A Report of the Phase II Archaeological Survey at the John Brown House 33SU639, City of Akron, Summit County, Ohio

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Abstract

The Summit County Historical Society (SCHS) contracted the services of Stewards of Historical Preservation (SHiP) to conduct an archaeological survey in preparation for a new parking lot to be constructed near the John Brown House in Akron, Summit County, Ohio. The crew of SHiP conducted a reconnaissance survey of the southern portion of the John Brown House property. The project area is approximately 0.88 acres in size, consisting mostly of mowed grass lawn, and an approximately quarter acre fenced garden left fallow. Non-invasive active and passive geophysical survey techniques were used within the project area. These included metal detection (active) and magnetic gradiometry (passive). Iron bearing "hits" on the metal detector were ground truthed with a bucket auger. The bucket auger was also used to systematically survey the project area that was not subject to magnetic gradiometry survey. A total of 40 bucket auger pits and seven shovel test units were excavated within the survey area. The results of these excavations yielded 660 historic artifacts ranging from the early historic use of the Portage Path to the mid-20th century (more recent garbage was not collected). The prehistoric artifacts included one retouched flake and two pieces of fire-cracked rock. The John Brown House site, 33 SU 639, was added to the Ohio Archaeological Inventory as a result of this survey. The authors of this report have recommended that SCHS avoid the area east of the extant fallow garden and west of the stone wall, which contained the highest density of diagnostic artifacts and highest potential to yield more data.

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Introduction

The primary purpose of this reconnaissance survey was to identify and delineate potentially significant archaeological sites that may be adversely effected by the construction of a parking lot for visitors to the Summit County Historical Society (SCHS). According to staff and the properties committee of SCHS, there was possibly a building foundation located within this area. Additionally, there was concern over the location of one of John Brown's children who was buried somewhere on the property.

With these concerns in mind, the crew of SHiP decided to conduct a concentrated geophysical survey in areas with the highest likelihood of yielding archaeological information. After visiting the site in late March, the areas with the highest likelihood were determined to be east of the garden. The relatively recent installations of electrical lighting, a gas well, and other ground disturbing activities in the western portion of the property reduced the likelihood of identifying intact archaeological features with geophysical survey techniques.

Figure 1: View of project area, looking southeast.

Environmental Setting

The project area is located in an upland hilltop within the City of Akron, Summit County, Ohio (Figure 1). The soils are associated with the Canfield-Urban land complex (Ritchie and Steiger 1974). This soil consists mostly of disturbed, removed original soils and replaced with anywhere from 50 to 75 percent grade and fill (Ritchie and Steiger 1974:67). The project area is located adjacent the historic Portage Path used to transport people and goods between the Lake Erie and Ohio River watersheds. The closest waterway is the Little Cuyahoga River.

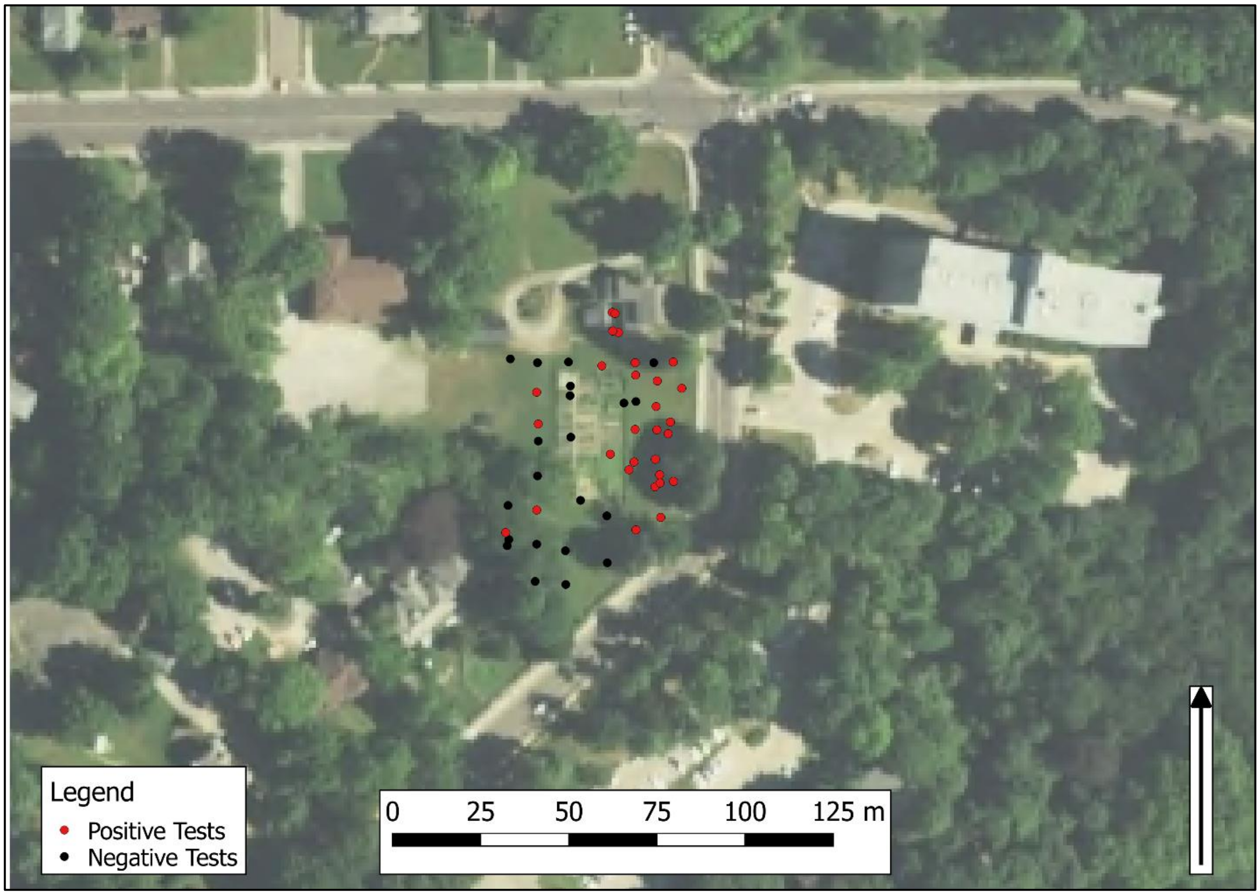


Figure 2: Location of survey area.

The entire project area consists primarily of mowed grass to the south of the John Brown house (Figure 1). However, there is approximately 0.23 acres of fallow garden in the center of the project area. The garden has been actively tilled since approximately 2006 according to aerial photographs from the USDA NAIP.

The project area is bounded to the north by the John Brown house, the gravel driveway, and the barn. The stonewall of the property bound the eastern and southern portions of the area. To the southwest and west are several trees forming a wood line and the southwest and western boundaries. In addition to these features, there is also an historical voting building, which has been moved from its original location elsewhere in Akron.

One historic archaeological site, 33Su607, falls within a 1.6-km (1-mile) radius of the area (Figure 3). The closest prehistoric archaeological site is 33Su227, the Big Bend Site, which is approximately 5.13-km (3.2-miles) to the northeast. Three historic districts fall within the radius, Glendale Cemetery, Hall Park Allotment, and the Col. Simon Perkins Mansion. This last district is located on the northeast corner opposite the project area.

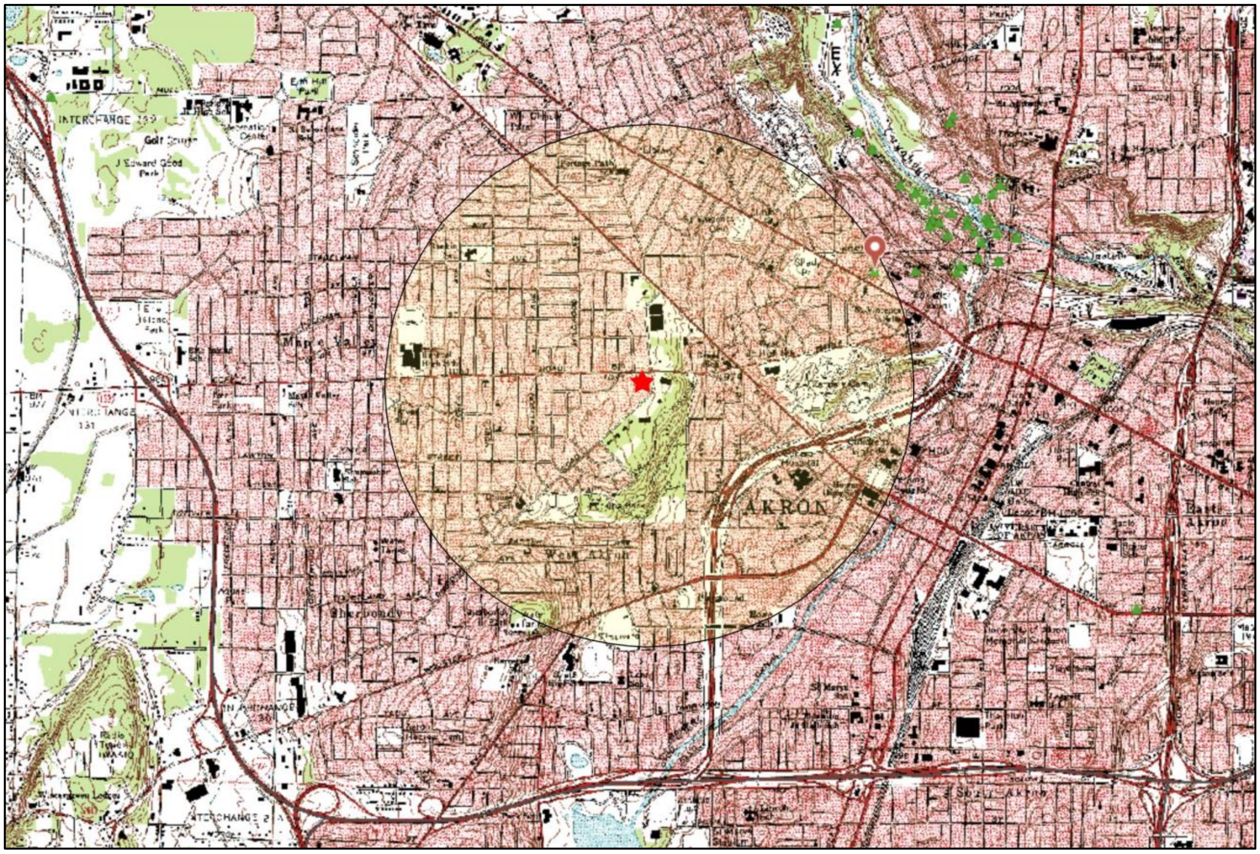


Figure 3: Archaeological sites within a 1.6-km radius of the project area as shown on the 1994 USGS Akron Quadrangle. 33Su607 is pinpointed. The project area is indicated with a star.

Research Design

The goal of the archaeological investigation was to identify prehistoric and historic cultural resources within the project area, and to determine the eligibility of identified resources for the National Register of Historic Places (NRHP). For the purposes of this report, cultural resources have been divided into *prehistoric* and *historic* resources. *Prehistoric* is defined here as cultural resources created or used prior to written accounts, while *historic* is defined as cultural resources created or used after written accounts. The historic period begins circa 1650 with the first accounts of southern Lake Erie in *The Jesuit Relations* (Brose 1984; Bush and Callender 1984; Wheeler-Voeglin and Tanner 1974).

Prehistoric Cultural Resources

The prehistoric period of northeast Ohio spans over 10,000 years before the present (Table 1); the time periods are divided here into broad cultural time periods derived from Lepper (2005). The dates listed below are sometimes subdivided further, such as the various Whittlesey phases of the Late Prehistoric (see Brose et al. 1981). American Indians have been using the natural resources of the Cuyahoga Valley in response to social, economic, and climatic changes throughout prehistory (Winstel 2000). Within the Cuyahoga River watershed there are hundreds of prehistoric sites including camps, small habitations, hamlets, villages, cemeteries, burial mounds, earthworks, storage caches, and isolated finds.

Table 1: Timeline of prehistoric periods in Northeast Ohio.

Period Name	Years (BCE and CE)	Prehistoric Cultural Patterns
Proto-historic	CE 1500—1650	European trade goods arrive in Ohio, Beaver (Iroquois) Wars begin.
Late Prehistoric	CE 1000—1500	“Whittlesey” culture, fortified villages, maize agriculture, and local resource acquisition
Late Woodland	CE 400—1000	Hopewellian social network collapse, nucleation of communities, maize introduced to Ohio, bow and arrow
Middle Woodland	CE 1—400	Hopewell culture, continental trade networks, earthwork construction
Early Woodland	1000 BCE—CE 1	Adena culture, mound construction, plant domestication, trade
Late Archaic	3500—1000 BCE	Glacial Kame and Red Ochre cultures, first plants domesticated, Lake Erie reaches modern lake level
Middle Archaic	6500—3500 BCE	Deciduous forest resource exploitation, climate warmer than before and less predictable
Early Archaic	8000—6500 BCE	Big game hunting, glacial isostatic rebound leads to new waterways and lakes, Lake Erie begins to fill
Paleoindian	12000—8000 BCE	Highly mobile, multi-thousand kilometer explorations by first people in Ohio

The first people to migrate into the Lake Erie watershed are known as the Paleoindians; it is unknown what they called themselves in their time because there is no written record (Lepper 2005). Most of the Paleoindian Period in Ohio is represented by a small handful of excavated sites, with the majority of sites discovered as isolated projectile point finds (Brose et al. 1981:108). Substantial Paleoindian sites include Nobles Pond in Stark County, Paleo-crossing in Medina County, and Sheridan Cave in Wyandot County (Lepper 2005).

The Archaic Period, sub-divided into Early, Middle, and Late, encompasses the largest time in American Indian prehistory (Purtill 2009). Throughout the Archaic, the climate was changing, Lake Erie's water levels were fluctuating (Holcombe et al. 2003), and new floral and faunal resources were establishing populations in Northeast Ohio (Brose et al. 1981:106-108; Purtill 2009). Even the level of the floodplain was fluctuating significantly during the Archaic (Szabo et al. 2011). Within the region, there are many Archaic sites, consisting mostly of projectile points and stone tool debris from their manufacture and re-sharpening.

The Woodland Period, sub-divided into Early, Middle, and Late, encompasses one of the most popular time periods in the public eye. The Hopewell culture flourished during the Middle Woodland Period (Lepper 2005; Finney 2002:24). The Cuyahoga Valley provides a unique opportunity to understand the collapse of Hopewell social networks, since most of the earthworks constructed in the Valley post-date the Hopewell period (CE 1—400). The woodland period is the period of the most intense earthwork construction. Some of the most famous prehistoric sites in the valley have been studied and known since the first European settlers arrived to the area (Whittlesey 1871).

The Late Prehistoric and Proto-historic Periods represent a significant shift towards settled village life, intensive maize cultivation, and nucleated family life (Brose 2000; Finney 2002:28-32; Lepper 2005; Redmond 2000; Winstel 2000:6). American Indians continued building earthen embankments, historically known as "hilltop forts," (Murphy 1968). Excavations by Redmond (2000, 2008) demonstrated that many served as habitation locations (Redmond 2000, 2008). However, these hilltop enclosures, such as Whittlesey Fort number five, were sacred spaces (Belovich and Brose 1992).

