# A Report of the Archaeological Reconnaissance of the St. Oliver's Basilica Property, Cuyahoga Falls, OH.

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## Abstract

The St. Oliver's Basilica Site is an unknown prehistoric and a multicomponent historic site located on the uplands of the Cuyahoga River. The site was investigated using limited and experimental geophysical survey techniques, shovel testing, and bucket augering, over the course May 10 through 15, 2021. The goal of this project was to 1) demonstrate the integrity of urban houselots for archaeological materials 2) investigate potential associations with archaeological sites known in the area 3) test experimental geophysical methods.

The results of survey failed to indicate associations with previously documented sites in the area, in particular the historical accounts of the settlement of Chief Hopocan (also known as captain Pipe). However, the survey did yield positive results for experimental methods and integrity in urban residential lots. The investigations yielded a total of 2 flakes, 1 piece of transfer-print whiteware, 5 fragments of clear glass bottle fragments, 1 fragments of brown glass bottle fragments.

## Introduction

The St. Oliver's Basilica site is in an urban residential area in the uplands of the Cuyahoga River watershed. The site is in the backlot of a home constructed in 1924 and surrounded by other similarly constructed house lots (figure 1). The survey area roughly 10 square meters, which includes the geophysical survey grid and the surrounding area of the back yard of the property. The survey area is bound by property fences to the west and south, and the home, garage, and driveway to the north and east.

The following background research provides a foundation for the interpretation of the findings during archaeological investigations. It is necessary to understand the region's prehistoric and historic context, environmental setting, and of previous research conducted in the vicinity of the project area to determine potential National Register of Historic Places (NRHP) eligibility.

## Environmental Setting

The St. Oliver's Basilica site lies on an upland plateau north of the falls of the Cuyahoga (Figure 1). The site is located on a Wisconsin age end/lateral moraine within the Akron-Canton Interlobate Plateau of the Glaciated Allegheny Plateau (Brockman 1998; White 1982). The soils in the project area consist of Geeburg silt loam and rough broken land (Ritchie and Stieger 1974:80), which are prone to rapid runoff and severe erosion.

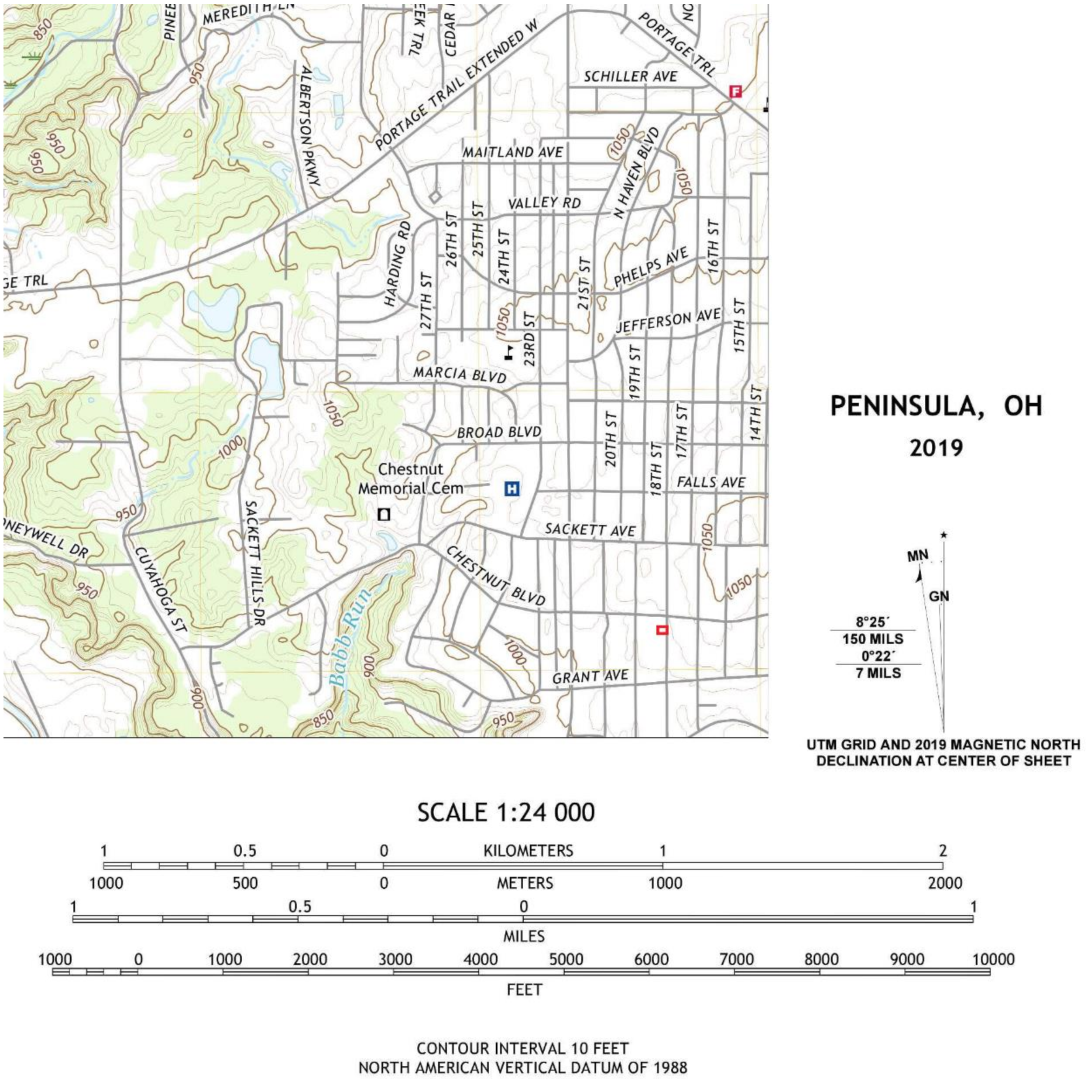

Figure 1: USGS Topographic map of area, property outlined in red.

Summit County bedrock consists of Denovian, Mississippian, and Pennsylvanian age rock (Bownocker 1981). The Denovian formations consist of Olentangy and Ohio Shales, which lie beneath a narrow portion of the Cuyahoga River Valley north of Boston Township. Limestone, sandstones, and Waverly and Maxville shales constitute the Mississippian formation, which lies beneath the western half of the county. Intermingled with the Mississippian and Denovian deposits are Pennsylvanian age shales, sandstones, Allegheny coal and other similar aged rock. Pennsylvanian limestones contain the only flint or chert strata in the county. Within the Pennsylvanian limestone is the Upper Mercer formation, located in the southeastern part of the county (Stout and Schoenlaub 1945) along streams eroding out as small nodules.

St. Oliver's Basilica is within a couple kilometers of both the historic portage path and the portage trail. The proximity to heavily trafficked waterways and trails would have provided ample transportation routes prehistorically and historically (Wilcox 1933). Caves, discovered in the early 20th century, indicate the frequency of occupation and use of this area by past peoples throughout prehistory and history (Olson 2017). The vantage points overlooking the falls of the

Cuyahoga have provided beautiful vistas, easily discernable landmarks for navigation, and protection from expedient attack.

