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# Geophysical Survey and Phase I & II Testing at Wisconsin Site OU - 0115: The Grignon Mansion, Kaukauna

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**PETER N. PEREGRINE, DIRECTOR**



# **Geophysical Survey and Phase I & II Testing at Wisconsin Site OU-0115: The Grignon Mansion, Kaukauna**

Peter N. Peregrine, Lawrence University  
December, 2018

## **Final Report** Wisconsin PLP # 18-081

### **Abstract:**

Between September and November 2018 Lawrence University conducted a geophysical survey, Phase I shovel testing, and a single Phase II 1.5 meter by 1.5 meter test excavation to determine if significant archaeological deposits are present on the north side of the historic Grignon Mansion. The survey and test excavations were undertaken on behalf of the City of Kaukauna in anticipation of constructing a replica of the summer kitchen that had once been located on the north side of the Mansion. The survey and excavations found what are thought to be remnants of the original summer kitchen, including a possible original subfloor and the foundation for a support post. Early glass found during the excavations suggest that the Grignon Mansion may have been built in the location of an earlier structure. The survey also identified what appears to be a large group of prehistoric longhouses to the northwest of the Mansion, here named North Kakalin Village. This area may contain archaeological deposits significant enough to be eligible for the National Register. Finally, it is recommended that a full Phase III excavation be undertaken in the area of the planned replica summer kitchen before construction proceeds.



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## Introduction and Context

The research reported here was undertaken at the request of the City of Kaukauna to evaluate the significance of archaeological deposits on the north side of the Grignon Mansion (Wisconsin site OU-0115) in anticipation of building a replica summer kitchen. Professor Peter Peregrine of Lawrence University was approached to undertake a geophysical survey to determine whether undisturbed archaeological deposits might be present in the location planned for the replica to be built. He and four students<sup>1</sup> worked at the site twice weekly from September 11 to November 8, 2018 as part of a Lawrence University field archaeology course. Potentially intact deposits were identified in the geophysical survey and in follow-up test pits and a single Phase II 1.5 meter by 1.5 meter test excavation. This report describes the findings of the geophysical survey and Phase I & II excavations. In addition, a new prehistoric site, here named North Kakalin Village, was discovered to the northwest of the Mansion.

The Grignon Mansion is located at 1313 Augustine St, Kaukauna, WI 54130 in Township 21, Range 19 East, Section 19 (Figures 1 & 2). It is a Greek Revival house constructed in 1837 by Charles A. Grignon and was listed on the National Register of Historic Places in 1972. The house was in the Grignon family until 1939 when it was sold to Outagamie County. At that point the house was in poor condition, and the County undertook extensive renovations. The house was later sold to the City of Kaukauna (1964), then to the Outagamie Historical Society (1981), both of which continued to renovate and make improvements. The property was again sold to the City of Kaukauna in 2012. The City of Kaukauna currently manages the site as an historic house museum operated by volunteers through the “Friends of the Grignon” (<https://www.grignonmansion.org/friends-of-the-grignon.html>) and plans to undertake additional improvements, including the construction of a replica of a summer kitchen that once stood on the north side of the Mansion. This work was undertaken in anticipation of those improvements.

## History

Comprehensive studies of the Grignon family (LuMay 2001; Ryan 1911; Spencer 1895) and the Grignon Mansion (AVD Archaeological Services 1999; Wollangk 1998) are available elsewhere, so only a brief overview is presented here.

The Grignon family were prominent fur traders who established a trading post on Mackinac Island as early as 1746. They reportedly established a trading post in the Kaukauna area by the early 1760s. In 1804 Augustin Grignon purchased from Paul Ducharme French Lot 34 along with an existing log cabin. This is property upon which the Grignon Mansion now stands. Augustin Grignon and his family settled on the property around 1813 and established a grist mill, trading post and a large farming operation. The Grignon family quickly became one of the wealthiest families in the area, and when Augustin’s son Charles A. Grignon built a house as a wedding present for his wife Mary, he built the finest house he possibly could. This house, with minor modifications, is the Grignon Mansion as we know it today.

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<sup>1</sup> Ethan Courey, Joe Kortenhof, Emma Lipkin, and William Nichols.



Charles A. Grignon continued his father's mill and trading businesses, but after the Menominee ceded northeastern Wisconsin in the 1836 Treaty of Cedars the Wisconsin fur trade quickly deteriorated and Charles turned his attention to farming and politics. Charles and Mary had eleven children but only two grandchildren, the last of whom, Augustin Deuel Grignon, died in 1938 with no heirs. The Grignon Mansion was sold to Outagamie County in 1939 as part of the settlement of Augustin's estate.

## **Previous Research**

There have been four previous archaeological projects within the historic boundaries of the Grignon Mansion property (Figures 3 & 4). The first was performed in 1992 by Jeffrey Behm of the University of Wisconsin—Oshkosh (Behm 1992). Behm was hired by the Outagamie County Historical Society to perform a Phase I survey for a planned sidewalk linking the parking lot with the Mansion (this sidewalk was not constructed). He made a series of eight shovel tests and took twenty-nine soil cores along the planned route of the sidewalk. He also made a 1 meter by 1 meter excavation between the second and third shovel tests. Six of the shovel tests contained historic artifacts, and the soil cores indicated some historic modifications of the soil. The test pit also produced historic artifacts. The artifacts from both the shovel tests and the excavation were all mid- to late-19<sup>th</sup> century, dating to the construction and occupation of the Mansion. Only a single prehistoric artifact was found. Behm's conclusions were that mixed historic material is present over much of the site, probably due to soil disturbance from agriculture, landscaping, and construction.

Carol L. Mason of the University of Wisconsin—Oshkosh excavated two 2 meter by 2 meter and one 1 meter by 1 meter units just to the northeast of the Mansion as part of an archaeological field school in 1993 (Mason 1994:18-22). The focus of the excavation was two depressions that the Mansion curator at the time, JoEllen Wollanyk, thought might have been the Mansion's root cellar. Mason excavated these two areas over three days using standard excavation techniques. The excavations produced a rich assemblage of over 30,000 objects, now in the collections of Lawrence University, and uncovered remains of a dry-laid foundation that she identified as the root cellar. Unfortunately, no formal report of the excavations was produced and the surviving records of the excavation are sparse. The artifacts were not catalogued by the excavator or formally analyzed. Lawrence University has since catalogued the collection but has not yet analyzed the materials. Non-systematic examination of the artifacts during accession suggests they are primarily late-19<sup>th</sup> or early-20<sup>th</sup> century, and may have been refuse from work performed in 1940 by the Works Projects Administration (WPA) to clean up and begin reconstruction of the Mansion after its purchase by Outagamie County (also see Mason 1995:7).

Carol L. Mason returned to the Mansion on April 13, 1995 to conduct shovel tests over a 20 foot by 20 foot area near the northeast corner of the historic property. This work was performed as a Phase I investigation in anticipation of the construction of an outdoor fire pit. She excavated ten shovel tests, four of which contained historic artifacts, all of which were on the southern side of the proposed fire pit area. Mason recommended the fire pit be moved north, which it was.

The most comprehensive study of the Grignon Mansion historic property to date was undertaken in 1999 by AVD Archaeological Services, Inc. (AVD Archaeological Services 1999). In

addition to an extensive series of shovel tests in the historic boundaries of the Grignon Mansion, AVD did excavations in an area some 300 meters north of the house that contains the foundations of the Augustin Grignon house (thought to be built about 1816) and associated buildings known together as the “Old French Village”. This area had been unsystematically excavated between 1939 and 1952 by the curator of the Grignon Mansion at the time, William Wolf. Wolf not only undertook extensive excavations but also re-constructed the foundations of several houses he uncovered (Figures 5 & 6), and identified them by their use or owner. These attributions have no empirical basis and are almost certainly not accurate, but they serve as useful names for the individual structures. Because the AVD excavation at the Augustin Grignon home is not relevant to this project, it will not be further discussed here.

AVD also excavated a total of 72 shovel tests along the north and west boundaries of the historic Grignon Mansion property as well as in areas thought to have contained historic outbuildings. (Figures 3 & 4). Many of the shovel tests contained historic material and a small number contained prehistoric stone flakes. The historic material all dates to the mid- to late-19<sup>th</sup> century. AVD concluded that their work within the historic boundaries of the Grignon Mansion “demonstrated a potential for significant archaeological resources” and that “areas away from the house itself have the potential to yield important information” (AVD Archaeological Services 1999:36).

The most recent project before the present one was conducted in October 2004 by Jeffrey Behm of the University of Wisconsin—Oshkosh (Behm 2005). Behm performed six shovel tests and a broad-area excavation in anticipation of the construction of a replica blacksmith shop to the northwest of the Grignon Mansion (Figure 4). The shovel tests all contained historic artifacts, but also indicated extensive disturbance of the subsoil. Prior to excavation the topsoil in the area planned for construction was mechanically stripped. Mechanical stripping of topsoil was performed by the City of Kaukauna on October 27, 2004, and shovel scraping to identify buried features was performed by Behm the following day. Several features were discovered, but none of archaeological significance. Behm concluded that the area had been thoroughly disturbed by previous activities.

The picture that emerges from previous archaeological work within the historic boundaries of the Grignon Mansion is that a large quantity of historic material is present, but that agriculture, landscaping, and construction have significantly disturbed the area and few intact features are likely to remain. Despite this, the potential for intact features and the wealth of information they might contain was demonstrated by Carol L. Mason’s 1993 excavations of the root cellar, so that any planned disturbance within the historic boundaries of the Grignon Mansion should include a Phase II archaeological investigation. The work presented here was undertaken with that in mind.