Large, multi-family villages scattered throughout the valley are among the most well known prehistoric sites. These include the South Park Site (Brose 1994), the Staas Site (Belovich 1986; Ochsner 1986), Terra Vista (Brose et al. 1981), Vaughn Village, the Doubler burial ground, Lee Village, and Barker Village (Finney 2002). These sites have produced thousands of artifacts, and many burials, over decades of private collecting episodes and professional investigations. These Late Prehistoric villages are along rises in the floodplain or terraces of the Cuyahoga River. Hamlet or village scale habitation sites, based on the data described above, are highly unlikely within the floodplain.

Historic Cultural Resources

The following section establishes general and specific context for the survey area in order to predict the type of historic features or material culture that may be present. This section covers the periods of historic American Indians, the European settlement period, transportation, agricultural, industrial, and recreational periods following the model developed for Northeast Ohio by Winstel (2000). According to documentation, the project area has been under continuous historic occupation since approximately 1830. However, it can be inferred that humans have been active in the area prior to this date due to its proximity to a known prehistoric and early historic feature, the Portage Path.

Historic American Indians (c.1650 – 1775)

The first map to show Lake Erie with some accuracy was published by Nicholas Sanson in 1650. It is likely that the information was provided to Sanson by a French or Jesuit missionary, however no documentation is available to confirm a visit to the area by Europeans prior to 1652 (Case Western Reserve University 2019). In Northeast Ohio, the 1650's were marked by considerable violence due to western migration of the Iroquois Confederacy who wished to expand their fur trading territory. This period is known as the Beaver Wars and was primarily a struggle between the Confederacy and other tribes. The expansion of the fur trade, encouraged by European markets, and the spread of disease from the European colonists were the main catalysts for this time of conflict. The Seneca Nation, the westernmost tribe of the Iroquois Confederacy, hunted and trapped regularly in what is now Northeast Ohio, but did not settle in the area. There were not any known European settlements during this period either.

Although the French had conducted several exploratory voyages through Lake Erie and it was known that French, Dutch, and English traders were operating in the Great Lakes region from 1669 to 1723, there is no indication that Europeans ventured south of the lake. The travels of Chaussegros de Lery, the engineer of Ft. Niagara, and Jacques Sabrevoi in 1729 and 1734 provide the first descriptions of the lower Cuyahoga (Case Western Reserve University 2019). The official inspection report and memoir of Robert Navarre of Detroit indicates that a French trading post was established by Francois Sanguin on the Cuyahoga River near Tinker's Creek around 1743. It was also referred to as "the French House" (Wheeler-Voegelin and Tanner, 1974). It seems to have been active for only a few years and then abandoned. Historian George Knepper believed it was reestablished again in 1755. (Peg Bobel, personal communication 2019)

By the 1750's, Wyandot and Lenape (Delaware) had settled in Northeast Ohio. The Lenape had migrated into the region from what are now the states of New York, New Jersey, and Delaware. The Lenape traditionally farmed near permanent settlements and had cleared 3,000 acres (1,214 hectares) near the forks of the Muskingham River by 1761. Two bands of Lenape migrated to the Cuyahoga and Tuscarawas river valleys (Delaware Indian Conference and Symposium 1998). Thomas Hutchins, who traveled through the region with Henri Bouquet from Ft. Pitt to present-day Coshocton, produced the first accurate map of the Cuyahoga River in 1765. It shows a "Cayahoga Town" along the river just north of modern Akron and an "Ottawas" town downstream (Figure 4). However, due to the violence of the pre-Revolutionary war period, the settlements of the Cuyahoga Valley were temporary and many American Indians moved to Canadian territory.

Figure 4: March of His Majesty's Troops from Fort Pitt to the Forks of Muskingham in 1764. (Hutchins 1764)

Paths and rivers were the only transportation routes through the territory during this time. The most notable path was the Portage Path. This trail was utilized by prehistoric and historic peoples as a route between the Cuyahoga and Tuscarawas Rivers. Those traveling by canoe would exit the Cuyahoga River at the northern end of the trail, walk approximately 8 miles (12.87 km) south, and then continue their water journey at the southern end of the trail at the Tuscarawas River. The account of James Smith, a settler from Pennsylvania who was captive of the Lenape of Northeast Ohio from 1755 to 1759, made the first documented mention of the Portage Path. "From the forks of the Cayahaga to the East Branch of Muskingum, there is a carrying place, where the Indians carry their canoes etc. from the waters of the Lake Erie, into the waters of the Ohio." (Smith 1799)

The Portage Path appears on historic maps until 1921. It is shown following the modern route of South Portage Path until it meets modern day Copley Road/Maple Street. There it swings slightly eastward. This places it directly east of the project area on the opposite side of present day Diagonal road. While remains of the path itself are no longer present, it is possible that artifacts relating to the Path's usage throughout prehistory and history are present within the project area.

European Settlement: The Western Reserve Frontier (1775 – 1786)

During the American Revolution, few settlements existed in most of Northeast Ohio. This was due to notable Native American resistance. Federal troops were also diligent in enforcing anti-squatting laws that prevented illegal settlement within Indian lands by Americans. In 1786, Moravian missionaries Rev. John Heckewelder and Rev. David Zeisberger moved to the Cuyahoga Valley with their Indian converts. The settlement was named Pigerruh and was constructed of 28 buildings located on the ruins of an old Ottawa village. The exact location of this settlement is unknown. Archaeological investigations by David Sanders Clark in 1936 place it near Canal and Schreiber roads, investigations by David Brose in 1980 place it between Stone and Schreiber roads, and other documentary interpretations place it by the old French trading post at Tinker's Creek and the Cuyahoga River. The settlement was abandoned in 1787. (Case Western Reserve University 2019)

European Settlement: The Connecticut Western Reserve (1786 – 1800)

The State of Connecticut relinquished its land claims in the west in 1786, except for a tract of land in what is now Northeast Ohio (Figure 5). This area became known as the Connecticut Western Reserve and encompasses what is today Ashtabula, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Mahoning, Medina, Portage, Summit, and Trumbull counties. The majority of this land, except the Firelands (Huron and Erie Counties), was sold to the Connecticut Land Company following the Treaty of Greenville between the United States and the American Indian tribes in 1795. The Treaty of Greenville established the westernmost boundary of the United States, allowing for legal expansion of American settlement. The treaty line began at the mouth of the Cuyahoga River on the shore of Lake Erie, ran along the river's course and then followed the track of the Portage Path trail. The treaty boundary continued along the Tuscarawas River, crossing at Fort Laurens (Bolivar), then turned west along a branch of the Great Miami River, northwest to Fort Recovery, and then to the confluence of the Ohio and Kentucky Rivers (Figure 6).

Figure 5: The Connecticut Western Reserve (Ohio History Connection 2005).

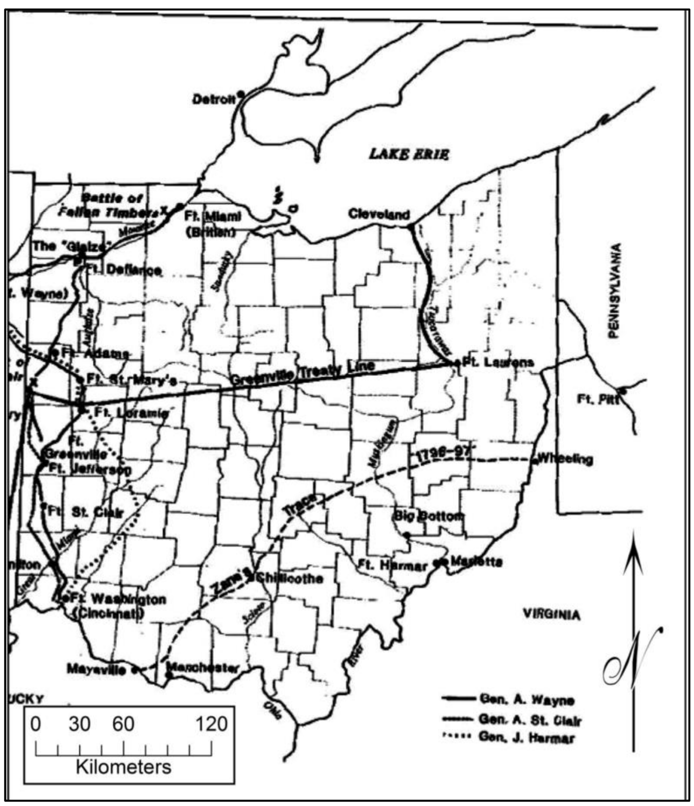


Figure 6: The treaty boundaries in Ohio (Knepper 1989).

The Connecticut Western Reserve was surveyed by Moses Cleaveland for the Connecticut Land Company and divided into ranges and townships. The townships were 5 miles square and divided further into 100 lots of 160 acres each. The project is area is located in what was once Portage Township. It was organized in 1798 during the Connecticut Western Reserve era as an “equalizing township” to equalize land values for those who had received property in other townships that were unsuitable for farming (Grismer 1952). It received its name from the Portage Path trail that ran north to south through the middle of the township. Twenty lots were located west of the Portage Path and eight tracts east of the Portage Path.

Transportation: Early Portage County and Portage Township (1800 – 1825)

In 1800, Connecticut formally relinquished the remainder of its land claims and Portage Township became part of the Northwest Territory. The State of Ohio was created in 1803 and the old Western Reserve was reorganized into the counties now known today. Summit County, however, would not be created until 1840. Until then, the project area fell within the boundaries of Portage County. The first Euro-American settlers of Portage Township were Major Miner Spicer and Paul Williams, whose homesteads were located in what is now downtown Akron. One of the most prominent landowners in this area was General Simon Perkins of Warren, Ohio. Perkins was a land agent for the Erie Land Co. and had been put in complete control of the company’s lands in the Western Reserve. He also served as a brigadier general for the United States during the War of 1812.

He purchased vast quantities of property throughout Portage County with the hope that they would become more valuable in the future. Following the War of 1812, plans were made to build a canal that would connect the interior settlements of Northeast Ohio to the rest of the United States. Perkins purchased the majority of what is modern downtown Akron in 1815. Using his influence over the canal commissioners, Perkins convinced them that the new Ohio & Erie Canal should run through his vast land holdings to the west of the town of Middlebury and he donated the right of way for the canal to be built. Perkins partnered with Paul Williams either during the canal deal or shortly afterwards to lay out the new town of Akron which would be conveniently bisected by the new canal (Figure 7). (Grismer 1952)

Figure 7: Map of the Town Plat of Akron in Portage County, Ohio laid out on the Canal at the Portage Summit. (Joshua Henshaw 1825)

Agricultural Period: The Col. Simon Perkins and John Brown Family Occupations (1825 – 1854)

Another one of General Perkins' holdings was a 115-acre farm purchased from a Betty Wilcox on a hill 2 miles west of Akron. This farm was also located at the intersection of the Portage Path trail and the Wooster to Ravenna stagecoach route (Jackson and Jackson 1983). In order to assist in management of his father's interests and to establish his own, the General's son, known as Colonel Simon Perkins, relocated his family to this farm in 1834.

Perkins decided to build a large stone home on the property. During its construction he and his family lived in a frame house southwest of the construction site. The origins of this structure are unknown. According to the SCHS's website, the house was built in 1830 by Benjamin O. Greene and Salmon Hoisington (SCHS 2018). However, recent renovations of the house indicate that part of building may have been constructed in the 1820's (Bill Stewart, personal communication 2019). A tavern operated by a Sally Hopkins King "on Perkins Hill" is mentioned in *Memorial to the Pioneer Women of the Western Reserve*, but it is unknown if the frame house and the tavern were the same building (Jackson and Jackson1983).

Upon completion of the stone house, the Perkins family moved out of the frame house and it is assumed that the house was rented to various tenants from that point on until 1844. As one of the wealthiest citizens in the region, Colonel Perkins maintained the large farm as well as other concerns. In 1844, Perkins went into a wool business partnership with John Brown. Brown brought members of his family and his Saxony sheep from Richfield, Ohio where Herman Oviatt had previously employed him. It is believed that Perkins officially purchased the frame house shortly before the arrival of Brown (SCHS 2018). Brown wrote his son, John Jr., "My family will go into a very good house belonging to Mr. Perkins – say a half mile to a mile out of Akron" (Sanborn 1885). In addition to renting the house, the Browns were also permitted to use wood on the property for fuel and use the "door-yard garden grounds" for a vegetable garden (Jackson and Jackson 1983). The wool partnership lasted until 1854. John Brown lived in the house until 1846. He then moved to Springfield, Massachusetts to expand the Perkins & Brown business and later to North Elba, New York to attempt farming. According to a letter sent to John Jr., John Brown moved his wife and younger members of the family back to Akron in 1851. Although he continued to travel, he would remain mostly in Akron from March 1852 until he departed Akron permanently in the Spring of 1855 (Sanborn 1885, page 193). Some of his older sons would remain in the house continuously until from 1844 to 1854. During this period, the property would be used mainly for sheep raising and farming. The barn located behind the house also dates from this period. Due to its association with John Brown, who would go on to lead anti-slavery raids in Kansas and Harper's Ferry, Virginia, the frame house has been called the John Brown House or Home ever since the 1860's (Figure 9).

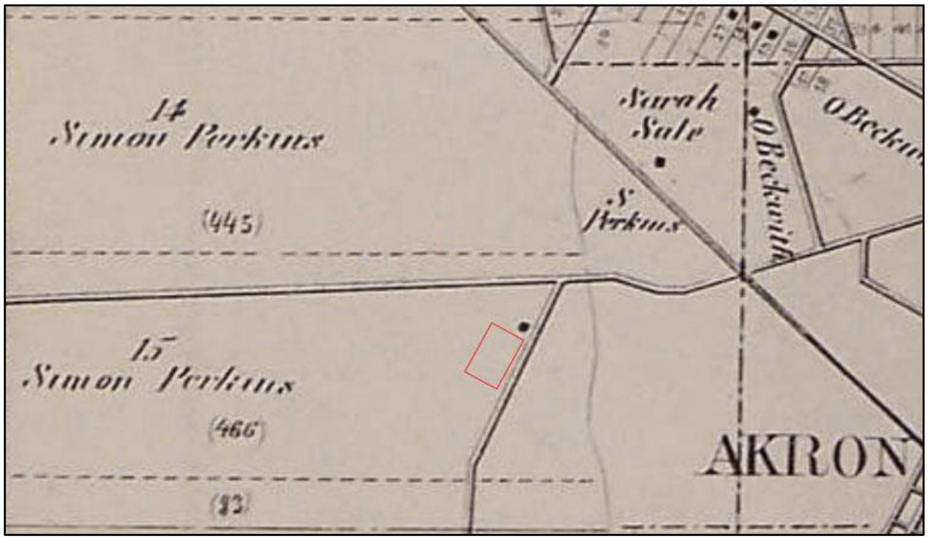


Figure 8: Location of the survey area, 1856 (Mattews and Taintor 1856). The Portage Path is the faint line running north-southeast of the project area.