The area around the site is composed of oak-sugar maple forests (Gordon 1966). These trees could have provided excellent sources of food, building material, tools, and wood fuel for past populations. Thanks to the excellent preservation conditions of the Krill Cave site (33 SU 18), prehistoric ecological resources can be partially reconstructed. Local fauna identified at the Krill Cave site include 35 types of mollusks, 10 types of birds, 3 types of reptiles, 3 types of fish, and 2 types of amphibians (Prufer et al. 1989). This area of Summit County also suited woodland wildlife such as deer, raccoon, squirrel, chipmunk, wolf, bear, bobcat, woodchuck, vole, woodrat, bat, hawk, owl, turkey, passenger pigeon, ruffed grouse, and woodcock. Other sites in the area, including the Mystery Cave site (33 SU 488), have recovered bear, deer, wolf, and fox remains associated with human activities prehistorically.

## Prehistoric

Humans have been living in Summit County for over 11,000 years before the present. Based on the work of a plethora of previous archaeological theory and investigation, prehistoric cultural periods were divided into the following time units: Paleoindian (11,000-8,000 B.C.), Early Archaic (8,000-6,000 B.C.), Middle Archaic (6,000-3,000 B.C.), Late Archaic (3,000-1,000 B.C.) Early Woodland (1,000 B.C.-A.D. 1), Middle Woodland (A.D.1 -400), Late Woodland (A.D. 400-1000), Late Prehistoric (A.D. 1000-1650), and Proto-Historic (A.D. 1650-1800).

Within the area immediately around the survey area, there are no recorded sites listed on the Ohio Archaeological Inventory. However, Mills (1914) indicates a “village” site located somewhere in the vicinity (if not within the survey area) of the property. As was common for early site reporting, “village” likely reflects a high-density artifact scatter, and not necessarily associated with a single component of occupation (such as a village).

Considering the environmental context, there is potential for unrecorded prehistoric habitation sites within the survey area. Small habitations in upland contexts typically include lithic flake debris, groundstone tool fragments (e.g. celts, axes, and adzes), Fire-Cracked-Rock (FCR), and occasionally pottery. Sites with similar environmental settings include the Zevenbergen Site (33 SU 528), and Pittenger Village (33 SU 23).

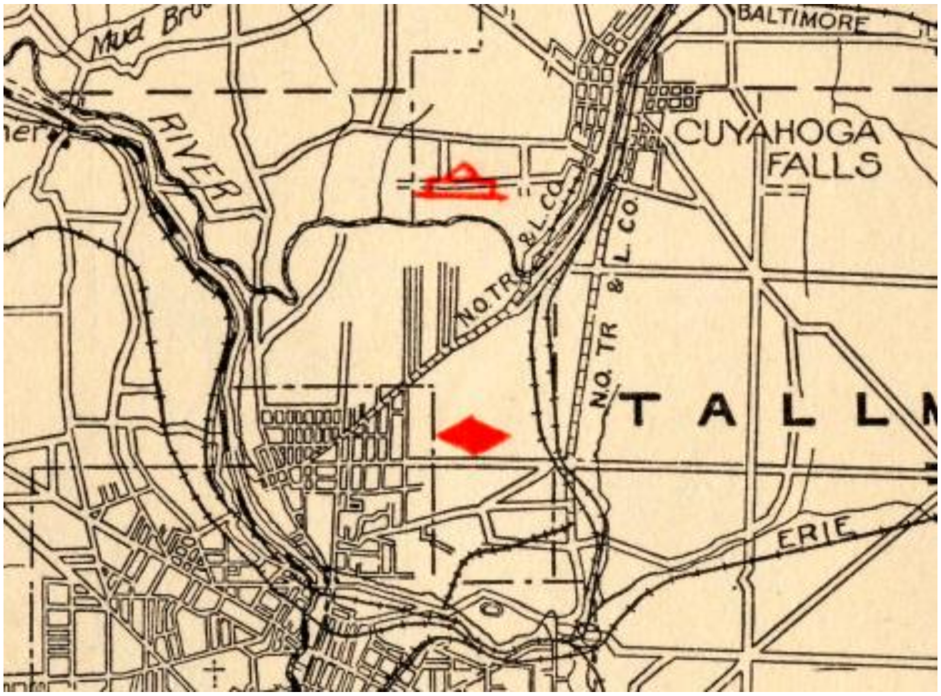

Figure 2: Mills (1914)   map, showing "village" in proximity to survey area.

## Historic

The historic period in Ohio overlaps with the proto-historic period, with the diaspora of many American Indian tribes in the 1650s (Cardinal and Cardinal 1984:34) as a result of the ongoing Beaver Wars (Cardinal and Cardinal 1984). European expansion into North America also forced many tribes, such as the Delaware, into western migration. Tribes that lived in Northeast Ohio in the 17th, 18th, and 19th centuries include Shawnee, Ojibwe, Seneca, Cayuga, Mohawk, Delaware, Miami, and Mingwe/Mingo. Wheeler-Voeglin (1974) demonstrates through historical and archival records that a settlement of Delaware, lead by Chief Hopocan (also known as captain Pipe) lived somewhere on the north side of the Falls of the Cuyahoga. It is possible that in the backlots of homes in the area may contain materials from either the Mills (1914) "village" or the alleged Hopocan settlement.

The Treaty of Greenville 1795 ceded land east of the Cuyahoga River and the Portage Path trail. The first European settlers in Summit County include the Hamilton, Campbell and Stuart families who came to the region in the 1750s (Akron Map and Atlas Co. 1891; Perrin 1881; Tackabury et al. 1874). By 1823, a small town had grown around the mill industry in the watershed divide along the portage path (Geddes 1823). By 1825, this town was founded as Akron (Perrin 1881). Summit County was created from neighboring Portage, Medina and Stark counties (Tackabury et al. 1874). The development of Akron and the county grew with the development of the cereal industry and the canal (Lane 1892). By the end of the 19th century, farming had shifted from livestock and grains to dairy production (Davis and Biehl 2017). The first half of the 20th century was dominated by rubber production and large-scale manufacturing including marbles, sewer pipes, and other ceramics (Knepper 2003).

Through historical atlases and county auditor records, the author constructed a very general history of landowner use through the mid-19th century to the present. One of the earliest Euro-American settlers in the vicinity of the survey area was George Sackett (Figure 3). Sackett was a farmer who lived in Tallmadge, and therefore it is unlikely this land served any other purpose than as agricultural fields in his possession (Bowen and Company 1898:499).

