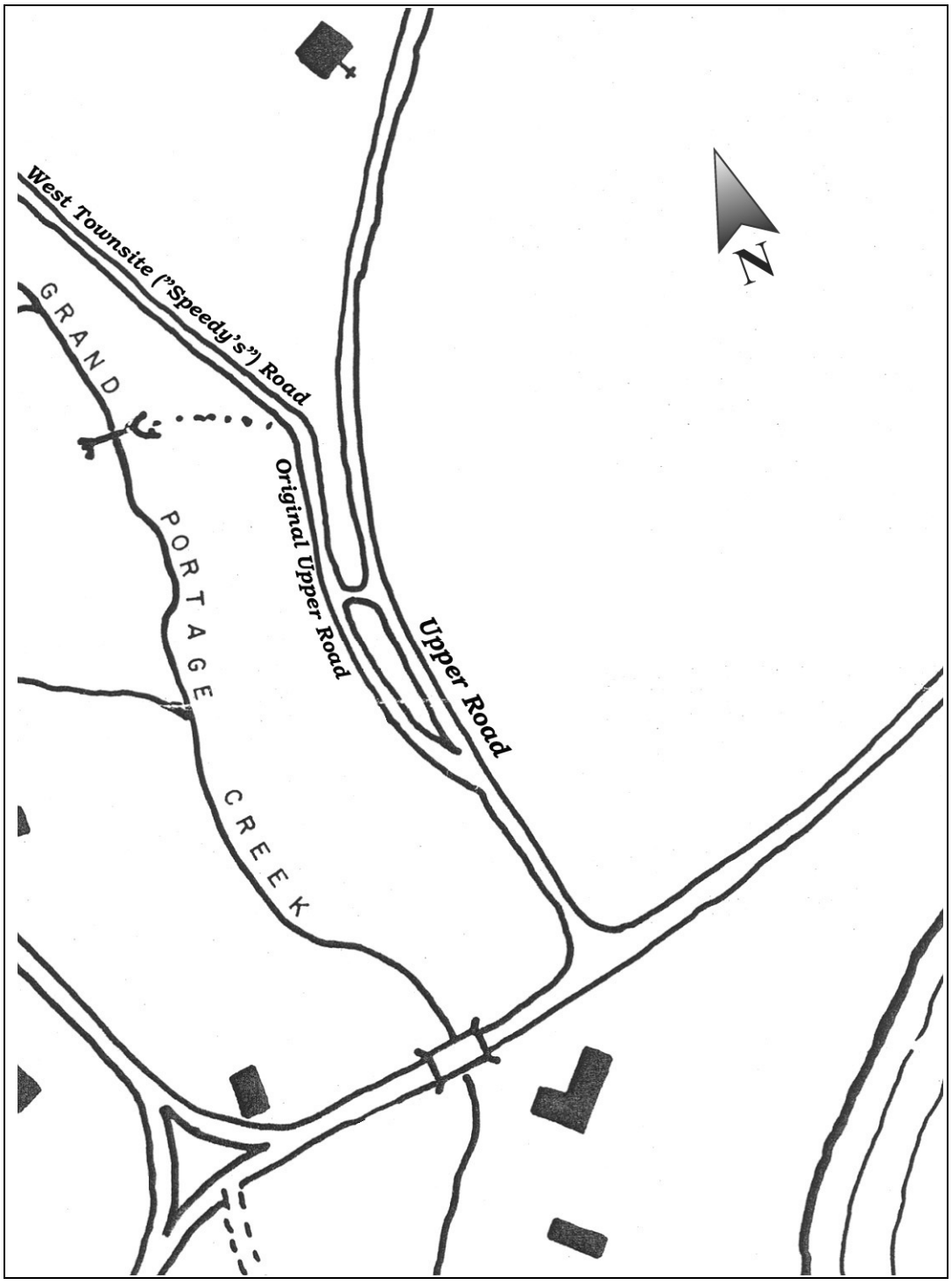

Figure 9. This portion of a 1940 U. S. Army Corps of Engineers map of Grand Portage focuses on the area between the creek and the present Upper Road. A segment of the "original" or Old Upper Road is visible today in the west ditch of Upper Road south of Speedy's Road. (Adapted from: Woolworth and Woolworth 1982, II: Map 8).

Figure 10. The northern part of the 2005 Survey Area is a narrow tract covered by a dense stand of conifer trees. This south view shows NPS volunteer Collin Swift excavating Shovel Test 2 on the N185 sector of the north baseline (Digital photo by the author, 3 June 2005).

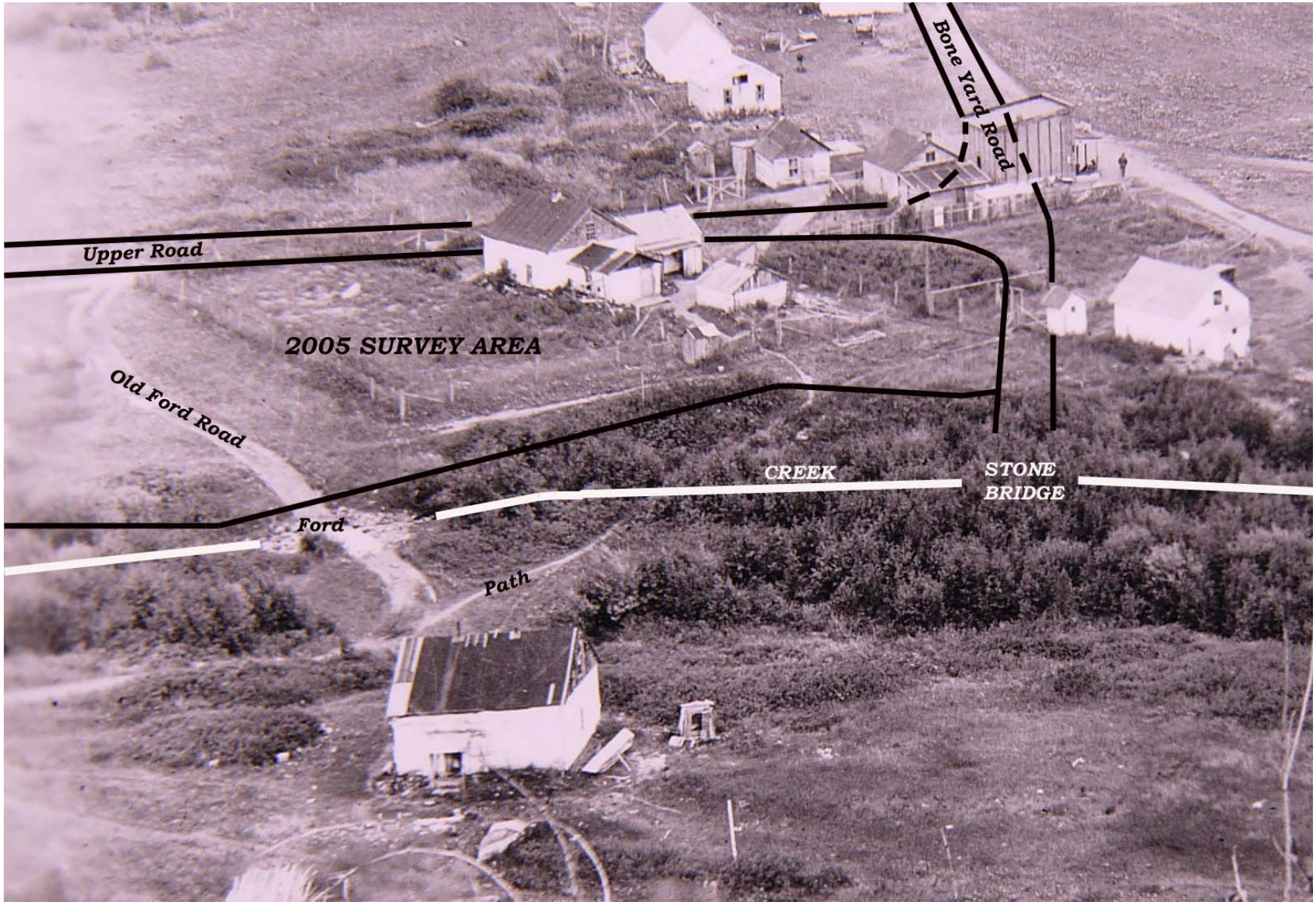

Figure 11. This early 1920s view looking east from Mount Rose shows some former and extant roadways and contemporary structures in relation to terrain features in the southern part of the 2005 Survey Area. (Photo courtesy: Minnesota Historical Society).

Figure 12. This east view shows a collapsing section of stream bank, recently riprapped, just below the old ford on the east side of Grand Portage Creek (Digital photo by the author, 6 June 2005).

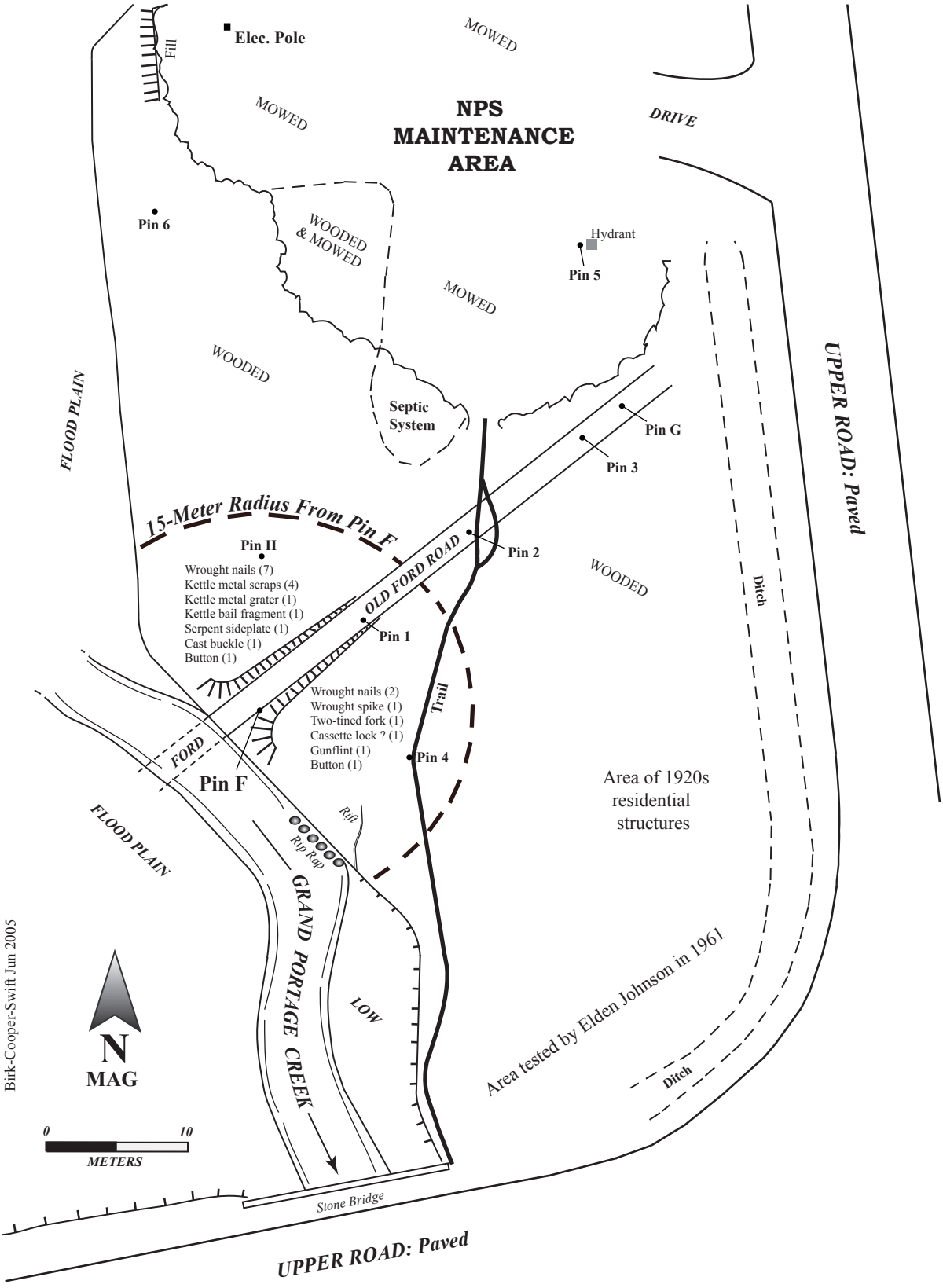

Figure 13. Map showing the area tested in 1961, the area of some 1920 residential structures, and the general distribution of possible fur trade era artifacts found in 2005 within 15-meters of Pin F on the upland terrain north and south of Old Ford Road.