Figure 9: The John Brown House c. 1880's (Summit County Historical Society)

Industrial Period: The Second Generation Perkins Family Occupation (1854 – 1895)

By the mid-1850's, the canal had been superseded in importance by the railroad, supported in large part by the efforts of Colonel Perkins. His property remained outside of the city limits. After the departure of the Brown in 1855, the house was rented to other Perkins farm workers. In 1858, Colonel Perkins transferred ownership of the John Brown House property to his son Joseph Perkins. The ownership was then shared between Joseph and his brother Charles from 1870 to 1883 when Charles took over sole ownership (SCHS 2018). Ownership of the stone house was given to the Colonel's daughter, Anna, upon his death in 1887. By 1891, the plot of land on the southeast corner of modern day Diagonal Road and Maple Street was owned by George T. Perkins, the oldest son of Colonel Perkins. George also owned the plot on the northeast corner of the intersection (Figure 10). While it is well documented that farming continued to take place on Anna's property, there is little indication as to what the land of the John Brown House property was used for. It is documented that Charles Perkins lived in the house, although the exact dates for his occupancy during this period are unknown.

It is important to note that it appears the road that followed the Portage Path on the Perkins property was a private road. There is also evidence that the road now known as Diagonal Road was private as well. In a letter from surveyor R.S. Paul to C.R. Quine, a historian for SCHS, Paul mentions Col. Perkins closed the road to public passage in 1858 and in 1879. According to Jackson and Jackson, a road could be closed once a year if it only led to one person's home (1983).

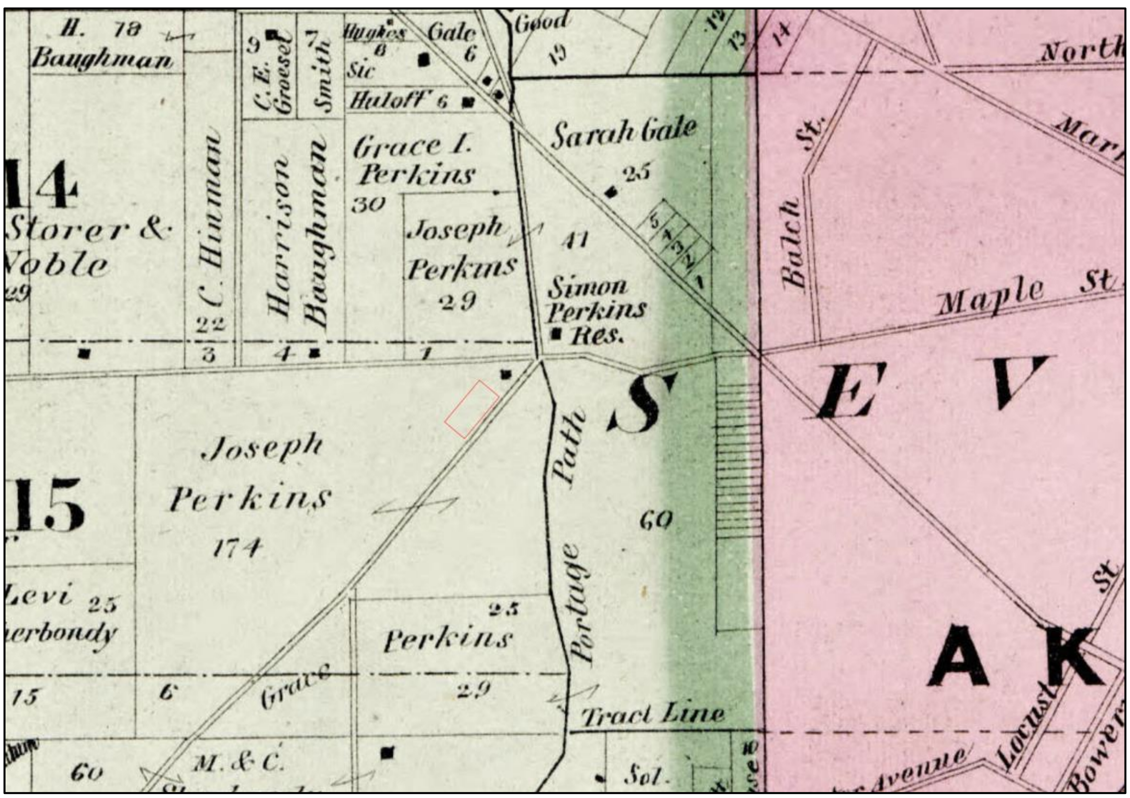


Figure 10: Location of the survey area, 1874 (Tackbury, Mead, and Moffet 1874).

Figure 11: Location of the survey area, 1891 (Akron Map and Atlas Company 1891). The dotted line indicates the location of the remains of the Portage Path.

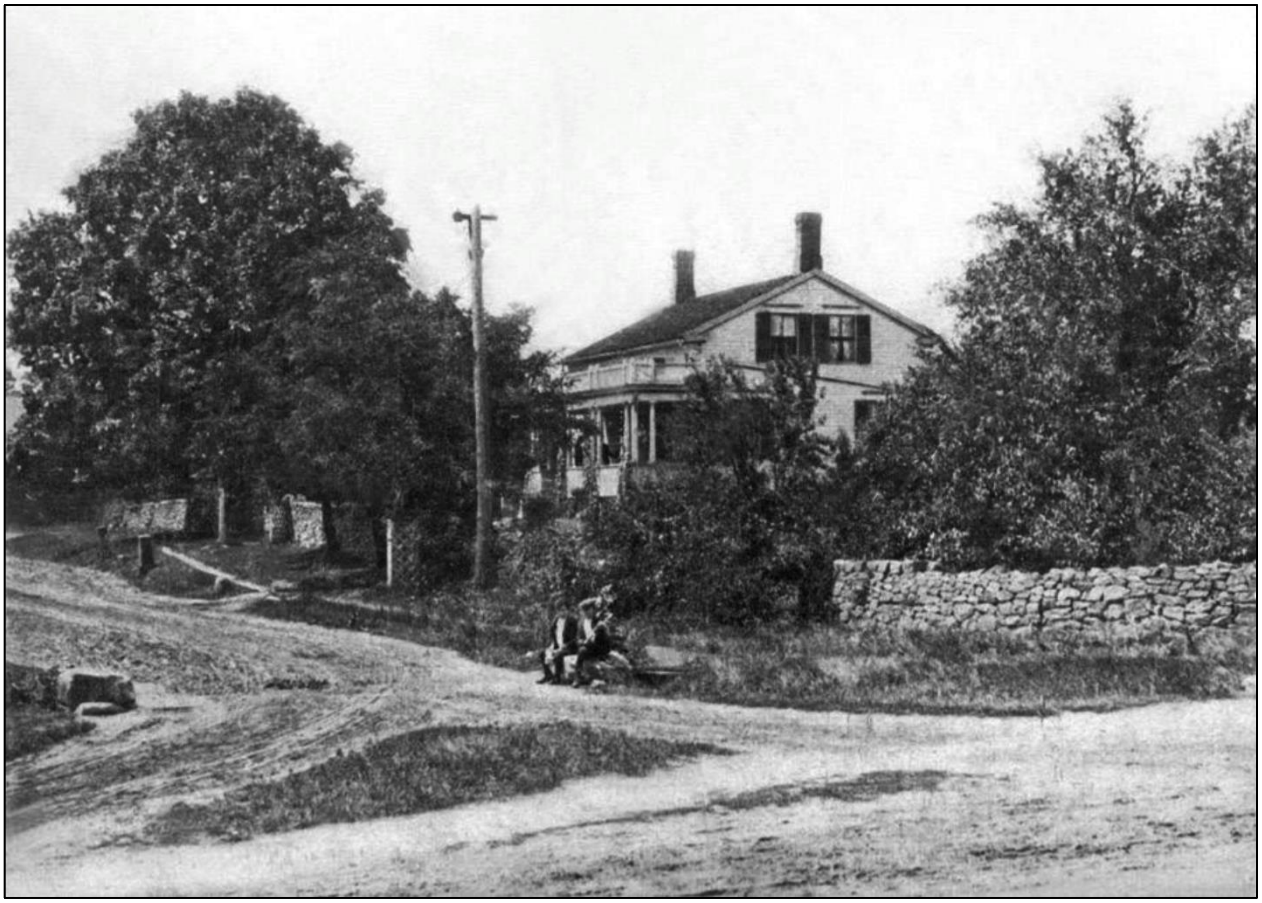


Figure 12: An undated photograph of the John Brown House showing Diagonal Road and Maple Street, the addition of a front porch, and a utility pole near the front drive entrance. (Akron-Summit County Public Library)

Recreation Period: The Portage Golf Club, Charles Perkins, and the Summit County Historical Society (1895 – Present)

In 1895, Charles Raymond, son-in-law of George T. Perkins, convinced his in-laws to allow his golf club to lay out a golf course on the John Brown property. The golf club was named the Portage Golf Club and it operated a 9-hole golf course on the Perkins property. The house served as the clubhouse. During the club's occupancy, a large addition was made to the south side of the house. The small structure known as "The Birdhouse" was moved from an unknown location to behind the house for equipment storage (SCHS 2018). The barn was used as a locker room (Portage Country Club 2018). The majority of the course was located on the east side of Diagonal road. The tee off for the first hole was located in the front of the house and players had to clear the stonewall of the property (Jackson and Jackson 1983). A drawing by local artist Chuck Ayers printed in Jackson's *At Home on the Hill* shows a basic design of the golf course with the present-day structures shown for reference (Figure 13).

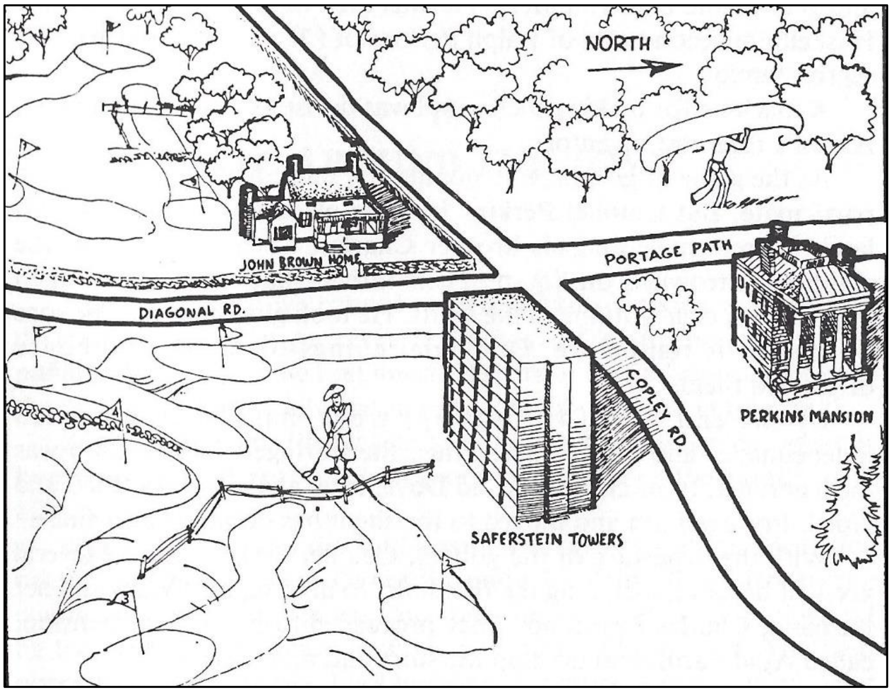


Figure 13: A drawing provided by artist Chuck Ayers to an unknown newspaper showing the possible layout of the golf course (Jackson and Jackson 1983)

By now, George T. Perkins had taken over management of the property. His brother Charles had moved to Columbus in 1892 to serve as chief engineer to the Board of Public Works for Ohio (Jackson and Jackson 1983). George Perkins did not permit the golf club to play on Sundays nor did he and Charles approve of the consumption of liquor on their properties. Due to these reasons as well as growing membership, the club decided to move elsewhere. In 1905, it was incorporated as the Portage Country Club Company and moved to its present location on Twin Oaks and North Portage Path.

After the departure of the golf club, George deeded his property at the southeast corner of Diagonal and Maple to his daughter Mary and her husband Charles Raymond. There they constructed the sprawling Auld Farm Mansion. The mansion was razed in 1968 and the present-day Saferstein Towers apartment building was erected on the site.

Charles Perkins returned to Akron in 1908 and took up residency of the John Brown House once again. According to Jackson, "Charles smoothed out the land and planted daffodils" (1983). He also built an addition that included the kitchen, butler's pantry, and he expanded the second floor (SCHS 2018). All the windows were replaced as well. It is possible the water storage tower was added to the structure during their renovations. The 1916 Sanborn Fire Insurance Map does not indicate any other structures on the property besides the house, barn, and "birdhouse" (Figure 16).By 1920, the Perkins' properties were just within city limits and the private lanes of Diagonal and Portage were opened to the public. Except for the properties of

Auld Farm, the Stone House, and the John Brown House, the original land holdings of Colonel Perkins had been subdivided into residential lots (Jackson and Jackson1983).

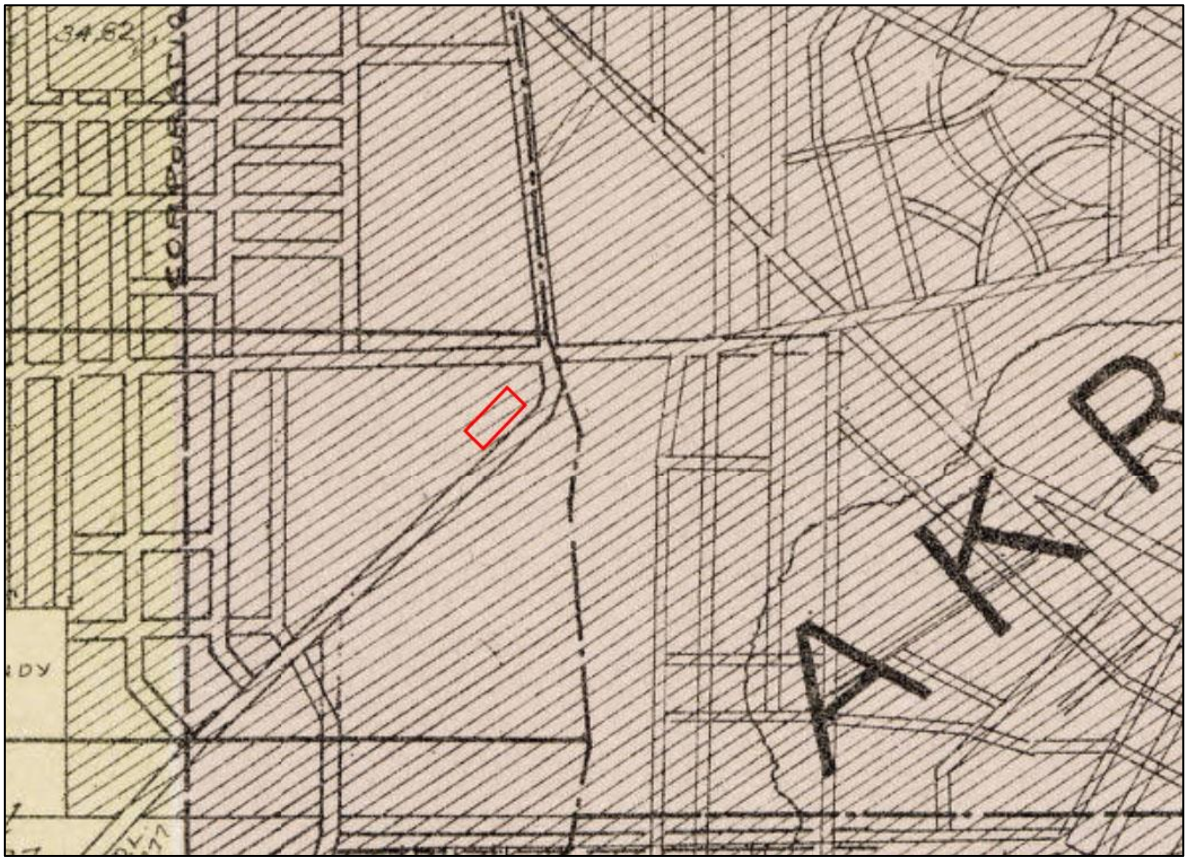


Figure 14: General location of survey area in 1910 (The Rectigraph Abstract and Title Company 1910)