# Methods

## Soil Resistivity Survey

Soil resistivity survey was conducted over a total of eleven 20 meter by 20 meter grids covering most of the north and west sides of the historic Grignon Mansion property, and extending roughly 10 meters into the adjacent soccer field to the west (Figures 7 & 8 and Appendix B). Soil resistivity data were collected using a Geoscan RM85 resistance meter system (Geoscan Research 2015). The RM85 is a flexible soil resistivity collection system developed specifically for archaeological applications. It allows a wide variety of probe arrays for different archaeological applications. For this survey a basic “twin array” was used. In this configuration two sets of dipoles are used—one stationary and one mobile. The stationary dipole provides a constant measure of soil resistivity that is used to create a differential reading with the mobile dipole, which is moved across the measurement grid. In this way, the resistivity reading is the difference between two individual readings, one being constant and the other varying by the soil conditions it encounters (Schmidt 2013). Soil resistivity data were collected at 0.5 meter intervals along 0.5 meter spaced parallel north-south lines and using a zig-zag method.

The raw resistivity data were downloaded from the RM85 into the Geoplot 4.0 software package (Geoscan Research 2016). Analyses conducted on the data involved (in the following order) (1) “despiking” to remove small, excessively high resistivity readings likely caused by a rock or metal object immediately between the dipole spikes; (2) “high pass filtering” to balance the data evenly around a zero mean; (3) “destaggering” to remove effects of the zig-zag data collection technique; (4) “low pass filtering” to enhance small resistivity anomalies; and (4) “interpolation” conducted once in both the X and Y directions to make each pixel represent 25 square centimeters. The image resulting from this processing is superimposed on an aerial image of the Grignon Mansion property in Figure 8. Soils with higher resistivity appear as darker grays; soils with lower resistivity as lighter grays. Analysis and interpretation of the resistivity data is provided the results section of this report.

## Shovel Tests and Excavation

Initial examination of the resistivity data suggested that there was archaeological materials, and perhaps an intact foundation, in the area of the proposed summer kitchen replica. Thus ground-disturbing examination of the area was warranted. A total of 17 shovel tests were excavated along with a 1.5 meter by 1.5 meter test pit (Figures 9 & 10, Appendices A & B). All but three of the shovel tests contained historic artifacts, and the excavation uncovered not only historic artifacts but what may have been the base for a support post of the original summer kitchen and a layer of sand-like debris that may have been the original prepared surface under the summer kitchen. Details are provided in the results section of this report.

Shovel tests were done by excavating a hole roughly the diameter of the shovel blade and to roughly the depth of the shovel blade (Figure 10). Normally a shovel test of this kind will produce two to three buckets of dirt, all of which was put through quarter-inch mesh screen to recover any artifacts. All but shovel tests #4, #9, and #13 (Figure 9) produced historic artifacts, the most common being cut and wire nails (Appendix A: Table 1). No prehistoric artifacts were

found. Soil profiles were not taken because an excavation was planned which would provide far better profiles than could be obtained through the shovel tests.

The 1.5 meter by 1.5 meter excavation unit was placed between shovel tests #12, #13, #19, and #21 (Figure 9 and Appendix B). Topsoil was removed to a depth of 10 cm, then shovel scraping was used to excavate the unit in 10 cm arbitrary levels down to 50 cm. All shovel scraped soil was sent through quarter-inch mesh screen to recover artifacts. Numerous historic artifacts were recovered, but no prehistoric material (Appendix A). Two features were found during excavation. One is a layer of light colored, sandy soil with highly varied grain size at roughly 35 cm below the ground surface. The other was a cluster of large rocks located in the center north of the unit and beginning at roughly 35 cm below ground surface. Both are interpreted as being remains of the original summer kitchen. Details are discussed in the results section below.

## Results of Investigations

### Soil Resistivity Survey

Interpreting soil resistivity data is as much an art as a science, and the art involves sometimes complex, and sometimes tedious, manipulations of grayscale values, of contrast and brightness, clipping (that is, displaying only a selected range of values), and the like. Only two of the many images produced through the long process of interpretation are shown here: Figure 8 presents the “base” image produced through the processing methods described in the last section, while Figure 12 present a “clipped” image displaying only resistivity values between 7 and 16 ohms.

To begin, careful examination of the resistivity data in Figure 8 shows several large features. First, a large area of randomly distributed and relatively similar readings is evident along the east side of the survey. One can see the lines of existing trees as dark circles of higher resistivity against relatively even background, and a linear band of lighter, lower resistivity readings running southwest-northeast between the lines of trees (Units 7, 8, & 9). This linear band is likely a result of soil disturbance or other landscaping associated with planting the lines of trees in the 1940s. There are also a series of linear features that cut southeast-northwest across the entire image. These are straight, regularly spaced (roughly 5 meters apart), and thus must represent large-scale human modification of the soil. It is not clear what these features are, though one guess would be French drains or some other drainage system put in place to mitigate the localized rainfall flooding in the area. Since these features can be seen in a 1953 aerial photograph (Figure 11), they may have been created in association with large-scale landscaping that took place in the late 1940s and early 1950s, landscaping that included planting the trees mentioned above.

As one looks farther to the east on the resistivity image, one can see two areas of interest toward the north. One is an area of lower resistivity on the eastern side of the blacksmith shop (Unit 5). The other is an area of mixed very high and very low resistivity readings cutting diagonally across the far northeast grid unit (Unit 6). From analysis of the data it appears that the latter is likely the result of poor remote probe placement, and thus is an artifact of the survey, not of the soils themselves. The area to the east of the blacksmith shop, however, does appear of interest. The area is fairly large, and suggests considerable mixing of soil or the presence of diverse materials of higher and lower resistivity. A 1934 sketch map of the property shows this area to be the northwest side of a plowed garden, and that appears to fit the pattern here. It might also be possible that disturbance from landscaping and/or encampments of Civil War reenactors played a role in creating this anomalous area, as evidence for subsurface disturbance from both sources were identified by Behm in his excavation associated with construction of the blacksmith shop (Behm 2005:16-17).

Another area of interest is the area of mixed readings to the immediate north of the Grignon Mansion (south half of Unit 2 and eastern Unit 12). This can reasonably be accounted for from landscaping and construction around the Grignon Mansion, and in particular with the installation of a full basement in 1986. So, while there are areas of interesting anomalies in the resistivity image, none of them point to the presence of foundations or large subsurface features in the

surveyed area. However, detailed analysis of the resistivity data indicates the presence of some subtle features that may be of great historical importance.

### *North Kakalin Village*

Several lines of discrete resistivity values were identified during analysis of resistivity data from the western part of the surveyed area. These looked suspiciously like postholes seen in other resistivity data, so additional analyses were performed to separate out these features for examination. Figure 12 presents these anomalies, while Figure 13 shows them with red dots superimposed on what are thought to be postholes. Figure 15 presents an interpretation of the anomalies tentatively identified as postholes as yellow lines, with the postholes as red dots. The interpretation was made by creating lines between what appear to be linear or curvilinear sets of greater than three individual anomalies. This interpretation suggests the presence of at least two groups of partially superimposed longhouses, one group oriented roughly east-west, the other roughly north-south. There also appears to be a large circular structure to the west of the Mansion. Some of these interpretations are certainly wrong, just as some of the interpreted postholes are certainly other kinds of features. But the number of features that appear to form the shape of longhouses, are of the correct size to be longhouses, and which are oriented as groups of structures in common directions, suggests these interpretations are at least plausible. However, less confidence might be given to the reality of the postholes and their interpretation in the area to the east of the blacksmith shop due to the extensive known disturbance in this area.

It is interesting that what are interpreted as postholes are in a relatively small area, and this area, including some of the interpreted in walls are cut off. To see if the boundaries and/or termination of postholes can be explained by more recent subsurface disturbances, known disturbances were mapped onto the interpretations (Figure 16). The locations of disturbance map remarkably well onto termination points in some cases. In particular, the three central longhouses all terminate near the boundary of a known agricultural plot (outlined in pink). There seems to be a gap in the midst of the postholes and two terminations that generally align with the location of restrooms (outlined in blue) that were removed within the last 15 years. These may be coincidences, but because identification of postholes and interpretation of walls was done without any knowledge of these disturbances, pure coincidence seems unlikely.

Longhouse villages are characteristic of the Classic Oneota Horizon (A.D. 1350-1650) in Wisconsin. Oneota people are present in Wisconsin from roughly A.D. 1000 into the historic period, and are most commonly thought to be the direct ancestors of the Ho-Chunk Nation (see Overstreet 1997 for a comprehensive overview of Oneota in Wisconsin). They are distinguished from their Late Woodland neighbors by their manufacture of shell-tempered ceramics with distinctive globular forms decorated with incised geometric designs. The Oneota were sedentary agriculturalists, growing corn, beans, and squash in fields surrounding villages of a few dozen to perhaps a few hundred people. House type varied as well. Typical housing was a circular, single family “wigwam” 3 to 5 meters in diameter, but large longhouses—5 or more meters wide and up to 50 meters long—within which several families would live were also present. These longhouses are what appear to make up the North Kakalin Village.

Figure 17 shows what an excavated Oneota longhouse community looks like, in this case the Tremaine site located along Halfway Creek near Holmen, Wisconsin. The archaeological remains of this house would look something like the bottom image of Figure 17. Figure 18 provides an artist's reconstruction of what an Oneota longhouse may have looked like. This is what the longhouses of the North Kakalin Village may have looked like.

### **Summer Kitchen Excavation**

A 1.5 meter by 1.5 meter excavation unit was placed between shovel tests #12, #13, #19, and #20 (Figure 9) to better determine the nature of archaeological deposits in the area of the historic summer kitchen. Excavation took place over two days, with a single 10 cm arbitrary level excavated on the first day and both a 5 cm and a 10 cm arbitrary level excavated the second day. The change from 10 cm to 5 cm level occurred because of the relatively large amount of material that began to appear about 35 cm below the ground surface—a depth just above where what appears to be a prepared ground surface was found. A group of large rocks were also found beginning at about the same depth as the prepared ground surface.

