

The Northern Chaco Outliers Project Annual Report, 2018 Field Season

*Samantha G. Fladd, Rebecca L. Simon, Susan C. Ryan, Shanna R. Diederichs,
Kari L. Schleher, Caitlin A. Sommer, Steven R. Copeland, and Grant D. Coffey*



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Introduction

The Crow Canyon Archaeological Center (Crow Canyon) began the Northern Chaco Outliers Project (NCOP) in the summer of 2016. This project seeks to understand human and environment interaction, social stratification, community centers with public architecture, and identity formation during the Chaco and post-Chaco periods in the northern San Juan region. The NCOP uses data from three sites located within a 1-km radius of each other—the Haynie site (5MT1905), the Ida Jean site (5MT4126), and Wallace Ruin (5MT6970)—that include four Chaco-style great houses and one great kiva. These sites compose the Lakeview group, which is one of the densest concentrations of great houses north of Aztec Ruins in northern New Mexico. Other great-house clusters in the northern San Juan region include the Ackmen/Lowry community and the Mitchell Springs community. The Haynie site, which is the primary focus of the NCOP, experienced extensive disturbance for more than 30 years in the recent past. Previous landowners engaged in nonprofessional digging, which compromised the archaeological record at the site, but research potential remains robust (Ryan 2016a).

NCOP research began in 2016, when Crow Canyon conducted in-field artifact analyses and contracted the production of drone maps, aerial imagery, and photogrammetry of the immediate area surrounding the Haynie site. In 2017, Crow Canyon began conducting field research in the form of testing, excavation, architectural documentation, and stabilization at the Haynie site (Simon et al. 2017) that continued in 2018. Remote sensing consisted of electrical resistance survey and gradiometry survey. Artifact analyses for the Haynie site and the Ida Jean site are underway. Initial fieldwork and analyses have produced substantial data and insight regarding the development of these settlements including occupations that pre- and post-date the Chaco period in the central Mesa Verde and the wider northern San Juan regions (Figure 1). As a result of Crow Canyon's efforts, the Haynie site was placed on the National Record of Historic Places in 2017.

This report summarizes progress on the NCOP during Crow Canyon's 2018 field season, which occurred from March through October. This research was funded in part by a History Colorado State Historical Fund grant (No. 2018-01-003) and a grant from the Earthwatch Institute. Fieldwork and associated Crow Canyon education programs were conducted by members of Crow Canyon's archaeology and education staffs with the assistance of nine interns. Field and laboratory studies conducted by contractors are also summarized in this report. Upon completion of all fieldwork, laboratory analyses, and synthetic studies related to the NCOP, Crow Canyon will publish detailed results of this research on its web site (www.crowcanyon.org).

Project Background

In the 1980s and 1990s, Ralph and Claudia Haynie (previous landowners and namesakes of the site) dug extensively at the Haynie site (Figure 2) to recover complete vessels and other artifacts. During this activity, rooms and kivas were excavated, and large portions of two Chaco-style great houses at the site were damaged. Claudia Haynie kept a journal noting their digging activities and the types of artifacts that were recovered from specific locations on the site. She also kept records detailing the contexts of specific artifacts. From 2008 to 2014, archaeologist

Joel Brisbin engaged in excavation and stabilization work on structures in both of the great houses and in extramural areas between the great houses (Ryan 2016a).

Modern-day research projects conducted at the site have been limited in scope, but include a basic temporal assessment centered on diagnostic artifacts on the modern ground surface. This research was conducted as part of the Village Ecodynamics Community Center Survey, which was funded by the National Science Foundation (Glowacki and Ortman 2012; Kohler and Varien 2012). Also, a digital mapping project of the site was conducted, as was documentation of exposed architecture in the east and west great houses (Ryan 2013, Appendix I).

In 2016, Crow Canyon contracted University of North Texas and Paleowest to create drone maps, aerial images, and photogrammetric models of the immediate area surrounding the Haynie site and Wallace Ruin, and Ben Hammer of Paleowest created three-dimensional models of the remains of the two Chaco-style great houses at the Haynie site. Crow Canyon also conducted in-field artifact analysis and collected artifacts using a dog-leash method for laboratory analysis. In-field analysis was also performed on two previously created collection piles at the site; more than 27,700 artifacts were recorded and analyzed from collection piles (Ryan 2016b). The data from these analyses guided fieldwork in 2017 and led to the inference that the two great houses, which were constructed and occupied during late Pueblo II times, were built atop cultural deposits dating from the Basketmaker III (A.D. 550–750) and Pueblo I (A.D. 750–900) periods. Moreover, data suggest that both great houses continued to be occupied during the post-Chaco period (A.D. 1150–1300).

In 2017, interviews with Claudia Haynie and Joel Brisbin, and a review of the journals, notes, and maps of those individuals, informed Crow Canyon archaeologists of the extent of previous work at the Haynie site and of the historical sequence of previous work in the two great houses at the site. These resources also indicated the potential for intact deposits and evidence of earlier occupations throughout the site.

Project Area Location and Ownership

The Lakeview group is located in Montezuma County, Colorado, east-northeast of the modern-day town of Cortez (Figure 1). The sites in this group are in the heart of the Mesa Verde archaeological region, north of the Mesa Verde escarpment and near the confluence of Simon Draw and McElmo Creek; Stinking Springs is located southeast of the Lakeview group. The majority of the Haynie site is located on a 5-acre property currently owned by the Haynie Ranch, LLC. The easternmost portion of the Haynie site is on private land not accessible to Crow Canyon. Wallace Ruin, located 335 m south of the Haynie site, is owned by Bruce Bradley. Data from Bradley's publications on Wallace Ruin (Bradley 1988, 1992, 1993) will be used for comparative purposes for the NCOP. The Ida Jean site (5MT4126), located 859 m west of the Haynie site, is also on private land not accessible to Crow Canyon. Although much of the Ida Jean site has been destroyed, some information on the site is available from work conducted in the 1970s (Brisbin and Brisbin 1973). Notes, maps, and artifact data resulting from previous digging at the Haynie site are being integrated into Crow Canyon's research database to augment data collected by the NCOP for the Lakeview group.

Permits and Permissions

During the 2018 field season, excavation, testing, and survey at the Haynie site were conducted under State of Colorado archaeological permit No. 73671 and with the permission of the Haynie Ranch, LLC. Data collection from documents associated with, and artifacts collected from, the Ida Jean site was conducted by means of a loan agreement with the Anasazi Heritage Center (now called Canyons of the Ancients Visitor Center and Museum), Dolores, Colorado, which is managed by the Bureau of Land Management. Materials from the Ida Jean site are currently curated in that facility.

Environmental Setting

The NCOP study area includes an environment defined by the surrounding drainages and by current agricultural use of the land. Figure 3, an aerial image captured in the 1990s, shows the locations of sites in the Lakeview group as well as of other sites nearby. The Haynie site is located at 6270 ft (1911 m) and is situated on a small knoll to the north of, and just above, a shallow broad valley within Simon Draw. The head of Simon Draw is located about 6 km north of the Haynie site. Simon Draw empties into McElmo Creek 4 km southwest of the Haynie site.

The soils of the valley bottom south of the Haynie and Ida Jean sites, and upon which Wallace Ruin sits, are predominantly Gladel-Pulpit complex (an eolian loess), and Ramper clay loam (a well-drained eolian loess). These soils are among those with the greatest agricultural potential in the entire region (Van West 1994:162–167). Today the valley bottom is plowed and irrigated and produces primarily alfalfa/grass hay. Small undisturbed areas are present in the valley, and these are covered in sagebrush, lesser amounts of greasewood and saltbush, and some riparian vegetation that includes cottonwood, willow, cattails, and sedges. The Chaco-style great houses and the midden deposits at the Haynie site are covered mostly with sagebrush, saltbush, and grasses. Sandstone ridges flank and rise above the valley floor, and these ridges support pinyon-juniper woodland.