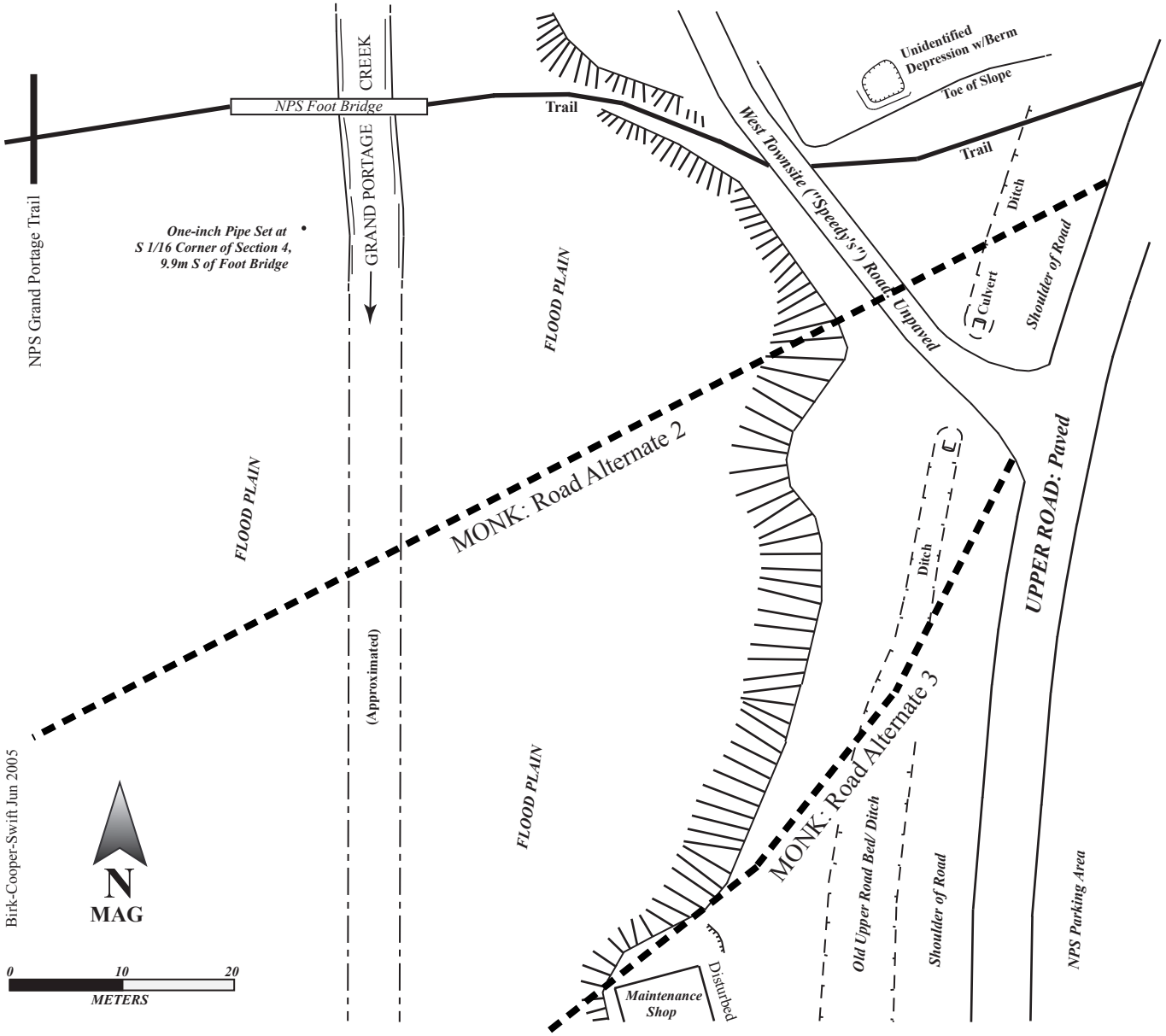

Figure 14. Map showing the approximate location of the proposed alternate road corridors surveyed by NPS Archeologist Susan Monk in November 1984 (Corridor locations adapted from: Monk 1984: Appended Map).

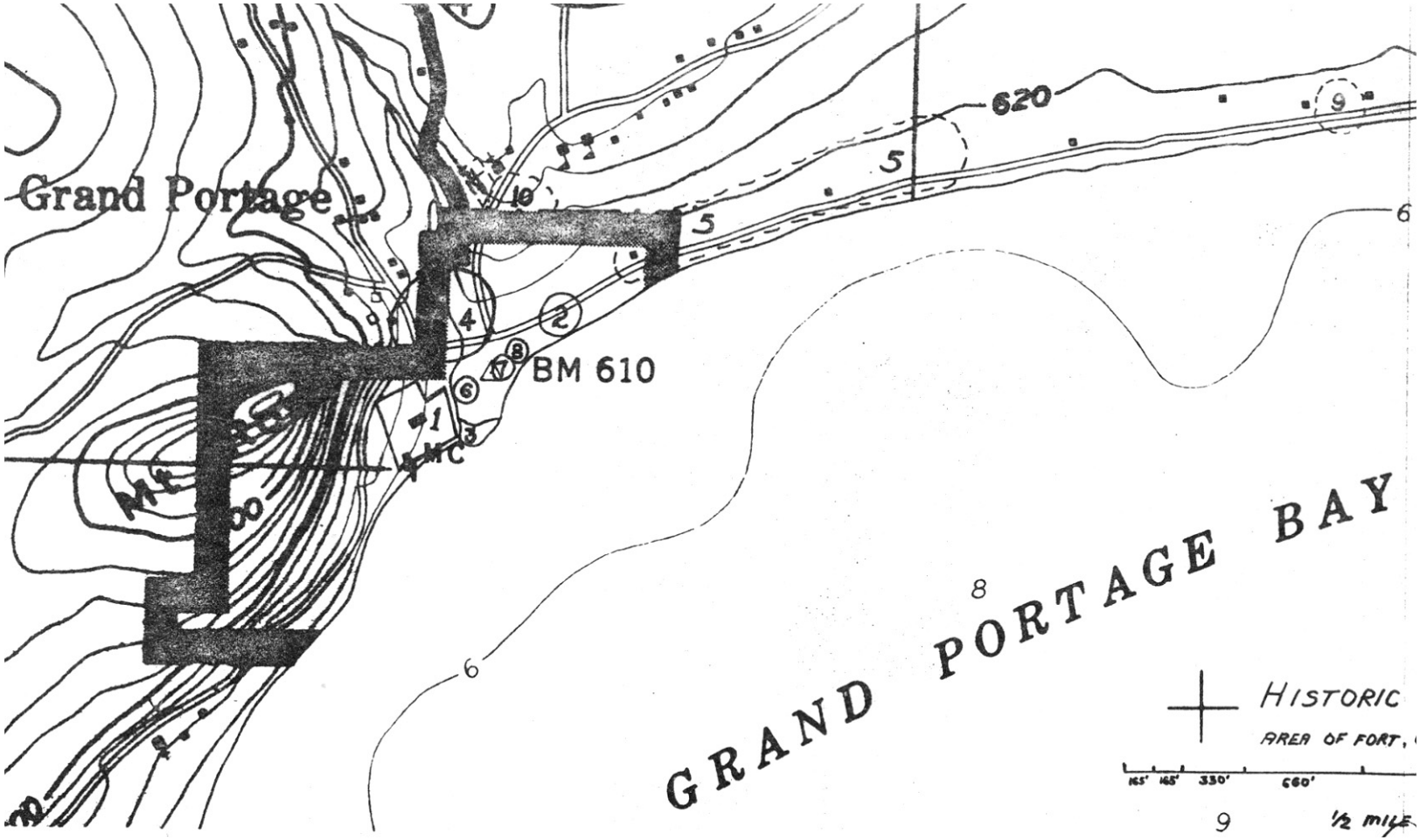

Figure 15. An enlarged portion of historian Erwin Thompson's 1969 Historic Base Map of Grand Portage shows the conjectured location of the Northmen's camp (circled area number 4), Boucher's Fort (circled area number 8), the proposed Grants' fort site (circled area number 2), and the XYC forts (circled areas 5, 9, and 10) as well as the NWC Depot (site 1) (Adapted from Thompson 1969: Map 5).

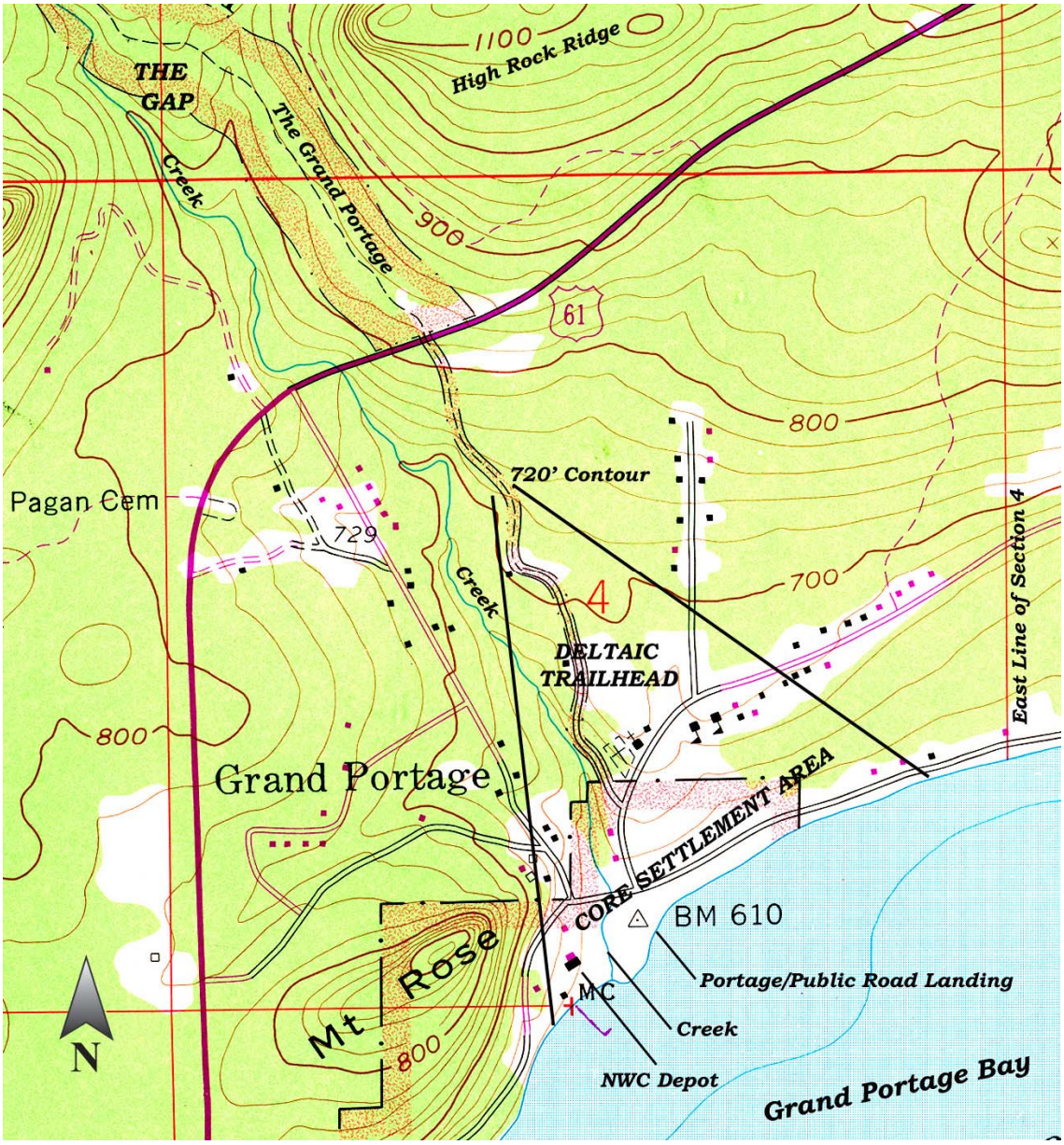

Figure 16. This map shows the area at the east trailhead of the Grand Portage. The historic trail runs southward and downhill from a gap in the high rock ridges to land on the bay just east of the creek. The deltaic trailhead contains the principal pathways that converged on the main portage during the fur trade era. The core settlement area might have spread for up to a half-mile along the lakefront. Trails originating at various competing facilities there likely intersected the main portage somewhere below the 720-foot contour, the locale of the first *posé* (resting place) on the portage, about one half-mile inland from the bay. (Adapted from: Grand Portage, Minn. 1959, Photo-revised 1976, USGS Quadrangle, 7.5 min.).