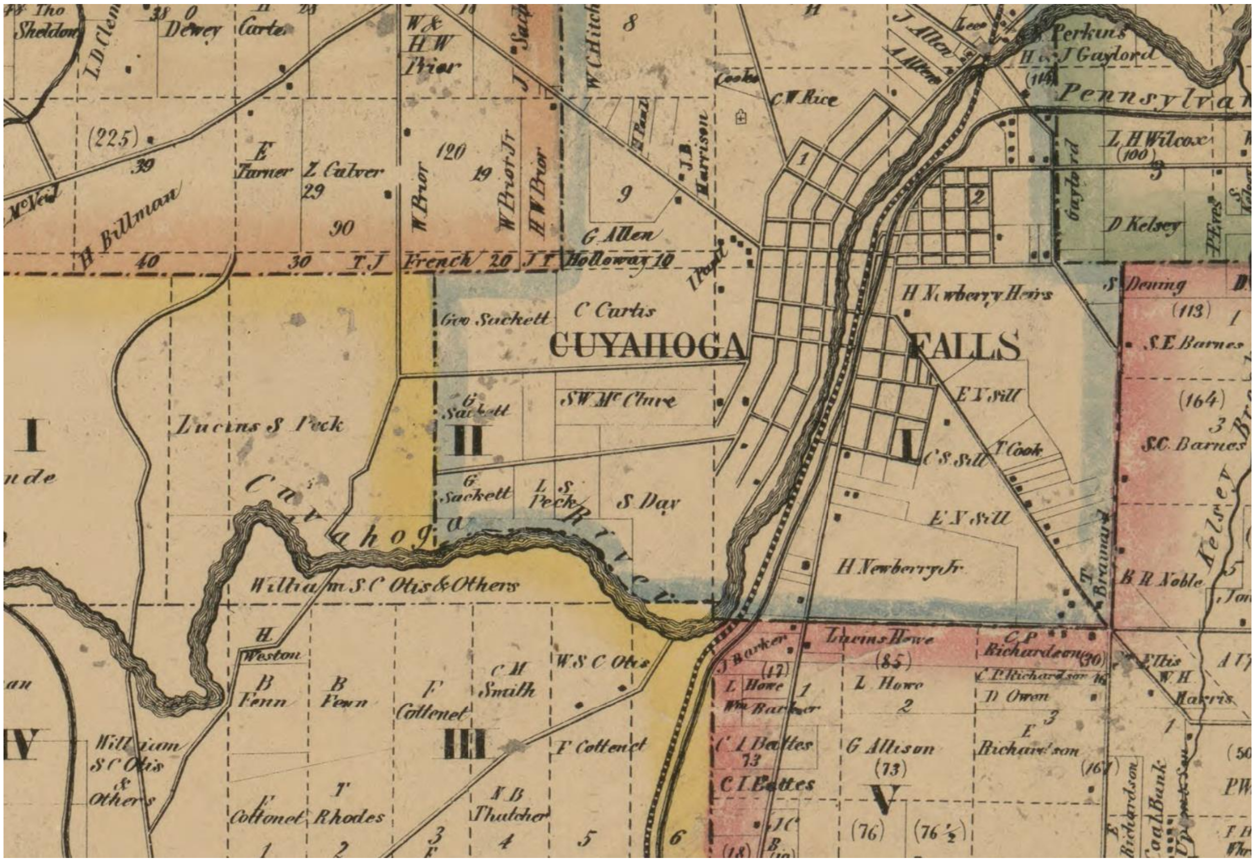

Figure 3: Historical atlas of survey area and vicinity (Matthews and Taintor 1856).

The author could not identify landowner records in the 1874 historical atlas (Tackbury, Mead, and Moffet 1874). This may be due to a combination of small inaccuracies common in historical atlases, and the rapid growth of Akron and Cuyahoga Falls in the late 19th century. By 1891, the land was actively farmed by George Babb and family (Figure 4). Babb likely farmed typical crops such as corn, wheat, or hay; however, Doyle (1908:622) specifically note he dedicated 20 acres of land for growing celery, and he also raised dairy cows.

By 1910, Elsie Babb, George's daughter, owned the land (Figure 5). However, it is unclear if she was directly involved in the use of this land for agriculture. Eventually, the land was sold and sub-divided into urban residential housing (Figure 5 and 6). This was common in the decade between 1910-1920 in the Akron area, as it saw the largest population boom in the city's history (Grismer 1952). WWI, as was common for the time, likely put a pause on urban development in the region.

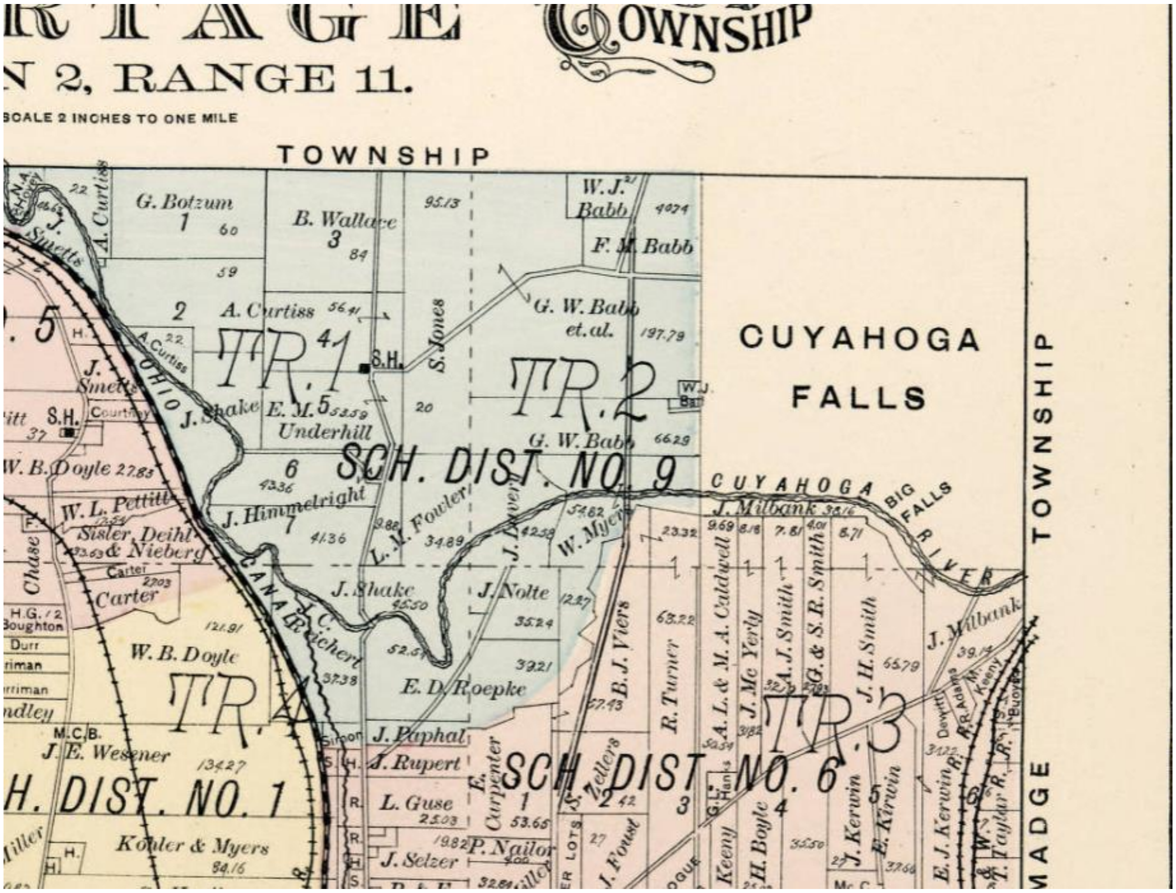

Figure 4: Historical atlas of survey area and vicinity (Akron Map and Atlas Co. 1891).