Public Involvement

Crow Canyon's mission includes a commitment to public education and outreach. Our 2018 program season included approximately 1,800 participants in school programs, research programs, and professional-development programs. Participants ranging from middle-school students to life-long learners assisted with field and laboratory work. Specifically, 145 school children participated in excavations at the Haynie site. Crow Canyon's teen summer camps involved 63 students—19 students in Middle School Archaeology Camp, 34 students in High School Archaeology Camp, and 10 students in our three-week High School Field School—all of whom excavated at the Haynie site. This past year witnessed Crow Canyon's fourth college-level field school, which was attended by 11 students. About 300 individuals visited the Haynie site as part of one-day tours, drop-in tours, Cultural Explorations tours, and other programs. Data collection was greatly facilitated by the 75 adult participants in our research programs and the 38 volunteers engaged through a partnership with the Earthwatch Institute. Earthwatch volunteer programs included two teen groups that excavated at the Haynie site. Finally, laboratory work on NCOP materials was facilitated by approximately 10 long-term adult volunteers who assist with processing, analyses, and curation of archaeological materials at Crow Canyon.

The number of lay people served in 2018 reflects not only Crow Canyon’s commitment to involving the public in its research but also the level of public interest in the ancient past of the Mesa Verde region. In addition to participants enrolling in Crow Canyon’s programs, evidence of public interest in the NCOP includes articles in professional newsletters and in mainstream publications such as the *New York Times* (2 September 2017); the *New York Times* piece featured the Haynie site in an article titled, “Ruined ‘Apartments’ May Hold Clues to Native American History.”

American Indian Involvement

As a way to inform Crow Canyon’s research and enrich the experience of participants enrolled in Crow Canyon’s education programs, our research and programs support and encourage American Indian involvement in a variety of ways. During the 2018 season, many American Indian scholars, students, and participants were involved in our programs, and numerous opportunities were supported by scholarships. Scholarship funds were disbursed to American Indian students to attend our High School Archaeology Camp (1) and Middle School Archaeology Program (1).

During the 2018 season, Crow Canyon involved American Indian scholars in research, education programs, and educational tours. Three scholars—Mary Weahkee (Comanche/Santa Clara Pueblo), Justin Lund (Navajo Nation), and Marlon Magdalena (Jemez Pueblo)—tracked and provided insight to students during Crow Canyon’s College Field School.

Crow Canyon’s Native American Advisory Group, which in 2018 was reconfigured and renamed the Pueblo Advisory Group, also contributed to the NCOP. The Group met five times in 2018, including one meeting at the Haynie site, and Crow Canyon’s Director of American Indian Initiatives Sharon Milholland consulted with specific members of the group on issues such as culturally sensitive objects. Field Archaeologist Steven Copeland provided an oral field report to the Group at Crow Canyon’s Board of Trustees meeting in October 2018; the early occupation of the Haynie site and potential decommissioning practices demarcating different phases of occupation were topics of the associated discussion. Selected artifacts recovered in 2018 were displayed for the Group in a conference room.

2018 Fieldwork

All NCOP fieldwork—excavation, survey, and other documentation—during the 2018 field season was conducted at the Haynie site (5MT1905). Table 1 lists the 43 excavation units that were investigated during 2018. Eleven units were completed in 2018. At the end of the field season, the 32 excavation units still in progress were covered with plywood and sealed with plastic sheeting to protect the units from damage during the winter. These units will be completed during the 2019 field season.

In 2018, subsurface testing and excavations occurred in three areas of the Haynie site: directly south of and adjacent to the remains of the west great house, in a northwest area of the site where a wall was exposed during previous mechanical disturbance, and in the area that forms the lawn

associated with the modern house. Figure 4 shows the locations of all excavation units in which work occurred during the 2018 field season.

Excavations

Structure 186

Located west of the modern house, Structure 186 (Figure 5) is a room featuring single-coursed masonry that was built within an earlier structure, Structure 193 (Simon et al. 2017). These structures were identified in 2017, and excavations continued during the 2018 season within two 1-x-1-m units and a 2-x-2-m unit. Additional portions of the floor of Structure 186 were exposed in 2018. Excavations will continue in 2019.

Nonstructure 190

A 2-x-2-m unit was placed south of the standing walls of the west great house. In 2017, numerous deposits were excavated in this unit, including an extramural surface and a pit feature (Simon et al. 2017). In 2018, Nonstructure 190, a midden containing sherds, flaked-lithic debitage, ground-stone artifacts, calcite minerals, nonhuman bone, projectile points, and burned maize cobs, was excavated. This midden is more than one meter thick. Beneath the midden, in the northeast corner of the excavation unit, fallen masonry, probably from a pit structure, was documented at the end of the 2018 season (Figure 6). Excavations will continue in this unit in 2019.

Nonstructure 192

Electrical resistance survey identified two anomalies west of west great house that are suggestive of subterranean structures (Charles 2017; Simon et al. 2017). Two trenches oriented north-south—one consisting of adjacent 3-x-1-m and 4-x-1-m units and the other consisting of two adjacent 3-x-1-m units (Figure 4)—were placed in 2017 to investigate these anomalies. Nonstructure 192 is a dense midden encountered in both trenches and contains large sherds (most of which are corrugated and black-on-white pottery types), flaked-lithic debitage, ground-stone tools, and burned maize cobs. Excavation of this midden ended when a pit structure, Structure 1003, was defined in the west trench and a separate pit structure, Structure 1002, was defined in the east trench.

Structure 193

Structure 193 is a room located directly west of the modern house; the walls are constructed of single-coursed masonry. Structure 193 experienced disturbance in both ancestral-Pueblo and modern times—Structure 186 (a room) had been constructed within Structure 193, and a laundry-drainage pipe was installed generally east-west through the rooms in modern times (Figure 5). The northern wall of Structure 193 was identified in two 1-x-1-m units in 2017 (Simon et al. 2017:Figures 5 and 6). Excavation in 2018 revealed a portion of the west wall of this structure in an adjacent 4-x-2-m unit and a portion of the east wall in an adjacent 2-x-2-m unit. The walls consist of single-coursed sandstone blocks and mortar. An alignment of sandstone rocks below

the north wall that does not match that wall's trajectory was also encountered. Investigations in 2019 will attempt to determine whether these stones represent a footer construction or an earlier structure.

Nonstructure 196

Portions of approximately three rooms representing the northwest corner of the west great house are preserved directly north of the modern house and fenced yard (Figure 2). The walls of these rooms are backed by large rubble mounds. To identify the northwesternmost corner of this great house, two 2-x-4-m units were placed adjacent to the westernmost wall of the great house in 2017. Nonstructure 196 consists of midden deposits beneath wall-fall debris associated with the west great house. The midden contains a moderate to high artifact density and yielded sherds, flaked-lithic debitage, ground-stone tools, and many projectile points. Excavation in 2018 exposed the corner of the great house and the base of its west wall. No footer trench was observed; the west end of this great house appears to have been built upon earlier midden deposits. In the west end of the excavated area, a surface (Nonstructure 1015) was defined beneath the corner of a surface structure (Structure 1016). Excavation will continue in these units in 2019.