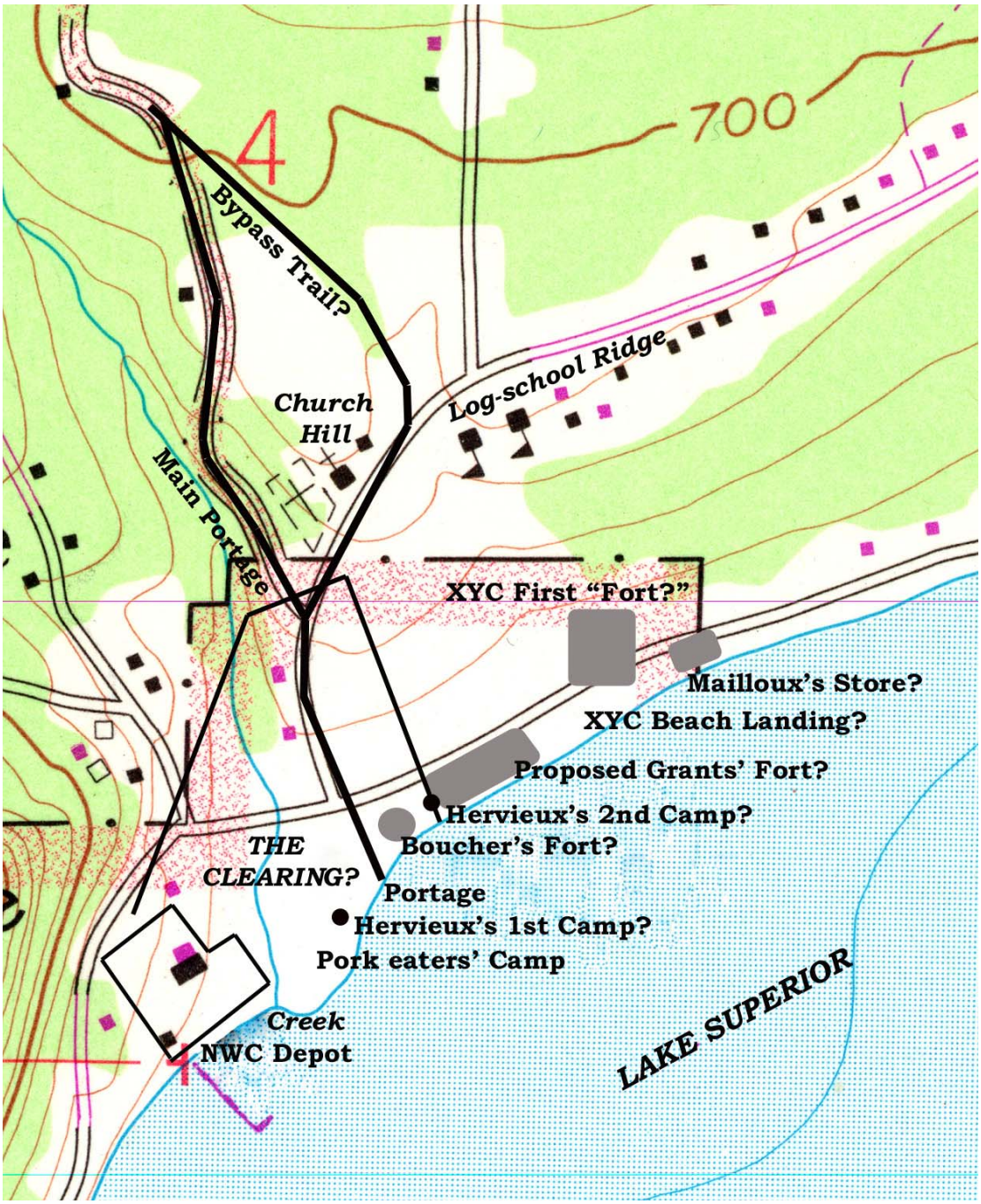

Figure 17. Map showing a hypothetical arrangement of fur trade sites and features at the east trailhead of the Grand Portage during the period of NWC-XYC competition. Some of the sites shown here have not been found, and their exact locations remain unknown. The XYC built a second fort in the area of the log-school ridge or church hill in 1803 (Adapted from: Grand Portage, Minn. 1959, Photo-revised 1976, USGS Quadrangle, 7.5 min.).

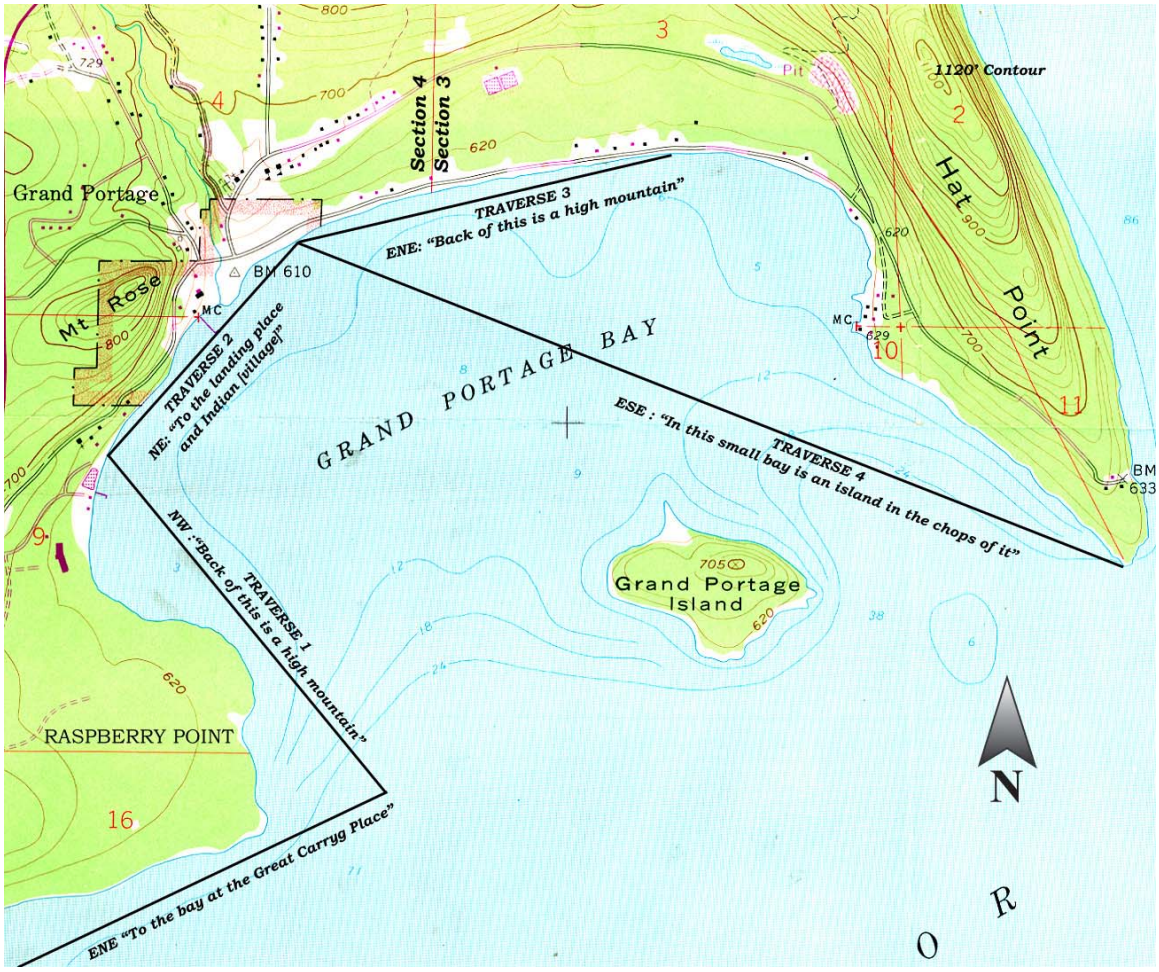

Figure 18. In 1767 the British explorer, Jonathan Carver, surveyed Grand Portage Bay and judged it to be "nearly square" in outline. This map shows a possible arrangement of the four survey traverses Carver recorded within the bay.

Carver was among the first to document the "landing" of the Grand Portage "at the bottom of the bay," somewhere near Grand Portage Creek. He and his party had just traveled by canoe up the North Shore from the west end of Lake Superior. They arrived at Raspberry Point on the southeast corner of the bay on 19 July. The party entered the bay the following day. They may have gone northwest along the shore of the bay before turning northeast to reach the portage landing (Traverses 1 and 2). At the portage they found a summer camp of Ojibwe, Cree, and Assiniboine. At the portage landing Carver presumably took his last two traverses: Traverse 3 looking east-northeastward along the shore towards either the highest (1120-foot) segment of Hat Point ridge or nearby Mount Josephine, and Traverse 4 looking east-southeast to the end of Hat Point (Adapted from: Grand Portage, Minn. 1959, Photo-revised 1976, USGS Quadrangle, 7.5 min.).

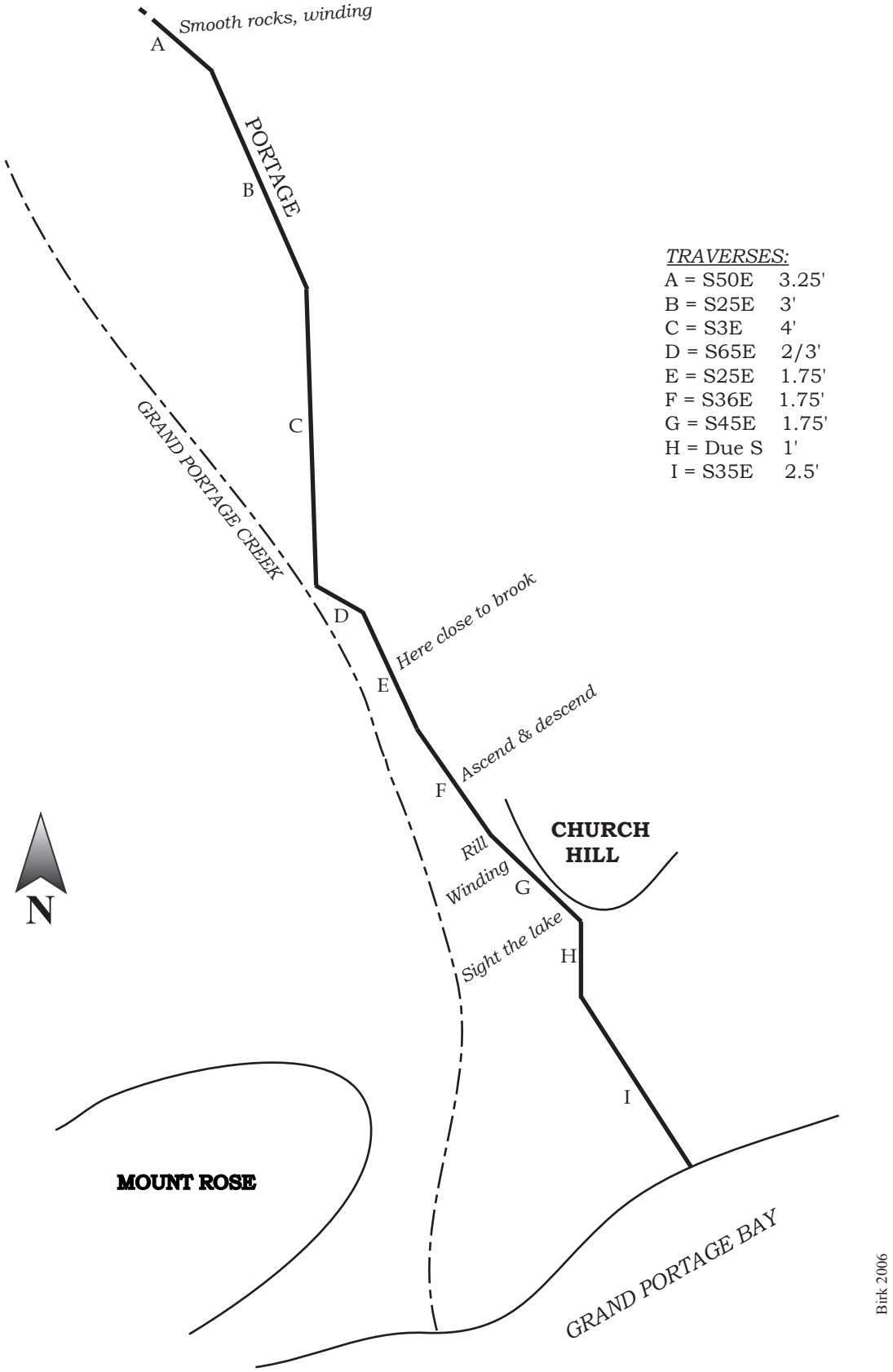

Figure 19. Map showing the course followed by David Thompson when surveying the Grand Portage from the Pigeon River to Lake Superior on 3 September1824. Traverse H and part of Traverse I probably underlie today's Upper Road south of what is now the church hill. Traverses A through G generally define the course of what is now West Townsite ("Speedy's) Road.