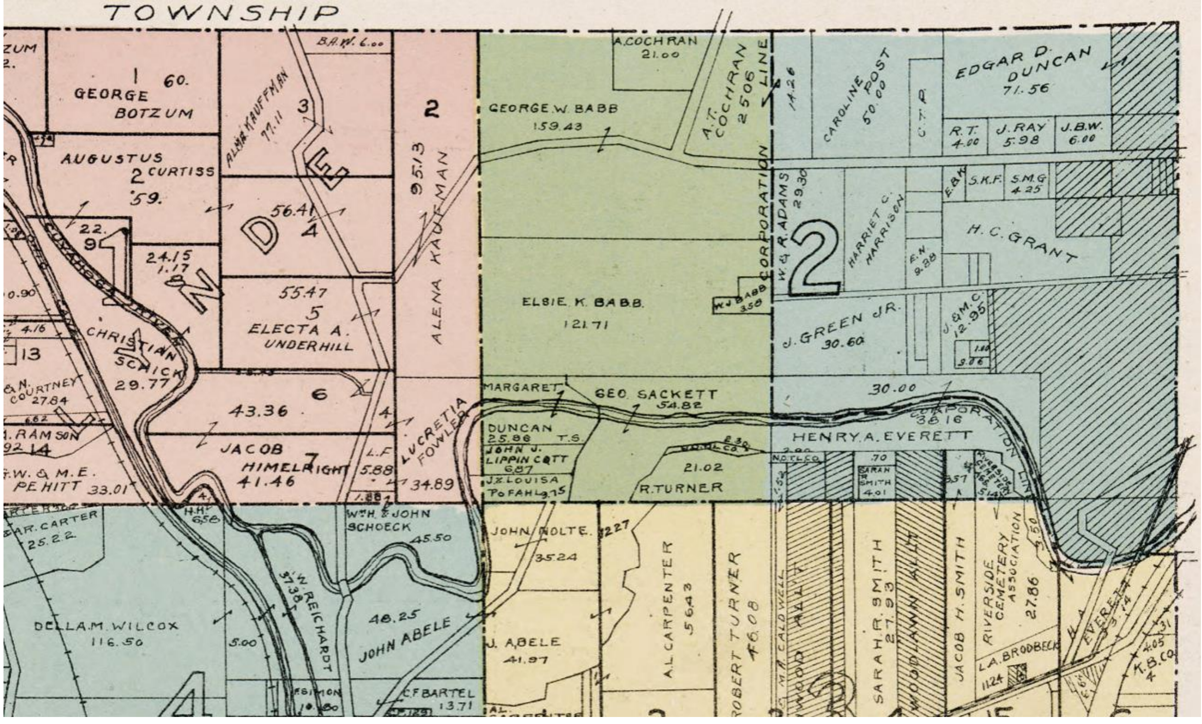

Figure 5: Historical atlas of survey area and vicinity (Rectigraph Abstract and Title Company 1910).

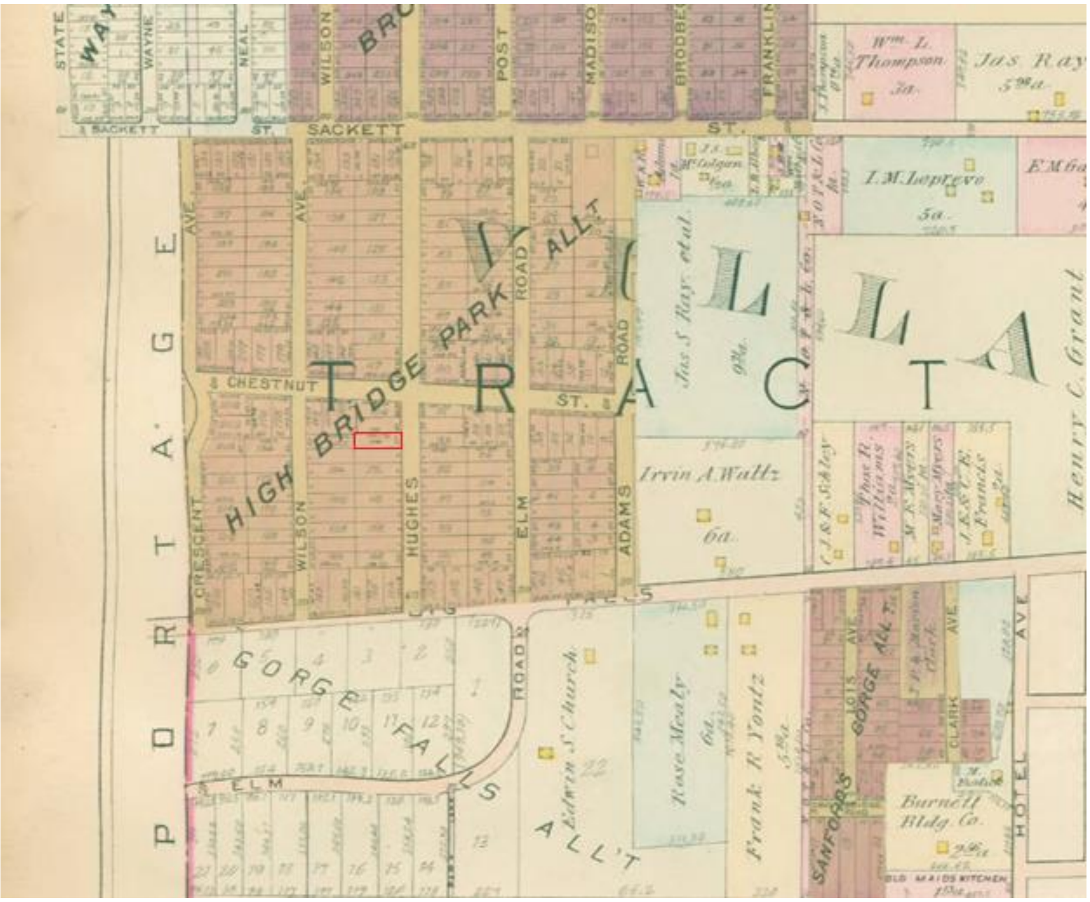

Figure 6: Historical atlas of survey area and vicinity, property highlighted red (G.M. Hopkins Company 1915).

Figure 7: Historical atlas of survey area and vicinity, property highlighted red (G.M. Hopkins Company 1921).