Figures 19 and 20 show the south and west profiles of the excavation unit. There are four primary levels in addition to the thin prepared ground surface. Level A topsoil is roughly 8-10 cm thick across the entire unit. Below that is a roughly 5 cm thick layer of clay fill (labeled B) that extends across the entire south profile but only roughly 45 cm into the west profile. This is interpreted as being fill put in place after installing the basement in 1989 to slant the ground surface away from the new foundation of the Mansion. Beneath the topsoil and clay fill is another clay layer (labeled C), which is also interpreted as fill associated with landscaping or the installation of the basement. This layer did not appear in shovel tests made elsewhere on the property by Behm (1992, 2005).

The primary artifact bearing layer begins about 30 cm below ground surface and is labeled D in Figures 19 and 20. Cutting through this layer is a thin lens of highly friable light sandy to gravelly soil labeled E in Figures 19 and 20 which is interpreted as the prepared subfloor of the historic summer kitchen. This thin layer can be seen in all four profile walls and extends across the excavation unit (Figure 21). In the northern part of the excavation unit this layer is associated with the top of a pile of large rocks that may have been the foundation for a post supporting the historic summer kitchen (see Figure 22). This pile of rocks rests on the clay subsoil.

Excavation stopped when clay subsoil was reached at about 50 cm below the ground surface (it can be seen in the excavation toward the bottom of Figure 22). This depth is similar to the depth of subsoil found in Behm's shovel tests (1992, 2005).

#### *Diagnostic Artifacts from the Summer Kitchen Excavation*

No diagnostic artifacts were found in the shovel tests. Diagnostic artifacts from the summer kitchen excavation are shown in Figure 23.

The ceramics labeled A are Mochaware, easily identified by the green herringbone band bordered by brown and tan stripes. Mochaware is a soft cream-colored ceramic decorated by banded slips of various colors at the neck and base. The body of Mochaware ceramics is commonly decorated, often with striking abstract designs. Mochaware was widely produced in England and the Americas, and was very popular throughout the 19<sup>th</sup> century.

Object B is a fragment of Bakelite, identified by visual inspection and smell (when lightly heated by rubbing Bakelite gives off a distinctive formaldehyde-like odor). Bakelite is a resin made primarily from phenol and formaldehyde that can be cast at room temperature and then heated to create an extremely hard plastic-like substance. It was used extensively in the 1920s and 1930s for manufacturing a wide variety of objects ranging from electrical insulators to jewelry.

Object C is a fragment of Staffordshire blue transferware, a hard white ceramic with distinctive blue (sometimes black or red) pictorial designs, developed as a substitute for expensive hand painted ceramics. The transfer process began with an engraving plate from which an ink copy was transferred to a piece of tissue paper. This copy was then applied to a ceramic either under or over a clear glaze, once again transferring the ink. Blue is the traditional color of transferware because it was the color of the only ink that could survive high-temperature firing when transferware was first developed in the late 18<sup>th</sup> century. This particular piece labeled C is most likely from the later 19<sup>th</sup> century because of the poor quality of the transfer and its light blue color, although the “oriental” design is more characteristic of the early 19<sup>th</sup> century.

The four objects labeled D are .22 short rimfire bullet casings. The headstamp (on the base of the cartridge) is a G, and most likely indicates that these were made by the Federal Cartridge Company of Ankota, Minnesota. Federal was founded in 1922, so these are not older than that date.

Taken together, the diagnostic artifacts suggest dates ranging from the early 1800s through the early 1900s, reflecting the entire period of the Grignon Mansion’s occupation. However, the flat glass (window glass) recovered suggests the possibility that a much earlier structure had once been located in the area.

Flat glass windows became progressively thicker during the 19<sup>th</sup> century as larger windows became more desirable. The change in flat glass thickness grew so regularly over the course of the 19<sup>th</sup> century that the manufacture date of glass can be estimated through a simple linear regression equation. There are a half-dozen of these equations that have been developed from various well-dated collections of flat glass (Weiland 2009), three of which were used to estimate the ages of the 57 pieces of flat glass recovered from the summer kitchen excavation (see Table 3 in Appendix A). Figure 24 presents the estimated dates in 25 year clusters ranging from the late 18<sup>th</sup> through the early 20<sup>th</sup> century. There are fragments of flat glass in each cluster, with a slight peak in the 1826-1850 cluster—the time the Mansion was constructed.

It is important to recognize that a third of the estimated dates are before the construction of the Mansion (Figure 24). There are three ways to account for this. One is that estimated ages are incorrect, but it is unlikely that three different techniques would produce similar results all pointing to a large number of late-18<sup>th</sup> and early-19<sup>th</sup> century glass fragments. A second is that



old glass was used in the construction of the Mansion. This too seems somewhat unlikely as the Mansion was built to be a new and impressive structure, and one that did impress residents of the area. The third, and more likely explanation, is that the Mansion was built in the same location as an older structure.

When Augustin Grignon purchased French Lot 34 from Paul Ducharme there was an existing log cabin on the property, thought to be built by Ducharme in 1793. William Wolf claimed that this log cabin was located in the “Old French Village” that he excavated in the 1940s and early 1950s (Figures 5 & 6), but there is no physical evidence to support that claim. Indeed AVD estimated that structure was built around 1813 (AVD Archaeological Services 1999:34). It is possible that the original Ducharme/Grignon log cabin was located on the same spot as the Grignon Mansion, and that the Grignon home in the “Old French Village” was a later building. The estimated dates of the flat glass found in the summer kitchen excavation at least make that conclusion a reasonable one.

## **Recommendations**

1. The City of Kaukauna should, in consultation with the State Historical Society of Wisconsin, undertake a Phase III mitigation of the archaeological deposits in the proposed location of the replica summer kitchen or move the replica to another location.
2. The City of Kaukauna should, in consultation with the State Historical Society of Wisconsin, undertake Phase II investigations in advance of any construction, landscaping, or other ground disturbance in the northern half of the historic Grignon Mansion property.
3. The City of Kaukauna should, in consultation with the State Historical Society of Wisconsin, act to preserve intact the area identified as North Kakalin Village.

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# Figures

**Figure 1: General location of the Grignon Mansion (OC-0115) within the State of Wisconsin.**

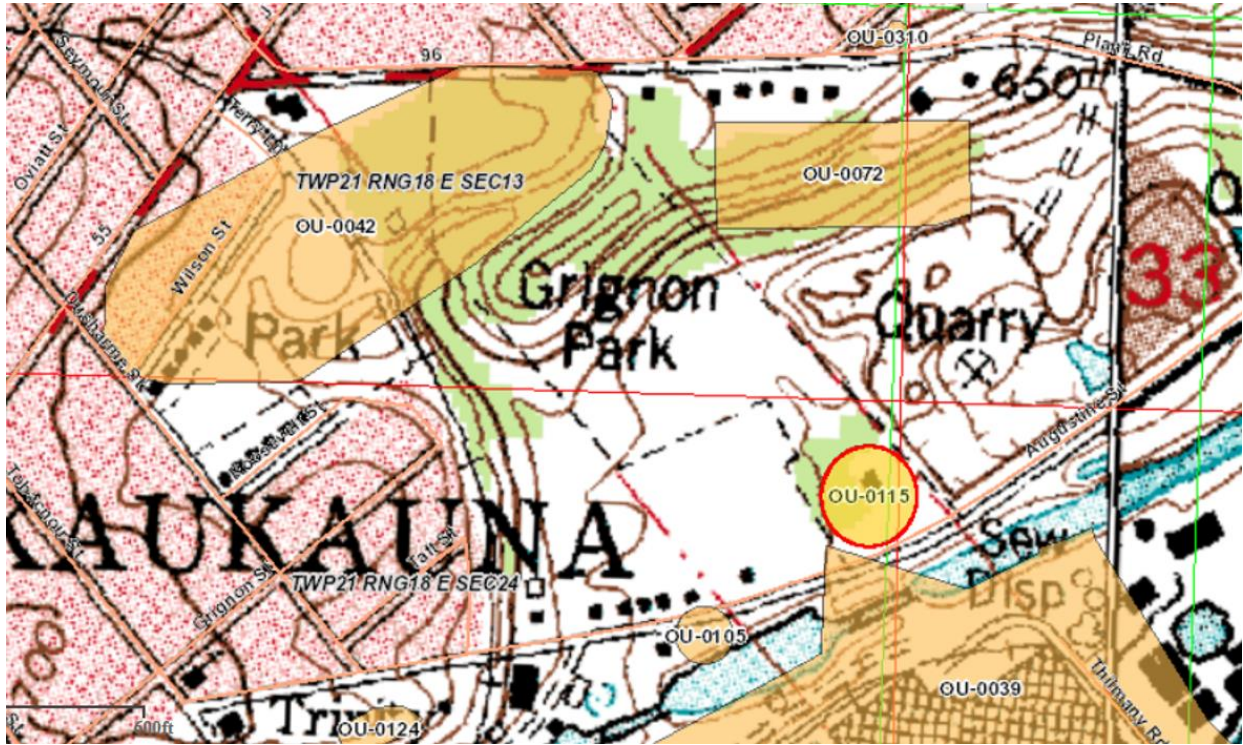
Counties



U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration Bureau of the Census  
MAPS