Structure 197

In the northwestern portion of the site, due west of the remains of the west great house, masonry walls of irregularly shaped and globular sandstone rocks that had been exposed by nonprofessional digging led to the definition of the north, east, and west walls of Structure 197 in 2017 (Simon et al. 2017). Excavation in 2018 defined the south wall of this room. Wall fall and then roof fall deposits were removed from the structure. Just below the roof fall stratum, a use surface was encountered (Figure 7). More than 50 artifacts were mapped and collected from this surface. Underlying this surface was construction material, which indicated that the structure contained an earlier surface. The original floor consists of undisturbed native sediment on which the walls had been built. Rodent activity had destroyed much of this floor, and no artifacts were found resting on this surface. Work in Structure 197 was completed in 2018, and the room was backfilled.

Structure 1002

Structure 1002 is a pit structure located in the east trench beneath Nonstructure 192 (see Nonstructure 192 section, above). The south wall of the structure is formed of decomposing bedrock and is located about 40 cm north of the south edge of our trench. The north wall of this structure has not yet been defined, but the length of the pit structure must be greater than the 5.6 m excavated in the units north of the south wall. Excavations in 2018 focused on roof-collapse debris, particularly a heavily burned section in the north excavation unit (Figure 8). Numerous artifacts, including multiple projectile points, were found within this burned debris. The floor of this pit structure will be exposed in 2019.

Structure 1003

Structure 1003 is a pit structure exposed in the west trench beneath Nonstructure 192 (see Nonstructure 192 section, above). Masonry walls consisting of single-coursed shaped sandstone rocks and mortar were encountered in both the north and south ends of the trench, indicating a north-south dimension of 4.0–4.5 m for the exposed section of the structure. A bench about 40 cm wide that was composed of similar masonry was defined in the north end of the structure. A possible vent identified in the south wall will be explored in 2019. Excavations in 2018 focused on removing thick roof-fall deposits from the interior of the structure (Figure 9). Several bone awls and large pottery sherds were found within this material. Additionally, a stone tablet and a tablet made of pottery clay were collected. Excavations in 2019 will expose the floor of this pit structure.

Structure 1010

In 2018, a 4-x-1-m unit was added to the north end of the west trench to search for a roomblock associated with the pit structure (Structure 1003). After removing the disturbed strata near the modern ground surface, we were able to define the dimensions of a room, Structure 1010, from two cross walls at the north end of the excavation unit and a wall in the south end of the unit. The room measures about 2.5 m long northeast-southwest; the northwest-southeast dimension of the room cannot be determined from the walls exposed. The masonry consists of single-coursed shaped sandstone rocks and mortar. Wall fall and roof fall were removed from the structure in 2018. In addition to many large pottery sherds, numerous ground-stone artifacts were found in the fill of this structure. The floor of the room will be exposed in 2019.

Nonstructure 1015

Nonstructure 1015 is an extramural surface defined in portions of the west 2-x-4-m unit located adjacent to the northwest corner of the west great house (Figure 10). This surface is ephemeral and does not appear to be prepared. Two mano fragments, two pottery sherds, and a fragment of animal bone were associated with this surface. A corner of Structure 1016 rests on this surface in the northwest corner of the exposed area. A diagonal alignment of rocks in the southwest corner of the unit may be associated with this surface.

Structure 1016

A corner of Structure 1016 was built on the Nonstructure 1015 extramural surface and is located in the northwest corner of the 2-x-4-m unit (Figure 10). The masonry is single-coursed and composed of a mix of shaped and unshaped sandstone rocks and mortar. Excavations will be expanded to explore this structure in 2019.

Other Fieldwork

Architectural Documentation and Stabilization

To better understand the development of the Lakeview group during the Chaco (A.D. 1080–1140) and post-Chaco (A.D. 1140–1225) eras, we will examine, document, and compare architectural data from all sites in the group as part of the NCOP. According to previous work at the Ida Jean site (Figure 11) and Wallace Ruin (Bradley 1988:Figure 1), these two great houses were built in compact, McElmo-style blocks with two aboveground kivas enclosed by several rooms, whereas the great houses at Haynie appear to be much larger in scale (Figures 12 and 13). All four of these great houses exhibit core-and-veneer masonry and other Chaco construction traits, including radial-beam pilasters, subfloor ventilation systems, aboveground blocked-in kivas, lofty ceilings, multiple stories, and T-shaped doorways (Bradley 1988, 1992, 1993; Brisbin and Brisbin 1973).

Nonprofessional digging and rubble clearing at the Haynie site exposed masonry walls in both the east and west great houses. In the west great house, walls associated with the first and possibly the second story of four rooms are exposed above the modern ground surface. In the east great house, the interiors of four kivas, 14 rooms, and portions of the exterior great-house wall are exposed. These once-buried walls have been subjected to the elements for at least 30 years and are in various states of deterioration. Crow Canyon archaeologists are documenting, and in some cases stabilizing, the exposed walls at the Haynie site for two reasons: (1) the exposed walls retain information about the construction, use, and builders of each great house; and (2) some exposed walls present a safety hazard to staff, our program participants, and other visitors to the site. The Crow Canyon documentation process comprises six phases: photography, condition assessment, architectural-detail documentation, veneer sampling, mortar analysis, and identification of previous stabilization events. Documentation occurs on both paper forms and as annotations on prints of wall-elevation photographs.

Architectural Photographic Documentation

As both a record of current exposed masonry and as a platform for further documentation, each analyzed wall was photographed. These wall-elevation photographs include a scale and were taken at a distance sufficient to encompass each wall from the top extant course to the bottommost exposed course and both wall ends. In kivas, a photo was taken facing each of the four cardinal directions; each image captured one quarter of the structure masonry.

Previous Stabilization

Approximately one-half of the exposed architecture at the Haynie site had been previously stabilized to some extent. Between 2008 and 2015, Joel Brisbin stabilized sections of both ruins with the permission of landowner Ralph Haynie. During the 2017 field season, Crow Canyon archaeologists interviewed Mr. Brisbin about his stabilization work at the Haynie site, and both the materials used and the details of this stabilization work were recorded. In summary, walls in the east great house were stabilized far more extensively than those in the west great house, and the focus was on areas of greatest structural instability. Support was added in the form of

retaining or abutment walls, and the tops of most walls were capped. Stabilization mortars used by Brisbin are identifiable because of two factors: (1) reddish-brown Mesa Verde loess from other locations in the county was used, and (2) reconstituted eroded mortar from adjacent structures was amended with small amounts of Portland cement. The mortar created from Mesa Verde loess is discernable as reddish-brown silt with few inclusions. The reconstituted and amended mortar is identifiable as compact, light greyish tan or pinkish tan silt with high sand content.

Crow Canyon field crews attempted to record the locations of all previous stabilization. Because stabilization activities can compromise the archaeological integrity of a wall, we did not record architectural details for stabilized areas.

Condition Assessment

Crow Canyon's architectural condition assessment is derived from the Intermountain Region National Park Service Level 2 Condition Assessment procedure (Nordby et al. 2008, Vance 2015). This type of documentation has three foci: (1) discerning the historic integrity of the architecture, (2) documenting threats to the wall fabric, and (3) documenting structurally destabilizing issues. Historic integrity refers to how much of the structure is standing and how much of the standing material is original and not reconstructed by stabilization. Wall-fabric threats encompass the most common agents of deterioration including water, weather, gravity, pests, and people. Structural-integrity issues are signs that portions of a structure have the potential to collapse. These signs include holes, voids, cracks, leans, and bulges. Together, these issues create a profile of the state of deterioration of a structure (Figure 14). Condition assessment also identifies and prioritizes areas needing stabilization.