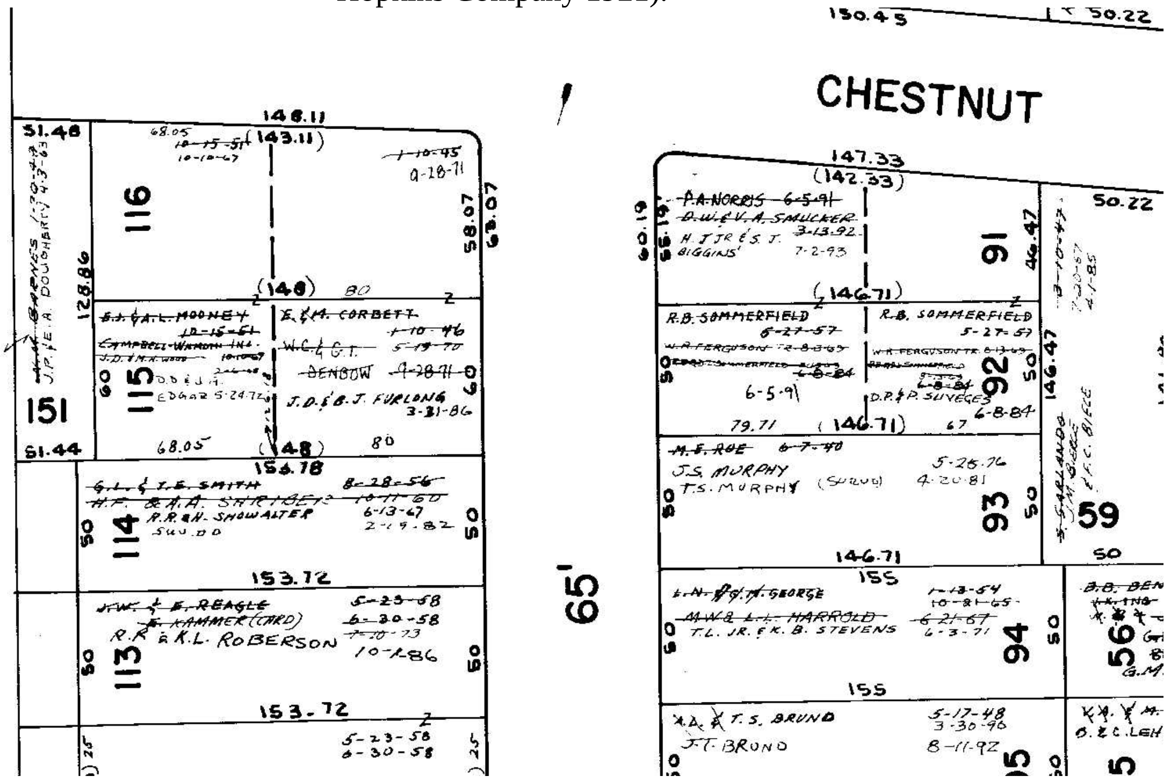

Figure 8: Old County Auditor Tax map showing several previous owners of property.

The remaining historical documentation comes from the Summit County Auditor's tax records, and limited obituary records. The house extant on the property was constructed in 1924. A thorough deed records search would yield the homeowner at the time of construction, but time did not permit investigation at this level of detail. The earliest recorded homeowner, according to old tax maps, was "G.I." and "T.E." Smith, who purchased the property in 1956 (Figure 8). A brief records search on *Family Search* did not yield any data on these homeowners. The next known homeowner, Howard F. Shriber, has a brief biography in his obituary (Akron Beacon Journal 1972). Shriber was a dentist in Akron, who had practiced for over 40 years, and died in 1972. More recent ownership history is difficult to interpret, given the privacy protections of more recent records.

## Field Methods

Novel and experimental geophysical methods were employed within the survey area. These survey methods were based on Bevan's (2002) simple electrical resistivity meter, combined with systematic soil probing. Electrical resistivity meters are one of the oldest geophysical investigation methods in archaeology (Hume 1968). Most early electrical resistivity surveys incorporated the use of the *Wenner* array, in which two electrodes measure voltage while another two (equidistant from the other pair of electrodes) measures amps from an electrical source (such as a 9v battery). The Wenner array was first discovered in 1915 and is one of the most common electrode configurations for resistivity measurements (Milsom 2003). Separating electrodes to measure voltage and amps reduces the likelihood that the electrodes will "read" their own resistance, instead of the soil (Hasan 2017). Using Bevan's (2002) designs, a Wenner array was constructed using two multi-meters, wire, alligator clips, and nails. However, this setup proved ineffective in several soil test, and was very slow. Readings failed to register on either device.

However, when only a two-electrode system was tested, readings in ohms were immediately generated. The difficulty with Bevan's (2002) design is that ohms must be calculated from two separate readings recorded in the field. There are numerous opportunities for user error, in addition to instrument error, in this method. Using a two-electrode system allows the multi-meter to directly calculate ohms, though the risk of inaccurate and imprecise readings increases. The multimeter used for resistivity tests was a 7-function digital multimeter manufactured by Harbor Freight Tools Company. Given the "bouncing" of multimeter readings that never stabilize, one could spend an eternity watching the multi-meter and waiting for a single value to stay on the screen (Bevan 2002). To combat the fluctuations inherent in this method, a "five-second" rule was implemented. After the electrodes were inserted into the soil, the operator counted to five, and then recorded whatever the multimeter displayed at that moment. This technique enabled consistency in readings and eliminated any potential scrubbing or manipulation of data by the operator. Readings were in ohms and recorded in a google sheet. Electrodes were spaced 1 meter apart. A 10x10 meter survey grid was established, where readings were recorded every 50 cm south to north. A total of 210 resistivity readings were recorded in the field.

In addition to resistivity readings, a simple soil probe was inserted into the soil every 50 cm north south, and every meter east-west. The probe was inserted until resistance was felt.

Depth to resistance was then measured with a tape measure and recorded in a google sheet. Simple soil probes have been used in the past as an expedient measure of soil compaction and are often used for identification of subsurface graves in cemeteries (Whittaker 2005). Soil probing or “rod” surveys have been implemented with success in identifying subsurface architectural features (Szalai et al 2011). However, the buried cultural materials are solid objects (concrete, stone, or a coffin/vault). Thus, the goal of the survey is to physically hit solid objects. In the context of this project, the goal was to create a dense point cloud of relative resistance depths, which could then be interpolated into shaded relief maps.

Both resistivity and probe data were interpolated in QGIS using the Archaeological Geophysics Toolbox (AGT) (Hulin et al. 2017). These interpolated maps are the basis for test unit selection or “ground truthing.” Anomalies identified in the interpolation maps would be excavated to determine if these anomalies represent cultural ground disturbances.