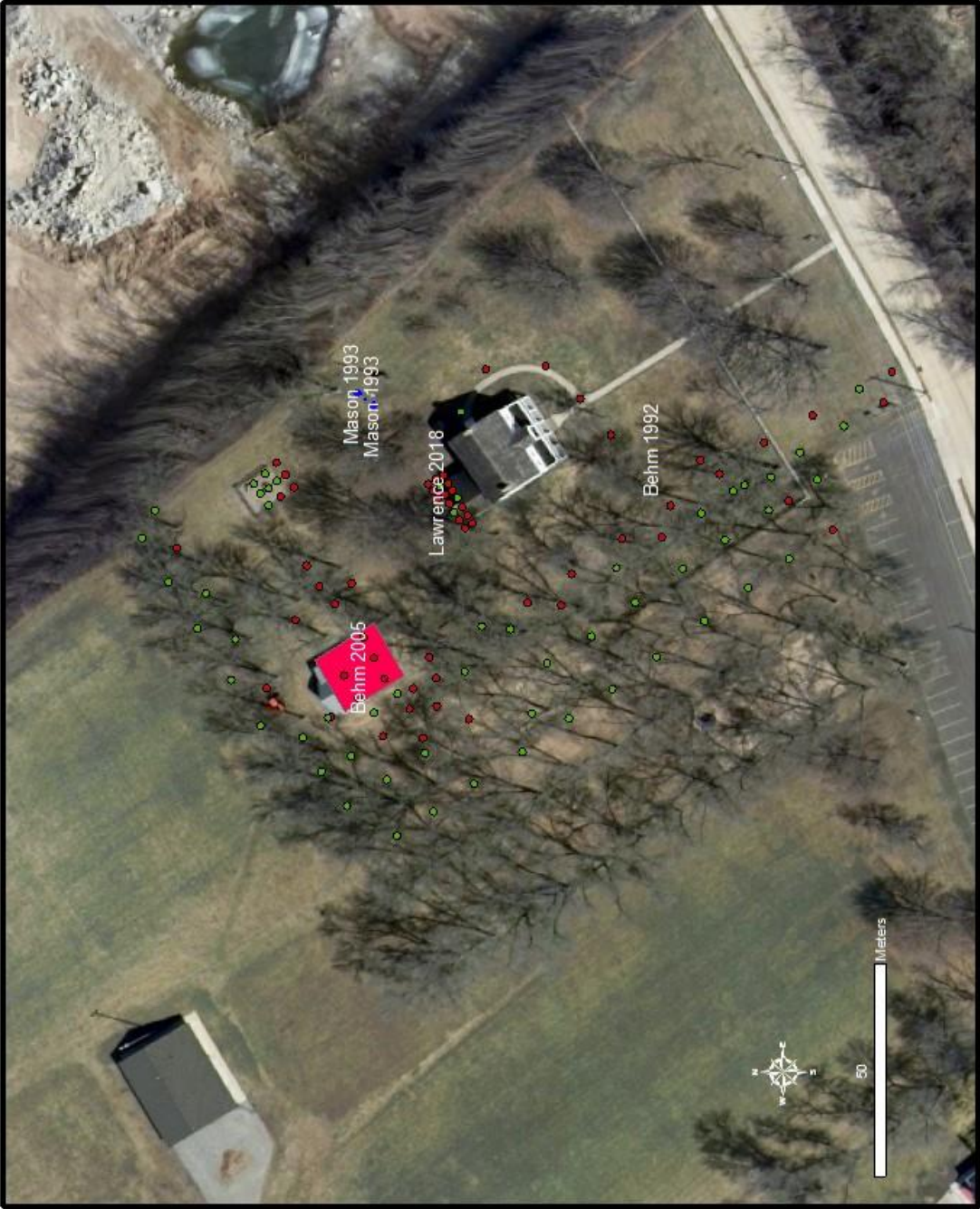
WISCONSIN G-1

Figure 2: USGS 7.5 minute quad image showing the location of OU-0115, the Grignon Mansion.





**Figure 4. Test pits and excavations within the historic boundaries of the Grignon Mansion. Red dots indicate test pits where artifacts were found.**





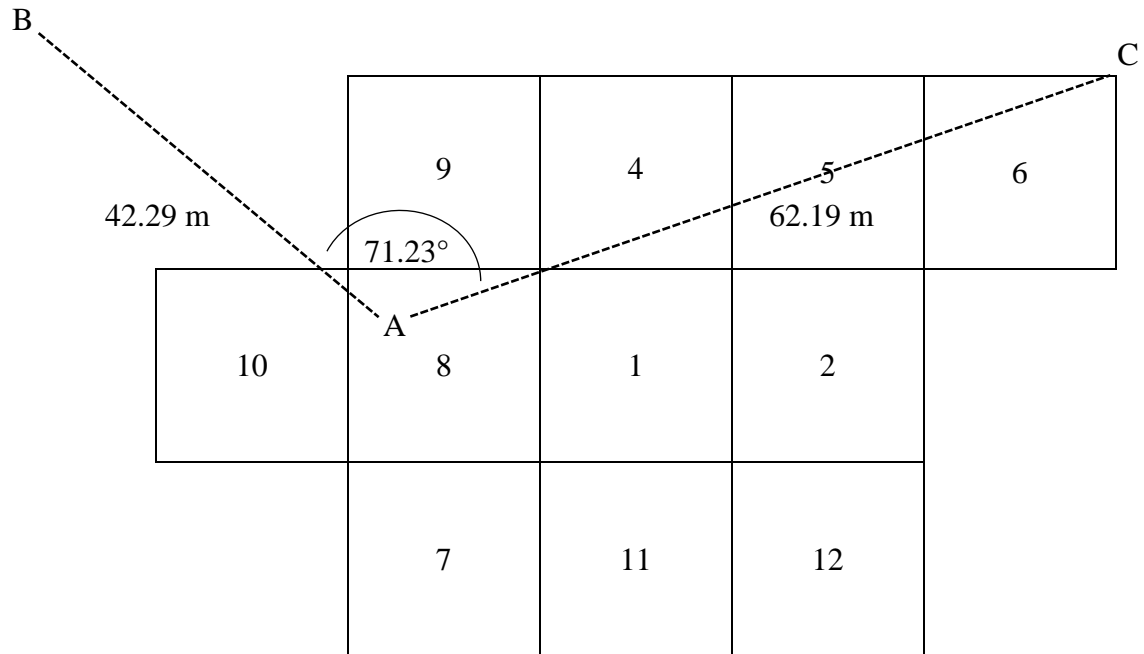
**Figure 5. 1953 aerial photograph showing the foundations of the “Old French Village” excavated and reconstructed by William Wolf north of the Grignon Mansion (top is north).**



**Figure 6. Location of historic structures in the “Old French Village” relative to the Grignon Mansion and Wolf’s identification of their historic uses.**



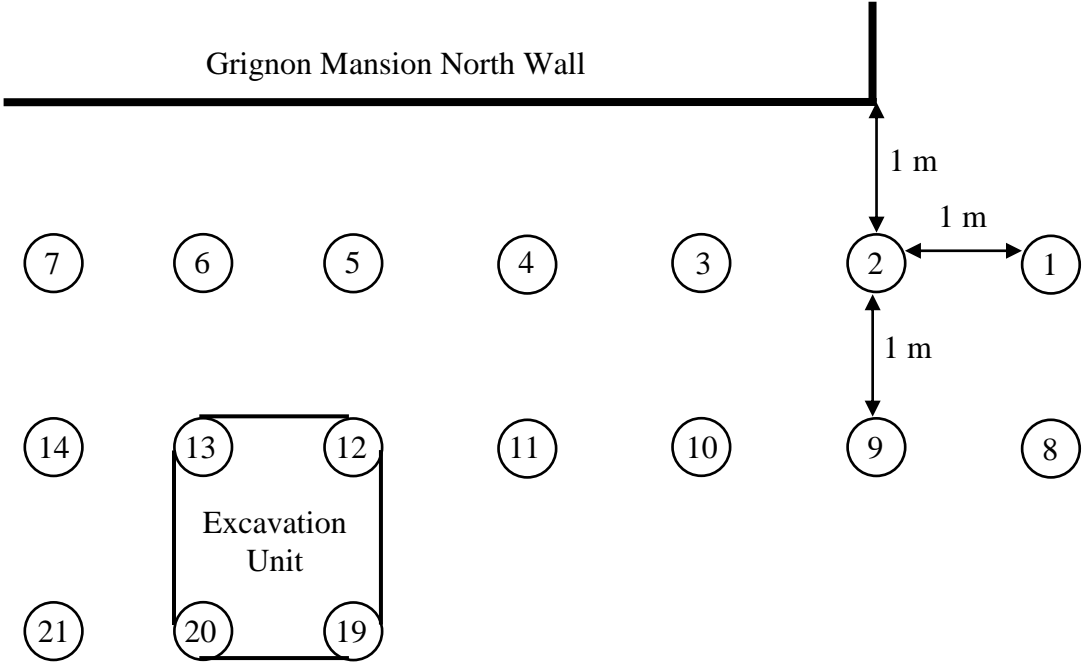
**Figure 7. Soil resistivity grids, with control points. Points A and B are manholes, point C is the datum point for the grid. North is to the top. Not to scale.**



**Figure 8. Results of the soil resistivity survey. Soils with higher resistivity appear as darker grays; soils with lower resistivity as lighter grays**



Figure 9. Shovel tests and excavation unit. North is to the bottom.



**Figure 10. Shovel test excavations in the area of the summer kitchen.**



**Figure 11. 1953 aerial image of the historic Grignon Mansion property showing northeast-southwest trending lines across the property, identified by red arrows.**



Figure 12. Clipped resistivity data showing only readings between 7 and 16 ohms.