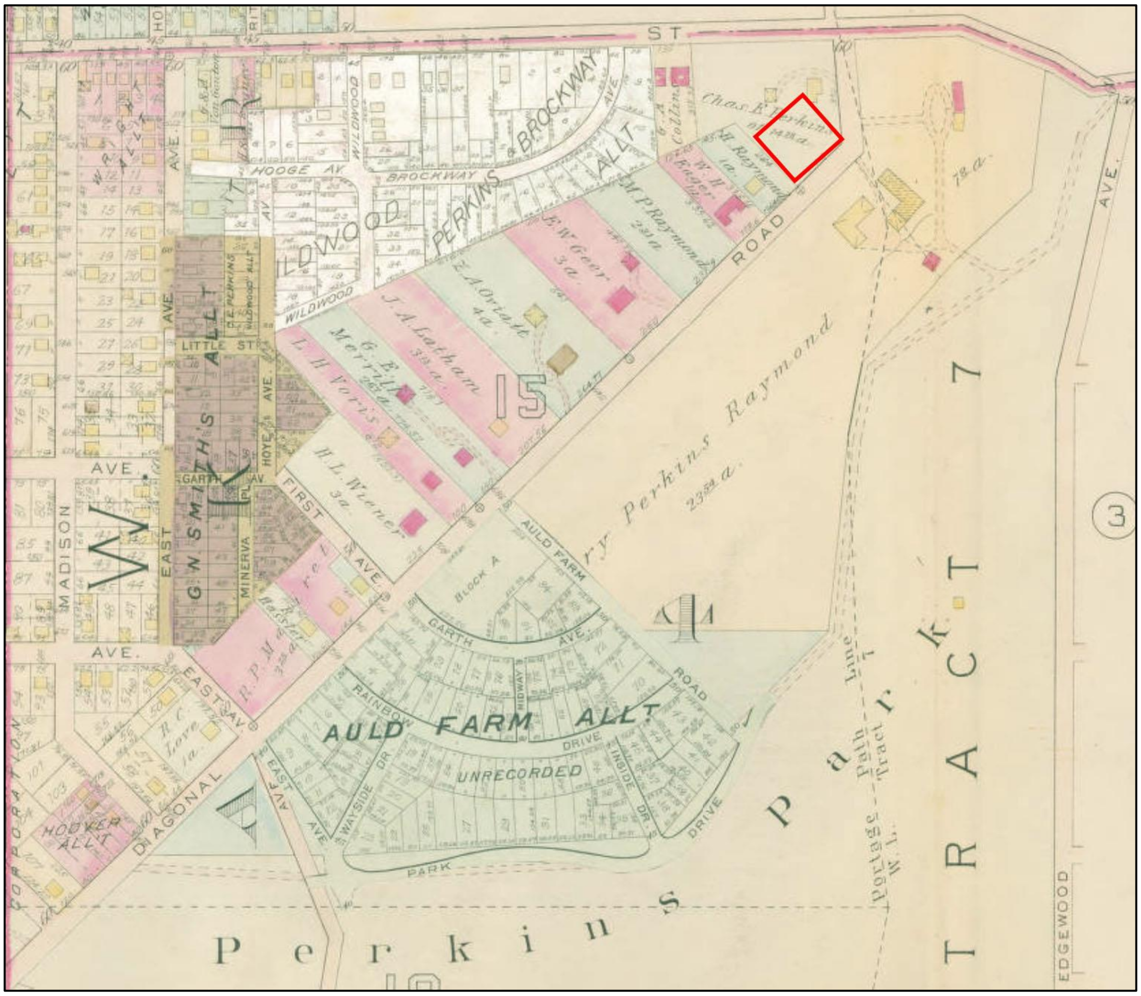


Figure 15: General location of survey area in 1915 (G. M. Hopkins Company Civil Engineers 1915).

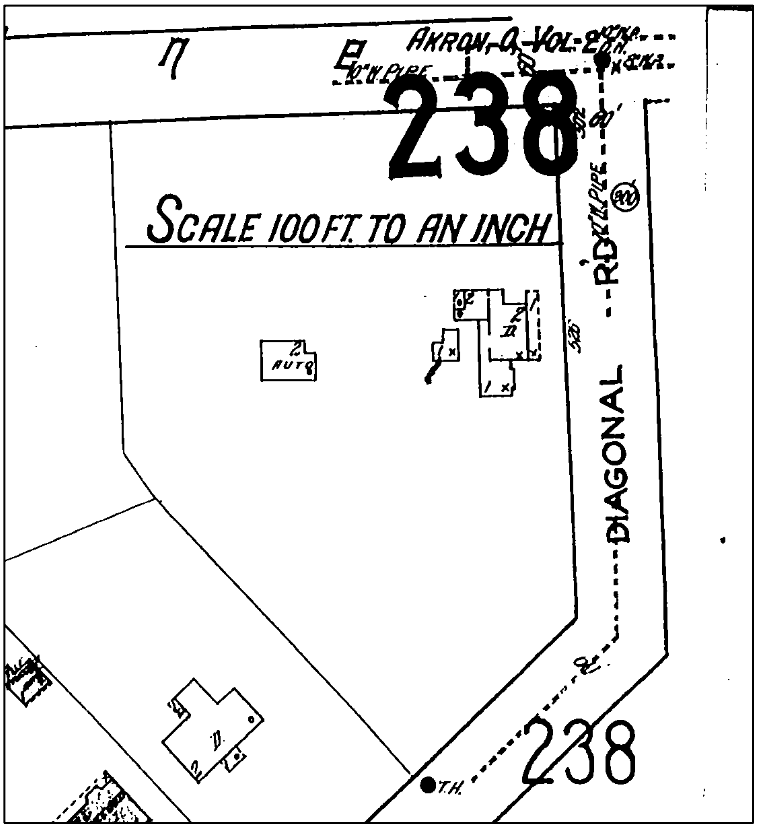


Figure 16: Sanborn Fire Insurance Map of the John Brown property and the structures present in 1916 (The Sanborn Map Company 1916).

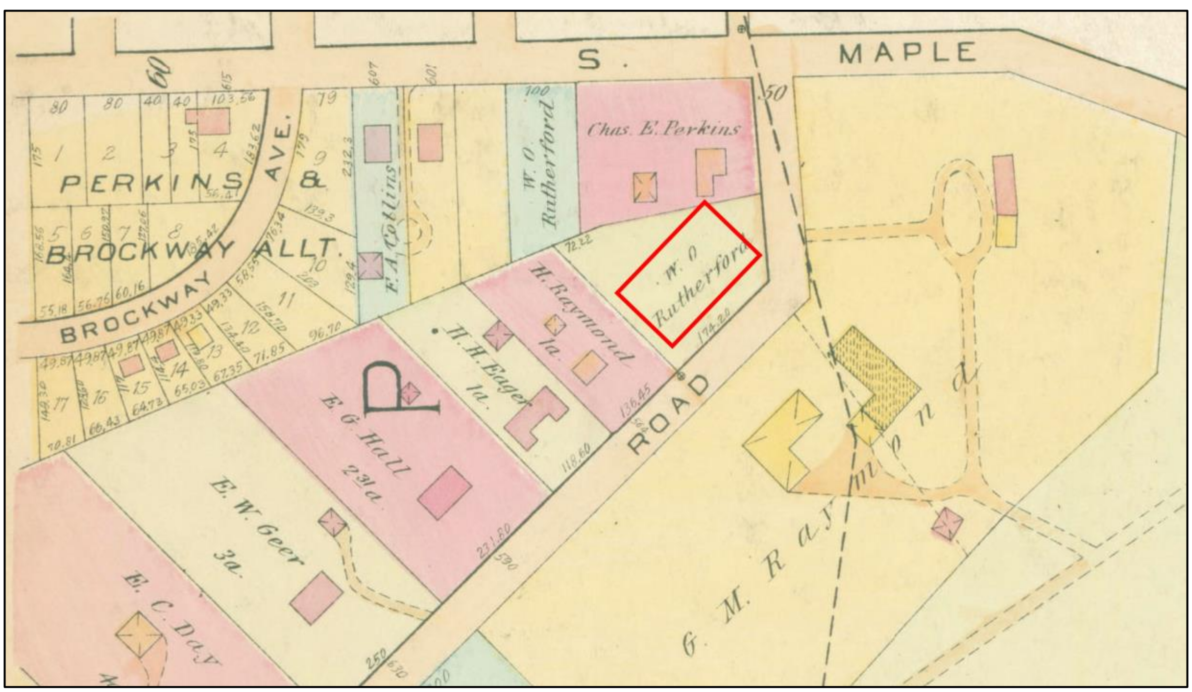


Figure 17: General location of survey area in 1921 (G. M. Hopkins Co. 1921). The property lines of Rutherford and Perkins appear to be incorrectly mapped in this edition.

Charles died in 1925 and his wife, May Adams Perkins, remained in the home until her death in 1942. The house was then willed to the SCHS. The stone house, now called the Perkins Stone Mansion, was sold to the historical society by Col. Simon Perkins' great-grandson Charles Perkins Raymond in 1945 (Jackson 1983).

The property has changed little since it was acquired by the historical society. At some point, security lights were installed along the southern half of the property. Let's Grow Akron operated a community garden just south of the house from 2006 until 2015. An oil well was placed in the western quadrant of the property near the barn around 2009. The Home Builders Association remodeled the interior of the house in 1999 (SCHS 2018). The exterior of the house is currently undergoing renovation. This process began in 2017.

Field Methods and Techniques

The crew used magnetic gradiometry and metal detection to identify areas of potential archaeological significance within the project area. Prior to geophysical survey, a visual surface survey of the project area was conducted to determine potential foundation or refuse depressions. The crew set out a survey area for geophysical survey roughly 10m meters. The extent of the survey area for the project was 40 m north to south and 30 m east to west. Alignment followed magnetic north. This area was subsequently subdivided into a 10 m by 10 m meter grid system for magnetic gradiometry. A total of eight grid squares were selected for data collection.

Geophysical Surveys

Within archaeology, the term geophysical survey refers to the use of a collection of technologies to measure any of a variety of properties of the Earth within the shallow subsurface (down to approximately 5m). Similar, and additional, technologies are also employed in other academic and applied research fields, such as geology, environmental science, petroleum engineering where equipment is scaled to collected data at much greater depths. Since the vast majority of the archaeological record documenting past human activity lies within the top 5m of soil, this "shallow subsurface" is the target area of interest for archaeological geophysics (Goldberg and Macphail 2006: 312-316). Over the past two decades, the use of shallow subsurface geophysical surveys has become an established, routine part of archaeological prospection and mapping prior to excavation (Burger 1992; Burger, et al. 2006; Clark 1990; Gaffney and Gater 2003; Witten 2006).

Geophysical survey technologies are often used to map archaeological features at known archaeological sites, often as a guide to locating promising units for excavation, mapping areas too large for traditional excavations, or prospecting in areas unsuitable for intrusive excavation procedures. Similarly, geophysical survey techniques are also used in archaeology for reconnaissance – the discovery of new sites in areas where no physical surface evidence remains. Reconnaissance projects are typically initiated in response to impending disturbance of an area prior to infrastructure projects (roads, dams, new buildings, etc.) or when historical records, living memories and oral traditions, or local legend suggest the presence of important archaeological remains in the absence of surficial remains.

Dozens of different technologies exist for mapping subsurface features without excavation. These include satellite and aerial photography (using visible light, infrared, and multispectral wavelengths), thermal imaging (long-infrared), surface surveys collecting artifacts exposed on the current land surface, microtopographic mapping, and geochemical mapping of soils. Geophysical survey technologies in particular measure a wide range of properties to map archaeological features and artifacts in the shallow subsurface. These properties include magnetic fields and the magnetic susceptibility of soils, the resistance of the earth to the passage of an electrical current, the ability of the earth to propagate and conduct radio waves, and the reflection and refraction of seismic waves through subsurface deposits. In archaeology, the three most commonly employed techniques are magnetic field gradiometry ("magnetometry"), electrical resistivity survey, and ground-penetrating radar (Johnson 2006). Recently metal detecting has also become a common technique used at archaeological sites. Standard surveying equipment, specifically designed and scaled for use on archaeological sites, is available through several commercial vendors of scientific equipment, with software applications that allow for quick downloading, processing, and interpretation of the data.

The basic idea is the same for all of these geophysical survey technologies. Conceptually, if the soil beneath the surface in an area comprised a completely homogeneous material with no variation, then the measured physical properties of the soil should not vary as the instrument is moved across the survey area. So, for example, any variation in the strength and direction of the earth's magnetic field that is seen as one passes a magnetic field gradiometer across a survey area indicates the presence of a feature (or features) below the surface creating the non-homogeneous response. We call such responses "anomalies". These anomalies may represent geological features (e.g., changes in bedrock, soil horizons, stream channels), biological features (e.g., tree root systems, rodent burrows), or anthropogenic (human-made) features (e.g., walls, floors, hearths, pits, etc.). Of course, in the real world no subsurface material is completely homogeneous, so these technologies invariably map a combination of geological, biological, and anthropogenic features that in some way influence the physical properties as measured at the ground surface.

Metal Detection

Metal detection, unlike magnetic gradiometry, is an active geophysical method (Gaffney 2008:316). Active techniques induce an electrical or magnetic field through the soil (Kern 1999:76). There are many types of metal detectors, operating under various forms of electro-magnetic induction. The two most common types of metal detectors are pulse induction (PI) and Continuous Wave (CW) (Cross 2008; Scott et al. 2012). CW metal detectors measure the frequency difference, also known as phase shift, between the induction signal and the returning signal. PI metal detectors measure the time delay between the outgoing electromagnetic signal and the returning electromagnetic signal. The Teknetics G2+, used for this survey, is a CW detector.

Many metal detectors function on an audio-only detection method, and use many different forms of discrimination to eliminate ground magnetism (Scott et al. 2012). Most metal detectors feature a discrimination switch and a ground balance tuner. The discrimination function serves as a noise canceling application of the metal detector for undesired objects.

Discrimination reduces variation in the subsurface magnetic susceptibility, which is not desired for archaeological geophysical survey. Ground balance, a common feature on many metal detectors, provides the operator with the ability to account for magnetized or iron bearing soils (Scott et al. 2012:41). What ground balance is measuring is the same phase shift that is being used to discriminate different metal types on the discrimination function, but at a slower return rate. Cancelling the ground magnetism is helpful for prospectors looking for deep deposits of gold, but ground magnetism can inform archaeologists about soil conditions that may indicate subsurface cultural features or highly disturbed soils.

The project area was "swept" with a Teknetics G2+ (First Texas Products 2015) metal detector at an interval of 10 meters east to west. Each transect, spaced 10 meters apart, was walked with a continuous coil sweep covering approximately 1.25 m in width. These transects were paced and walked in roughly a south-north direction consistent with other metal detector techniques (Espenshade et al. 2012; Pratt 2009; Scott et al. 2012:45). Flags were placed at the location of "hits," which were indicated on the display screen of the detector with a target ID value from 0-99. The metal detector was set to discriminate only iron bearing objects or "hits." All other metals were ignored. In an urban space such as the John Brown house, there was a large amount of modern trash visible on the surface that the detector would "hit." These false positives include modern beer and soda cans, bottle caps, coins (composed of different metals from historical coins), aluminum food packaging (i.e. chip bags, candy wrappers).