## Results

A 10 by 10 meter survey grid was established on the afternoon of May 10, with the southwest datum in a very damp area near the base of the tree in the corner of the property (figure 9). A significant portion of the back yard had exposed soils (figure 10); as a result, a brief surface survey of the exposed soil was conducted. This area contained abundant glass fragments and other historic garbage, likely accumulated over the life of the home (roughly 100 years). These artifacts, in addition to abundant bottle glass of all colors, included plastic lighters, 3 corroded pennies, the twine core of a baseball, brick fragments, clay drainage pipe fragments, terra cotta planter fragments, and a corroded D-cell battery, several pieces of slag, and half of a marine bivalve shell (figure 11). The pennies were highly corroded, and likely dinged and scratched from a lawnmower at least one or two times. Because of this corrosion, the mint dates were not visible. However, the backs of the pennies had the Lincoln memorial, which was part of pennies minted between 1958 and 2010. Based on the amount of corrosion, these pennies were not made of predominantly copper (they lacked the common patina of copper pennies) which dates them to likely between 1982 and 2010.

Figure 9: View of survey area, facing southwest, survey grid datum indicated with arrow.

Figure 10: View of survey area, facing south, southeast.

Figure 11: Surface scatter found on exposed soils along property line.

On May 11, the author began the systematic probe survey. This consisted of sticking the metal probe (seen in figure 10) into the ground every 50 cm north-south, and every meter east-west (starting at 50 cm). The probe was inserted until resistance was met. Obviously, this is a subjective measure; resistance for one operator might not be for another. However, the subjectiveness of this measurement was mitigated via collection of 210 readings, and the same operator for the entire survey. Usually, resistance was met when the probe reached the B Horizon, which contains mostly clay (Ritchie and Stieger 1974). In other cases, the probe was stopped due to a rock or tree root. In these cases, the probe was moved slightly and re-inserted to see if the obstruction was present in this new probe location (typically 1-2 cm adjacent the first probe test). If the obstruction was still present, the depth was then recorded. Along the northwest corner of the survey grid, there was part of a small stone wall, likely a retaining wall for the slopping soil moving south and west of the garage and home (See figure 11).

Once all the probe depths were recorded into a google sheet, the data were then imported into QGIS and interpolated using the AGT plugin (Hulin et al. 2017). The result is a gray-scale map of the survey area (figure 12). The results of the interpolation require a brief interpretation. The dark area to the northeast of the survey grid represents shallow probe depths, which in the field appeared as patchy grass areas on the upper part of a gentle slope moving southwest away from the buildings. The shallow depths in the southwest corner are roots from the tree. Other than the tree roots, these shallow probe depths roughly coincide with the slope of the terrain. Based on the surface conditions and proximity to the home, this slope likely represents the backfill or “spoil” pile excavated during the construction of the home. The difference in soil compaction was also visible on the surface via the density and size of grass growth near the south of the survey area, which was much denser and larger than the patchy grass growth to the north and east near the buildings.

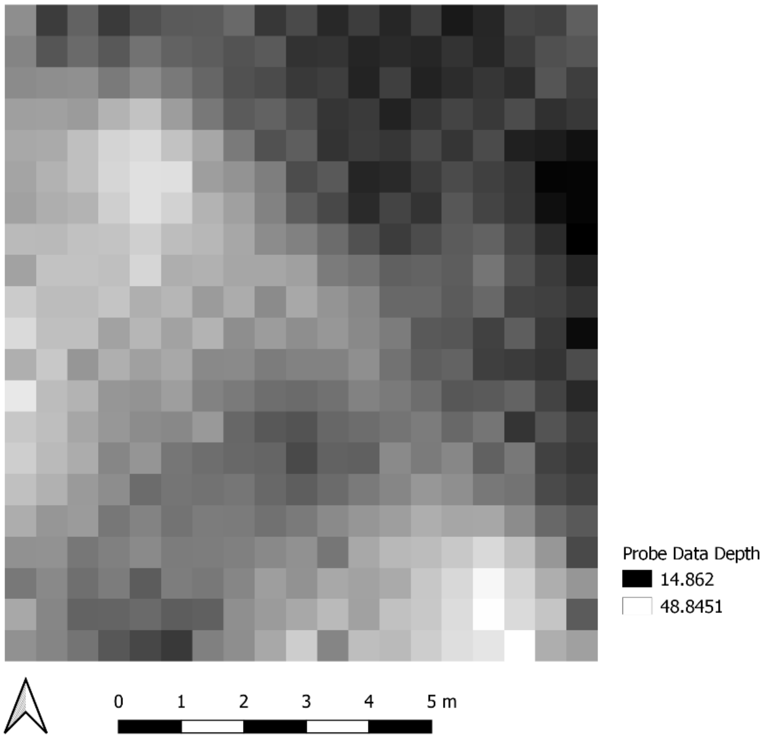

Figure 12: Interpolation of soil probe data (depth in cm)

Following the probe survey, the same sampling interval was used for the electrical resistivity survey following the methods described earlier. The results were interpolated in QGIS and displayed as a gray-scale map (figure 13). The interpolation function in the AGT cannot process negative values; since there were negative ohm readings, normalization of data was required. This normalization consisted first squaring the original ohm readings to generate non-negative values. Then, these squared values were log transformed to reduce the overall range of values. In some cases, readings were as high as 500 or more ohms, and in others as low as -20. Thus, the values indicated in the legend of figure 13 are between 1 and 5. These values do not reflect ohms, but the transformations applied to original ohm readings.

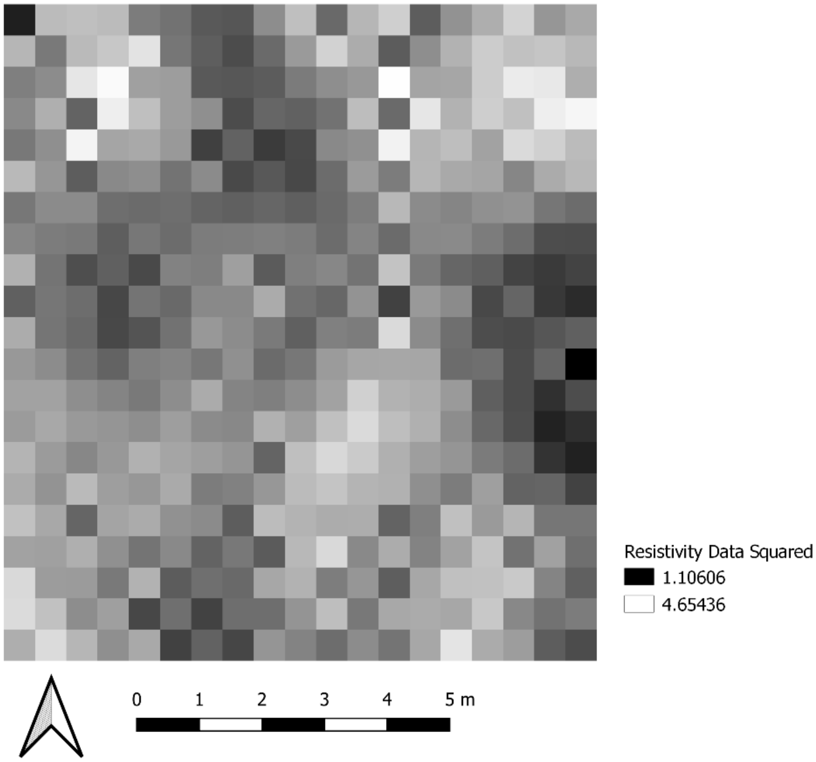

Figure 13: Interpolation of electrical resistivity readings. Interpolation used squared, log-transformed data. Interpolation used inverse distance weighted calculation, using the center point of the two electrodes as the reading “location.”