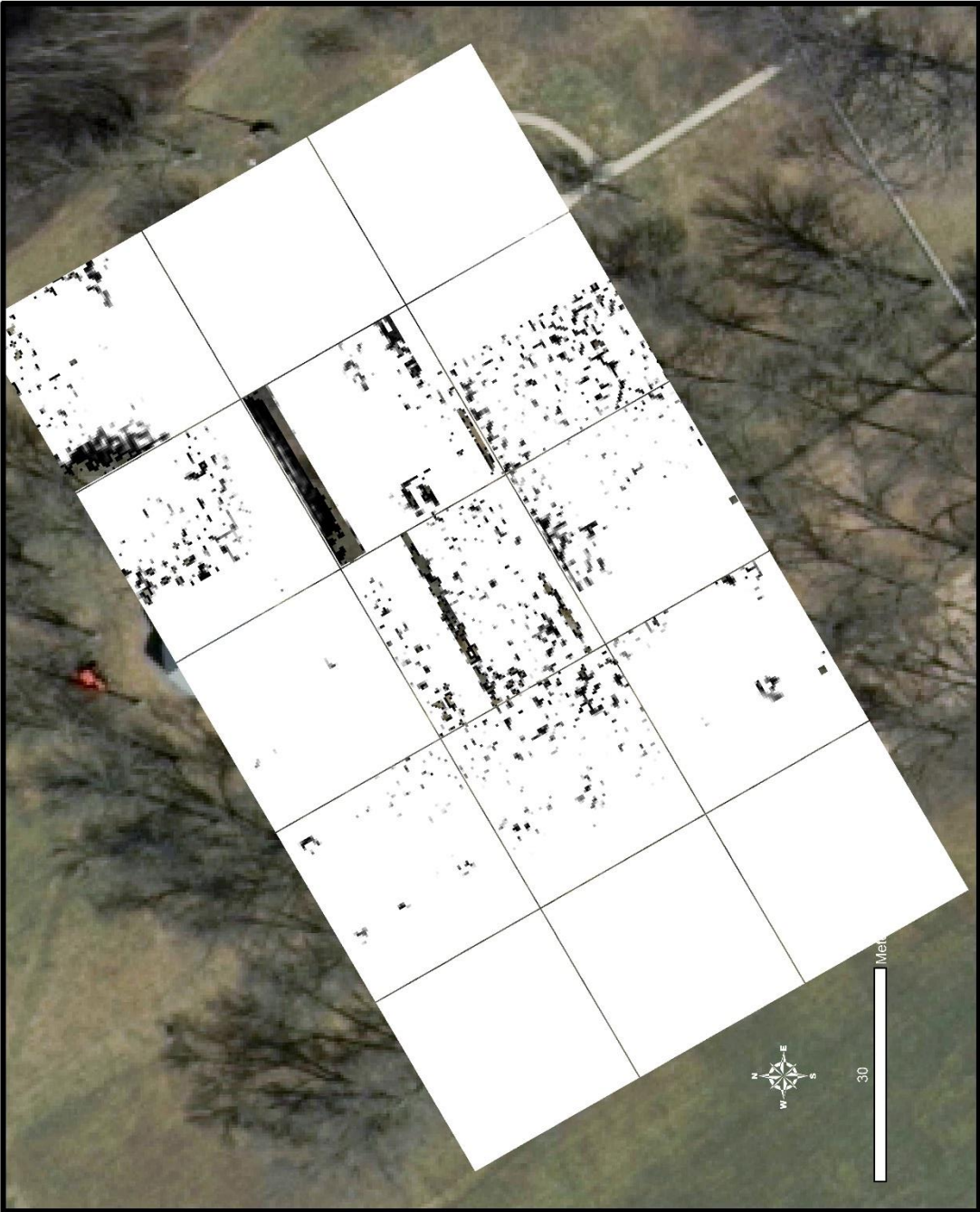


Figure 14. Clipped resistivity data with possible postholes marked with red dots.

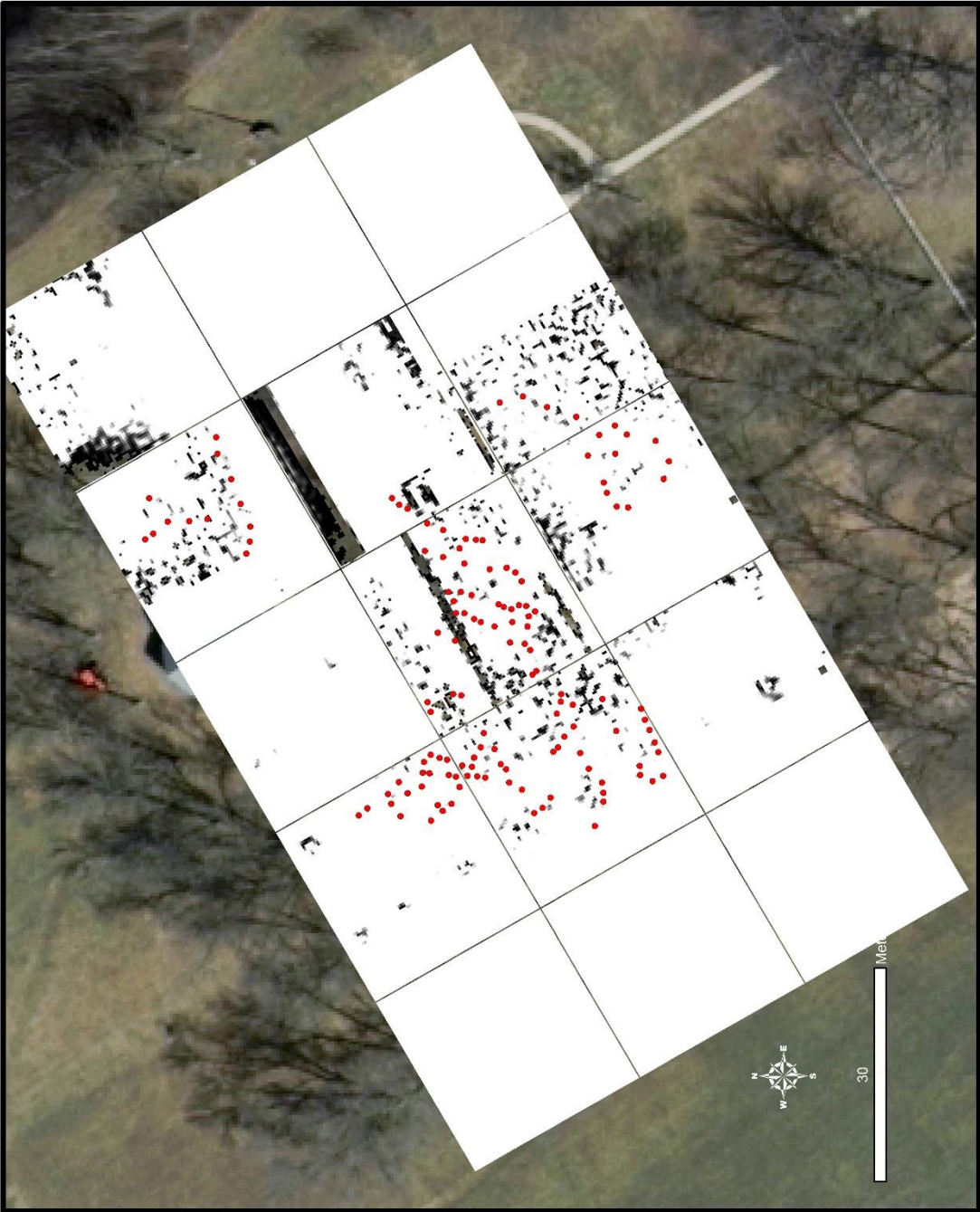




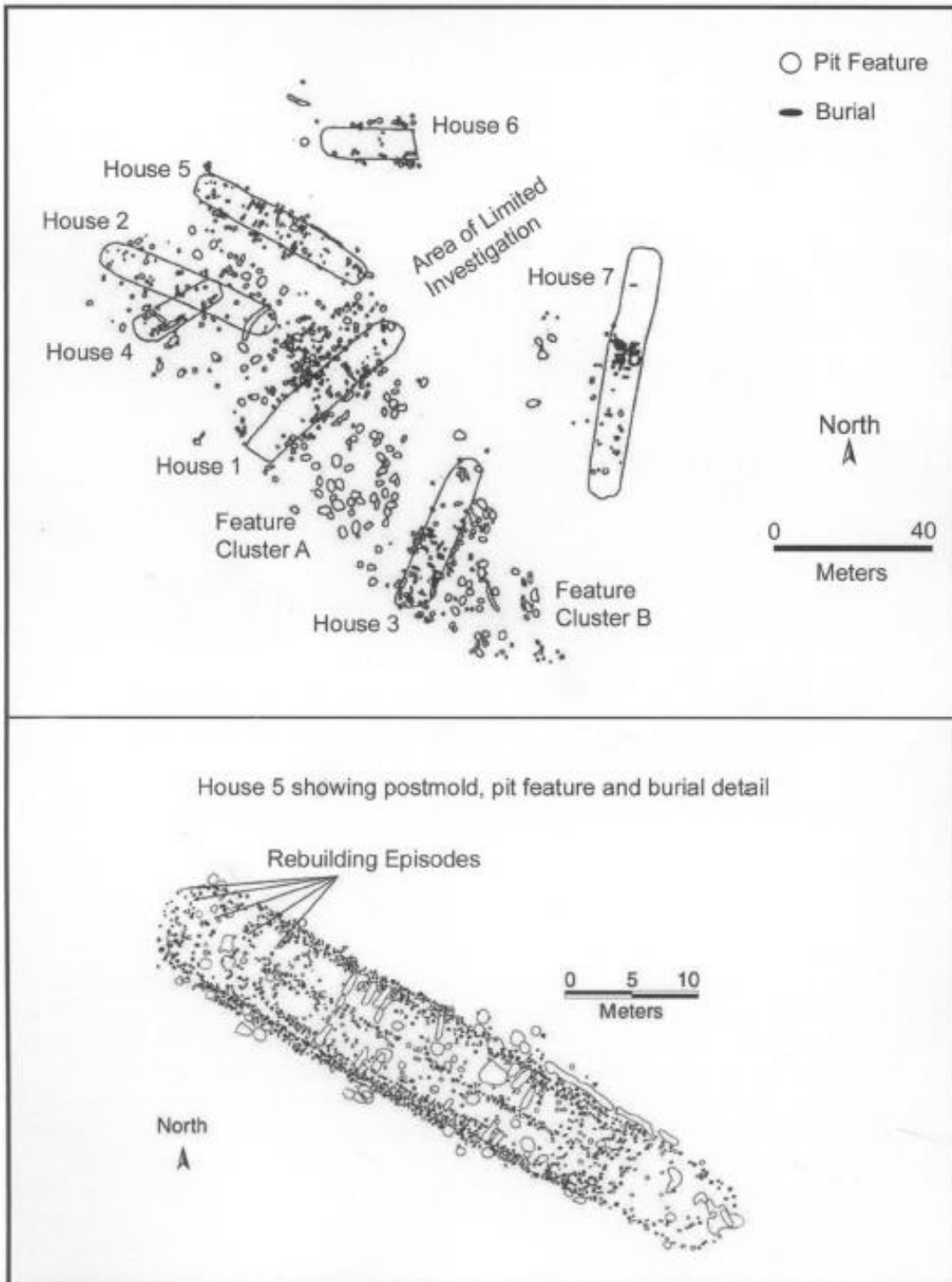
Figure 15. Interpretation of structures based on posthole patterns.