Architectural Documentation

Basic measurements and construction details are recorded during the architectural documentation phase. All information is recorded on Crow Canyon masonry forms and annotated on printed wall-elevation photographs (Figure 15). Commonly recorded attributes include measurements, types of construction and wall abutments, construction materials, number of exposed courses, and chinking styles. Measurements include height, length, and width of the wall and the number of courses visible. Wall-abutment patterns are recorded to determine the relative construction sequence of walls within a room and the construction sequence of a room in relation to adjacent structures. Architectural features (entryways, vents, beam sockets, ledges, etc.) are recorded with sketches and detailed descriptions.

Veneer Sampling

To compare masonry-veneer styles observed at the Haynie site to veneer styles that have been documented at other ancestral Pueblo sites, Crow Canyon is collecting detailed measurements from each wall face. This is being done in accordance with the Intermountain Region National Park Service Architectural Documentation Sheet 3-Veneer Transects form (Nordby et al. 2008). Veneer sampling entails measuring the length of stones and of mortar gaps along each masonry course in a 1-x-1-m section of veneer (Figure 16). Crow Canyon will compare these data to

vener statistics of the National Park Service across the Southwest for locations such as Chaco Culture National Historical Park, Aztec Ruins National Monument, Mesa Verde National Park, Navajo National Monument, and Wupatki National Monument.

Mortar Analysis

The analysis of masonry mortar is another category of architectural study. Variations in mortar constitute evidence of differences in source material, masonry style, and phase of construction and/or of remodeling events. Using the Stratigraphic Description Form in our field manual (Crow Canyon Archaeological Center 2001), field crews are documenting all unique mortars found in each wall. This form is being used for mortar analysis because it captures the color, texture, and inclusions in earthen material, which will facilitate the comparison of mortars across the site and the identification of mortar sources on the landscape.

Stabilization

In 2017, a few walls were minimally stabilized (Simon et al. 2017) to mitigate immediate safety threats. All standing walls in the west great house were documented, and two walls in Room 163 were stabilized (Figure 17). In the east great house, architectural documentation began in three of the 14 exposed rooms. In addition, a short demonstration wall was constructed for educational purposes north of an auto-body shop near the modern house. Crow Canyon archaeologists Shanna Diederichs and Kate Hughes supervised Crow Canyon adult participants in all documentation and stabilization activities. For a more detailed discussion of this work, see Diederichs 2018 and Simon et al. 2017.

In 2018, stabilization of walls in the east great house continued through the assessment and treatment of eight structures (Figure 18). Work focused on areas that posed a threat to visitor and staff safety and that would have minimal physical impact on the cultural and natural environments. Stabilization was undertaken on Kiva 200, the Kiva 200 courtyard, Kiva 201, the Kiva 201 courtyard, Kiva 219, the Kiva 219 courtyard, Room 240, and Room 241. Actions undertaken during this process include the following: (1) the addition or replacement of mortar to walls (pointing or repointing), (2) the securing of existing stones through the addition of mortar (relaying), (3) the addition of new stones to existing structures (new laying), (4) the placement of stones atop existing architecture (capping), (5) the removal of vegetation that poses a risk to the structural fabric of the site, and (6) the use of backfill and drainage contouring to support a structure and prevent further damage from natural elements (Diederichs 2018). Stabilization efforts utilized water, sediments from discrete backdirt piles, stones that had lost their original context, and mortar produced for stabilization. The mortar was created to match the original materials used in construction as closely as possible while providing durability to the structure. The stabilization mortar consists of 50 percent reconstituted mortar collected from “melted” mortar in the top of the extant wall, 45 percent light brown silt from alluvial deposits along the south boundary of the Haynie Ranch, LLC, property, and 5 percent Portland cement.

Each structure wall was assessed individually (Figure 14). Condition assessments were then used to determine the appropriate stabilization activities for each of the structures, including the establishment of a safe path to be used by staff and visitors to the site when walking on the east

great house mound (Figure 19). The primary stabilization treatment was the capping of wall tops, which occurred on all walls more than 5 ft tall. Additionally, any rodent holes were backfilled, exposed floor features were covered with plywood, and loose rock piles were removed from within structures. As noted, only issues that posed direct threats to the safety of Crow Canyon staff, participants, and visitors were addressed, and additional stabilization is recommended for seven of the structures (Diederichs 2018)

Geophysical Survey

Provided in this section is a summary of a geophysical survey conducted at the Haynie site during the 2018 field season. A more-detailed report is also available (Charles 2018). The goal of this work at the Haynie site was to identify potential intact cultural deposits and buried features, including rooms and possible pit structures, that could be targeted for test excavations. Artifact data for the modern ground surface and conversations with various individuals who had worked at the site suggested the presence of evidence of occupations potentially dating from the Basketmaker III (A.D. 500–750) and Pueblo I (A.D. 750–900) periods. Remote-sensing data could reflect such buried deposits. The 2018 survey builds upon work completed in 2016 and 2017 (Charles 2017; Simon et al. 2017).

The 2018 geophysical survey was conducted with a RM15 Electrical Resistance Meter. Grids for the electric resistance survey were aligned to true north. Each grid measured 20-x-20 m. Five grids located along the east edge of the Haynie Ranch, LLC, property were surveyed with the electrical resistance meter (Figures 20 and 21). Weather and soil conditions were dry throughout the survey period, which might have negatively affected the results.

Review and processing of all data were completed by Mona C. Charles, of Powderhorn Research, LLC. Charles (2018) identifies three major issues with the collection and interpretation of these data: (1) the prominence of alterations to the landscape by nonprofessional digging activities; (2) the modern occupation of the site; and (3) the existence of a mechanical shop on the site, which resulted in the deposition of modern debris across the targeted area. These obstacles negatively impacted the dataset in terms of the number of grids that could be assessed and of the large portions of grids that were “dummy logged.” Dummy logging consists of lines of data filled with arbitrary or no value because data cannot be collected as a result of natural or cultural obstacles such as vegetation or exposed structures. Activities such as plowing and digging had removed much of the A horizon and had changed the electrical resistance and magnetic properties of the sediments. These activities also resulted in large trenches, depressions, and vegetation that put additional burden on the resistance meter. Abundant rubble from fallen walls, as well as potential subsurface masonry walls, especially hindered the resistance survey, because the probe was frequently obstructed by rocks. Finally, recent occupation of the site included the construction and occupation of a double-wide modular home, a garage that was used as a paint shop, and a large metal shed used for a mechanic and auto-body business. The presence of these buildings and the debris associated with the structures resulted in grids with reduced data and drastic anomalies produced by metal. Despite the identified issues, possible prehistoric alterations to the landscape were identified in the surveyed grids.

Electrical resistance survey works on the principle that anomalies beneath the modern ground surface can be detected because their resistance to the flow of an electrical current deviates from the surrounding norm. The survey at the Haynie site (Figure 20) measured the distortion of an induced electrical field caused by subsurface phenomena such as archaeological structures or features. Grids 1, 2, and 3 (Figure 22) encompassed an area in the eastern portion of the site directly south of the east great house. The majority of this area had been previously disturbed by modern activities. Additionally, sandstone bedrock was exposed in portions of Grid 1. Despite this disturbance, several alignments were identified in the northeast quarter of these grids. The presence of straight lines and 90-degree corners suggest cultural remains.

Grid 4 was located west of Grid 3, southwest of the east great house (Figure 23). As with the first three grids, the area had been disturbed by various modern activities. However, a square in the northwest corner of Grid 4 was confidently identified as a prehistoric roomblock; walls visible at the modern ground surface confirm the existence and location of this structure. The final grid, Grid 5 (Figure 23), was placed immediately north of Grid 3. Portions of the extant east great house are included in the northeast corner of Grid 5. Although also disturbed by modern activities at the site, this grid included several alignments and anomalies that may indicate the presence of buried cultural features.