The author conducted the resistivity survey on May 12. Soil conditions were damp, but not waterlogged the day prior. The area around the base of the tree had approximately one cm of standing water. The area in the southwest, which had hit roots in the probe survey, also is clearly discernable in the resistivity results. This likely was the result of the damp soils in this area.

Test units were selected based on the results of the probe and resistivity surveys. The northeast quarter of the survey area was highly disturbed and compacted soil, and likely represents backfill/spoil from home construction. Meanwhile the area to the southwest contained several roots that likely are the reason for water retention. Thus, the focus for “ground truthing” of geophysical anomalies lay in the area roughly running from the southeast corner to the northwest corner (Figure 14).

On May 12, after completion of the probe and resistivity surveys, an 8 cm diameter bucket auger was dug at E 7.5, N 2. This auger test would provide some basic information about soil conditions and provide a soil sample. At 20 cm below the surface, two tennis balls were identified, as well as the transition zone between the A and B horizons. 250 ml of soil were collected for later analysis the following day. The soil was rinsed through 1/32-inch wire screening and dried. Within this soil sample were approximately 20 percent sand particles. In addition to the high sand content, two artifacts were identified. Two micro-flakes were found in the float material. Both were Delaware chert (figure 15).

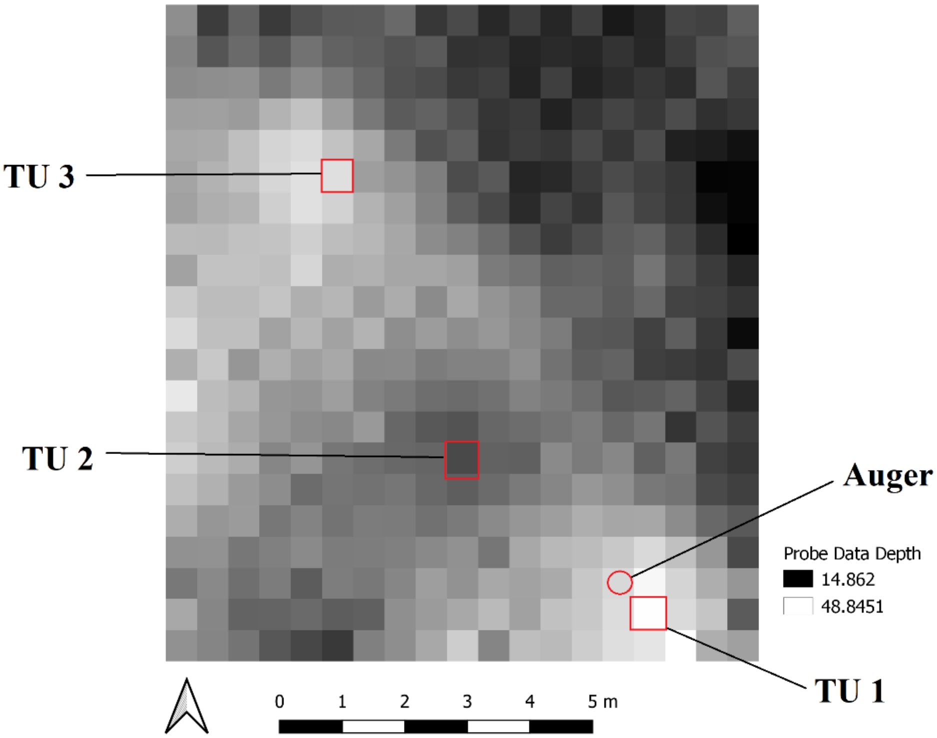

Figure 14: Location of auger test and shovel test units.

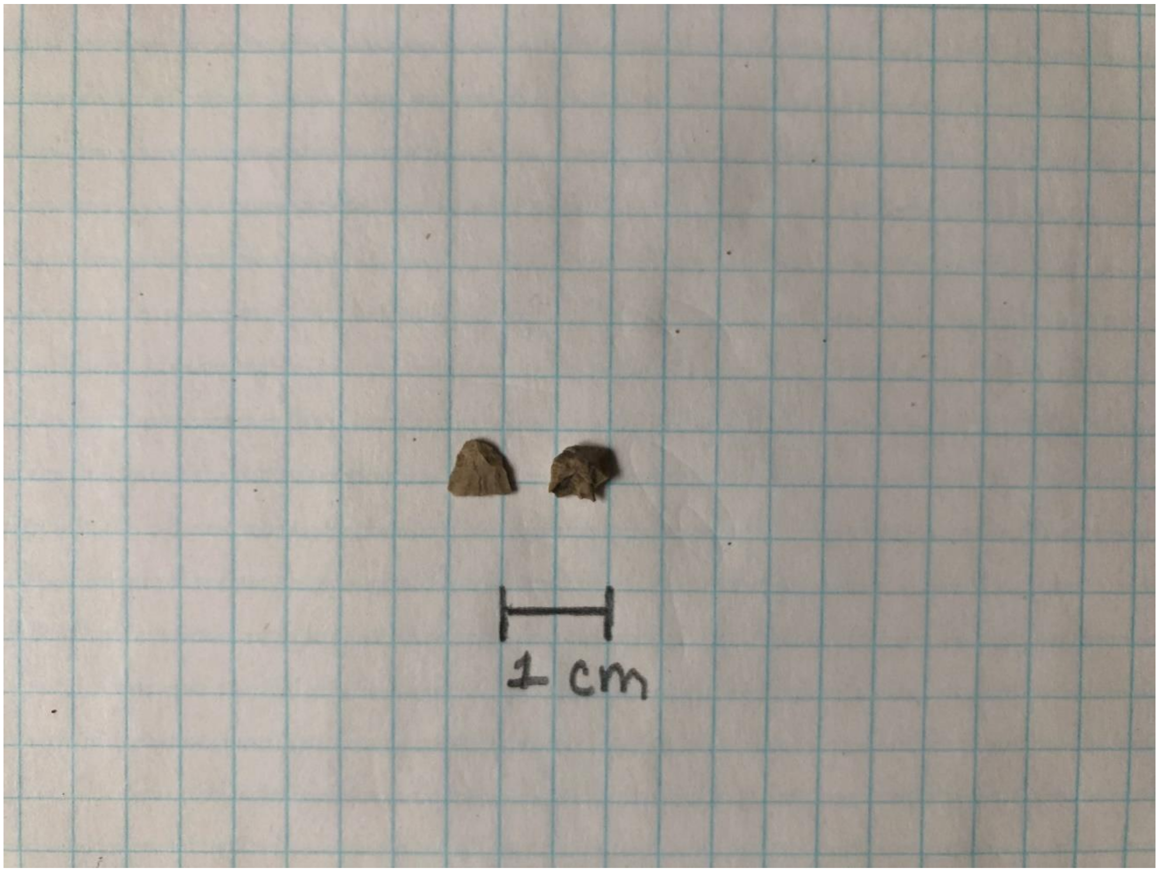

Figure 15: Micro-flakes identified in floatation of bucket auger soil sample.