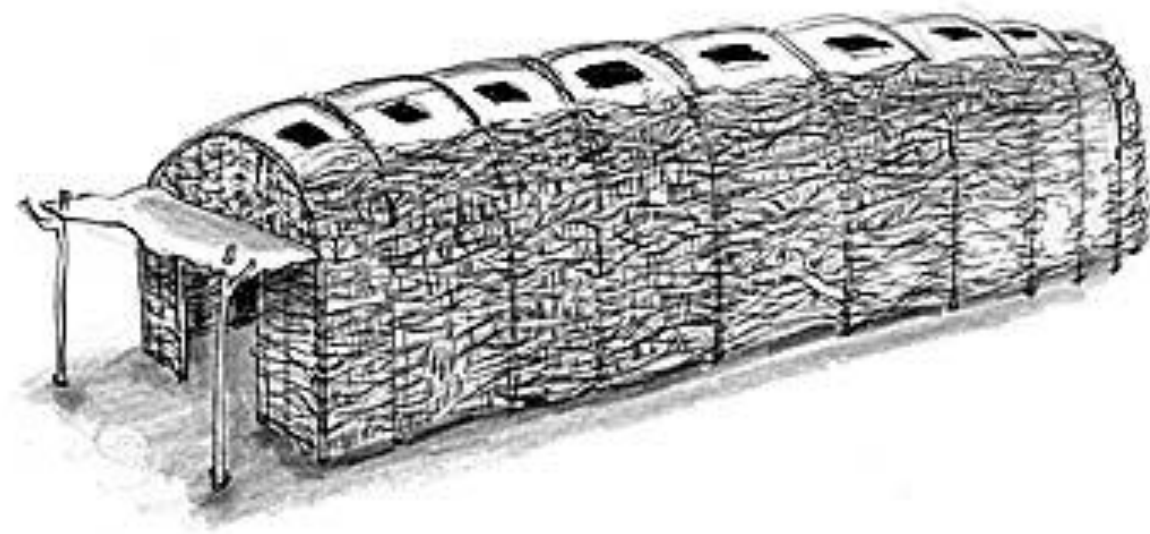
**Figure 16. Interpretation of structures with known subsurface disturbances. Some of the interpreted structures appear to be cut off by subsurface disturbances.**



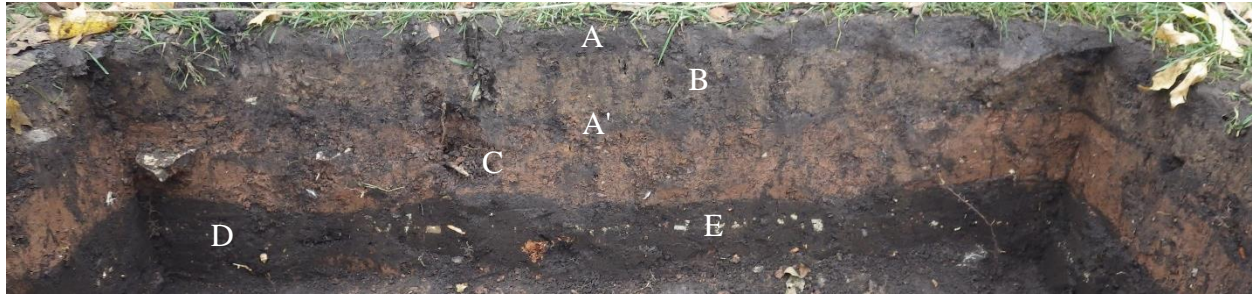
**Figure 17. Excavated Oneota longhouse community from Area H of the Tremaine site near Holmen, Wisconsin. The image shows the overall community (top) and a detail of a single longhouse and associated features (bottom) (from O’Gorman 2010:580)**



**Figure 18. Artist's rendition of an Oneota longhouse (from Mississippi Valley Archaeological Center website: [http://mvac.uwlax.edu/PreEuropeanPeople/miss\\_oneotasettlements.html](http://mvac.uwlax.edu/PreEuropeanPeople/miss_oneotasettlements.html)).**



**Figure 19: South profile of the summer kitchen excavation unit.**



**Figure 20. West profile of the summer kitchen excavation unit.**



**Layer descriptions:**

A: Loose dark grey soil. Munsell 7.5YR/3/1

B. Dense dark yellowish brown clay. Munsell 10YR/4/4

C. Brown clay. Munsell 7.5YR/4/4

D. Compact very dark grey soil. Munsell 7.5YR/3/1

E. Grainy very pale brown soil with varied grain sizes from very fine to very coarse. Munsell 10YR/8/2. Most of the archaeological materials were found just above or below this layer.

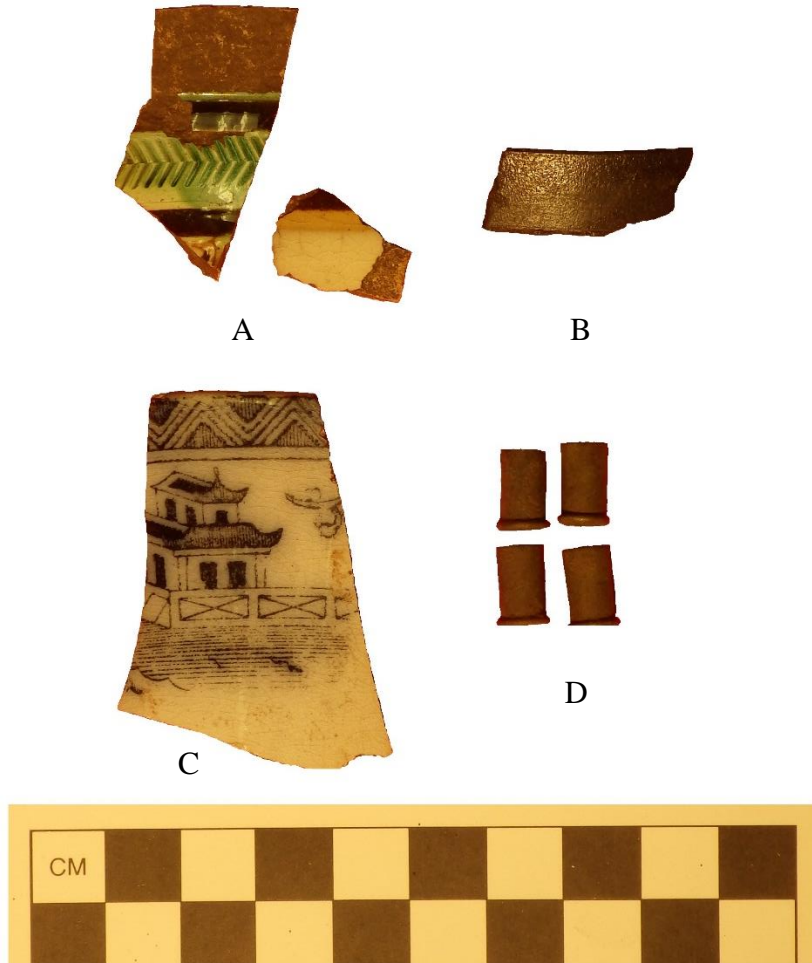
**Figure 21. Shovel skimming the summer kitchen excavation unit. The light friable layer E, thought to be a prepared ground surface under the historic summer kitchen, is visible in the lower right quarter of the unit.**



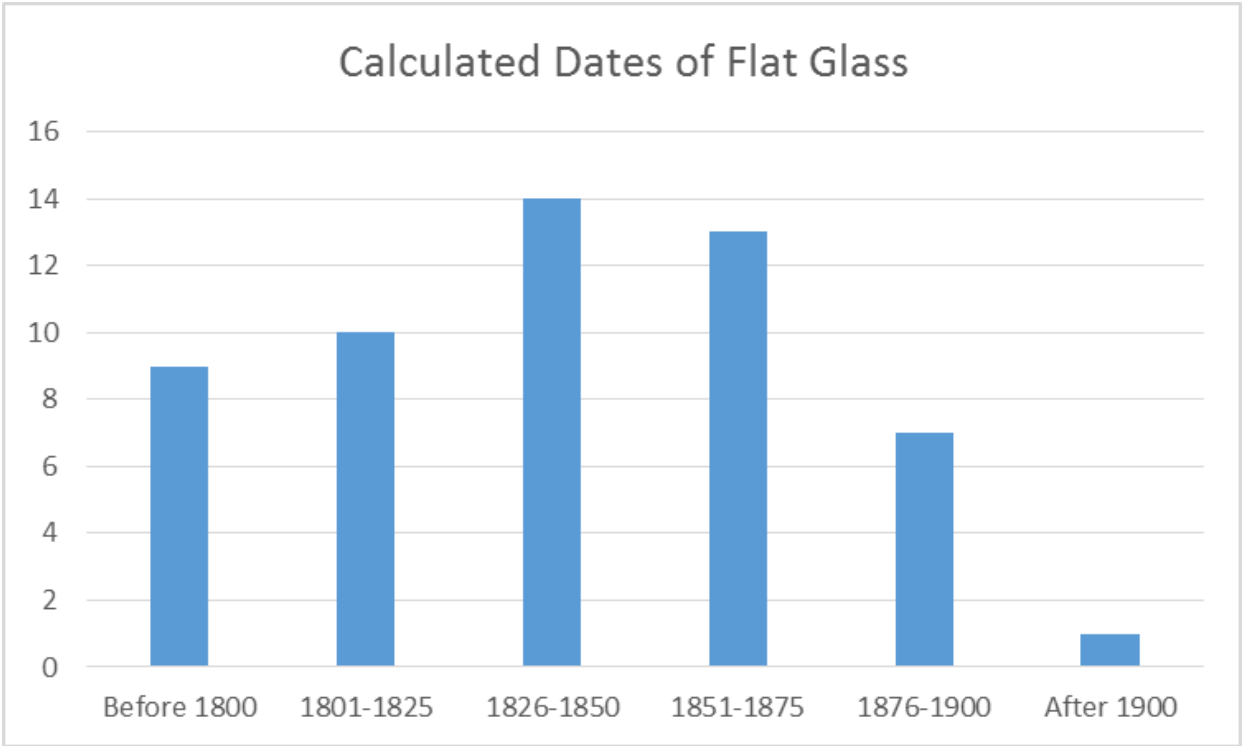
**Figure 22. North profile of the summer kitchen excavation unit, showing the pile of large rocks thought to be the base a support post for the historic summer kitchen.**