MAGNETIC FIELD GRADIOMETRY

A magnetic field gradiometer is a machine used to measure minute fluctuations in the earth's magnetic field caused by features buried immediately below the surface. Often this equipment is referred to as a magnetometer (one sensor) or a gradiometer (two or more sensors) and there are a variety of configurations that rely on different methods of measuring the earth's magnetic field. At most archaeological sites, magnetic field gradiometry can easily detect ferrous metal artifacts (iron, steel, iron alloys), burnt soils or clay features such as hearths or firepits, and features in which there are significant contrasts in the magnetic properties (e.g., the magnetic susceptibility) between juxtaposed subsurface materials. The magnetic field gradiometers used in archaeology are extremely sensitive and such contrasts can include very subtle signals, such the difference between soil types caused by pit digging and subsequent infilling, or other anthropogenic activities.

In this survey, we employed a GeoScan FM-256 fluxgate gradiometer. The GeoScan FM-256 employs a passive measurement of the earth's magnetic field. A gradiometer does not send energy into the ground and measure the response. Rather, the FM-256 gradiometer is a handheld device which takes timed measurements of the relative changes in the earth's magnetic field at given point on the earth's surface. These measurements of magnetic field strength are recorded in units of nanoteslas (nT). It is useful to note that this technology differs fundamentally from that employed by metal detectors, discussed above, which actively produce a magnetic field by passing an alternating electrical current through a coil, in turn creating a response in buried conductive metals when the coil passes nearby (Connor and Scott 1998). The FM-256 can detect archaeological materials down to a depth of roughly 1-2m with 3m being the practical limit (except for large masses of highly magnetic materials). This is result of the known decrease in magnetic field strength due to distance. The maximum depth is dependent upon the strength and orientation of the buried feature, its depth, and its contrast with the magnetic susceptibility of the surround materials (Kvamme 2006:222-223).

When geophysical measurements are recorded in the field, their spatial location is recorded relative to a site-wide spatial grid. Using the FM-256, the rate of data collection is timed, so the operator walks at a consistent pace along a "transect" – a linear path between two known points – within a survey grid to ensure the readings are evenly spaced. A series of parallel transects are collected to form a two-dimensional grid of measurements. The term "sample interval" refers to the distance between each reading along the survey transect. The term traverse interval refers to the distance between each survey transect.

During this survey, measurements were collected along transects, that is linear paths following the grid system established at the beginning of the project. On the ground, the transect was delineated by a rope (with distances marked on it) oriented north-south along the site-wide grid. Work started in the southwest corner of each survey grid unit. As the operator finished collecting data along each transect, the rope was then moved one traverse interval to the east and another line of data was collected. Measurement readings (in nT) were collected and stored in the internal memory of the FM-256 and then downloaded via a proprietary software application, GeoPlot. The data were then processed and mapped to allow for interpretation. In mapping, each measurement is represented as a location on a two dimensional map. It is easiest to think of this process in terms of the pixels in a digital photograph. In the case of geophysical maps, the size of the pixel is determined by the sample density collected in the field. Higher sampling density results in smaller pixels and a finer resolution in the resulting magnetic maps.

Processing of the data was done using the Geoplot application. Broadly speaking, the goal of processing the raw data is to increase the signal-to-noise ratio in the dataset. This allows the archaeologist to identify possible features of interest (the "signal") and to minimize the effects of "noise" such as modern artifacts and features (e.g., ferrous metal trash, utility lines, subsurface drainage systems, etc.) and data defects caused by operator error and machine error in data collection. The details of processing the geophysical data are overly technical for a report of this nature and will not be discussed here. In sum, the processing process allows us to highlight the target or targets of interest through mathematical manipulation of the dataset.

The magnetic field gradiometry survey at the John Brown House site was conducted between 3/25/2019 and 3/27/2019. A grid of eight 10m x 10m survey grid squares were established prior to the start of the gradiometry survey on the eastern edge of the property between the community garden and the stone wall running parallel to Diagonal Road. [Map 2] The placement of the grid squares (aligned with magnetic north) prioritized the large relatively flat space between the fence surrounding the garden and stone wall, and avoided obvious modern ferrous metal such as the nails in the wooden fence to minimize the noise effect of the modern materials. Morgan Revels collected field measurements.

The first day of work comprised collecting data from the same square several times using different settings on the magnetic gradiometer and different traverse and sample intervals. The goal of this standard exercise is to determine the most efficient survey parameters for the survey. Each archaeological site has varying conditions: soil type, construction materials for features of interest, modern noise, slope and vegetation cover which affects the operator's ability to walk at an even pace, etc. We attempt to balance the speed with which we collect data against the resolution of the resulting maps.

At the John Brown House, we collected grid squares using the following parameters:

Traverse Interval	Sample interval	Averaging (cycles)	Measurements per grid square
0.50 m	0.125 m	Off	1600
0.25 m	0.125 m	Off	3200
0.50 m	0.0625 m	On (2)	3200 (6400)
0.25 m	0.125 m	On (4)	3200 (12800)
0.25 m	0.0625 m	Off	6400

Table 2: Magentic gradiometry survey parameters

In general, traverse intervals should be smaller than the expected size of features at the site. A setting of 0.25m is often used as a default starting point, meaning that each transect of data is spaced 0.25m apart, on historic sites in this area. This is sufficient to resolve historic structures such as walls, larger pits, and many constructions. Sample intervals of 0.125m (= 8 samples/m) and 0.0625m (= 16 samples/m) are similarly good for resolving most archaeological features. The disadvantage to the density setting is that the operator must walk more slowly to allow the machine sufficient time to measure and record each reading, thus adding to collecting time. It is often advantageous to average measurements on very "quiet" sites where the expected magnetic contrast in the features (in terms of nT) is low and there is relatively little modern debris and few modern magnetic sources; this is often true of prehistoric sites. Averaging requires the machine to take multiple readings at the same point in space, and then average them together, eliminating bias created by minute operator errors. "Cycles" refers to the number of points taken at each point. Again, the disadvantage to averaging is that it greatly slows down the speed of the survey. In all cases, a slower survey rate and a higher sampling density are only justified when there are demonstrable improvements on the resulting magnetic maps.

We determined that the ideal surveying parameters for the John Brown House were to survey with the traverse interval set at 0.25m and the sample interval set at 0.125m. There was no discernable improvement in our ability to see potential archaeological features using a higher sampling strategy given the quantity of ferrous metal and other possible sources of noise present at the site. All subsequent grid squares were collected at this density. The resulting magnetic gradiometry map produced below, therefore, displays 25,600 readings over an area of 800 m^2. The interpretation of the maps is discussed below.

After geophysical data were collected with metal detector and gradiometer, the data were evaluated for their potential archaeological features or artifacts. For the metal detection hits, this meant digging bucket auger pits in the location of the hits (Figure 18). For the gradiometer data, this required "ground truthing" potential geophysical anomalies. "Ground truthing" consists of digging 50 by 50 centimeter shovel test units.

Figure 18: Using the bucket auger to investigate metal detector hits.

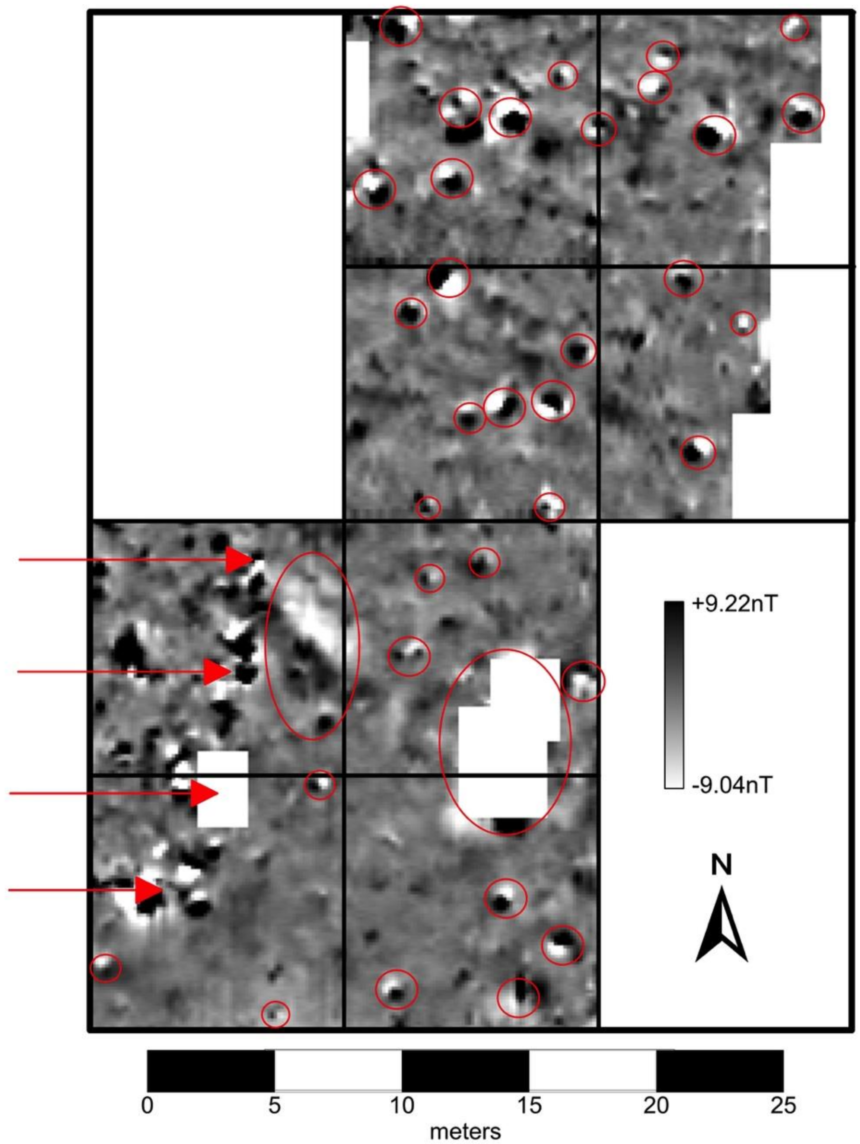
Figure 19: Morgan Revels testing ambient magnetism at the project site in a "quiet" part of the project area.

Results and Discussion

The magnetic field gradient survey was able to document a number of features, although the interpretation and dating of the features, or in some cases even determining their anthropogenic nature is difficult. As can be seen in Map 1, one feature which is easy to see and unambiguous is the fence around the garden. Map 1 shows the location of the gradiometry survey overlaying a Google Earth image of the property taken from April 2012. This background image was chosen because the leaves were not yet fully out, making it easier to see the ground. The line of the fence is seen as a series of strong positive magnetic features (black) juxtaposed against a series of strong negative magnetic features (white). These are typically referred to as "dipoles" and are characteristic of a response to ferrous metal, often modern, although other types of features can have a similar signature. These features, seen in Map 1 almost certainly represent nails and other iron objects associated with the modern fence.

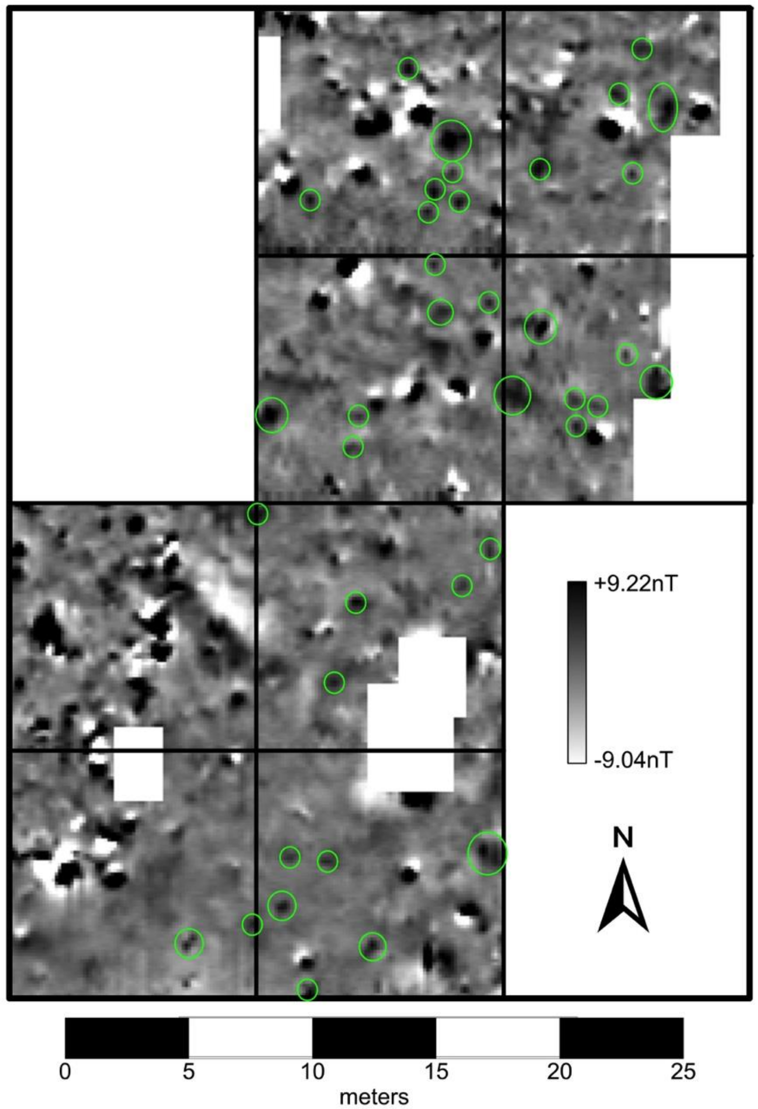
Map 1: The location of the gradiometry survey overlaid on a April 2012 Google Earth image.

Map 2 shows those anomalies most likely representing ferrous (iron) metal. The line of the fence is marked with red arrows at the western edge of the survey area. Thirty-four small red circles show the location of these strong dipolar features. They are evenly spread throughout the survey area and effectively represent a sort of background noise in terms of discerning archaeological features, although some of them may represent isolated historical period iron artifacts. More interesting are the two larger area marked with red ellipses in the southern half of the survey area. These are larger areas of high magnetic response, perhaps as the result of an accumulation of artifacts in a dump or trash deposit. As a result, each of these was sampled in one of the test unit excavations. The eastern area had such strong magnetic responses that we removed those reading from the dataset as they were hindering our ability to discern features in the quieter portions of the site; hence the area is just a large white box on our map. This area was called Unit A and a 1 m x 1 m excavation was opened up in the center of the anomaly. The western area was sampled in a smaller area of 0.5 m x 0.5 m and was called Test Unit 2. The results of these excavations is presented below.



Map 2: Anomalies likely representing ferrous metal circled in red. The garden fence is indicated with red arrows.

Map 3 represents other features that mostly have strong positive magnetic signal (black). These features do not have the characteristic corresponding negative magnetic signal (white) of dipoles and, therefore, are usually interpreted to be a separate class of phenomena. Thirty-eight small green circles show the location of the monopolar features. Note that a number of other features are ambiguous and we have left these uncircled. Such magnetically positive features are often interpreted as small pits, postholes, or tree stumps, although there are many other explanations. The reason for this is that the natural topsoil and soils disturbed by human activities often become magnetically enhanced. When a hole is dug into the ground and then refilled, the pit fill will often contain larger proportions of this enhanced material, creating a contrast with the surrounding undisturbed soil profiles.