During the 2018 field season, work in the east great house was limited to stabilization efforts. The anomalies identified by gradiometer work in these five grids will be explored in future field seasons as work progresses eastward across the site.

Artifact Analysis

In-house cataloging and analysis of artifacts for the NCOP is in progress. More than 5,754 flaked-lithic artifacts and 33,206 pottery sherds have been analyzed for the project thus far. Of 5,755 pieces of chipped stone analyzed, 4,962 pieces are from the Haynie site (5MT1905) and 793 pieces are from the Ida Jean site (5MT4126). Of the 33,206 pottery sherds analyzed, 16,601 sherds are from the Haynie site and 16,605 are from the Ida Jean site. The pottery types identified at the Haynie site indicate primary use of the site during the Pueblo I and Pueblo II periods, whereas the pottery types from the Ida Jean site indicate primary site use during the Pueblo III period.

No additional outside analyses were completed on artifacts from the Haynie or Ida Jean sites in 2018. However, in 2017, 19 obsidian artifacts were sourced to two areas in New Mexico: (1) El Rechuelos, Cerro Toledo Rhyolite; and (2) Valles Rhyolite in the Jemez Mountains and Grants Ridge sources at Mount Taylor (Shackley 2017; Simon et al. 2017).

Chronometric Analyses

No chronometric analyses occurred during the 2018 season. Earlier chronometric studies for the Haynie site include dendrochronological dates for the east great house as reported by Ryan (2016a).

Human Remains

Isolated human remains, defined as fewer than five disarticulated elements (Crow Canyon Archaeological Center 2001) in one location, were found in 11 excavation units in contexts investigated at the Haynie site in 2018. All remains were analyzed on-site by bioarchaeologist Kathy Mowrer. Table 2 provides element identifications and characteristics, as well as the estimated age categories for the associated individuals. Following analysis, in accordance with the Crow Canyon Archaeological Center Policy on the Treatment of Human Remains, Associated Funerary Artifacts, and Human Biochemical Residues (Crow Canyon Archaeological Center 2014), these remains will be covered with sediment.

Curation

In accordance with Crow Canyon's contract with the Haynie Ranch, LLC, we entered into an agreement with the Bureau of Land Management Anasazi Heritage Center (now called Canyons of the Ancients Visitor Center and Museum), Dolores, Colorado, for the curation of collected materials from the NCOP at that repository. The Canyons of the Ancients Visitor Center and Museum will take possession of these materials after the completion of fieldwork and analyses as stipulated in the research design for the NCOP (Ryan 2016a).

Summary of 2018 and Work Plan for 2019

The second excavation season of the NCOP produced data toward understanding the development and impact of the Lakeview group, and in particular, the Haynie site. Crow Canyon archaeologists used a variety of methods to gather these data—interviews, archival research, architectural documentation, surface collection, remote-sensing survey, auger testing, and excavation. As a result of the first two full seasons of fieldwork, we have a greater understanding of the breadth of impact to the site from nonprofessional digging and residence since the 1980s. Some areas thought to contain intact deposits and ancient structures proved through testing to be disturbed; other deposits and structures appear to be intact. The longevity of occupation of the Haynie site is evidence of the importance of the site. We continue to develop relationships and collaborations with other landowners to gather additional data to better understand the Lakeview community and the wider landscape.

Testing, excavation, and analyses will continue in 2019 and will be funded in part with grants from the Colorado State Historical Fund and Earthwatch Institute. With excavations in the western portion of the site, particularly in the area northwest of the west great house and the modern lawn, we will continue to investigate three sets of possible structures and cultural deposits potentially predating the great houses. Testing will expand to more fully address questions about the nature of intact deposits underlying and within the west great house. Architectural documentation and stabilization on the east great house are completed, and excavation of this block can begin in the coming field seasons. Analyses of collections from the Ida Jean site as well as of artifacts and samples collected from the Haynie site will also continue. Fieldwork for the NCOP is currently designed to continue through 2020.

Personnel, 2018 Field Staff

Archaeology Department Staff

Susan Ryan, director of archaeology
Shanna Diederichs, supervisory archaeologist
Samantha Fladd, supervisory archaeologist
Rebecca Simon, supervisory archaeologist
Steve Copeland, field archaeologist
Kari Schleher, laboratory manager
Jamie Merewether, collections manager
Kate Hughes, laboratory education coordinator
Leigh Cominiello, laboratory assistant
Grant Coffey, GIS archaeologist
Kristin Kuckelman, research publications manager
Jonathan Dombrosky, seasonal field archaeologist
Susan Montgomery, laboratory assistant
Daniel Hampson, laboratory assistant
Samantha Bomkamp, field intern
Laura Brumbaugh, field intern
Meadow Coldon, field intern
Katie Portman, field intern
Anna Dempsey, lab intern
Catherine Elliott, lab intern
Daniel Leja, lab intern
Emily Tarantini, lab intern

Education Department Staff

Sean Gantt, director of education
Paul Ermigiotti, educator
Rebecca Hammond, educator
Tyson Hughes, educator
Cara McCain, educator
Roy Palmer III, education intern

American Indian Initiatives Department Staff

Sharon Milholland, director of American Indian initiatives
Dan Simplicio, cultural specialist

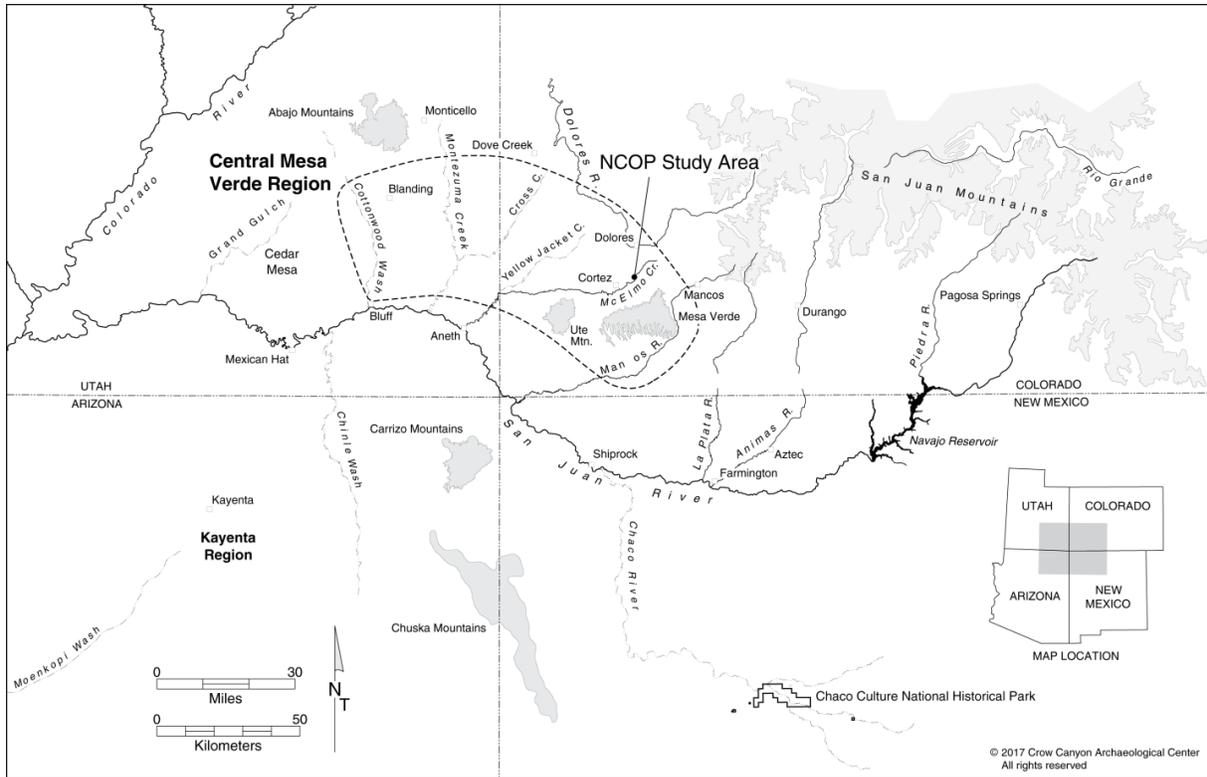


Figure 1. Location of Northern Chaco Outliers Project study area in the northern San Juan and central Mesa Verde regions.