**Figure 23. Diagnostic artifacts from the excavation unit. A: Mochaware (19<sup>th</sup> century); B: Bakelite (after 1920); C: Staffordshire blue transferware (1820-1900, light color suggests later 19<sup>th</sup> century); D: Federal .22 short cartridge casings (after 1922).**



**Figure 24. Histogram of flat glass dates by 25-year periods from ca. 1775 to 1925**





## Appendix A: Artifacts from Shovel Tests and Excavation.

**Table 1. Artifacts from Shovel Tests**

|              |  |
|--------------|--|
| Test Pit #1  | three pieces of pottery  |
| Test Pit #2  | one shard of glass   |
| Test Pit #3  | one cut nail   |
| Test Pit #5  | one wire nail  |
| Test Pit #6  | two wire nails, one cut nail   |
| Test Pit #7  | one wire nail, one shard of glass, one shard of pottery  |
| Test Pit #8  | two pieces of slag, two pieces of stone, four cut nails, one wire nail, two pieces of glass, one piece of bone, four pieces of pottery |
| Test Pit #10 | two fragments of window glass.   |
| Test Pit #11 | one cut nail, two shards of window glass   |
| Test Pit #12 | white pottery shard  |
| Test Pit #14 | one nail, two pieces of slag   |
| Test Pit #19 | one screw, one handle  |
| Test Pit #20 | two pieces of slag   |
| Test Pit #21 | two wire nails, one cut nail, one piece of slag, one shard of window glass, two shards of pottery                                      |

**Table 2. Artifacts from Summer Kitchen Excavation**

| Unit | Level                   | Artifacts  |
|------|-------------------------|--|
| A    | Topsoil                 | four nails, seven fragments of pottery   |
| A    | 30-40 cm*<br>(25-35 cm) | one bakelite fragment, three pottery fragments, 15 glass fragments, 23 pieces of slag, one spike, seven cut nails, 14 wire nails   |
| A    | 40-45 cm*<br>(35-40 cm) | four .22 short bullet casings, one .22 long bullet, one button, 17 glass fragments, three unidentified metal fragments, seven pottery fragments, 17 bone fragments, 14 pieces of slag, two spikes, 31 wire nails, 40 cut nails |
| A    | 45-50 cm*<br>(40-50 cm) | four unidentified metal fragments, one button, 14 pottery fragments, 25 glass fragments, 21 bone fragments, three pieces of slag, 41 cut nails, eight wire nails, one unidentified stone object                                |
| A    | Profile Walls           | one bone fragment, two pottery fragments, two glass fragments, one wire nail, three cut nails  |

\*These represent measurements taken during the excavation and do not correspond to depths recorded in the profiles. Estimated profile depths are given in parentheses.

**Table 3. Flat glass thickness and estimated date.**

Moir method.           Date =  $T*84.22 + 1712.7$   
 Ball method.            Date =  $T-1/0.0286 + 1800$   
 Roenke Method.         Date =  $T*41.61 + 162.76$

| Thickness (mm) | Moir method | Ball method | Roenke method | Average |
|----------------|-------------|-------------|---------------|---------|
| 0.7            | 1772        | 1790        | 1792          | 1784    |
| 0.7            | 1772        | 1790        | 1792          | 1784    |
| 0.8            | 1780        | 1793        | 1796          | 1790    |
| 0.8            | 1780        | 1793        | 1796          | 1790    |
| 0.9            | 1788        | 1797        | 1800          | 1795    |
| 0.9            | 1788        | 1797        | 1800          | 1795    |
| 0.9            | 1788        | 1797        | 1800          | 1795    |
| 0.9            | 1788        | 1797        | 1800          | 1795    |
| 1              | 1797        | 1800        | 1804          | 1800    |
| 1.1            | 1805        | 1803        | 1809          | 1806    |
| 1.1            | 1805        | 1803        | 1809          | 1806    |
| 1.1            | 1805        | 1803        | 1809          | 1806    |
| 1.1            | 1805        | 1803        | 1809          | 1806    |
| 1.2            | 1814        | 1807        | 1813          | 1811    |
| 1.2            | 1814        | 1807        | 1813          | 1811    |
| 1.2            | 1814        | 1807        | 1813          | 1811    |
| 1.3            | 1822        | 1810        | 1817          | 1817    |
| 1.3            | 1822        | 1810        | 1817          | 1817    |
| 1.3            | 1822        | 1810        | 1817          | 1817    |
| 1.4            | 1831        | 1814        | 1821          | 1822    |
| 1.4            | 1831        | 1814        | 1821          | 1822    |
| 1.4            | 1831        | 1814        | 1821          | 1822    |
| 1.5            | 1839        | 1817        | 1825          | 1827    |
| 1.6            | 1847        | 1821        | 1829          | 1833    |
| 1.6            | 1847        | 1821        | 1829          | 1833    |
| 1.6            | 1847        | 1821        | 1829          | 1833    |
| 1.7            | 1856        | 1824        | 1833          | 1838    |
| 1.7            | 1856        | 1824        | 1833          | 1838    |
| 1.7            | 1856        | 1824        | 1833          | 1838    |
| 1.7            | 1856        | 1824        | 1833          | 1838    |
| 1.7            | 1856        | 1824        | 1833          | 1838    |
| 1.8            | 1864        | 1828        | 1838          | 1843    |
| 1.8            | 1864        | 1828        | 1838          | 1843    |
| 1.9            | 1873        | 1831        | 1842          | 1849    |

|     |      |      |      |      |
|-----|------|------|------|------|
| 1.9 | 1873 | 1831 | 1842 | 1849 |
| 1.9 | 1873 | 1831 | 1842 | 1849 |
| 2   | 1881 | 1835 | 1846 | 1854 |
| 2   | 1881 | 1835 | 1846 | 1854 |
| 2.1 | 1890 | 1838 | 1850 | 1859 |
| 2.1 | 1890 | 1838 | 1850 | 1859 |
| 2.2 | 1898 | 1842 | 1854 | 1865 |
| 2.2 | 1898 | 1842 | 1854 | 1865 |
| 2.3 | 1906 | 1845 | 1858 | 1870 |
| 2.4 | 1915 | 1849 | 1863 | 1875 |
| 2.4 | 1915 | 1849 | 1863 | 1875 |
| 2.4 | 1915 | 1849 | 1863 | 1875 |
| 2.4 | 1915 | 1849 | 1863 | 1875 |
| 2.4 | 1915 | 1849 | 1863 | 1875 |
| 2.4 | 1915 | 1849 | 1863 | 1875 |
| 2.6 | 1932 | 1856 | 1871 | 1886 |
| 2.7 | 1940 | 1859 | 1875 | 1892 |
| 2.7 | 1940 | 1859 | 1875 | 1892 |
| 2.7 | 1940 | 1859 | 1875 | 1892 |
| 3.1 | 1974 | 1873 | 1892 | 1913 |

# Appendix B: Field Notes

Corignea Survey for GIS Map.

~~ALL~~ Datum - A :  $0^{\circ} 135^{\circ} m$   
 D-B :  $356^{\circ} 11' 20''$

D-C :  $352^{\circ} 14' 46''$   
 172.86m

D-D :  $350^{\circ} 57' 57''$   
 178.46m

D-E :  $280^{\circ} 42' 58''$   
 175.38m

D-F :  $205^{\circ} 16' 59''$   
 5.42m

D-G :  $188^{\circ} 44' 57''$   
 17.28m  
 16.31m

GPS ~~Datum~~ - GPS2 -  $44^{\circ} 17' 13.25''$  LA-N  
 $88^{\circ} 15' 15.34''$  LO-W

~~E~~ - GPS3 - LA- $44^{\circ} 17' 15.31''$  N  
 LO- $88^{\circ} 15' 15.43''$  W

~~E~~ C - GPS5 - LA- $44^{\circ} 17' 13.71''$  N  
 LO- $88^{\circ} 15' 15.58''$  W

001 D  $44^{\circ} 17' 08.84204''$  |  $88^{\circ} 205''$  |  $86672$   
 $88^{\circ} 15' 10.31325''$  |  $29564$  |  $30834$

F - GPS4 - LA- $44^{\circ} 17' 13.8''$  N  
 LO- $88^{\circ} 15' 15.41''$  W

C - GPS6  $44^{\circ} 17' 8.75''$  N  
 $88^{\circ} 15' 10.34''$  W

D - GPS7  $44^{\circ} 17' 6.95''$  N  $0883163''$   
 $88^{\circ} 15' 10.34''$  W  $1026317''$

00-115  
Grignon

9/25/13

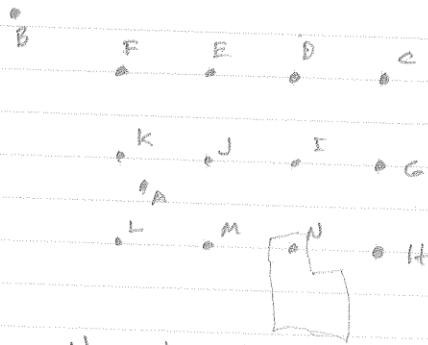
Set-up grids for geophysical survey

Zero/Base point is NW of Grignon House,  
Sewer cap = A; zero angle point is  
another sewer cap to the NW of the  
first: Sewer Cap B

$\angle A-B = 0^\circ$   $D_{A-B} = 42.29 \text{ m}$

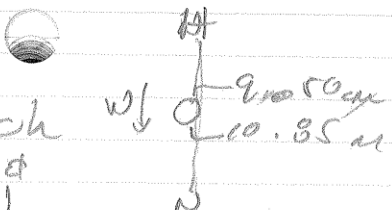
Placed NW corner of survey grids =  
Point C =  $\angle$  from A =  $71^\circ.23$   
 $D$  from A =  $62.192 \text{ m}$

Moved transit to point C, then placed  
points D, E, F & set zero angle, swung  
 $90^\circ$  and placed points G & H.