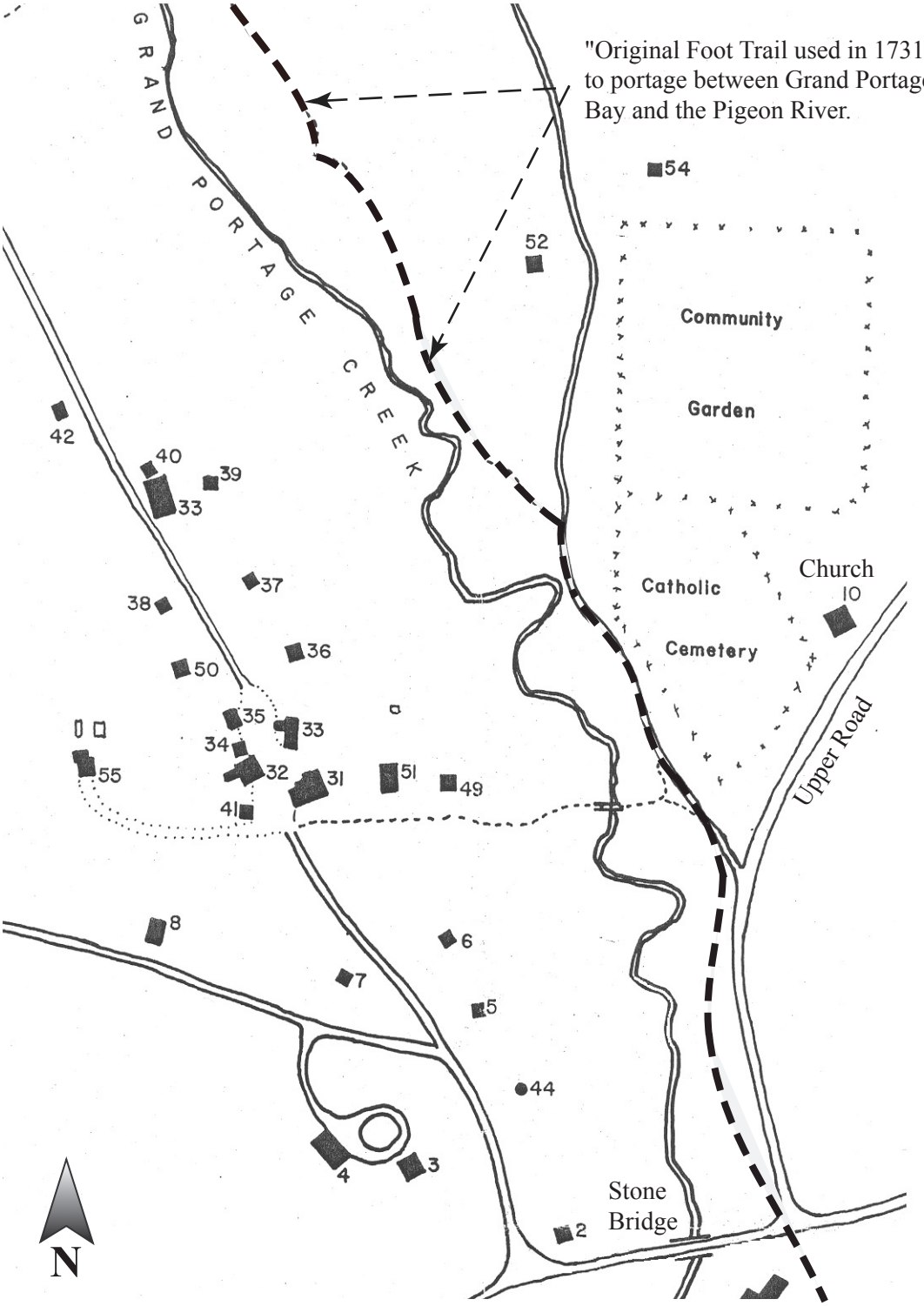

Figure 20. This map shows some features of the Grand Portage Settlement as they were in 1941. The heavy dashed line traces the early eighteenth century route of the Grand Portage pedestrian trail as interpreted from documentary sources by archaeologist Alan Woolworth (Adapted from: Woolworth and Woolworth 1982, II: Map 10).

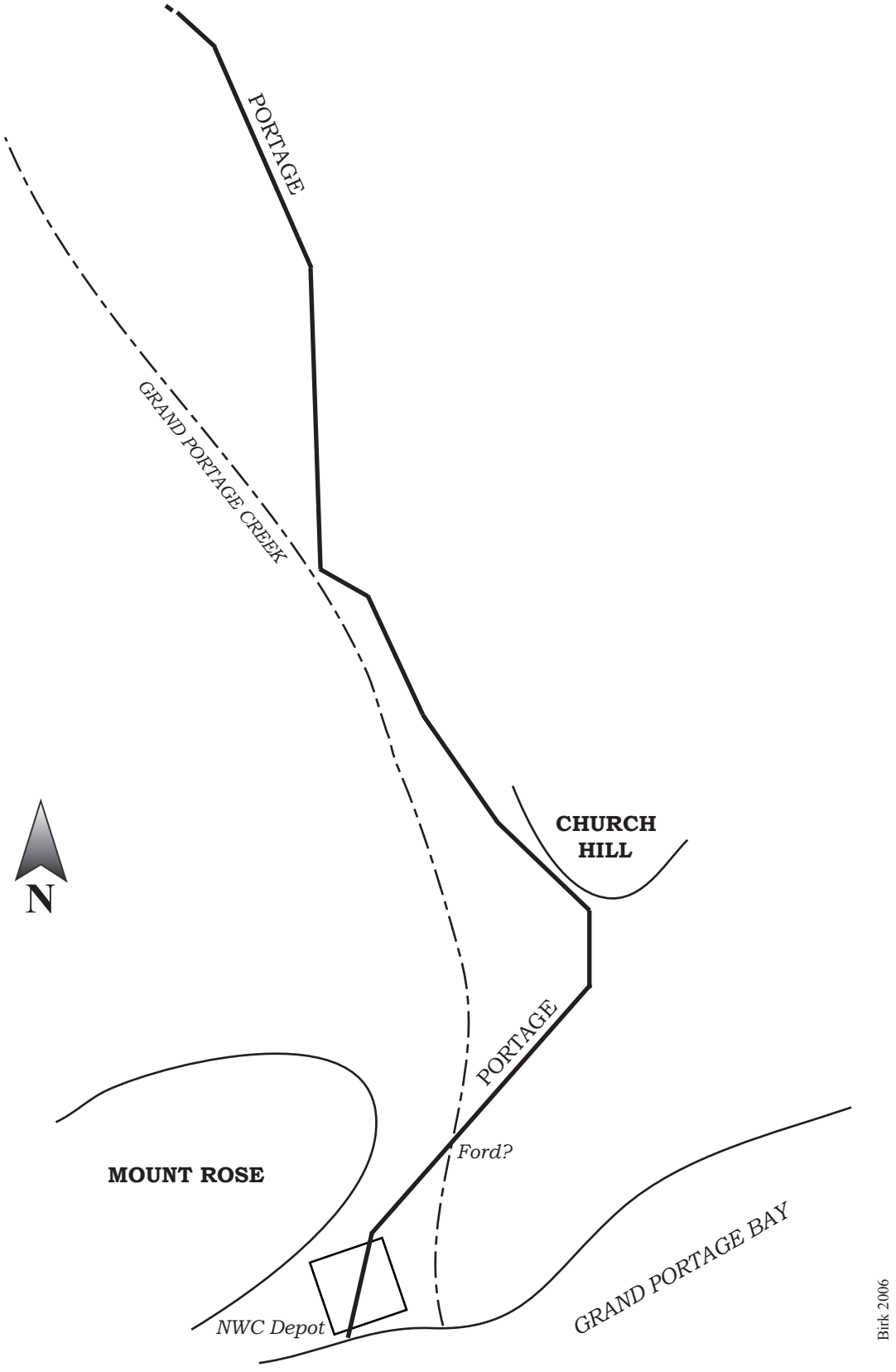

Figure 21. Map showing the possible course followed by surveyor David Thompson when measuring the length of the Grand Portage from the west gate of the NWC Depot to the Pigeon River on 16 June 1798.

Figure 22. A circa 1940 view northeast from Mount Rose showing various roads, trails, and paths, the recently landscaped log-school ridge (top right), the forested northern part of the 2005 Survey Area between Upper Road and the creek (lower right), the church hill (upper left), and the ancient terrace and "Area A" on the flanks of the church hill. (Photo courtesy: Minnesota Historical Society).

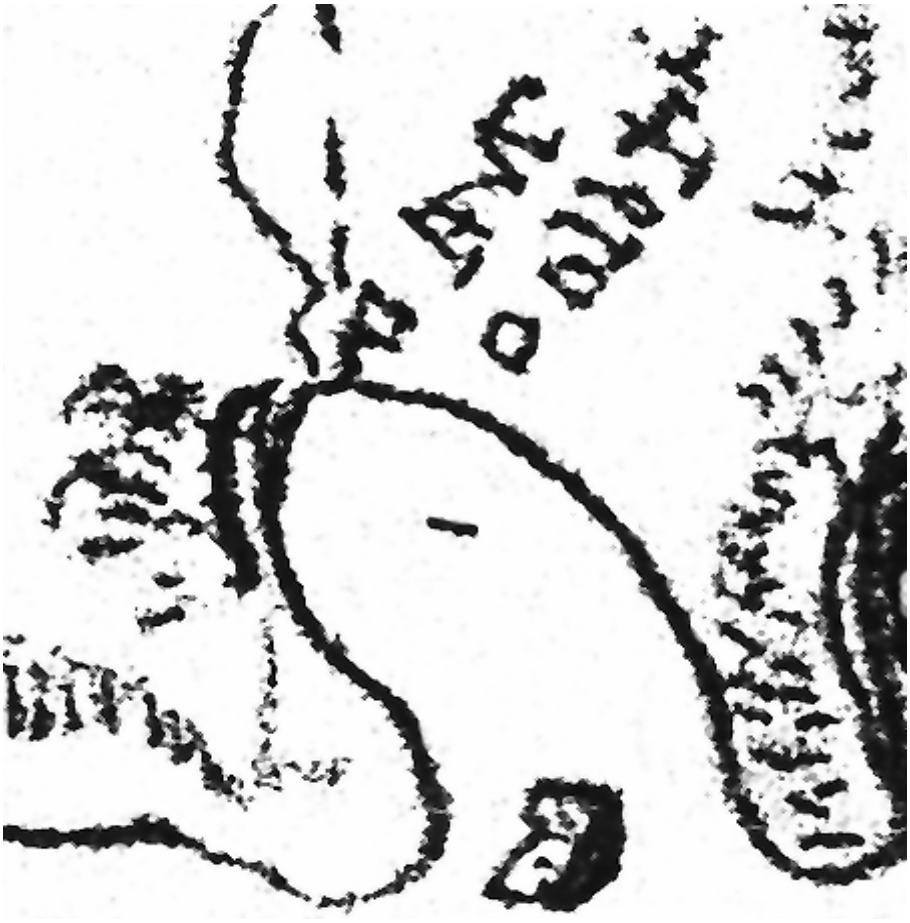

Figure 23. Douglass Houghton's1840 map (top) and map detail (bottom) of Grand Portage Bay showing the site of American Fur Company (AMC) operations at the trailhead east of Grand Portage Creek and the remains an old fort farther east and back from the bay. (Courtesy the Clarke Historical Library, Central Michigan University).

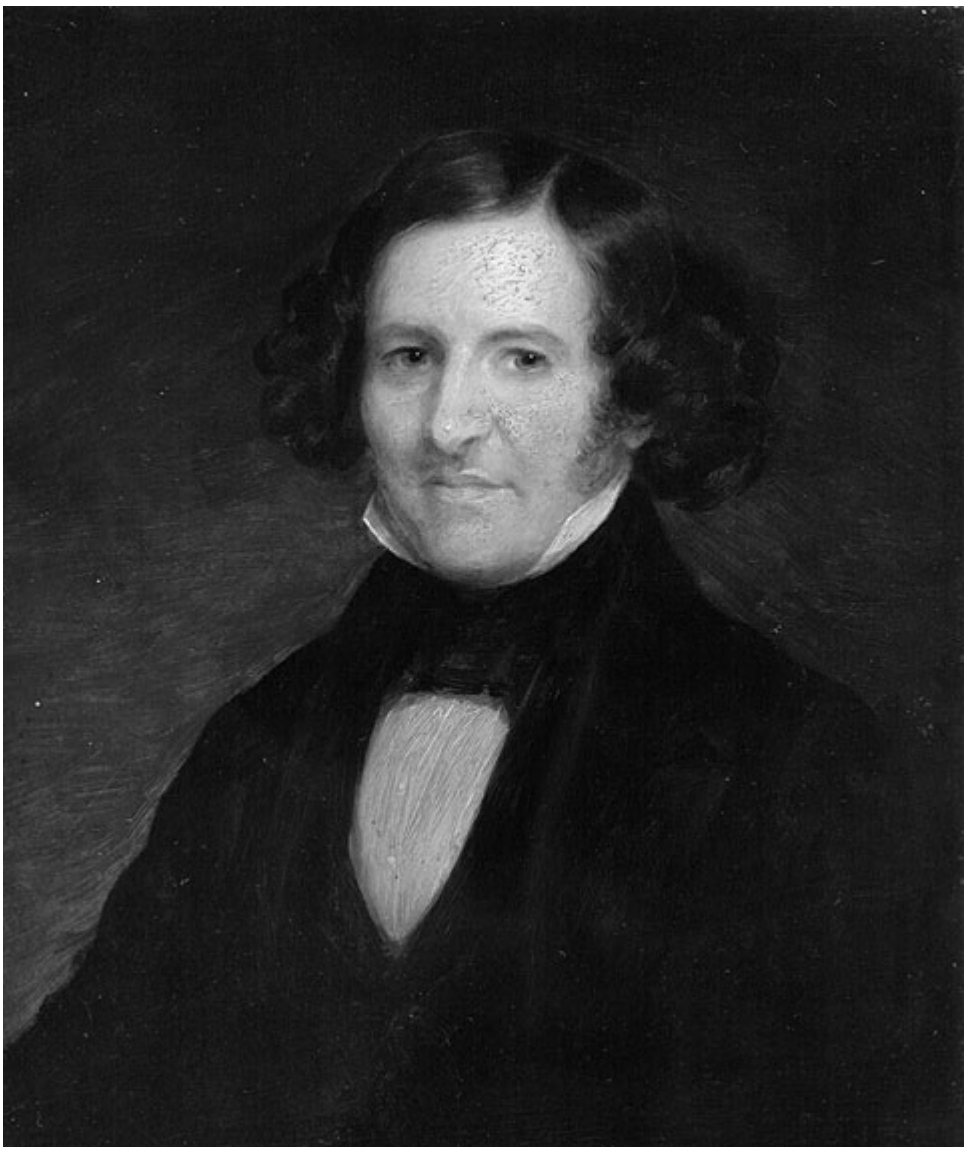

Figure 24. Portrait of George Washington Whistler (Courtesy the Freer Gallery of the Smithsonian Institution)