Haynie Site, Major Cultural Units and 20 m Remote Sensing Grid

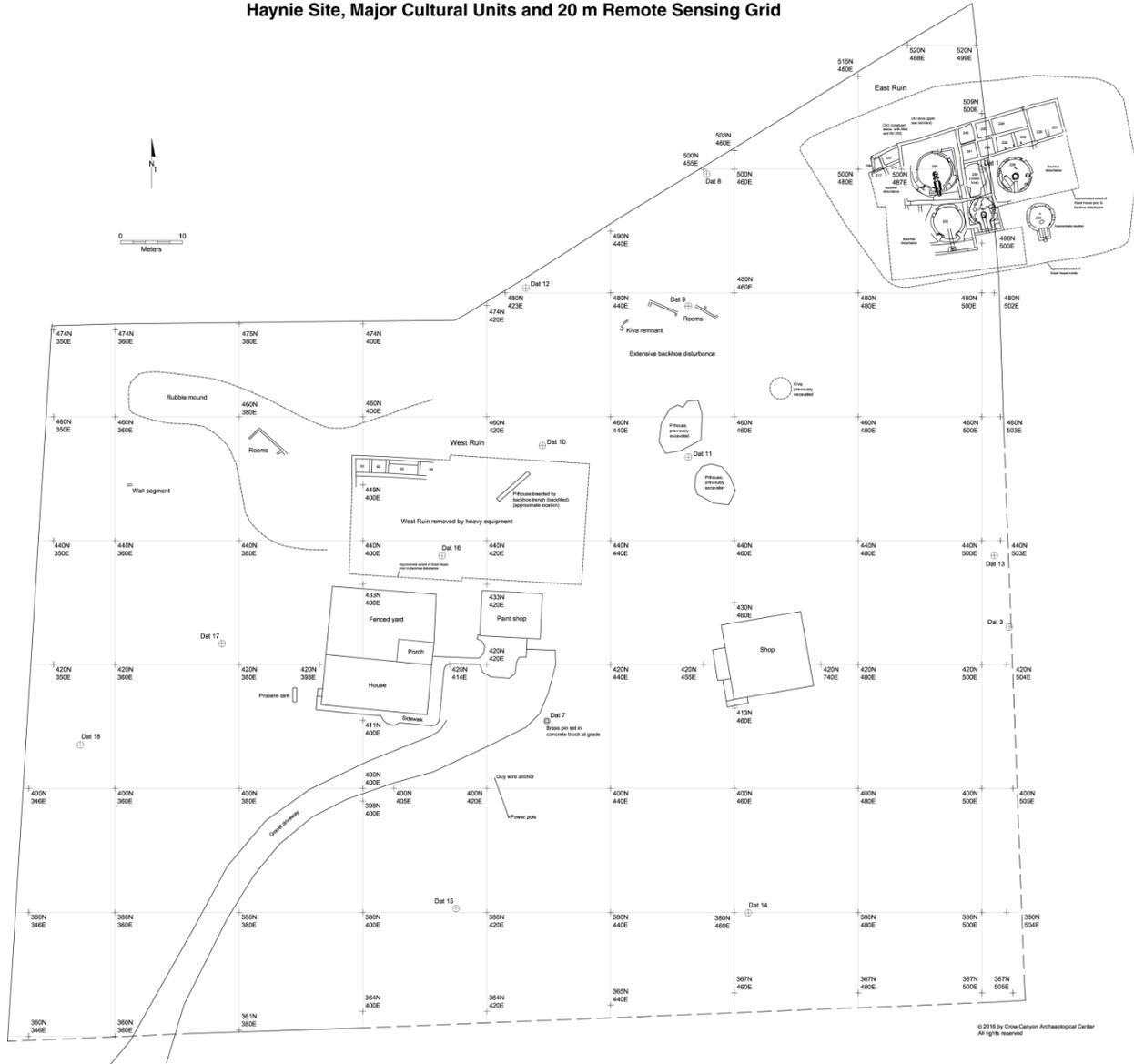


Figure 2. The Haynie site (5MT1905).



Figure 3. Locations of sites in the Lakeview group and of surrounding sites.

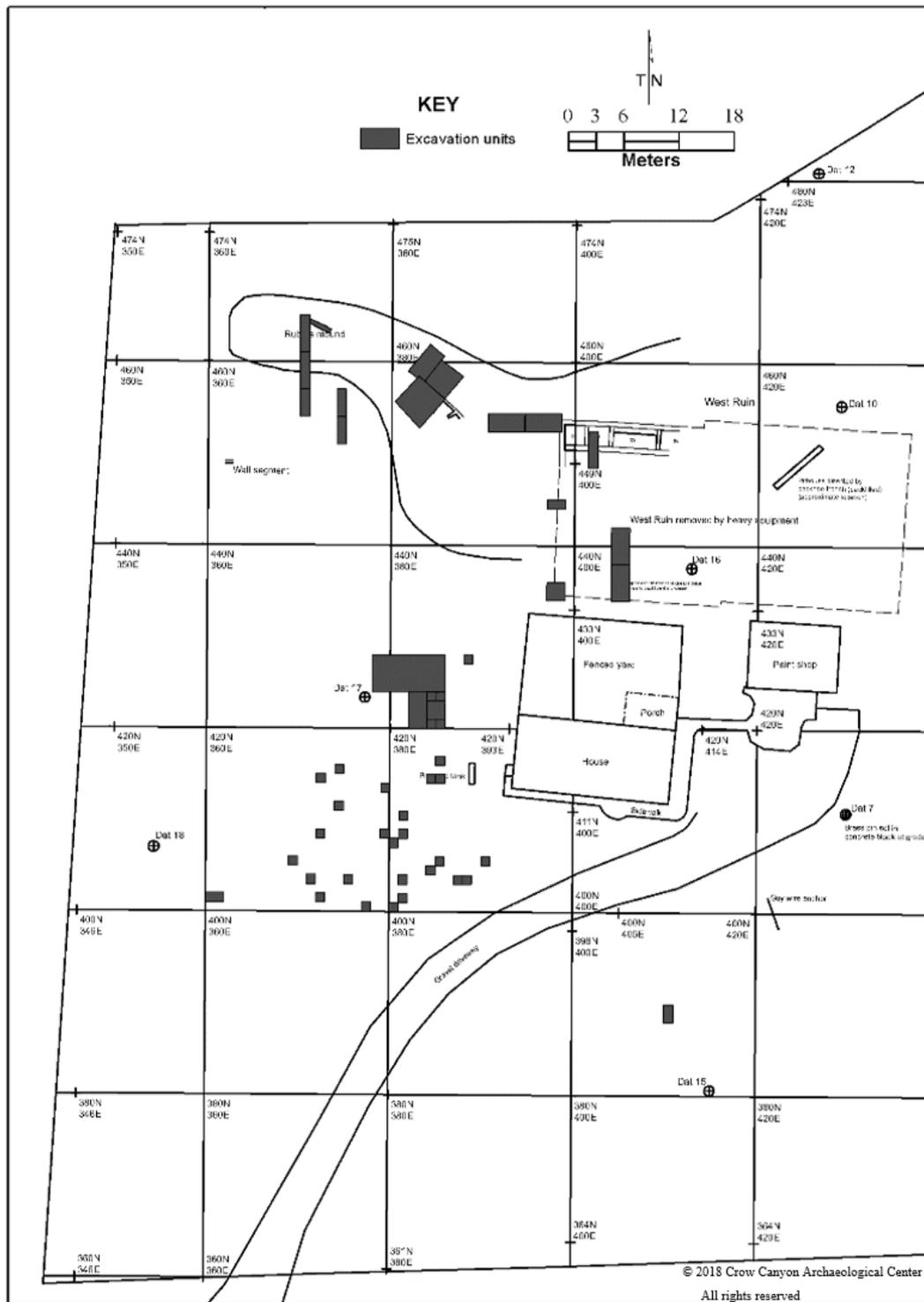


Figure 4. Western portion of the Haynie site (5MT1905) where 2018 fieldwork occurred.