Map 3: Other strong magnetic features indicated in green.

In order to make sense of this in terms of human behavior, archaeologists typically look for patterns in the spatial distribution of either the dipolar or monopolar features. We can see this in the modern fence, which is clearly seen as a linear feature of strong dipoles running 15m across the westernmost survey squares. However, there is no clear linear pattern to the remainder of the magnetic features. With the exception of the two areas tested via excavations (Unit A and Test Unit 2), there is nothing in our survey area to suggest that intact ancient or historic features exist within the top 1 m of the immediate subsoil.

Approximately 662 artifacts were recovered during the survey of the John Brown House property. A complete inventory of artifacts recovered is in Appendix A. The artifact scatters can be broadly grouped into three general areas: house refuse adjacent the house, dense refuse around Unit A (expanded from test unit 1) (Figure 25), and general residential refuse. The area adjacent to the house includes test units 6 and 7 (Figure 26), and auger tests T8.1 and 8.2. The dense refuse area (and potential outbuilding scatter) includes Test Units 1, 2, 3 and auger tests T5.4 through 5.5, T6.3 through 6.5, and T6.7. All other positive auger tests and test units are part of the general residential refuse.

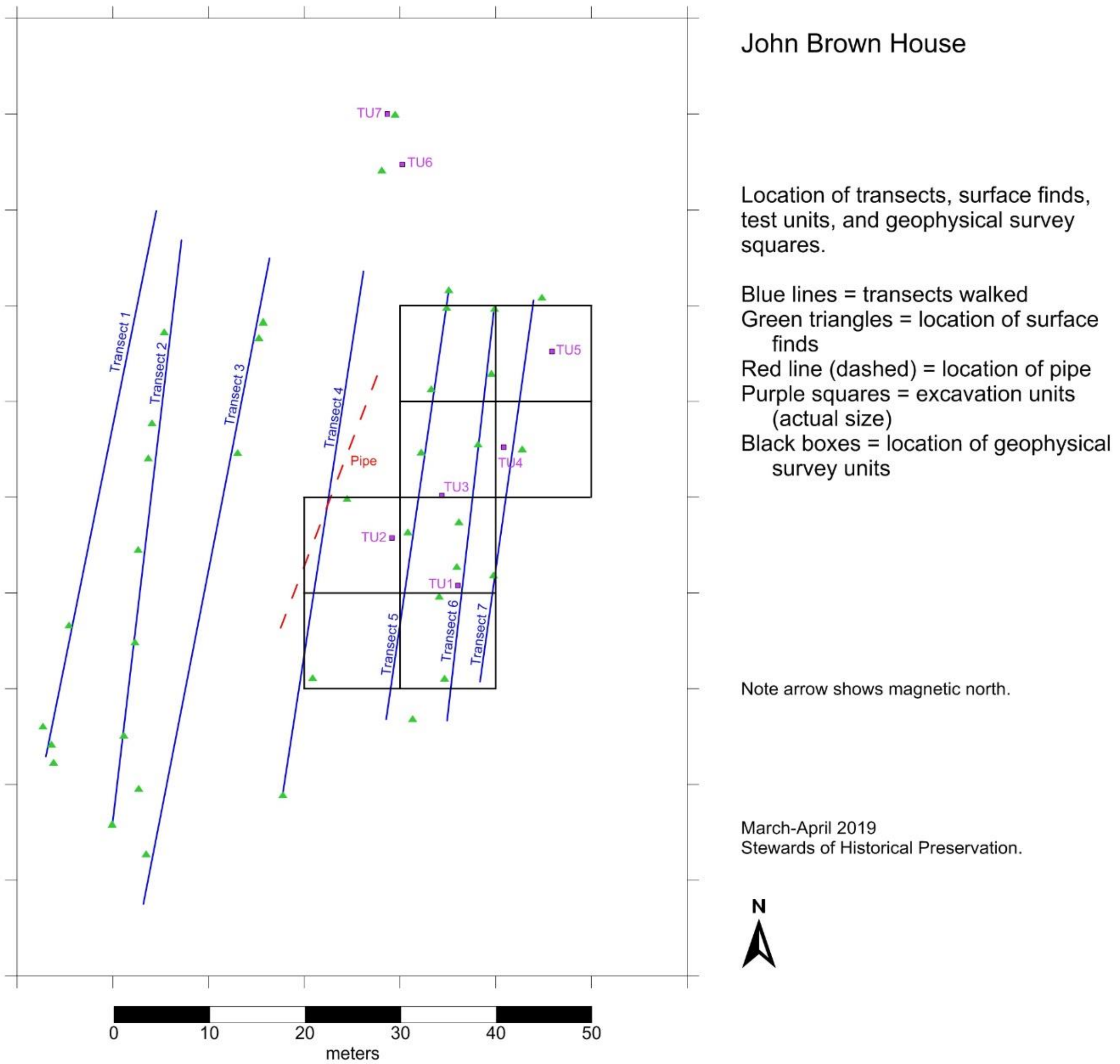


Figure 20: Map of geophysical and metal detection survey areas.

The general residential refuse included 21 pieces of window glass, 9 pieces of whiteware (29.4 g), three pieces of amber bottle glass (16 g), four pieces of aqua bottle glass (3.9 g), four pieces of clear bottle glass (7.1 g), a piece of dark green hand blown bottle glass (3.6 g), and other small pieces of glass. Two bone fragments (0.7) and the hand blown bottle neck were located very close the John Brown House, likely reflecting ephemeral refuse deposits associated with activities within the house. There were eight pieces of collected slag (529.8 g), which is commonly found as fill or gravel for small foundations. This slag may reflect grading activities either from the era of the golf course, or for any number of small outbuildings used on the John Brown property prior to the acquisition by SCHS. The slag was concentrated in the southeast quarter of the property, east of the fallow garden. Two pieces of French gunflint, from Le Grand Pressigny Flint quarries of France were found in the eastern most portion of the project area, near the stone wall (Figures 21 and 22). French gunflints were common to Ohio historic sites up to the war of 1812 (Pickard 2013). However, the gunflint from auger test 7.3 was highly reworked on all edges indicates the gunflint was used extensively. The gunflint from test unit 4 has an ovate end that may reflect re-purposing for scraping activities. Native Americans commonly re-worked gunflints into other tools (Watt and Horowitz 2017).

Figure 21: French gunflint from Test Unit 4.

Figure 22: French Gunflint from Auger Test 7.3.

The slightly denser scatter around test unit 1 is potentially related to an expedient or minimally designed outbuilding/structure. There were 13 large pieces (995.1 g) of slag recovered in this area. Slag has also been used for paving grade on roads (National Slag Association 2013). Based on the 1856 Matthews and Taintor Summit County Atlas, the route of the road adjacent to the property may have been further west than its current location. Considering the location of the slag, near the bend in the road, this hypothesis may be one of the most parsimonious explanations. However, slag has also been used for foundation fill and general fill in construction.

This area also contained the largest amount, 36, of window glass. The estimated date of the glass sample is 1830 +/- 7 years. The five square cut nails were too corroded to identify specific cuts, but can be dated between 1810 and 1900. The hand painted piece of whiteware (Figure 23) may be from the same time period. The gunflint from auger test 7.3 (Figure 22) may also be related to this time period, as flintlocks were used into the Civil War (Pickard 2013). The highly worked gunflint may reflect lack of access to French flints, or an extremely long use-life of a flint-lock into the late 1820s or early 1830s. The only other early 19th century artifacts include two fragments of creamware (3.8 g).

Also located in this area were four pieces of mammal long bones (6.2 g), a bird long bone (0.2 g), and a possible deer tooth. At least one bone fragment had butcher/cut marks. This location also contained a clear glass telephone insulator, which would have been adjacent to a roadway (furthering the potential explanation of a slag road in or near this area). The entire area was highly disturbed due to the conflicting dates and mixed context of younger diagnostic artifacts, such as clear bottle glass, recovered deeper than older deposits such as aqua glass and hand painted ceramics.

The last pattern to note in this location is the recurring evidence of burned materials. There were several pieces of wood charcoal, clinker, and burned whiteware recovered in this area. In addition to these artifacts was a single piece of glass in a globular form. This glass may have been from a mistake by a glass blower, or from an extreme burning event. However, none of the auger tests or test units revealed any burned layers within this area. It is possible this disturbed scatter is related to a small outbuilding or structure that either was disturbed by the construction of a slag road or burned at some point in time. However, without any evidence of features or substantial architectural refuse, it is highly unlikely this artifact scatter represents longer occupations or residency by one or more individuals.

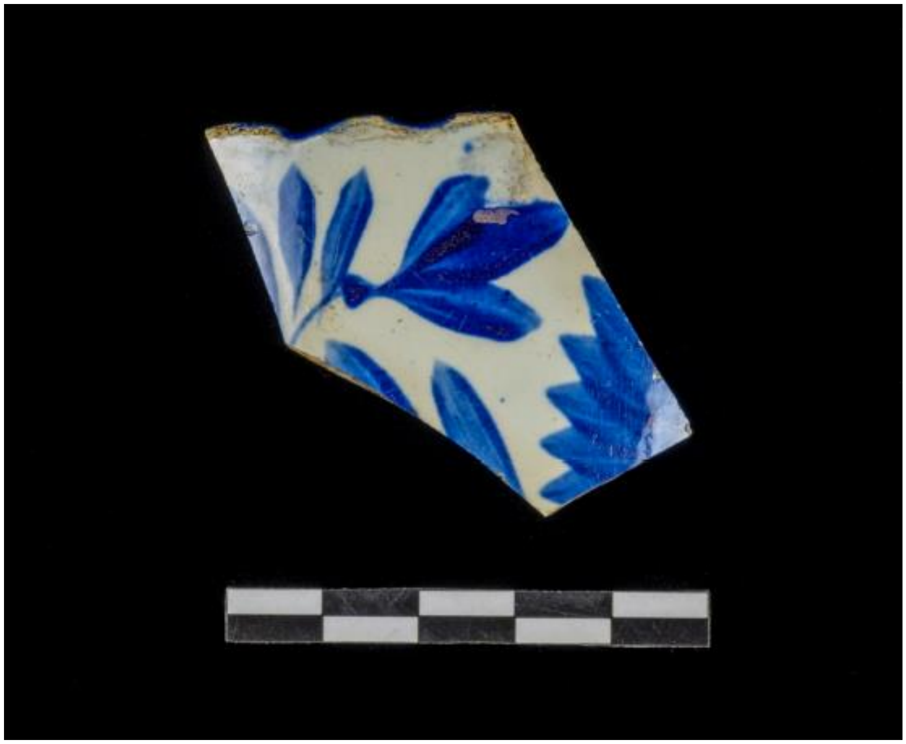


Figure 23: Hand painted whiteware from Test Unit 1.

Figure 24: Base of a molded amber glass alcohol bottle.

Figure 25: Planview of Unit A, expanded from the southwest corner.

In the house refuse, there were 27 (54.7 g) bone fragments from various small mammals, including potential sheep and pig long, flat, and distal limb bones. There were also two small bird bone fragments (1.1 g) likely from a small chicken. At least one of the mammal bone fragments had a butcher/cut mark. There were 15 pieces of window glass recovered in this area. Using Moir's (1982) regression equation, the glass from Unit 7 dates to 1877 +/- 7 years, and the glass from Unit 6 to 1867 +/- 7 years. When all 15 pieces were combined, the output date was 1874 +/- 7 years. The extremely low sample size should almost warrant exclusion of these dates entirely, and the thickness of most of the glass over 2 mm likely indicates even later manufacture dates (potentially even 20th century) according to Weiland (2009). In addition to these architectural remains, there were also pieces of roofing nails, wire cut nails, Mediterranean style ceramic roof tiles, slate roof tiles, clinker/exhausted coal pieces, vinyl siding fragments, drainage tiles, and whiteware ceramics. Throughout this area, a thick layer of clinker and coal deposits were overlaying disturbed soils (Figure 26). This soil profile, coupled with the wide time range of diagnostic materials from the 19th century to the mid 20th century indicates a highly disturbed area representative of frequent refuse deposits from within both "The Birdhouse" and the John Brown house.

Figure 26: Planview of Test Unit 7.

Eligibility Assessment

While no intact features were identified during geophysical ground truthing and systematic auger tests, the John Brown property has a high potential to yield new information about early Euro-American and Proto-Historic period aboriginal trade networks, 19th century consumer behavior, and urban refuse deposition patterns. The artifact deposits near Unit A may represent roadside discard by passers-by, or an ephemeral structure or outbuilding from the first half of the 19th century. This area has the highest potential to yield new information about the past, and it is therefore recommend this area be avoided in the planning and construction of parking facilities. Further work at the site could clarify the context of the artifact depositions (i.e. as roadside refuse or associated with some other activity).

References

Akron Map and Atlas Company

1891 *Illustrated Summit County, Ohio, representing her manufacturing interests, commercial houses, public institutions, farms, homes and people, with history, statistics, and general information. Maps of the United States, Ohio, Summit County Townships, Towns, Villages and City of Akron.* Akron Map and Atlas Company, Akron, Ohio.

Belovich, Stephanie

1986 The Staas Site (33Cu224): 1985 excavations. *Archaeological Research Reports* No. 66. Cleveland Museum of Natural History: Cleveland.

Belovich, Stephanie and David Brose

1992 Late Woodland Fortifications in Northern Ohio: The Greenwood Village Site. *Kirtlandia* 47:3-23.

Bierce, Lucius

1854 *Historical Reminiscences of Summit County.* T. & H. G. Canfield: Akron.

Brose, David S.

1975 Technical Report for the Cuyahoga River Valley Park Study, Volume Two. Prepared for the Ohio Department of Natural Resources Division of Planning, Recreation Planning. On file at Cuyahoga Valley National Park, Peninsula, Ohio.

1984 History as Handmaiden to Archaeology? *Ohio Archaeologist*, 34(1):28-30.

1994 The South Park Village Site and the Late Prehistoric Whittlesey Tradition of Northeast Ohio. *Monographs in World Archaeology*, No. 20. Prehistory Press: Madison.

2000 Late Prehistoric Societies of Northeastern Ohio and Adjacent Portions of the South Shore of Lake Erie: A Review, , in *Cultures Before Contact: The Late Preshistory of Ohio and Surrounding Regions*, (ed.) Robert Genheimer, pp. 96-120. Ohio Archaeological Council.

Brose, David S., Stephanie Belovich, Michael Brooslin, Robert Burns Jr., John Hall, Harold Haller, Christopher Pierce, and Carl Ubbelohde

1981 Archaeological Investigations in the Cuyahoga Valley National Recreation Area. *Archaeology Research Reports #30.* Cleveland Museum of Natural History: Cleveland.

The Burch Directory Company

1907 Akron Official City Directory. The Burch Directory Company: Akron.

Burger, H. R.