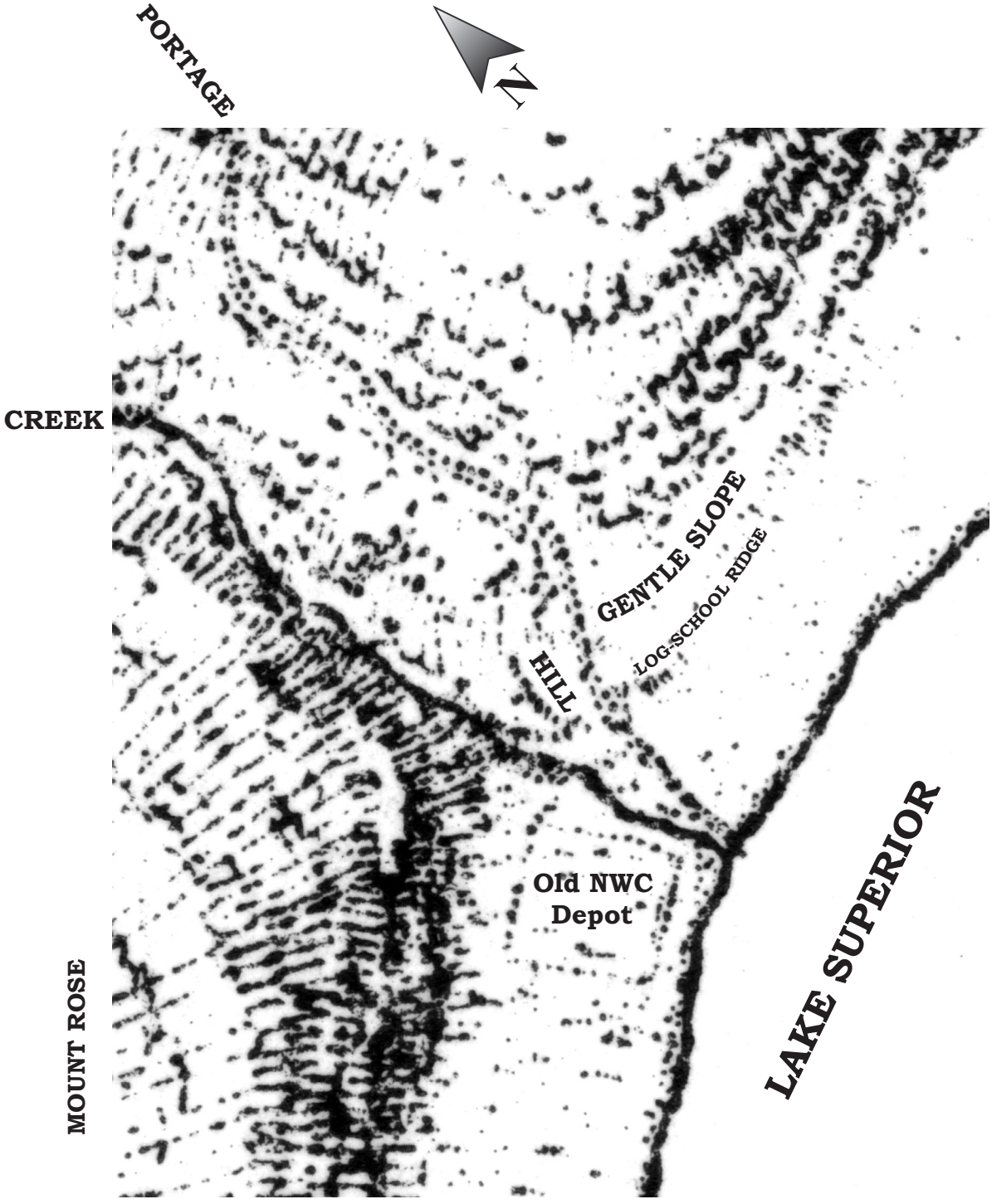

Figure 25. Part of Whistler's 1820s map overwritten with text showing selected features near Grand Portage Bay. The Grand Portage, used for pedestrian and cart traffic, appears to ascend from the shore to higher ground on the approximate course of today's Upper Road on the east side of the church hill. The remains of the NWC Depot are outlined near Grand Portage Creek. A projecting line at the head of the portage vaguely suggests the presence of a wharf or dock.

Figure 26. This southwest view shows NPS volunteers, Collin Swift and Linda Larson, exposing metal artifacts detected in the incised and ramped roadbed of the Old Ford Road on the east side of Grand Portage Creek (Digital photo by the author, 6 June 2005).

Figure 27. Miscellaneous metal artifacts recovered during the 2005 Survey. (A) *Thimble fragment* and (B) *Boot calk* found near the N200 baseline north of the Maintenance Shop. (C) *Serpent side plate* fragment found north of Old Ford Road. (D) *Two-tined, dining fork* and (E) *Robust, hand-wrought spike* found south of Old Ford Road. NO SCALE. (Digital photographs by the author)

Front

Back

Figure 28. Two views of a grater handmade from cupreous sheet metal (possible reused kettle metal) recovered during the 2005 Survey. This object was found north of Old Ford Road, 5.4m N207 from Pin H on 8 June 2005. NO SCALE. (Digital photographs by the author).

Front

Back

Figure 29. Two views of a small trunk or cassette lock recovered during the 2005 Survey. The lock has a cupreous casing and a ferrous metal spring. Found south of Old Ford Road, 3.8m N139 from Pin F on 9 June 2005. NO SCALE. (Digital photographs by the author).

Front

Back

Figure 30. Two views of a rectangular brooch (cupreous with faceted glass inset) recovered during the 2005 Survey, south of Old Ford Road, 7.6m N110 from Pin F on 9 June 2005. NO SCALE. (Digital photographs by the author).

APPENDIX A. GRPO Maintenance Area Survey, June 2005
Record of Mapping Points

From	To	Bearing	Distance (Meters)
Starting point is a 1" pipe set at S-1/16 Corner of Section 4, T63N-R6E, on GRPO boundary			
1" Pipe	South edge of NPS footbridge over Grand Portage Creek	Due N	9.9
1" Pipe	Center of NPS footbridge over Grand Portage Creek	Due N	10.65
Center of Bridge	West end of footbridge	Due W	6.6
W end of Bridge	Center of present NPS Grand Portage Trail	N262	17.5
Center of Bridge	West bank of Grand Portage Creek	Due E	3.4
Center of Bridge	East bank of Grand Portage Creek	Due E	8.4
Center of Bridge	East end of footbridge	Due E	11.2
E end of Bridge	Pin A, a turning point at top of ridge, N of trail	Due E	25.1
Pin A	Pin B, a spike set at the north end of the N185 baseline sector	N145	27.6
Pin B	Center of Upper Road at intersection w/ West Townsite Road	N116	19.3
Pin B	Pin C, a spike set 10m down the N185 baseline sector	N185	10
Pin C	Pin D, a spike set 25m down the N185 baseline sector at the head of the N200 baseline sector, 10cm W of a small rock	N185	15
Pin D	Pin E, a spike set at the south end the N200 baseline sector	N200	25
Pin E	NE corner of NPS Maintenance Shop	N223	8.3

Starting point is Pin F a spike set on the S edge of Old Ford Road 3.4m from the E edge of creek			
Pin F	Pin 1, a temporary pin on the N50 line on Old Ford Road	N50	10
Pin F	Pin 2, a temporary pin on the N50 line on Old Ford Road	N50	20.5
Pin F	Pin 3, a temporary pin on the N50 line on Old Ford Road	N50	30
Pin F	Pin G, a spike set on N50 line at center of Old Ford Road	N50	35
Pin 1	Pin H, a spike set in wooded area north of Old Ford Road	N304	9
Pin 2	Pin 4, a temporary pin set on ridge south of Old Ford Road	N196	18.1
Pin 3	Pin 5, a temporary pin set 1m Due W of an NPS hydrant	N4	15.1
Pin 5	Pin 6, a temporary pin set near floodplain of creek	N95	32
Pin 5	NPS septic standpipe	N105	12.7
Pin 5	NPS septic standpipe	N41	19.4
Pin 5	NPS septic standpipe	N40	18.3
Pin 5	Shovel Test 6 (ST6)	N99	18.5
Pin 5	Shovel Test 7 (ST7)	N67	16.6
Pin F	Shovel Test 8 (ST8)	Due N	1

Appendix B. *Northern Part* Maintenance Area Survey Artifact List, June 2005

Artifacts recorded on ridge N of NPS Maintenance Shop & E of Grand Portage Creek along baseline sector N185 June 2005:

Distance down N185 line from Pin B (m)	Distance E or W of N185 Baseline (m)**	Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
9.6	0.7E			10	N	1	Metal	Ferrous	Lid, can, snuff, COPENHAGEN
9.7	0.45W			11	N	1	Metal	Aluminum	Foil, pc.
9.9	1.55W			10	N	1	Glass		Bottle, beer, fragment, brown glass
9.9	1.55W			10	N	1	Metal	Various	Lid, rouge compact, cupreous w/ ferrous liner, stamped: THE GEORGE W. LUFT CO. NEW YORK MADE IN USA
10		N270	3	14	N	1	Metal	Ferrous	Nail, machine-cut, pc.
10		N284	5.8	5	N	1	Metal	Ferrous	Nail, wire, finishing, 2.5"
10		N284	6.4	7	N	1	Metal	Ferrous	Lid, jar, fragment
11.6	3.3W			8	N	1	Metal	Ferrous	Nail, machine-cut, 2.5"
11.8	0.2E			8	N	1	Metal	Ferrous	Nail, machine-cut, 2"
12		N61	3.2	15	N	1	Metal	Ferrous	Cap, bottle, crimped
12		N69	4.3	4	N	1	Metal	Ferrous	Lid, can (soda pop?)
12		N74	3.3	18	N	1	Metal	Ferrous	Nut, large
12		N83	4	Surface	N	1	Metal	Ferrous	Cap, bottle, crimped, HAMM'S BEER
12		N83	4	Surface	N	1	Metal	Ferrous	Bottle, beer, brown glass
12		N88	4	8	N	1	Metal	Ferrous	Can, cone-top, beverage (beer?), very rusted
12		N88	1.9	13	N	1	Metal	Ferrous	Cap, bottle, crimped
12		N103	2.5	10	N	1	Metal	Ferrous	Cap, bottle, crimped
12		N103	1.7	6	N	1	Metal	Ferrous	Bolt, hex head
12		N103	4	Surface	N	1	Metal	Ferrous	Can, cylindrical (old Thermos bottle jacket?) 10cm diam x 25 cm long
12		N130	4.5	Surface	N	1	Metal	Ferrous	Wire, barbed, pc.
12		N123	3.8	9	N	1	Metal	Ferrous	Cap, bottle, crimped

Artifacts recorded on ridge N of NPS Maintenance Shop & E of Grand Portage Creek along baseline sector N185 June 2005 (cont'd):

Distance down N185 line from Pin B (m)	Distance E or W of N185 Baseline (m)**	Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
12		N133	3.3	4	N	1	Metal	Ferrous	Rod, shelf bracket, modern, 52cm long
12.65	0.9E			10	N	1	Metal	Various	Can, soda or beer, ferrous w/aluminum top, flattened
12.9	4.8W			10	N	1	Metal	Ferrous	Nail, wire, 2.5"
12.9		N281	6.1	2	N	1	Metal	Ferrous	Nut, hex, large
12.9		N278	6.6	Surface	N	1	Metal	Ferrous	Cap, bottle, crimped
12.9		N272	6.5	3	N	1	Metal	Ferrous	Cap, bottle, crimped, pierced by 2.75" wire nail
12.9		N272	6	Surface	N	1	Metal	Ferrous	Nail, wire, 4.5"
12.9		N266	3.8	?	N	1	Metal	Ferrous	Nail, wire, box, 1.25"
12.9		N266	4.5	7	N	1	Metal	Ferrous	Cap, bottle, crimped
12.9		N266	5.7	7	N	1	Metal	Ferrous	Nail, wire, 2.5", bent
13	0.1E			Surface	N	1	Metal	Various	Can, ferrous w/aluminum top, w/attached pop-top opener, COCA COLA
14.1	0.1W			Surface	N	1		Various	Jar, baby food, clear glass w/ ferrous lid & bottom stamp: AHK 48
14.9	0.1E			Surface	N	1	Glass		Bottle, beer, brown glass
15	0.4W			3	N	1	Metal	Ferrous	Cap, bottle, crimped
16		N292	2.7	14	**Y**	1	Metal	Ferrous	Tong, wrought, one side of a "pair of tongs," blacksmith?
16		N292	2.7	16	N	1	Metal	Ferrous	Kettle, bowl, cast iron, fragment
16		N292	2.7	16	**Y**	1	Metal	Various	Lantern, lid (ferrous w/ cupreous hinge) DIE-- [DIETZ]
16		N324	2.3	5	N	2	Metal	Ferrous	Caps, bottle, crimped
16		N324	3.5	11	N	1	Metal	Ferrous	Nail, wire, 3"
16		N311	3.5	15	N	1	Metal	Ferrous	Nail, wire, fragment
16		N311	3.9	Surface	N	1	Glass		Bottle, beer, brown glass
16		N302	4.4	8	N	1	Metal	Cupreous	Shell, shotgun, w/ headstamp: PETERS TARGET No. 12
16		N292	3.8	15	N	1	Metal	Ferrous	Nail, machine-cut, fragment
16		N288	4.9	10	N	1	Metal	Ferrous	Cast iron, pc., unidentified