Test units were excavated on May 14. Test unit one was excavated to a final depth of 31 cm (figure 16). The A Horizon consisted of a brown clay loam that was somewhat difficult to screen through ¼ inch wire mesh. The A Horizon ran from zero to 12 cm below surface. Below the A Horizon was another stratum of mottled yellow clay with a light brown/gray sandy clay. Within this layer, a transfer-print whiteware ceramic fragment was identified (figure 17). Additional artifacts found in this layer were two fragments of clear bottle glass. The B Horizon consisted of a brown/yellow gray clay; one piece of coal was identified in this layer. The top cm of the B Horizon was excavated.

Figure 16: View of test unit 1 (E 8, N 1), facing south.

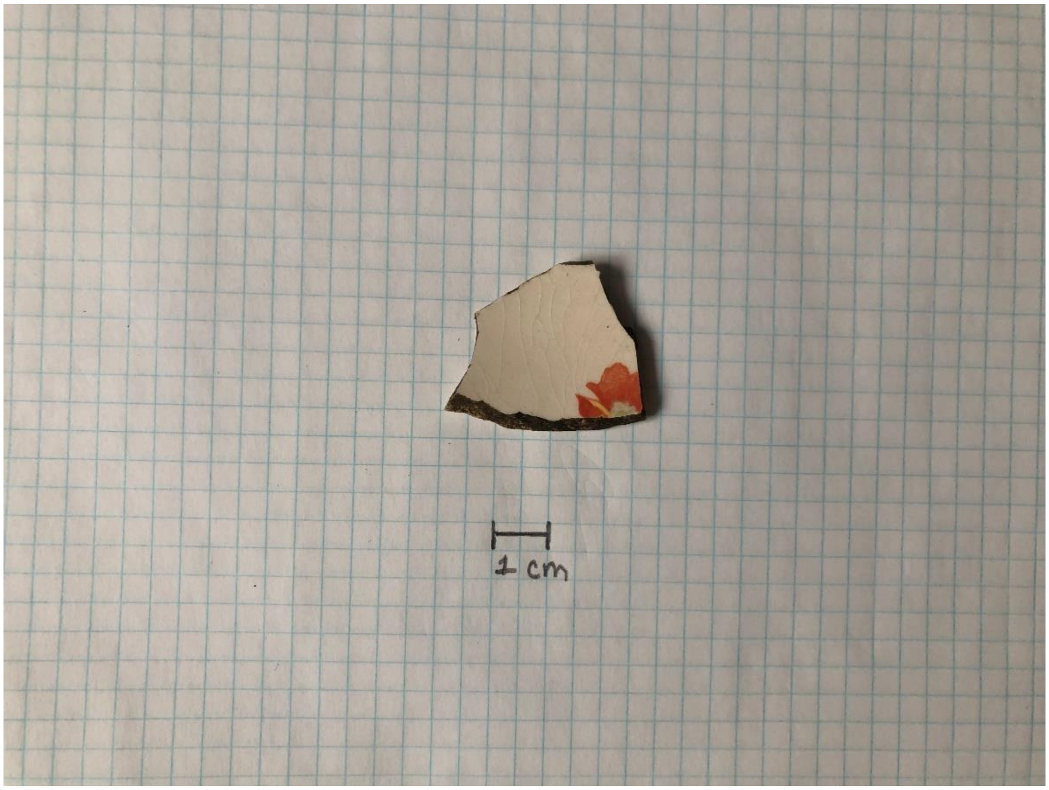

Figure 17: Transfer print ceramic found 10-20 cm below surface in test unit 1 (E 8, N1).

Test unit two was excavated to a final depth of 20 cm (figure 18). This soil was quite different from test unit one. The matrix consisted of a dark black loamy sand with mottled orange (rust colored) clay. Other than the mottled clay, there was almost no clay content in the loamy sand matrix. This A Horizon ran from zero to 12 cm below surface. At 10 cm below the surface, in the A Horizon, a bent screw nail was identified. In addition to the nail, a marble sized piece of slag, two pieces of clear bottle glass, a piece of white plastic (a latch to a toy?), and one piece of brown bottle glass were identified. There was also one piece of micro-debitage, a Vanport flint flake. The B Horizon ran from 12 to 20 cm below surface and consisted of a yellow/orange clay.

Figure 18: View of test unit 2 (E 5, N 3.5), facing west.

Test unit three was excavated to a final depth of 40 cm below surface (figure 19). This soil was more consistent with test unit one and may represent original soils (as opposed to historical backfill from home construction). The A Horizon consisted of a brown sandy loam. At the transition to the B Horizon, a fragment of clear and brown bottle glass were identified, in addition to a piece of slag (marble sized). The B Horizon, which was excavated from 31-40 cm below surface, consisted of mottled yellow/gray and a rusty orange clay.

Figure 19: View of test unit 3 (E 3, N 8) facing north.

## Curation Location and Ownership

All artifacts were returned to the landowner. Excavation notes, sketch maps, and other documents related to the field school and geophysical survey are stored with the author. Copies of the report and select notes are filed with Stewards of Historical Preservation.

## Interpretation and NRHP Eligibility

The St. Oliver's Basilica site has two distinct associations: unknown prehistoric and the activities associated with the landowners of the home since construction in 1924. As is common in urban house lots, the property boundaries are often the location of refuse deposits by residents. These areas are the furthest from the home that people can dispose of garbage on their property. However, there is nothing in the artifacts identified in surface survey that could reasonably be associated with any homeowner.

The prehistoric component of the site consists of three pieces of micro-debitage. Delaware chert can be found as glacial deposits in stream beds and in glacial till throughout Northeast Ohio. It is a common local chert source that was exploited by past peoples throughout prehistory. The single Vanport flake was too small for the author to confidently discriminate between Plum Run or Flint Ridge Flint. Both sources are commonly used by past peoples in Northeast Ohio. The site likely represents ephemeral stone tool resharpening or use within the survey area, at some undeterminable time in prehistory. This is not surprising for the area to find a few flakes. However, what is surprising is the integrity of soils within the survey area. Despite a large portion of the survey area containing highly disturbed soil, likely backfill from home construction, the survey yielded three prehistoric artifacts. This runs counter to commonly held beliefs that urban residential properties hold little to no potential for prehistoric archaeological materials or features. While the St. Oliver's Basilica site has not yielded substantial archaeological materials, the results of this survey lead the author to conclude further survey work may yield positive identification of additional archaeological sites in the neighborhood. Future archaeological surveys in the backyards of house lots in the neighborhood may contain more information about the "village" mapped by Mills (1914) or the historically documented settlement of Chief Hopocan.

In conclusion, the St. Oliver's Basilica site is not eligible for the NRHP. While there is evidence of intact original soils, the artifacts recovered are not associated with specific events, people, architecture/engineering, or yield new information about the past.

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