1992 Exploration Geophysics of the Shallow Subsurface. Prentice Hall, Upper Saddle River, NJ.

Burger, H. R., A. F. Sheehan and C. H. Jones

2006 Introduction to Applied Geophysics: Exploring the Shallow Subsurface. W.W. Norton & Co., New York.

Bush, David and Charles Callender

1984 Anybody but the Erie. *Ohio Archaeologist,* 34(1):31-35.

Bush, David, Mark Kollecker, and Marcia Miller

1990 A Cultural Resource Investigation for the Proposed SUM-CH 50 (South Main Street) Road Widening, Coventry and Green Townships, Summit County, Ohio. Prepared for: GPD Group. *David R. Bush, Inc.*

Case Western Reserve University

2019 Explorations. Encyclopedia of Cleveland History. Electronic document. Case Western Reserve University. https://case.edu/ech/articles/e/explorations. Accessed April 23, 2019.

2019 Pilgerruh. Encyclopedia of Cleveland History. Electronic document. Case Western Reserve University. https://case.edu/ech/articles/p/pilgerruh. Accessed April 23, 2019.

Chapman, Kevin and Amanda Morrow

2012 Applied Metal Detection at Camp Lawton: A Confederate Military Prison, *Proceedings of the Advanced Metal Detecting for the Archaeologist Conference: Helen, Georgia,* (ed) Terry Powis, pp. 103-120.

Clark, A.

1990 Seeing Beneath the Soil: Prospecting Methods in Archaeology. Routledge, London.

Collins, James and Brian Molyneaux

2003 Archaeological Survey. *Archaeologist's Toolkit, Vol. 2.* Rowman Altamira: New York.

Connor, M. and D. D. Scott

1998 Metal detector use in the archaeology: An introduction. Historical Archaeology 32(4):76-85.

Cross, G.

2008 Soil Electromagnetic Properties and Metal Detector Performance: Theory and Measurement. *Defence R&D Canada, Contract Report* 2009-062. Defence Research and Development Canada: Suffield.

Das, Yogadhish

2006 Effects of Soil Eletromagnetic Properties on Metal Detectors. *IEEE Transactions on Geoscience and Remote Sensing* 44(6): 1444-1453.

Delaware Indian Conference and Symposium

1998 *Papers from the Delaware Indian Conference and Symposium*, Kent State University.

Doyle, William B.

1908 *Centennial History of Summit County, Ohio and representative citizens.* Biographical Publishing Company: Chicago.

Dunnell, Robert

1984 The ethics of archaeological significance decisions. In *Ethics and Values in Archaeology* (ed.) Green, E. L., pp. 62-74. Free Press: New York.

Espenshade, Christopher

2012 Yes, But How?: Increasing the Efficiency of Metal Detector Survey. In *Proceedings of the Advanced Metal Detecting for the Archaeologist: Helen, Georgia,* (ed) Terry Powis, pp. 14-32.

Espenshade, Christopher, Doug Scott, Patrick Severts, Sheldon Skaggs, Terry Powis, and Garrett Silliman

2012 A Discussion of Standards for Metal Detecting, in *Proceedings of the Advanced Metal Detecting for the Archaeologist Conference: Helen, Georgia,* (ed) Terry Powis, pp. 5-13.

Finney, Fred A.

2002 *Calumet, Canal, and Cuyahoga: An Archaeological Overview and Assessment of the Cuyahoga Valley National Park, Ohio.* Contract Completion Report No. 22. National Park Service, Midwest Archaeological Center: Lincoln.

First Texas Products

2015 Teknetics G2+ Owner's Manual. First Texas Products: El Paso.

Gaffney, C. and J. Gater

2003 Revealing the Buried Past: Geophysics for Archaeologists. Tempus Publishing Ltd., Stroud, UK.

G.M. Hopkins Company Civil Engineers

1915 *Plat Book of the City of Akron and vicinity including Barberton, Cuyahoga Falls, and Kenmore*. G.M. Hopkins Company Civil Engineers, Philadelphia.

1921 *Plat Book of the City of Akron and vicinity including Barberton, Cuyahoga Falls, and Kenmore*. G.M. Hopkins Company Civil Engineers, Philadelphia.

Goldberg, P. and R. J. Macphail

2006 Practical and Theoretical Geoarchaeology. Blackwell Publishing, Malden, MA.

Grismer, Karl

1952 *Akron and Summit County.* Summit County Historical Society. Akron, Ohio

Haldenby, D. and Julian Richards

2010 Charting the effects of plough damage using metal-detecting assemblages. *Antiquity* 84:1151-1162.

Haney, Stephanie, Ashley Heeney, Beth Hochstetler, Rebecca McNeill, Jim Sutter, and Charlie Warino

2004 Archaeological Geophysical Surveys in Bath Nature Preserve. Paper presented for Archaeo-geophysics class, Department of Classical Studies, Anthropology, and Archaeology, University of Akron.

Hargrave, Michael

2006 Ground Truthing the Results of Geophysical Surveys, in *Remote Sensing in Archaeology: An Explicitly North American Perspective* (ed). Jay Johnson, pp. 269-304. University of Alabama Press: Tuscaloosa.

Henshaw, Joshua

1825 *Map of the Town Plat of Akron in Portage County, Ohio laid out on the Canal at the Portage Summit*.

Holcombe, Troy, Lisa Taylor, David Reid, John Warren, Peter Vincent, and Charles Herdendorf

2003 Revised Lake Erie Postglacial Lake Level History Based on New Detailed Bathymetry. *Journal of Great Lakes Research* 29(4):681-704.

Hutchins, Thomas

1764 *March of His Majesty's Troops from Fort Pitt to the Forks of Muskingham in 1764.* Map.

Jackson, James S. and Margot K. Jackson

1983 *At Home on the Hill: The Perkins Family of Akron.* The Summit County Historical Society: Akron.

Johnson, J. K. (editor)

2006 Remote Sensing in Archaeology: An Explicitly North American Perspective. The University of Alabama Press, Tuscaloosa.

Kern, Anne

1999 Geophysical Survey as a Conservation Tool. *Nebraska Anthropologist* 118:74-79.

Knepper, George

1989 *Ohio and Its People.* The Kent State University Press, Kent, Ohio.

Kvamme, K.

2006 Magnetometry: Nature's Gift to Archaeology. In Remote Sensing in Archaeology: An Explicitly North American Perspective, edited by J. K. Johnson, pp. 205-234. The University of Alabama Press, Tuscaloosa, AL.

Lepper, Brad

2005 *Ohio Archaeology: an illustrated chronicle of Ohio's ancient American Indian cultures.* Orange Frazer Press: Wilmington.

Matthews & Taintor

1856 *Summit County Map 1856*. Matthews & Taintor: Philadelphia.

Murphy, James

1968 Colonel Charles Whittlesey and Cleveland's Forgotten Hilltop Forts. *The Explorer: bulletin of the Cleveland Museum of Natural History* 10(4):26-29.

Niedermier, Joshua and Craig Keener

2013 Phase I Cultural Resource Management Survey of a Proposed Cell Tower (OH6240/Firestone CC) in Coventry Township, Summit County, Ohio. Prepared for: GPD Group. *Professional Archaeological Services Team.*

Ochsner, Eugene

1986 A Cuyahoga County Ohio Site. *Ohio Archaeologist* 36(1):10-13.

Ohio History Connection

2005 The Connecticut Western Reserve Map. Electronic document. http://www.ohiohistorycentral.org/w/File:Connecticut_Western_Reserve_map.jpg Accessed December 13, 2018

Pickard, Bill

2013 More on the Lithic Lab and French Flint. *Ohio History Connection, Archaeology Blog* (web accessed April 6, 2019): https://www.ohiohistory.org/learn/collections/archaeology/archaeology-blog/2013/april-2013/more-on-the-lithic-lab-and-french-flint.

Portage Country Club

2018 History. Electronic document. https://www.portagecc.org/About_Us/History.aspx

Accessed April 23, 2019.

Pratt, Michael

2009 How Do You Know It's a Battlefield?, in *In Fields of Conflict: Battlefield Archaeology from the Roman Empire to the Korean War,* (eds.) Douglas Scott, Lawrence Babits, and Charles Haecker, pp. 5-38. Potomac Press: Washington.

Purtill, Matthew

2009 The Ohio Archaic: A Review, in *Archaic Societies: Diversity and Complexity across the Midcontinent*, (eds.) Thomas Emerson, Dale McElrath, and Andrew Fortier, pp. 565-600. State University of New York Press: Albany.

Rectigraph Abstract & Title Company

1910 *Atlas and Industrial Geography of Summit County.* The Rectigraph Abstract & Title Company: Akron.

Redmond, Brian

2000 Reviewing the Late Prehistory in Ohio, in *Cultures Before Contact: The Late Preshistory of Ohio and Surrounding Regions*, (ed.) Robert Genheimer, pp. 426-437. Ohio Archaeological Council.

2008 An Archaeological Assessment of the OEC 1 site (33Cu462), A Whittlesey Tradition Habitation Site in Independence, Ohio. *Archaeological Research Reports* No. 146. Cleveland Museum of Natural History: Cleveland.

Ritchie, A. and J. R. Steiger

1974 *Soil Survey of Summit County, Ohio.* United States Department of Agriculture, Ohio Agricultural research and Development Center: Columbus.

Sanborn, F.B. (editor)

1885 *The Life and Letters of John Brown, Liberator of Kansas, and Martyr of Virginia.* Roberts Brothers, Boston.

The Sanborn Map Company

1916 *Insurance Maps of Akron Ohio, Volume Two*. Sanborn Map Company, New York.

Scott, Doug, Chris Espenshade, Patrick Severts, Sheldon Skaggs, Terry Powis, Chris Adams, and Charles Haecker

2012 Advances in Metal Detector Technology and Applications in Archaeology, in *Proceedings of the Advanced Metal Detecting for the Archaeologist Conference: Helen, Georgia,* (ed) Terry Powis, pp. 33-54.

Smith, James

1799 *An account of the remarkable occurrences in the life and travels of Colonel James Smith (Late a citizen of Bourbon County, Kentucky): during his captivity with the Indians, in the years 1755, '56, '57, '58, & '59.* Lexington: Printed by John Bradford on Main Street.

Summit County Historical Society

2018 The John Brown House. Electronic document. https://www.summithistory.org/john-brown-house Accessed April 23, 2019.

Szabo, John, Michael Angle, and Alex Eddy

2011 Pleistocene Glaciation of Ohio, USA, in *Quarternary Glaciations – Extent and Chronology: A Closer Look,* (eds.) J. Ehlers, P. Gibbard and P. Hughes. Developments in Quarternary Science, 15:513-519.

Tackabury, Mead and Moffett

1874 *Combination Atlas Map of Summit County, Ohio, Compiled, Drawn and Published from Personal Examinations and Surveys.* Tackabury, Mead, and Moffet: Philadelphia.

Whittlesey, Charles A.

1871 *Ancient Earth forts of the Cuyahoga Valley, Ohio*. Fairbanks, Benedict & Company: Cleveland.

Wheeler-Voegelin, Erminie and Helen Tanner

1974 *Indians of Northern Ohio and Southeastern Michigan.* Garland Publishing Inc.: New York.

Winstel, Jeffrey

2000 Cuyahoga Valley National Recreation Area Cultural Landscape: Thematic Overview and Methodology Guide. MS on file at Cuyahoga Valley National Park, Peninsula.

Table 3: Artifact Inventory

Provenience	Material	Weight (g)	Count	Thickness (mm)	Date
T1.2	bottle glass, clear	0.5	1		
T2.2	bullet casing, .45 caliber "U.M.C"	3.4	1		
T2.3	whiteware	1.4	1		
T2.3	slag	1.5	1		
T2.6	whiteware, burned, body	2.3	1		
T4.0	window glass, aqua	0.2	1	1.31	1825.5548
T4.0	window glass, aqua	0.2	1	1.38	
T4.0	FCR	92.6	2		
T4.0	bottle glass, clear	0.4	2		
T4.0	lamp chimney rim	0.1	1		
T4.0	bottle glass, aqua	0.4	1		
T4.101	window glass, aqua		1	0.97	1844.0832
T4.101	window glass, aqua		1	1.01	
T4.101	window glass, aqua		1	1.49	
T4.101	retouched flake, cortex, onondaga	7	1		
T4.101	square cut nail	3.2	1		
T4.101	Whiteware, plate fragments	2.2	2		
T5.1	Ironstone, saltglazed	10.5	1		
T5.1	glass bowl or drinking goblet, scalloped and molded stippling	8.8	1		
T5.1	slag	12.9	3		
T5.1	redware, field tile		1		
T5.1	brick fragment	16.7	1		
T5.2	window glass, aqua	5	1	2.3	1906.406
T5.2	slag	0.6	1		

T5.2	whiteware	2	3		
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
T5.2	wood charcoal	1.3			
T5.2	slag	0.6	1		
T5.2	bottle glass, aqua	0.7	1		
T5.2	ironstone frag	1.7	1		
T5.2	bottle neck and lip, aqua	1.3	1	approx. 11.3 bore	
T5.2	Ironstone	2.3	1		
T5.4	window glass	0	1	1.57	1844.9254
T5.4	square cut nail	10.8	1		
T5.4	bird bone	0.2	2		
T5.4	plat/saucer whiteware	6.1	2		
T5.4	small mammal bone fragment (flat bone)	0.3	1		
T5.4	plate fragment, decorated	2.4	1		
T5.4	whiteware	4.3	4		
T5.4	ironstone, black stencil?	1.4	1		
T5.4	painted whiteware	1.8	1		
T5.4	green transfer print whiteware	2.1	1		
T5.4	bottle glass, clear	0.5	1		
T5.4	worked quartz (historic)	16.3	1		
T5.5	window glass, aqua	0	1	1.37	1834.819
T5.5	window glass, aqua	0	1	1.53	
T5.5	whiteware	3.2	1		
T5.5	bottle glass, mold seem, dark green	4.2	1		
T5.5	redware, glazed	1.7	1		
T5.5	blue transfer print underglaze	2.3	1		
T5.5	blue transferprint?	0.2	1		
T5.6	bottle glass, amber	5.4	1		

T5.6	slag	316.7	1		
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
T5.6	redware drainage tile	5.3	1		
T6.1	window glass, aqua	0.2	1	1.33	1824.7126
T6.1	blue transfer print body sherd	2.8	1		
T6.1	whiteware base fragments	2.6	2		
T6.1	slag	0.7	1		
T6.1	bone, small mammal distal femur	0.6	1		
T6.2	whiteware, body, possibly painted	1.6	1		
T6.3	window glass, clear	0.1	1	1.14	1821.3438
T6.3	window glass, aqua		1	1.15	
T6.3	window glass, aqua		1	1.17	
T6.3	window glass, aqua		1	1.73	
T6.3	whiteware, burned	1.7	2		
T6.3	bottle glass, clear	0	1		
T6.3	Saltglazed stoneware	1.2	1		
T6.4	painted whiteware, rim	1	1		
T6.4	slag	4.3	1		
T6.4	redware fragment	1	1		
T6.4	ferrous object, rifle buttplate?	63.9	2		
T6.5	bottle glass, clear	3.4	2		
T6.5	slag	87.3	12		
T6.5	red glazed whiteware	0.6	1		
T6.5	whiteware, base	1.5	1		
T6.6	window glass, aqua	0.5	1	1.24	1817.1328
T6.6	bottle glass, clear	0.7	1		
T6.6	brick fragment	6.9	1		
T6.6	slag	5.5	2		