Figure 5. Oblique view of Structures 186 and 193 from photogrammetry model (view west), the Haynie site.



Figure 6. Exposed fallen masonry in Arbitrary Unit 1012 (view north), the Haynie site.



Figure 7. Surface 1 in Structure 197 (view southwest), the Haynie site.



Figure 8. Excavation in progress in Structure 1002, showing burned roofing (view east), the Haynie site.



Figure 9. Excavation in progress in Structure 1003, showing roof fall and tops of walls (view north), the Haynie site.



Figure 10. Oblique view of Nonstructure 1015 showing in situ artifacts and Structure 1016 (view east), the Haynie Site.

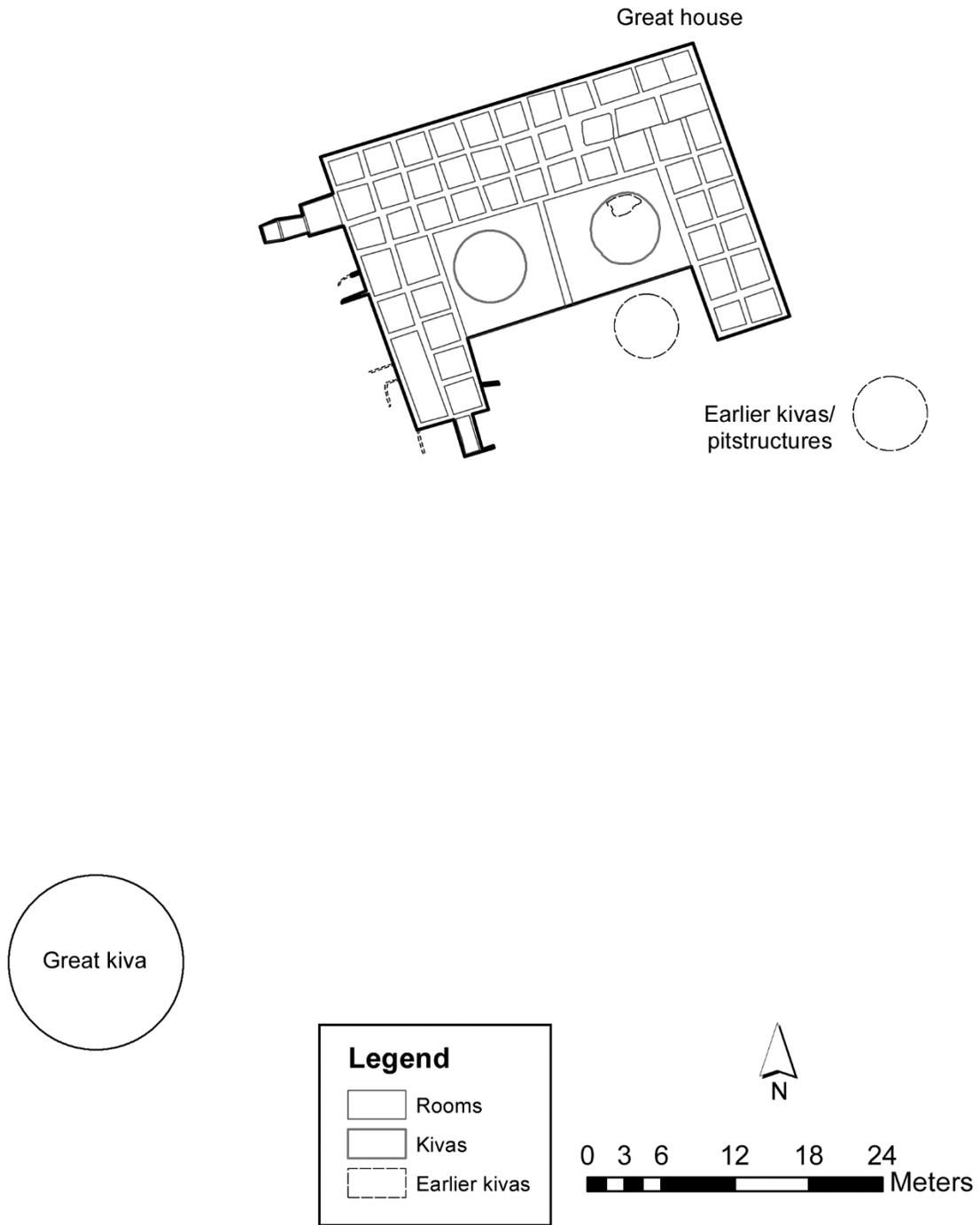


Figure 11. Ida Jean site (5MT4126). Reprinted with permission of Joel M. Brisbin.

Haynie Ruin, West House, Schematic Plan (1983-1987)

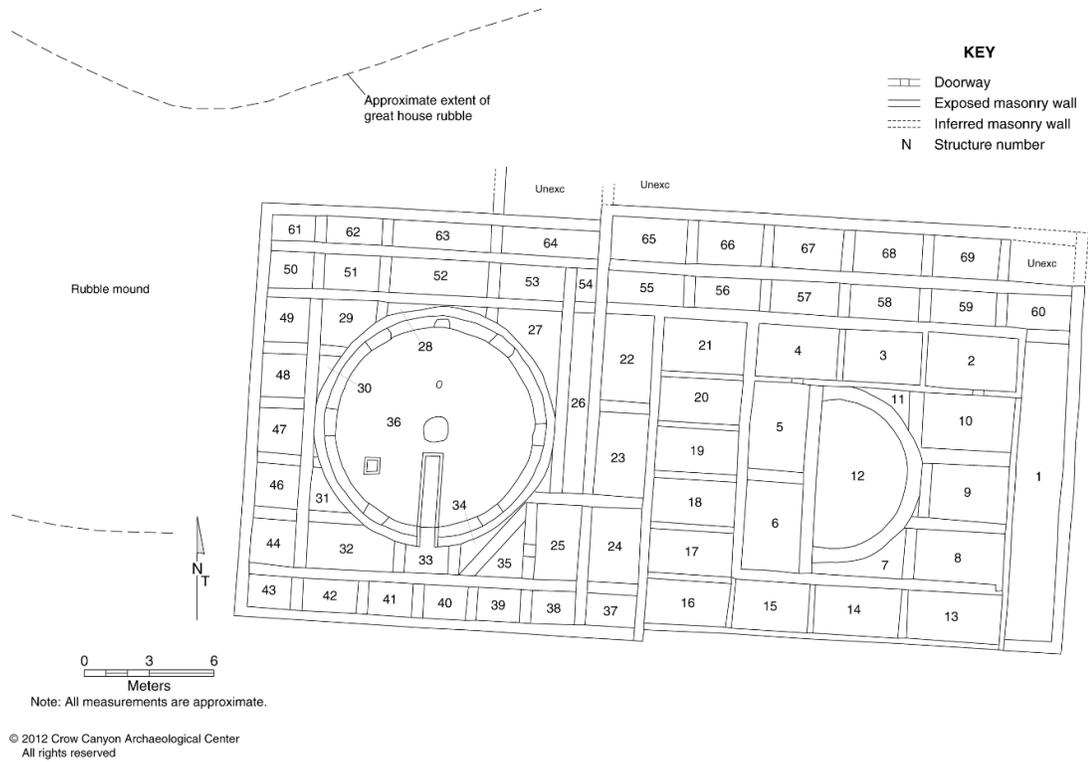


Figure 12. West great house of the Haynie site (SMT1905). Adapted with permission from Claudia Haynie.