Artifacts recorded on ridge N of NPS Maintenance Shop & E of Grand Portage Creek along baseline sector N185 June 2005 (cont'd):

Distance down N185 line from Pin B (m)	Distance E or W of N185 Baseline (m)**	Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
16		N281	4.6	13	N	1	Metal	Ferrous	Nail, wire, box, 1.25"
16		N281	5.5	Surface	N	1	Metal	Ferrous	Pin, hair, ladies', modern, pc.
16		N270	3.1	12	N	1	Metal	Ferrous	Oil filter (?), w/ perforated inner liner, very rusted
16		N264	4.3	9	N	1	Metal	Ferrous	Nail, wire, box, 1.25"
16		N334	0.7	10	N	1	Metal	Ferrous	Washer, 3cm O.D.
16		N254	1.4	17	N	1	Metal	Ferrous	Nail, wire, box, 1.25"
16		N254	4	9	N	1	Metal	Ferrous	Nail, wire, 2.25", bent
16		N248	3.3	13	N	1	Metal	Aluminum	Foil, pc.
16		N25--	5.2	10	N	1	Metal		Coin, Canadian, 10-cent piece, 1921
16		N220	3	13	N	1	Metal	Ferrous	Nail, wrought, 1.25", bent
16		N220	3.9	8	N	1	Metal	Ferrous	Nail, wire, finishing, 1-5/8", bent
16		N198	3.5	16	N	1	Metal	Ferrous	Knife, blade, fragment
16	0.2E			13	N	1	Metal	Ferrous	Nail, wire, finishing, 2"
18.4	0.4W			3	N	1	Metal		Coin, Canadian, 1-cent piece, Maple Leaf-motif, date illegible
18.6	0.1W			12	N	1	Metal	Ferrous	Nail, machine-cut, fragment
19		N36	2.3	18	N	1	Metal	Ferrous	Wood stove, panel edge fragment, cast iron (20cm long)
19		N49	2.7	Surface	N	1	Metal	Aluminum	Foil, pack, KOOL-AID JAMMERS
19		N62	4	4	N	1	Metal	Ferrous	Tubing, pc.
19		N62	4.5	12	N	1	Metal	Ferrous	Wire, pc.
19		N86	2.8	Surface	N	1		Various	Bottle, beer, brown glass, neck fragment w/ foil collar
19		N94	3.1	4	N	1	Metal	Ferrous	Cap, bottle, crimped
19		N123	2.9	3	N	1		Various	Hard hat, head strap liner, fragment, plastic w/ metal attachment
19		N127	1.6	4	N	1	Metal	Ferrous	Nail, wire, 2.25"
19		N138	1.6	4	N	3	Metal	Ferrous	Nails, wire, 2.25"

*** East (E) and West (W) distances are at right angles to the "baseline."*

Artifacts recorded on ridge N of NPS Maintenance Shop & E of Grand Portage Creek along baseline sector N200, June 2005:

Distance down N185/N200 Baseline from Pin B (m)	Distance E or W of N200 Baseline (m)**	Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
30		N96	1.6	9	N	1	Metal	Ferrous	Cap, bottle, crimped, raised concentric circles on top surface
30		N96	2.5	8	N	1	Metal	Ferrous	Can, end, with lapped outer edge
30		N122	2.7	3	N	1	Metal	Aluminum	Foil, cap, bottle, fragment
30		N122	2.7	3	N	1	Glass		Bottle, beer, fragment, brown glass
30		N142	3	10	N	1	Metal	Ferrous	Spike, machine-cut, 5.3"
30		N156	2	14	N	1	Metal	Ferrous	Nail, machine-cut, fragment
30		N162	2.8	2	N	1	Metal	Aluminum	Pop-top, can, opener
30		N174	3.9	Surface	N	1	Metal	Aluminum	Can, COCA-COLA
30		N187	2.8	10	N	1	Metal	Ferrous	Nail, wire, 2"
30		N187	3	Surface	N	1	Glass		Bottle, beer, brown glass
30		N192	3.5	11	N	1	Metal	Ferrous	Pc., unidentified
30		N272	3.4	8	N	1	Metal	Ferrous	Nail, wire, box, 1.25"
30		N256	3.6	3	N	1	Metal	Ferrous	Nail, wire, bent
30		N250	4.1	6	N	1	Metal	Ferrous	Bolt, hex-head, 2-3/4" long
30		N248	4.6	13	N	1	Metal	Ferrous	Strap w/ rounded ends & attachment holes (2.5 cm wide x 15 cm long)
30		N248	5.4	4	N	1	Metal	Ferrous	Can, "tin" (filled with congealed oil?)
30		N243	3.9	12	N	1	Metal	Ferrous	Wire, fragment
30		N240	4.5	7	N	1	Metal	Ferrous	Nail, wire, box, 1.25"
32.1	0			9	N	1	Metal	Ferrous	Strap or possible knife tang fragment (w/ possible rivets)
32.2	0.5W			11	N	1	Metal	Ferrous	Nail, wire, box, 2.5"
32.4	0.8W			9	N	1	Metal	Ferrous	Nail, machine-cut, fragment
32.5		N74	3.6	Surface	N	1	Clay	Ceramic	Chimney flue (square, orange, ceramic pipe), fragment
32.5		N74	3.6	Surface	N	1	Glass		Bottle, beer, fragment, brown glass
32.5		N82	5.2	Surface	N	1	Metal	Various	Can, ferrous w/aluminum top, COCA COLA
32.5		N84	6	Surface	N	1	Metal	Various	Can, ferrous w/aluminum top, SPRITE

Artifacts recorded on ridge N of NPS Maintenance Shop & E of Grand Portage Creek along baseline sector N200, June 2005 (cont'd):

Distance down N185/N200 Baseline from Pin B (m)	Distance E or W of N200 Baseline (m)**	Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
32.5		N84	6.5	5	N	1	Metal	Ferrous	Sheet, scrap
32.5		N93	6.7	Surface	N	1		Various	Bottle, clear glass w/ lid STARBUCKS COFFEE FRAPPUCCINO
32.5		N97	6.5	7	N	1	Metal	Aluminum	Lid, beverage can, pop-top type
32.5		N112	4.9	8	N	1		Various	Bottle, beer, brown glass, w/ foil collar at neck
32.5		N112	7.3	4	N	1	Metal	Aluminum	Foil, collar or ring, (part of the twist off cap assembly from a beer bottle)
32.5		N118	5.2	Surface	N	1	Glass		Bottle, beer, brown glass
33.3	0.1W			4	N	1	Metal	Ferrous	Nail, machine-cut, fragment
34.9	0.1E			9	N	1	Metal	Ferrous	Nail, wire, 2"
35.1	0.6W			11	N	1	Metal	Ferrous	Nail, wire, 2.5"
35.6	0			14	N	1	Metal	Ferrous	Nail, machine-cut, 2"
36		N355	2.2	17	N	1	Metal	Ferrous	Nail, wire, 2-5/8"
36		N333	2.9	10	N	1	Metal	Ferrous	Nail, wire, 2.25", bent
36		N316	3.6	6	N	1	Metal	Ferrous	Wire, fine, fragment w/ eyelet on one end
36		N300	2.6	9	N	1	Metal	Ferrous	Nail, wire, 1.25"
36		N293	2.3	14	N	1	Metal	Ferrous	Nail, wire, 2.5"
36		N281	2.6	8	N	1	Metal	Ferrous	Cap, bottle, crimped
36		N267	3.7	3	N	1	Metal	Ferrous	Can, "tin," flattened
36		N262	3.5	5	N	1	Metal	Ferrous	Wire, fine, fragment
36		N277	2.1	9	N	1	Metal	Ferrous	Scrap, unidentified
36		N131	1.1	20	N	1	Metal	Ferrous	Chisel, wrought, w/ dull edge & blunted butt
36		N147	1	Surface	N	1	Glass		Bottle, beer, brown glass
36		N240	1.3	12	N	1	Metal	Ferrous	Nail, machine-cut, 2.5"
36		N251	2.5	5	N	1	Metal	Cupreous	Washer, 0.5" O.D. (rivet washer?)
36		N251	3.6	10	N	1	Metal	Ferrous	Sheet, scrap
36		N257	4.1	13	N	1	Metal	Ferrous	Nail, wire, 1.5"

Artifacts recorded on ridge N of NPS Maintenance Shop & E of Grand Portage Creek along baseline sector N200, June 2005 (cont'd):

Distance down N185/N200 Baseline from Pin B (m)	Distance E or W of N200 Baseline (m)**	Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
36		N248	4.5	4	N	1	Metal	Ferrous	Nail, wire, fragment
36		N242	4.4	5	N	1	Metal	Ferrous	Wire, fine, fragment
36		N242	4.8	7	N	1		Various	Barrett, hair, girl's, owl figure, plastic w/ metal clasp
36		N240	3.9	17	N	1	Metal	Ferrous	Nail, machine-cut, fragment
36		N236	5	10	N	1	Metal	Ferrous	Wire, braided, pc., about 70cm long
36		N235	4	6	N	1	Metal	Ferrous	Can, "tin," flattened
36		N235	3.2	8	**Y**	1	Metal	Ferrous	Logger's boot spike, ridged & tapered shank
36		N235	3.5	3	N	1	Metal	Cupreous	Thimble, finger, fragment w/ dimpled exterior
36		N229	4.1	5	N	1	Metal	Various	Button, crown, plain face (cupreous) w/ ferrous liner
36		N223	3.4	9	N	1	Metal	Ferrous	Nail, machine-cut, fragment
36		N219	4.2	6	N	1	Metal	Ferrous	Nail, wire, 1.25"
36		N216	3	12	N	1	Metal	Ferrous	Nail, wire, 2.5"
36		N211	3.4	13	N	1	Metal	Ferrous	Spike, wire, 4.75"
36		N210	4.2	6	N	1	Metal	Ferrous	Scrap, unidentified
36		N155	3.1	5	**Y**	1	Metal	Ferrous	Disk, rusted, unidentified (US 5-cent pc.size)
36		N56	1.9	6	N	1	Metal	Ferrous	Nail, machine-cut, fragment
36		N92	2.5	19	N	1	Metal	Ferrous	Nail, machine-cut, fragment
36		N92	5.8	9	N	1	Metal	Ferrous	Cap, bottle, crimped
36		N95	4.6	8	N	1	Metal	Ferrous	Nail, wire, 2.5"
36		N95	7	Surface	N	1	Metal	Aluminum	Foil, pack, HEINZ KETCHUP
36		N97	5.5	3	N	1	Metal	Cupreous	Wire, looped, pc.
36		N99	7	2	N	1	Metal	Aluminum	Foil, pack, shredded
36		N100	4.8	3	N	1	Metal	Ferrous	Opener, can & bottle, stamped: FITGERS
36		N114	4.4	7	N	1	Metal	Ferrous	Nail, machine-cut, fragment
36		N116	5.6	14	N	1	Metal	Ferrous	Scrap, unidentified

Artifacts recorded on ridge N of NPS Maintenance Shop & E of Grand Portage Creek along baseline sector N200, June 2005 (cont'd):

Distance down N185/N200 Baseline from Pin B (m)	Distance E or W of N200 Baseline (m)**	Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
36		N127	4.8	4	N	1	Metal	Ferrous	Scrap, chromed trim (automobile?), w/ H intaglio
36		N127	6.7	10	N	1	Metal	Ferrous	Nail, wire (?), extremely rusted
36		N132	6.1	8	N	1	Metal	Aluminum	Cap, bottle, screw-top, PETRI WINE
36		N132	6.1	8	N	2	Glass		Bottle, clear glass, fragments
36		N137	4.9	10	N	1	Metal	Ferrous	Nail, wire, 4"
36		N141	3.7	9	N	1	Metal	Ferrous	Nail, wire, 3"
36		N141	3.7	9	N	1	Metal	Ferrous	Staple, fence, large
36		N148	2.6	8	N	1	Metal	Ferrous	Nail, wire, 1.25"
36		N148	4.5	8	N	1	Metal	Ferrous	Nail, machine-cut, fragment
36		N148	5	8	N	1	Metal	Ferrous	Nail, machine-cut, fragment
36		N150	5.4	7	N	1	Metal	Ferrous	Staple, fence, large
36		N139	7.7	8	N	1	Metal	Ferrous	Nail, machine-cut, bent
36.4	0.4E			10	N	1	Metal	Ferrous	Nail, machine-cut, fragment
36.7	0.1W			6	N	1	Metal	Ferrous	Nail, wire, fragment
37.2	0.1E			17	N	1	Metal	Ferrous	Nail, machine-cut, fragment

Appendix C. *Southern Part* Maintenance Area Survey Artifact List, June 2005

Artifacts recorded in relation to Pin F, a spike set on S edge of Old Ford Road 3.4m E of Grand Portage Creek, June 2005:

Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
N193	1	4	N	1	Metal	Ferrous	Nail, wire, finishing, 1-5/8"
N141	0.7	2	N	1	Metal	Ferrous	Nail, machine-cut, 2"
N160	1.6	3	N	1	Metal	Ferrous	Nail, machine-cut, 2"
N160	2.1	7	N	1	Metal	Ferrous	Spike, machine-cut, fragment
N168	2.4	10	N	1	Metal	Ferrous	Nail, machine-cut, 2.5"
N135	1.4	5	N	1	Metal	Ferrous	Nail, wire, 3"
N337	0.4	15	N	1	Metal	Ferrous	Nut, wing-style, large
N293	1.4	9	N	1	Metal	Ferrous	Rod, curved, fragment (shank of machine-cut spike?)
N292	2.3	8	N	1	Metal	Ferrous	Nail, machine-cut, 3", bent
N316	3.2	10	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N82	0.8	Surface	N	1	Metal	Ferrous	Nail, machine-cut, 2"
N70	1.6	6	N	1	Metal	Ferrous	Nail, machine-cut, 3"
N341	2.5	2	N	1	Metal	Ferrous	Nail, machine-cut, 2.5"
N13	2.2	8	N	1	Metal	Ferrous	Wire, heavy (robust), pc., 36cm long
N17	2.5	17	N	1	Metal	Ferrous	Nail, machine-cut, 3.25"
N17	2.5	17	N	1	Metal	Ferrous	Nail, wire, 2"
N24	2.8	10	N	1	Metal	Ferrous	Nail, animal shoe, fragment
N57	2.9	7	N	1	Metal	Ferrous	Nail, machine-cut, 1.5"
N41	2.8	5	N	1	Metal	Aluminum	Foil, pc.
N30	3.1	10	N	1	Metal	Ferrous	Rod, curved, fragment w/ eye-like loop on one end (old nail shank?)
N28	4	6	N	1	Metal	Aluminum	Pop-top opener, pop or beer can type
N28	4.7	12	N	1	Metal	Ferrous	Nail, wrought (?), fragment, rusted & twisted
N43	3.7	Surface	N	1	Metal	Aluminum	Foil, pc.

Artifacts recorded in relation to Pin F, a spike set on S edge of Old Ford Road 3.4m E of Grand Portage Creek, June 2005 (cont'd):

Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
N32	5.1	17	N	1	Metal	Ferrous	Nail, wire, 2.25"
N12	4.7	5	N	1	Metal	Ferrous	Wire, pc., bent, about 25cm long
N19	5.2	3	N	1	Metal	Ferrous	Nail, machine-cut, 3"
N46	4.7	8	N	1	Metal	Ferrous	Nail, wire, 2"
N59	4.3	4	N	1	Metal	Ferrous	Logger's boot spike, ridged & tapered shank, 1.9cm long
N59	4.6	4	N	1	Metal	Ferrous	Scissors, pair, fragment (missing both handles as well as blade tips)
N43	5.8	10	N	1	Metal	Lead	Foil, pc., folded twice (four-fold), about 1.7cm long
N43	5.9	8	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N36	6.6	9	N	1	Metal	Ferrous	Rivet (?), bulbous head & rounded shank, 1" long
N30	6.6	10	N	1	Metal	Ferrous	Wire, fine, pc.
N30	7.1	8	N	1	Metal	Ferrous	Sheet metal, pc., 3cm x 5.5cm x 0.2cm thick
N62	6.6	7	N	1	Metal	Ferrous	Nail, wire, 2.5"
N333	3.5	11	N	1	Metal	Ferrous	Wheel, sheet metal, w/ cogged outer edge & a central hole flanked by four small slots. 1.75" O.D. (The gear of an inexpensive egg beater?)
N169	3.5	3	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N169	4.2	7	N	1	Metal	Ferrous	Nail, machine-cut, fragment (?)
N74	4.2	11	**Y**	1	Metal	Cupreous?	Button, flat w/ soldered eye
N160	3	10	N	5	Metal	Ferrous	Nails (machine cut: four 1.5" to 2"; wire: one 2.5")
N149	3	15	N	8	Metal	Ferrous	Nails (machine cut: one 4", one 3.5", & five fragments; wire: one 3.5")
N143	4.6	13	N	11	Metal	Ferrous	Nails, machine cut (four 2.5", two 3", and five 3.25")
N139	3.3	8	N	1	Metal	Ferrous	Nail, wire, 2.5"
N139	3.8	6	**Y**	1	Metal	Various	Lock, cassette or box (?), cupreous w/ ferrous spring
N136	3.6	14	N	3	Metal	Ferrous	Nails, machine cut (two 2", one fragment)
N133	2.9	14	N	1	Metal	Ferrous	Nail, wire, 2.5"
N133	4.1	11	N	1	Metal	Ferrous	Nail, machine-cut, 3.5"

Appendix C

Artifacts recorded in relation to Pin F, a spike set on S edge of Old Ford Road 3.4m E of Grand Portage Creek, June 2005 (cont'd):

Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
N126	4.6	2	N	1	Metal	Ferrous	Cap, bottle, crimped
N122	3.2	9	N	1	Metal	Ferrous	Wood stove, top panel fragment w/ part of circular lid opening, cast iron
N98	1.8	9	N	1	Metal	Cupreous	Cartridge, w/ headstamp: PETERS .38-55
N106	2.3	6	N	1	Metal	Ferrous	Nail, machine-cut, 3"
N117	5.9	Surface	N	1	Metal	Ferrous	Strap, 4.5 cm wide x 50 cm long (barrel hoop fragment?)
N114	4.4	10	N	3	Metal	Ferrous	Nails, wire, 1.5"
N114	5.9	8	N	1	Metal	Ferrous	Nail, machine-cut, 3.25"
N105	3.7	14	N	1	Metal	Ferrous	Sheet metal, pc.
N105	3.7	14	N	3	Metal	Ferrous	Nails (machine cut: one 2.5", one 2-7/8"; wire: one 1.25")
N105	3.7	14	N	1	Glass		Flat glass (window), small sliver
N105	3.7	14	**Y**	1	Metal	Various	Whistle, toy (?)
N105	5.1	Surface	N	1	Metal	Ferrous	Cap, bottle, crimped
N103	4.4	21	N	1	Metal	Ferrous	Wood stove, panel fragment (?), cast iron
N90	3.2	17	N	1	Metal	Ferrous	Nail, machine-cut, 2.5"
N90	3.2	17	N	1	Metal	Ferrous	Spike, bridge (?), 5.75" w/ square cross-section & chisel point
N90	3.7	13	N	1	Metal	Ferrous	Nail, wire, 3"
N87?	2	13	N	2	Metal	Ferrous	Nails, machine cut (one 1.5"; wire: one 3.25")
N84	3.8	10	N	3	Metal	Ferrous	Frying pan, fragments, cast iron (one w/ handle part)
N84	3.8	21	N	1	Metal	Ferrous	Ox shoe, machine made, w/ narrow tread pierced by 5 nail holes
N84	5.2	8	N	1	Metal	Ferrous	Frying pan, fragment, cast iron (matches pan fragments listed above)
N84	5.4	6	N	1	Metal	Ferrous	Frying pan, fragment, cast iron (matches pan fragments listed above)
N80	4.3	12	N	1		Various	Knife, pocket, w/ plastic grips (modern)
N79	5.7	10	N	1	Metal	Aluminum	Cap, bottle, pull tab top, BIG MOUTH
N77	5.4	6	N	1	Metal	Ferrous	Nail, machine-cut, 2"
N77	6.2	17	N	2	Metal	Ferrous	Nails, machine-cut, fragments

Appendix C

Artifacts recorded in relation to Pin F, a spike set on S edge of Old Ford Road 3.4m E of Grand Portage Creek, June 2005 (cont'd):

Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
N108	6.4	13	N	1	Metal	Ferrous	Bolt, threaded, 4.25" long, 5/8" diam, w/ crude or worn diamond-shaped eye
N110	7.3	6	N	1	Metal	Ferrous	Staple, fence, large
N110	7.6	11	N	1	Metal	Ferrous	Staple, fence, large
N110	7.6	11	N	1	Metal	Ferrous	Sheet metal, pc.
N110	7.6	11	N	1	Glass		Flat glass (window), pc.
N110	7.6	11	**Y**	1		Various	Brooch, cupreous buckle frame & screen, w/ violet glass inset
N121	8.2	7	**Y**	1	Metal	Ferrous	Fork, dining, two-tine
N87	6.3	17	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N87	6.3	17	N	2	Metal	Ferrous	Strap, pcs., 3.5 cm wide (barrel hoop fragments? w/ rivets)
N96	7.5	4	N	1	Metal	Ferrous	Nail, machine-cut, 1.5"
N98	6.9	8	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N98	6.9	8	N	1	Ceramic		Whiteware, sherdlet
N98	7.9	16	N	1	Glass		Flat glass (window), pc.
N98	7.9	16	N	1	Metal	Ferrous	Strap, pc., 2.6 cm wide (barrel hoop fragment?)
N98	7.9	16	**Y**	1	Stone	Flint	Gunflint, British, heavily used fragment
N111	7	8	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N111	7.7	5	N	1	Metal	Ferrous	Nail, wire, 2.5"
N111	8.4	6	N	1	Metal	Ferrous	Staple, fence, large
N116	7.4	5	N	1	Metal	Ferrous	Nail, machine-cut, fragment

Artifacts recorded in relation to Pin 1, a temporary pin set on Old Ford Road 10m N50 from Pin F, June 2005:

Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
N220	3.3	6	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N222	3.2	7	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N283	2.4	6	N	1	Metal	Ferrous	Scrap, unidentified
N281	3.2	3	N	1	Metal	Ferrous	Wire, pc.
N238	1.9	9	N	1	Metal	Ferrous	Nail, machine-cut, 3"
N238	2.9	11	N	1	Metal	Ferrous	Wood stove, panel fragment, cast iron
N224	2.3	7	N	1	Metal	Ferrous	Sheet, scrap, unidentified
N248	2.9	3	N	1	Metal	Ferrous	Wire, pc.

Artifacts recorded in relation to Pin H, a spike set 9m N304 from Pin 1, June 2005:

N118	1.4	3	N	1	Metal	Cupreous	Kettle metal, scrap
N321	1.5	14	**Y**	1	Metal	Cupreous	Buckle or cinch (?), cast, handmade (like a chain link in appearance)
N321	1.9	8	N	1	Metal	Ferrous	Wire, pc.
N312	2.6	11	**Y**	1	Metal	Ferrous	Nail, wrought, rosehead, about 1-3/8" long, good condition
N148	2.9	4	N	1	Metal	Ferrous	Nail, wire, 2.25", clinched
N148	2.9	16	N	1	Metal	Ferrous	Nail, machine-cut, 4"
N151	3.3	9	N	2	Metal	Ferrous	Nails (machine cut: one 1"; wire: one 2")
N142	4.2	8	N	1	Metal	Ferrous	Bolt, square head
N138	4.1	8	N	1	Metal	Ferrous	Nail, wire, 2.5"
N138	4.7	7	N	1	Metal	Ferrous	Nail, wire, box, 1.25"
N129	5.3	7	N	2	Metal	Ferrous	Nails, wire (one 2-1/8", one 2.25")
N107	4	7	N	1	Metal	Ferrous	Head of a key or latch (?), stamped from sheet metal
N112	4.9	2	N	1	Metal	Ferrous	Spike, wire, 4"
N112	5.9	13	N	2	Metal	Lead	Sinkers, fish net, ovoid cylindrical (2.5 to 2.7cm long)
N110	5.4	15	N	1	Metal	Cupreous	Kettle metal, scrap

Appendix C

Artifacts recorded in relation to Pin H, a spike set 9m N304 from Pin 1, June 2005 (cont'd):

Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
N272	0.8	11	**Y**	1	Metal	Ferrous	Nail, wrought, rosehead, about 4.25" long, good condition
N93	0.6	12	N	1	Metal	Ferrous	Nail, wire, 2.5"
N6	2.3	3	N	1	Metal	Ferrous	Wire, pc., w/ pigtail twist on one end
N353	2.2	7	N	1	Metal	Ferrous	Nail, wire, box, 1.25"
N342	2.4	9	N	1	Metal	Ferrous	Wire, pc.
N340	2.3	8	N	1	Metal	Ferrous	Nail, wire, finishing, 3"
N12	1.2	6	N	1	Metal	Ferrous	Nail, wire, finishing, 2.5"
N57	1.6	12	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N57	2.6	6	N	1	Metal	Ferrous	Pin, hair, ladies', 3.25" long, modern
N57	3.3	7	N	1	Metal	Ferrous	Nail, wrought, rosehead, about 4.5" long, twisted
N58	2.2	11	N	1	Metal	Ferrous	Nail, machine-cut, 2.75"
N68	1.7	11	N	1	Metal	Ferrous	Nail, wire, 2"
N82	5.2	8	N	1	Metal	Ferrous	Wood stove, panel fragment (?), cast iron
N82	2.8	8	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N74	4	2	N	1	Metal	Cupreous	Ring, finger, cigar-band style, stamped, w/ traces of gilding (not fur trade)
N74	6.4	9	N	3	Metal	Ferrous	Container, sheet metal w/ rolled rim, pcs., rusted, unidentified
N68	6.6	10	N	4	Metal	Ferrous	Container, sheet metal w/ rolled rim, pcs., unidentified (same as above)
N74	4.6	9	N	12	Metal	Ferrous	Sheet metal pcs., unidentified (same as above?)
N76	6.2	12	N	1	Metal	Ferrous	Horseshoe, machine made
N68	7.3	9	N	1	Metal	Ferrous	Cap, bottle, crimped
N69	5.2	8	N	1	Metal	Ferrous	Nail, machine-cut, 1.5"
N51	5.9	11	N	1	Metal	Ferrous	Staple, fence, large
N51	3.7	5	N	1	Metal	Ferrous	Fishhook, 2.25" long w/ looped eye
N48	3.1	10	N	1	Metal	Ferrous	Nail, wrought, rosehead, about 3.25" long, bent