T6.7	slag	11.1	3		
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
T7.1	whiteware rim	0.1	1		
T7.2	window glass, aqua	1	1	1.38	1835.2401
T7.2	window glass, aqua	0.1	1	1.53	
T7.2	bottle glass, amber	7.4	1		
T7.2	red dog (fired/exhausted coal)	24.3	1		
T7.3	window glass, aqua		1	1.5	1839.03
T7.3	gunflint, French	2.7	1	6.07	
T7.3	whiteware rim and base, plate?	3	2		
T7.3	bottle glass, clear	5.5	2		
T7.3	slag	191.3	11		
T8.1	window glass, clear	1.6	1	2.49	1922.4078
T8.1	bottle glass, clear	0.3	1		
T8.1	slag	19.7	1		
T8.1	blue spongeware, body sherd	0.9	1		
T8.1	redware, glazed (sewer or drainage)	14.6	1		
T8.2	redware	3	2		
T8.2	whiteware rim and body	1.1	2		
T8.2	nails, unknown type	22.9	2		
T8.2	bone, small mammal astragalus	2.5	2		
T8.2	clinker	9.5	1		
TU 1, level 1	bottle glass, clear	13.8	2		
TU 1, level 1	bottle glass, molded	3.5	1		
TU 1, level 1	slag	104.6	14		
TU 1, level 1	clinker	0.9	1		
TU 1, level 2	window glass, aqua		1	1.57	1853.3474
TU 1, level 2	window glass, aqua		1	1.69	

TU 1, level 2	window glass, aqua		1	1.76	
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
TU 1, level 2	bottle glass, aqua	1.3	1		
TU 1, level 2	bottle glass, clear	1.9	1		
TU 1, level 2	whiteware	0.2	1		
TU 1, level 2	bottle glass, amber	0.4	1		
TU 1, level 2	slag	161.3	17		
TU 1, level 3	window glass, aqua		1	1.14	1824.7126
TU 1, level 3	window glass, aqua		1	1.23	
TU 1, level 3	window glass, aqua		1	1.62	
TU 1, level 3	slag	172	5		
TU 1, level 3	Brick fragment	1.2	2		
TU 1, level 3	bottle glass, clear	0.3	1		
TU 1, level 3	whiteware, body sherd	1.8	1		
TU 1, level 4	window glass, aqua		1	1.12	1818.8172
TU 1, level 4	window glass, aqua		1	1.4	
TU 1, level 4	slag	16.1	2		
TU 1, level 4	whiteware	0.3	1		
TU 1, level 4	bottle glass, amber	2.1	1		
TU 1, level 4	bottle glass, clear	1.4	2		
TU 2, level 1	slag	7.5	3		
TU 2, level 1	bottle glass, amber "sale"	2.8	1		
TU 2, level 1	whiteware	2.1	4		
TU 2, level 1	blue tinted whiteware	0.7	1		
TU 2, level 1	bone, long, small/medium mammal	1.6	1		
TU 2, level 1	ferrous object	0.7	1		
TU 2, level 2	slag	11.3	8		
TU 2, level 2	square cut nail	11	4		

TU 2, level 2	bottle glass, clear	0.4	2		
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
TU 2, level 2	whiteware, 1 base rim	3.1	6		
TU 2, level 2	whiteware, base rim	3.8	1		
TU 2, level 2	redware clear glaze interior (drainage/sewer tile)	8.5	3		
TU 2, level 2	stoneware, salt glazed wheel thrown	24.3	1		
TU 2, level 2	whiteware, molded	1.2	1		
TU 2, level 2	bone, long, small/medium mammal	2.3	4		
TU 2, level 2	blue transfer print	0.1	1		
TU 2, level 2	ironstone, black floral transfer print	0.8	1		
TU 2, level 2	blue under transfer print	0.7	1		
TU 2, level 2	whiteware, 1 spongeware	1.9	2		
TU 2, level 2	whiteware, painted amber/brown	1.1	1		
TU 2, level 2	whiteware, painted green	0.4	1		
TU 2, level 2	glass, hand blown and full of holes	1	1		
TU 2, level 3	window glass, aqua		1	1.09	1812.9218
TU 2, level 3	window glass, aqua		1	1.17	
TU 2, level 3	window glass, aqua		1	1.31	
TU 2, level 3	slag	21.1	1		
TU 2, level 3	whiteware, burned	2.5	3		
TU 2, level 3	flow blue body sherds	3.1	2		
TU 2, level 3	ironstone, painted blue and yellow	0.4	1		
TU 2, level 3	redware, glazed	1.9	1		
TU 2, level 3	tooth, medium mammal (sheep), heavily worn	1.7	1		
TU 2, level 3	bone, long/flat bone, sheep or medium mammal	0.7	1		
TU 2, level 3	creamware	3.5	1		
TU 2, level 3	blue transfer print	0.1	1		
TU 2, level 3	whiteware, painted blue line	1.2	1		

TU 2, level 3	square cut nail	5.5	1		
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
TU 2, level 4	whiteware, burned rim and body	2.1	2		
TU 3, level 1	window glass, aqua		1	1.2	1833.1346
TU 3, level 1	window glass, aqua		1	1.21	
TU 3, level 1	window glass, aqua		1	1.42	
TU 3, level 1	window glass, aqua		1	1.52	
TU 3, level 1	window glass, aqua		1	1.57	
TU 3, level 1	window glass, aqua		1	1.68	
TU 3, level 1	slag	97.5	13		
TU 3, level 1	bone, long, cut, small mammal	1.6	1		
TU 3, level 1	creamware	0.3	1		
TU 3, level 1	whiteware	6.8	9		
TU 3, level 1	square cut nail	4.4	1		
TU 3, level 1	molded stoneware, brown ridged and grey	8.9	1		
TU 3, level 1	blue transfer print	1.4	1		
TU 3, level 1	whiteware with forest stencil, black	1.9	1		
TU 3, level 1	redware, clear glaze	3.7	1		
TU 3, level 1	stoneware, salt glazed wheel thrown	23	1		
TU 3, level 1	brick fragment	16.5	1		
TU 3, level 1	bottle glass, clear	1.4	3		
TU 3, level 1	bottle glass, aqua	0.5	1		
TU 4, Level 1	window glass, aqua		1	1.21	1845.7676
TU 4, Level 1	window glass, aqua		1	1.28	
TU 4, Level 1	window glass, aqua		1	1.44	
TU 4, Level 1	window glass, aqua		1	1.47	
TU 4, Level 1	window glass, aqua		1	1.52	
TU 4, Level 1	window glass, aqua		1	1.57	

TU 4, Level 1	window glass, aqua		1	1.59	
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
TU 4, Level 1	window glass, aqua		1	1.75	
TU 4, Level 1	window glass, aqua		1	1.89	
TU 4, Level 1	window glass, aqua		1	2.09	
TU 4, Level 1	gunflint, French	5.5	1		
TU 4, Level 1	blue transfer print	0.9	1		
TU 4, Level 1	stoneware, wheel thrown glazed base	13.1	1		
TU 4, Level 1	whiteware, rims and body	14.2	11		
TU 4, Level 1	roof tile, mediterranean style	2.7	1		
TU 4, Level 1	brick fragments	23.4	12		
TU 4, Level 1	bone, unidentified mammal	0.1	1		
TU 4, Level 1	stoneware, glazed	0.8	1		
TU 4, Level 1	whiteware teapot or sugar bowl fragment, hand painted	3.9	1		
TU 4, Level 1	stoneware bowl rimsherd, salt glazed, molded, same brown ridging as TU 3	81.9	1		
TU 4, Level 1	stoneware bodysherd, salt glazed, same vessel as rim	10.1	1		
TU 4, Level 1	bottle glass, amber	3.2	2		
TU 4, Level 1	bottle glass, sun tint purple	9.6	3		
TU 4, Level 1	clinker	10.4	8		
TU 4, Level 1	redware, clear glaze	1.5	1		
TU 4, Level 1	bottle glass, aqua	1.6	1		
TU 4, Level 1	tile, glazed drainage/sewer	471.4	1		
TU 4, Level 1	whiteware, scalloped and painted rim	0.6	1		
TU 4, Level 1	bottle glass, molded clear	1.5	1		
TU 4, Level 1	brick fragments	4.9	4		
TU 4, Level 1	ferrous objects, wire (barbed?) or nails?	12.4	2		
TU 4, Level 1	blue transfer print	0.5	1		

TU 4, Level 1	bottle glass, dark green hand blown	3.6	1		
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
TU 4, Level 1	bottle glass, aqua	1.2	1		
TU 6, Level 1	window glass, aqua		1	1.32	1877.7712
TU 6, Level 1	window glass, aqua		1	1.52	
TU 6, Level 1	window glass, aqua		1	1.92	
TU 6, Level 1	window glass, aqua		1	1.98	
TU 6, Level 1	window glass, aqua		1	2.03	
TU 6, Level 1	window glass, aqua		1	2.09	
TU 6, Level 1	window glass, aqua		1	2.21	
TU 6, Level 1	window glass, aqua		1	2.32	
TU 6, Level 1	window glass, aqua		1	2.33	
TU 6, Level 1	whiteware, hand painted	0.8	1		
TU 6, Level 1	marble, clay	1.8	1		
TU 6, Level 1	stoneware, molded with brown glazed ridges (same as elsewhere?)	11.9	1		
TU 6, Level 1	stoneware, base	14.2	1		
TU 6, Level 1	plastic, unidentified melted	2.7	1		
TU 6, Level 1	whiteware, two base fragments and body sherds	24	15		
TU 6, Level 1	whiteware, hand painted flowers	1.6	2		
TU 6, Level 1	vinyl siding	2.2	3		
TU 6, Level 1	wire nails	10.2	4		
TU 6, Level 1	clinker	62.1	6		
TU 6, Level 1	slag	8.2	1		
TU 6, Level 1	flow blue	0.1	1		
TU 6, Level 1	whiteware, rim and body	0.8	2		
TU 6, Level 1	nail, unknown type	4.3	1		
TU 6, Level 1	bird bone, long, chicken?	0.9	2		
TU 6, Level 1	bird bone, distal ulna, chicken?	0.2	1		

TU 6, Level 1	bone, flat (ribs), mammal	13.7	4		
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
TU 6, Level 1	bone, unidentified mammal	11.8	12		
TU 6, Level 1	bone, long, mammal	7.5	2		
TU 6, Level 1	bone, clavicle, pig or sheep?	4.2	1		
TU 6, Level 1	bone, distal ulna, mammal	7.8	1		
TU 6, Level 1	bone, tarsal?, mammal	2	1		
TU 6, Level 1	bone, astragalus, small mammal (not sheep)	3.5	1		
TU 6, Level 1	ferrous objects, nails/barbed wire	66.9	6		
TU 6, Level 1	redware	4.1	2		
TU 6, Level 1	brick fragments	1.8	2		
TU 6, Level 1	bottle glass, deep aqua, hand blown	1.3	1		
TU 6, Level 1	bottle glass, opalescent and cloudy (not milk)	1.9	1		
TU 6, Level 1	brown glazed whiteware	0.8	1		
TU 6, Level 1	glass, melted (red stains)	16.6	2		
TU 6, Level 1	bottle glass, aqua	0.7	1		
TU 6, Level 1	bottle glass, clear	0.1	1		
TU 7, level 1	window glass, aqua		1	0.79	1857.5584
TU 7, level 1	window glass, aqua		1	1.57	
TU 7, level 1	window glass, aqua		1	2.05	
TU 7, level 1	window glass, aqua		1	2.05	
TU 7, level 1	window glass, aqua		1	2.14	
TU 7, level 1	clinker	447.5	75+		
TU 7, level 1	brick fragments	27.7	5		
TU 7, level 1	coal	7.7	2		
TU 7, level 1	worked sandstone (foundation fragment?)	43.8	1		
TU 7, level 1	plastic, milk white	0.4	1		
TU 7, level 1	wire nails	10	6		

TU 7, level 1	square cut nail	2.5	1		
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
TU 7, level 1	nail, wire?	6.7	1		
TU 7, level 1	red dog (fired/exhausted coal)	15.2	1		
TU 7, level 1	roof tile, mediterranean style	25	2		
TU 7, level 1	bottle glass, yellow (opalescent)	1.8	1		
TU 7, level 1	bone, flat, small mammal, cut mark on one	1.6	2		
TU 7, level 1	porcelain, base and body	9.4	2		
TU 7, level 1	whiteware, 1 rim	5.2	7		
TU 7, level 1	blue transfer print	0.9	1		
TU 7, level 1	bullet casing, home-made/1st or 2nd draw, has pinhole for cap, 14mm diameter, 12.7 mm height	3	1		
TU 7, level 1	bone, unidentified mammal	0.1	1		
TU 7, level 1	bottle glass, clear	6.6	5		
TU 7, level 1	flow blue rim sherds	3.8	2		
Unit A, level 1	window glass, aqua		1	0.98	1815.4484
Unit A, level 1	window glass, aqua		1	1.08	
Unit A, level 1	window glass, aqua		1	1.08	
Unit A, level 1	window glass, aqua		1	1.22	
Unit A, level 1	window glass, aqua		1	1.24	
Unit A, level 1	window glass, aqua		1	1.3	
Unit A, level 1	window glass, aqua		1	1.31	
Unit A, level 1	window glass, aqua		1	1.37	
Unit A, level 1	window glass, aqua		1	1.4	
Unit A, level 1	window glass, aqua		1	2.73	
Unit A, level 1	slag	258.1	21		
Unit A, level 1	bottle glass, amber	17.7	6		
Unit A, level 1	bottle glass, amber "A" embossed	0.5	1		
Unit A, level 1	undecorated ironstone	6.8	1		

Unit A, level 1	bottle glass, aqua	2.5	3		
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
Unit A, level 1	nails, unknown type	15.5	3		
Unit A, level 1	bottle glass, light aqua	5.7	2		
Unit A, level 1	bottle glass, sun tint purple	12.6	7		
Unit A, level 1	bottle glass, green	2.2	1		
Unit A, level 1	whiteware	5.3	7		
Unit A, level 1	white ware plate rim, painted	1.4	2		
Unit A, level 1	whiteware, plate base	2.7	1		
Unit A, level 1	brick fragments	17.1	5		
Unit A, level 1	redware, glazed	0.9	1		
Unit A, level 1	molded rockingham	2	1		
Unit A, level 1	blue transfer print	1.2	1		
Unit A, level 1	magenta transfer print	0.5	1		
Unit A, level 1	whiteware, hand painted bowl, scalloped rim	7	1		
Unit A, level 1	flow blue rim and body sherds	2.3	3		
Unit A, level 1	iron, unknown (likely nails)	11.6	2		
Unit A, level 1	iron, wire?	7	1		
Unit A, level 2	window glass, aqua		1	1.51	1855.874
Unit A, level 2	window glass, aqua		1	1.9	
Unit A, level 2	whiteware	1.4	4		
Unit A, level 2	slag	42.9	23		
Unit A, level 2	bottle glass, clear	20.7	12		
Unit A, level 2	bottle glass, medicine, clear	4.3	1		
Unit A, level 2	bottle glass, aqua (2 bottles)	6.2	2		
Unit A, level 2	clear glass telephone insulator	9.4	1		
Unit A, level 2	bottle glass, clear "uart"	10.2	1		
Unit A, level 2	bottle glass, amber, pint alcohol	46.7	8		

Unit A, level 2	bottle glass, dark green	0.5	1		
Provenience	**Material**	**Weight (g)**	**Count**	**Thickness (mm)**	**Date**
Unit A, level 2	bottle glass, green	1.1	2		
Unit A, level 2	bottle glass, hand blown, sun tint purple	14	2		