Set points I thru N using tapes &  $28.28$   
hypotenuses (?)

Mosquitoes are HORRIBLE today  
and may affect accuracy.


 - Point N is under the porch of the house & the line H-N cuts through the center of the well at 9.50m, coming out the other side at 10.85m.

GPS readings

A = 44° 17' 08", 454  
 88° 15' 12", 32879

B = 44° 17' 09", 513  
 88° 15' 13", 532

C = 44° 17' 10", 157  
 88° 15' 10", 852

(see sketch on next page)

0.8

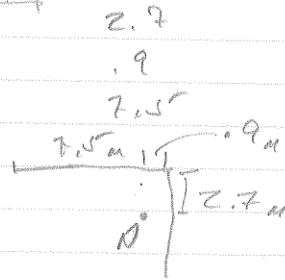
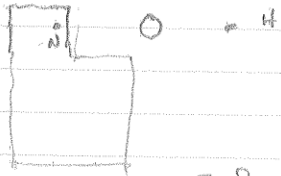
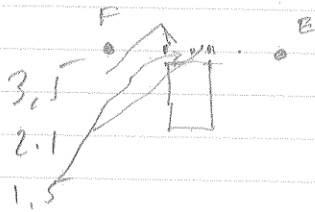
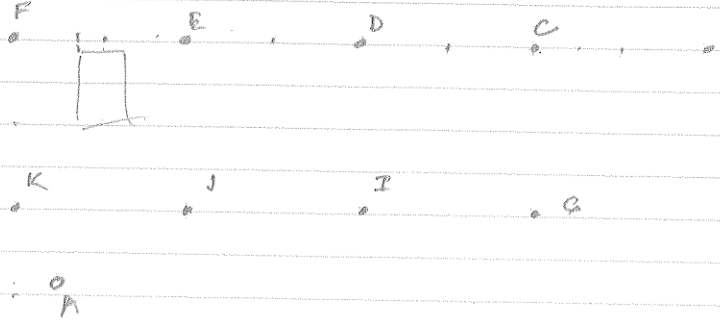


Рис. 1.1.1.



1) - 0115

9/27/18

Ignora Mansion

started doing resistivity survey today  
20m x 20m; 0.5T; 0.5S (zigzag)

Beautiful day, cool & sunny, no bugs

Joe Kortenhof started Unit 1 & did  
whole unit

Soil seems very wet; readings  
seem to fluctuate a lot = hope  
that is not a problem = maybe from  
electric line?

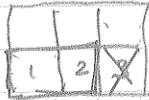
NW corners

1 .41 mS/cm

2 .29

3 .37

4 .45



Completed  
Units 1 & 2

Underground  
electric line



Emma Lipkin did unit 2 @ 9:50 e

The garden is in the middle  
of Unit 2 ca 10m x 10m (21 dummy points)  
house also intrudes into SE corner  
of Unit 2 ca 9m x 3m.

On cal 15 the contact pulled out of  
the remote probes & students didn't  
know when it happened, so went back  
to line 7 & started again. Will took  
over from Emma at that point (ca. 10:20)  
Ended ca 11:00

Initial processing of the data suggests that the loose remote probe connections did effect the last ~~two~~ lines of Grid 1 and the first 6 lines of Grid 2, so this was indeed a problem.

20-0115 Grignon

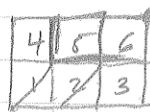
10/2/18

Started on Units 5 & 6 because Unit 4 was blocked by a truck.

Wet day, ground almost like mud.

We have an event coming in, so we may have to stop early

C = ,48, 54.5°  
Unit 6 = ,40, 53.8°  
Unit 5 = ,32, 54.9°



at the end of

We had to stop Unit 5 which is OK because somewhere along the way we got off and the data are wrong. We will have to re-do, " = NO! turned out OK

Placed two new units to the West of Unit 1 to try to find more of what appeared to be a village of long houses.



Started on Unit 7  
Ethan collecting

Unit 5 turned out OK, just needed to flip horizontally (Grid 0115-5a).

Page 110

OV-115

10/4/18

Corignon Mansion

Cool & dry only William and Joe here today

Laid out grids 8 & 10, started Unit 8 ca. 9:00, William collecting end ca. 9:45

School groups here again, but not seeing too disruptive



Started Unit 10 ca 10:00 - 10:45

There is a circular disturbed area of soil in the center S of Unit 10

Put in Unit 9 and started survey ca. 10:45, Had to extend the remote line w/ extensions but left the remote probes in place.

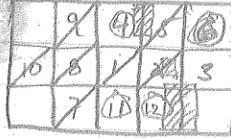
Unit 9 ca 10:45 - 11:20

OU-115

10/16/18

Orignon Mansion

Working to finish 6, 3, & 4 today, but found that Unit 3 is covered with construction equipment & materials



Our stakes were difficult to find, but we did find them

Started Unit 6 ca. 8:45, S. 2-3m are very wet & muddy. Finished ca 9:30

Put in Units 11 & 12 in the hope of doing them today if possible, since we cannot do Unit 3

Started Unit 4 ca. 9:45 finished ca. 10:15

Started Unit 11 ca. 10:30 finished ca. 11:00 Unit 11 ends at the fence, so the Eastern 6m is blank.

Moved stationary pins between Unit 4 & Unit 11

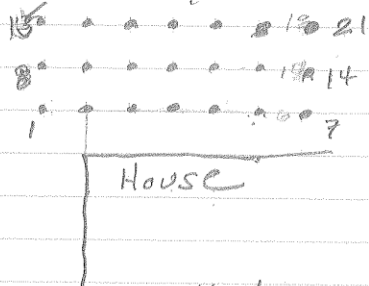


Flipped lines to do Unit 12, Start ca. 11:40 Had to move stationary pins. In all cases today pins were near the sides of the garden. Fin ca. 11:40

20-0115  
Grignon

10/30/18

Digging test pits in the area expected to become the Summer Kitchen. 21 pits expected to be dug in total, in 3 parallel lines:



Lines are parallel to the N wall of the house, and start 1m to the North. Points 1, 8, & 13 are located 1m West of the West wall of the house.

Test pits are being dug to the diameter of a shovel (ca. 25cm) and to the depth of a shovel (ca. 25cm)

All soil sifted through 1/2" mesh screen.

Test pits are all clay below the topsoil & contain very little if any artifacts, lots of stones however.

Rite in the Rain

Test Pit #11 had a large rock  
in it that could not be moved  
so the pit was not completed  
beyond ca. 10cm.

Pits on the S. line all have clay  
under the topsoil to at least 30cm.  
The other two lines have clay  
down to roughly 25cm and then a  
layer of black friable dirt  
which may contain cultural debris

|     |       |
|-----|-------|
| 5.6 | 6.5   |
| TP  | 13 12 |
|     | 19 20 |

Stopped test pits  
at 19, did not do 13,  
17, 10, 15.

Filled in all pits except

|    |    |
|----|----|
| 13 | 12 |
| 19 | 20 |

DU-0115

Carignon Mansion

11/1/18

Began excavation of Unit A, 1m x 1m located 3m E of the W. wall of the Carignon kitchen & 2m South of the S. wall of the kitchen:

Began by taking out the topsoil & underlying clay layer (I identified on 10/30/18 through test pits) to get down to what is

hoped to be an original clay-capped layer roughly 20-25cm below the topsoil

A

1m



Visually inspecting topsoil (not sifting) and keeping all materials found.

First level in soil beneath the clay is 30-40cm. Encountering sandy mixed fill at 40cm. There appears to be a lot of glass and pottery just above this sandy/rocky fill.

Started second level, 40-50cm, ca. 10:30. The sandy/rocky fill went away immediately, though again



there seems to be a lot of material associated with that layer

In looking at the profile it looks like that layer is a floor of some kind,

Only did 40-45 cm, but lots of material

OU-0115

11/8/18

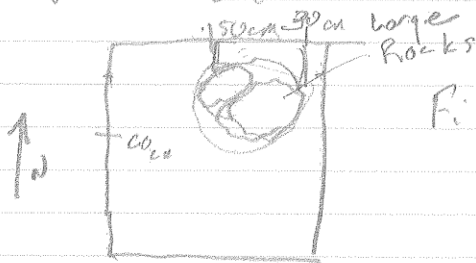
Grignon Mansion

Continued excavation of Unit A,  
working on the 45cm - 50cm level.  
Material from the 11/1 work  
suggests that there is a con-  
centration of material in the  
40cm level which appears to  
thin out below. Today will be  
a check of that. We will stop  
excavation at the 50cm level  
today regardless of findings  
and do profiles as it is getting  
too cold for work (30° today) and  
snow is expected.

There is not much material in  
the 40-50cm level, as expected.  
Clay present under ca. 55cm.

- Began profiles, W & E first, then  
N & S.

Photos of floor: E, N, W, S



Filled in Unit A

After the Rain