Artifacts recorded in relation to Pin H, a spike set 9m N304 from Pin 1, June 2005 (cont'd):

Appendix C

Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
N48	3.5	8	N	1	Metal	Ferrous	Nail, wire, 3"
N48	3.6	6	N	1	Metal	Ferrous	Nail, wire, finishing, 2.5"
N40	3.2	3	N	1	Metal	Ferrous	Scrap, cast iron, rounded edge, small
N40	3.6	3	N	1	Metal	Ferrous	Wire, pc., 6cm long
N35	5	6	N	1	Metal	Cupreous	Cartridge, w/ headstamp: PETERS .32 W.S. [Winchester Special]
N133	2	8	**Y**	1	Metal		Button, spun back, eye/shank missing
N292	2.2	18	N	1	Metal	Cupreous	Kettle metal, scrap
N292	2.9	11	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N268	1.6	20	N	1	Metal	Cupreous	Kettle metal, scrap, triangular w/ sheared edges
N268	2.1	6	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N269	3.2	8	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N269	3.3	12	**Y**	1	Metal	Ferrous	Bail (?), kettle, wrought, fragment w/ open loop on one end
N232	3.8	6	N	1	Metal	Ferrous	Nail, animal shoe, machine made, bent
N232	5.6	Surface	N	1	Metal	Ferrous	Pitchfork, three tine, broken, lacks handle, attached rivets
N220	2.2	8	N	2	Metal	Ferrous	Nails (machine cut: one fragment; wire: one 1.75")
N220	4.4	6	N	1	Metal	Ferrous	Pin, hair, ladies', 2.5" long, modern
N218	5	6	N	1	Metal	Various	Tube, ferrous, 37.3 cm long x 0.5 cm O.D. w/ short cupreous collar on end
N210	2.6	5	**Y**	1	Metal	Ferrous	Nail, wrought, chisel point
N210	6.8	Surface	N	1		Various	Bottle, flask-type, clear glass, w/ threaded cap, modern
N207	5.4	7	**Y**	1	Metal	Cupreous	Grater, fashioned from kettle metal
N202	4.4	4	N	1	Metal	Ferrous	Button, stamped, w/ small crossbar (blue jean fastener?)
N200	6	8	N	1	Metal	Ferrous	Nail, machine-cut, 1.5"
N200	7.3	6	N	2	Metal	Ferrous	Wire, two pig-tailed pcs., looped together, very rusted & fragile
N185	0.9	13	N	1	Metal	Ferrous	Nail, wrought, rosehead, 2.5"
N185	3.8	5	N	1	Metal	Ferrous	Nail, wire, box, 1-1/8"

Artifacts recorded in relation to Pin H, a spike set 9m N304 from Pin 1, June 2005 (cont'd):

Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
N185	6.5	6	N	1	Metal	Ferrous	Spike, wire, 5.5", bent, head broken
N183	4.8	7	N	1	Metal	Ferrous	Wire, fine, pc., about 1.25" long
N181	2.2	11	N	2	Metal	Ferrous	Wire, very fine, pcs.
N181	6.8	11	**Y**	1	Metal	Cupreous	Gunpart, serpent sideplate, fragment
N175	5.5	7	N	2	Metal	Ferrous	Wire, very fine, pcs.
N172	2.4	9	N	1	Metal	Ferrous	Nail, machine-cut, 3.5"
N172	3.3	7	N	1	Metal	Aluminum	Foil, pc.
N165	3.4	7	N	1	Metal	Ferrous	Screw, wood, slotted head, 1.25"

Artifacts recorded in relation to Pin 6, a temporary pin set 32m N95 from Pin 5, June 2005:

Due N	3.8	Surface	N	1	Metal	Cupreous	Tubing, copper, modern
N358	3.2	5	N	1	Metal	Cupreous	Tubing, copper, modern
N351	5.6	11	N	1	Metal	Aluminum	Foil cigarette pack
N348	4.1	3	N	1	Metal	Aluminum	Can, soda pop, flattened
N342	3.5	8	N	1	Metal	Ferrous	Nail, wire, box, 1.25"
N342	5.6	16-Aug	N	25	Metal	Ferrous	Can, condensed milk, w/ center hole soldered on one end, disintegrated
N337	1.3	Surface	N	1	Metal		Chain link fence connector w/ attachment straps
N330	4.6	Surface	N	1	Metal	Ferrous	Nail, wire, box, 2.5"
N303	4.4	6	N	1	Metal	Ferrous	Wire, fine, pc.
N212	2.5	5	N	1	Metal	Ferrous	Lid, spittoon (?), 22 cm diameter, concave w/ 3.5 cm center hole
N215	3.3	Surface	N	6	Metal	Ferrous	Five wire nails & one thumb tack (all within recent charcoal concentration)
N126	1.3	Surface	N	1		Concrete	Building block, pc.
N135	2.1	6	N	1	Metal	Ferrous	Lid, "tin can," end cap w/center hole soldered (part of condensed milk can?)

Artifacts recorded in relation to Pin 4, a temporary pin set 18.1m N196 from Pin 2, June 2005:

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Bearing	Distance (m)	Depth (cm)	Collected? (Yes/No)	Quantity	Material	Material Type	Description
N244	0.6	5	N	1	Metal	Aluminum	Pop-top opener, pop or beer can type
N244	1.8	10	N	1	Metal	Ferrous	Staple, fence, large
N244	2.3	8	N	1	Metal	Ferrous	Staple, fence, large
N244	3	5	N	1	Metal	Ferrous	Staple, fence, large
N240	3.5	5	N	1	Metal	Ferrous	Cap, bottle, crimped
N236	4	11	N	1	Metal	Ferrous	Nail, wire, fragment
N218	1.4	9	N	12	Metal	Ferrous	Spikes, wire, 6", concentration
N218	1.4	9	N	2	Metal	Ferrous	Spikes, wire, 5", part of same concentration
N218	2.7	4	N	1	Metal	Ferrous	Nail, animal shoe, machine made, 2"
N206	2.3	4	N	1	Metal	Aluminum	Foil, pc.
N206	2.7	15	N	1	Metal	Ferrous	Rectangular (5.5 x 11.5 cm), notched & blunted on one end (old plane blade?)
N194	0.7	10	N	2	Metal	Ferrous	Nails (wrought, rosehead: one fragment; wire: one fragment)
N191	1.9	7	N	1	Metal	Cupreous	Cap, lantern wick
N191	2.9	12	N	1	Metal	Ferrous	Nail, animal shoe, machine made, 2"
N191	2.9	12	N	4	Metal	Ferrous	Nails, machine cut (one 1.5", one 2", one 3.25", one fragment)
N191	2.9	12	N	6	Metal	Ferrous	Nails, wire (one 1.25", one 1.5", two 2", one 3", one fragment)
N191	2.9	12	N	2	Metal	Ferrous	Spikes, wire (one 4.25", one 4.75")
N175	1.7	6	N	4	Metal	Ferrous	Sheet metal, scraps, unidentified
N175	2.2	4	N	1	Metal	Ferrous	Nail, machine-cut, 1-5/8"
N165	0.9	7	N	4	Metal	Ferrous	Sheet metal, scraps, unidentified
N165	0.9	7	N	1	Metal	Ferrous	Nail, machine-cut, fragment
N155	1.8	9	N	1	Metal	Ferrous	Spike, machine-cut, 4"
N134	1.4	10	N	1	Metal	Ferrous	Wood stove, panel fragment, cast iron
N109	0.6	11	N	1	Glass		Flat glass (window), pc.
N109	0.6	11	**Y**	1	Metal	Ferrous	Spike, wrought, robust, flat shank, 3"
N109	1	5	N	1	Metal	Ferrous	Nail, wire, 3.25"
N83	0.8	12	N	2	Metal	Ferrous	Nails (one machine-cut fragment; one wire, box, 1.25")
N83	0.8	12	N	1	Glass		Flat glass (window), pc.

Appendix C

Appendix D. GRPO Maintenance Area Survey, June 2005
Record of Shovel Tests

Shovel Test 1 (ST1)

Depth (cm)	Description of Natural Materials	Description of Cultural Materials
0-13	Very dark brown loamy sand.	Bottle, beer, broken, brown glass (fragments)
13-30	Very dark brown clayey sand w/ dense gravel.	NONE

ST1 is north of the Maintenance Shop, 8m south of Pin B on the N185 sector of the baseline, and 30cm west of that baseline. Test terminated at 30cm level by dense rock and gravel. No materials collected.

Shovel Test 2 (ST2)

Depth (cm)	Description of Natural Materials	Description of Cultural Materials
0-15	Very dark brown loamy sand.	NEGATIVE
15-30	Very dark brown clayey sand w/ dense gravel & some greasy wood charcoal.	
30	Hit large rock.	
40	Test terminated.	

ST2 is north of the Maintenance Shop, 18.5m south of Pin B on the N185 sector of baseline. Test terminated at 40cm level after encountering a large rock at 30cm depth that covered 80-percent of the test unit. No materials collected.

Shovel Test 3 (ST3)

Depth (cm)	Description of Natural Materials	Description of Cultural Materials
0-20	Homogeneous black (7.5YR 2.5/1) loamy sand	NEGATIVE
20-22	Discontinuous, black (10YR 2/1), greasy, wood charcoal seam (?)	
22-45	Dark yellowish brown (10YR 3/6) clayey sand w/ fine gravel	

ST3 is north of the Maintenance Shop, 3m south of Pin D on the N200 sector of the baseline. Test terminated at 45cm. No materials collected.

Appendix D. GRPO Maintenance Area Survey, June 2005
Record of Shovel Tests (cont'd)

Shovel Test 4 (ST4)

Depth (cm)	Description of Natural Materials	Description of Cultural Materials
0-10	Very dark grayish brown (10YR 3/2) clayey sand	NEGATIVE
10-25	Dark yellowish brown (10YR 3/4) clayey sand w/ dense gravel.	

ST4 is north of the Maintenance Shop, 16m south of Pin D on the N200 sector of baseline. No defined A-Horizon. Test terminated at 25cm. No materials collected.

Shovel Test 5 (ST5)

Depth (cm)	Description of Natural Materials	Description of Cultural Materials
0-16	Very dark grayish brown (10YR 3/2) clayey sand.	NEGATIVE
16-30	Dark brown clayey sand (7.5YR 3/3) w/ dense gravel.	

ST5 is north of the Maintenance Shop, 24m south of Pin D on the N200 sector of baseline. No defined A-Horizon. No materials collected.

Shovel Test 6 (ST6)

Depth (cm)	Description of Natural Materials	Description of Cultural Materials
0-16	Very dark grayish brown (10YR 3/2) clayey sand.	(8cm): Whiteware, pc.
16-45	Dark yellowish brown (10YR 3/4) clayey sand w/ dense gravel.	NONE

ST6 is south of the Maintenance Shop, 18.4m N97 from Pin 5 (a temporary pin 1m due west of the base of a hydrant). Whiteware fragment collected for short-term analytical purposes only.

Appendix D. GRPO Maintenance Area Survey, June 2005
Record of Shovel Tests (cont'd)

Shovel Test 7 (ST7)

Depth (cm)	Description of Natural Materials	Description of Cultural Materials
0-13	Dark brown clayish fill (10YR 3/3) w/ gravel.	(8-15cm): Some mixed wood charcoal (15cm): Wire, ferrous, pc. (15-25cm): Bottle, neck fragment, brown glass (15-25cm): Nail, machine-cut, fragment (25-30cm) Wire, ferrous, w/ pc. sheet metal on one end
13-19	Dark brown (7.5YR 3/2) clayey fill w/ gravel	
19-55	Dark yellowish brown (10YR 3/4) clayey sand.	(30-55cm): NEGATIVE
55	Dense gravel & rocks.	

ST7 is south of the Maintenance Shop, 16.6m N67 from Pin 5 (a temporary pin 1m due west of the base of a hydrant). No materials collected.

Shovel Test 8 (ST8)

Depth (cm)	Description of Natural Materials	Description of Cultural Materials
0-11	Black (10YR 2/1) clayey sediments.	(9cm): Whiteware, spall, minute
11-40	Very dark grayish brown (10YR3/2) clayey sand w/ dense rock & gravel.	(15cm): Bottle, glass sherd, clear (20cm): Bottle, glass sherd, clear

ST8 is south of the Maintenance Shop, 3.5m east of Grand Portage Creek and 1m north of Pin F (a spike set on the west end of the Old Ford Road N50 baseline). No materials collected.