Haynie Ruin, East Great House, Schematic Plan (1987-1989)

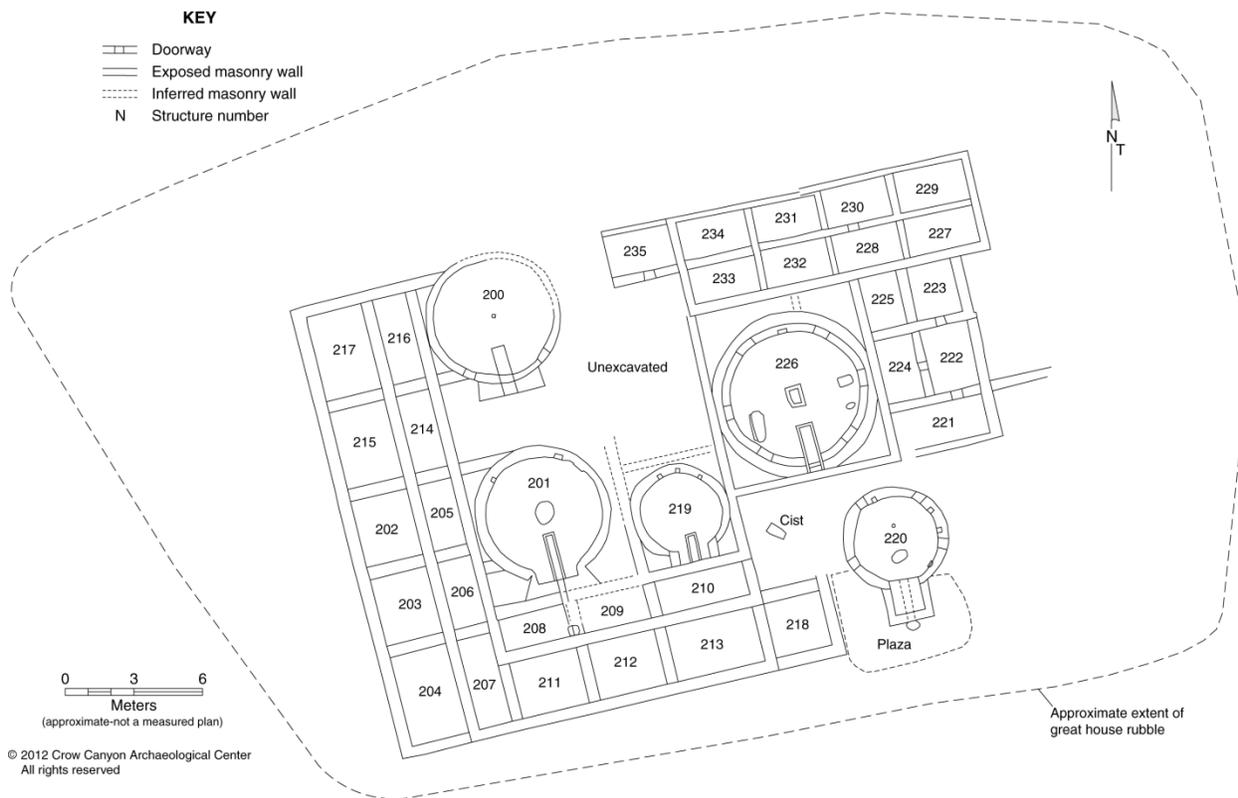


Figure 13. East great house of the Haynie site (5MT1905). Adapted with permission from Claudia Haynie.

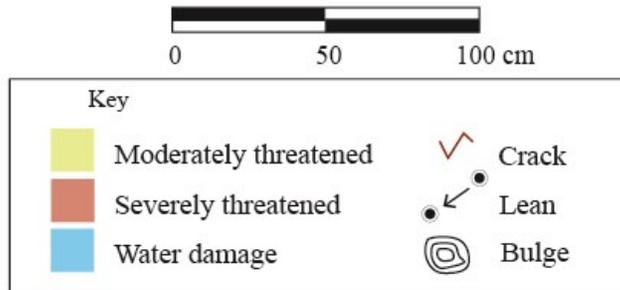
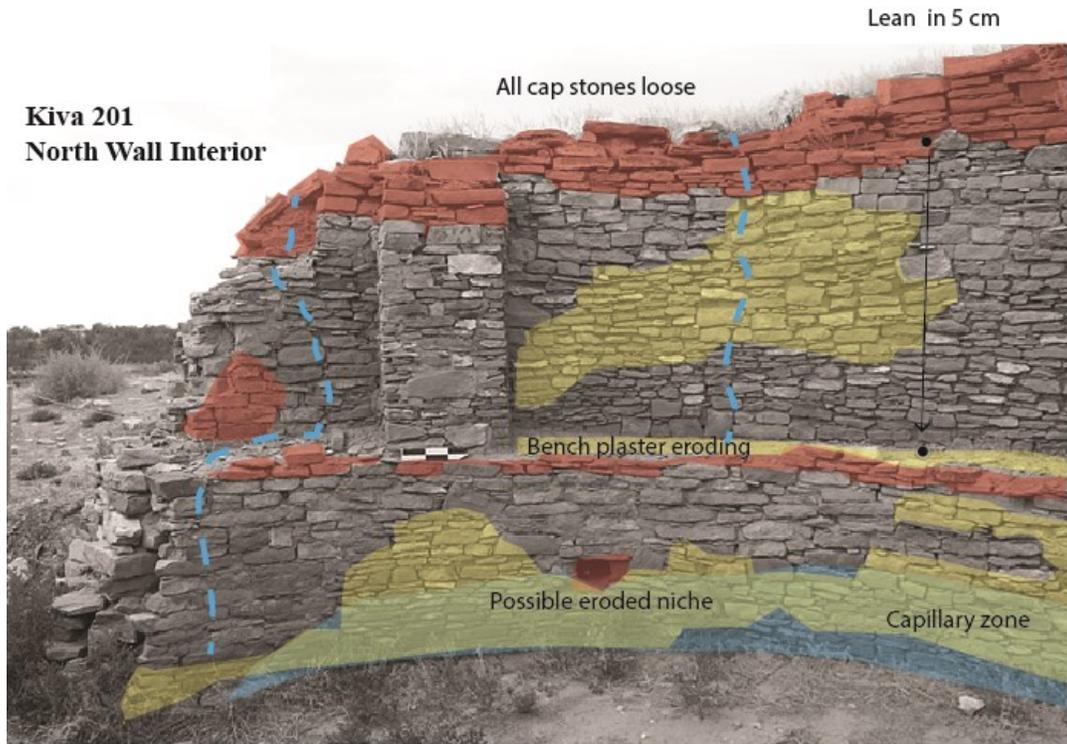


Figure 14. Condition assessment annotation for the north interior wall of Kiva 201 in the east great house.

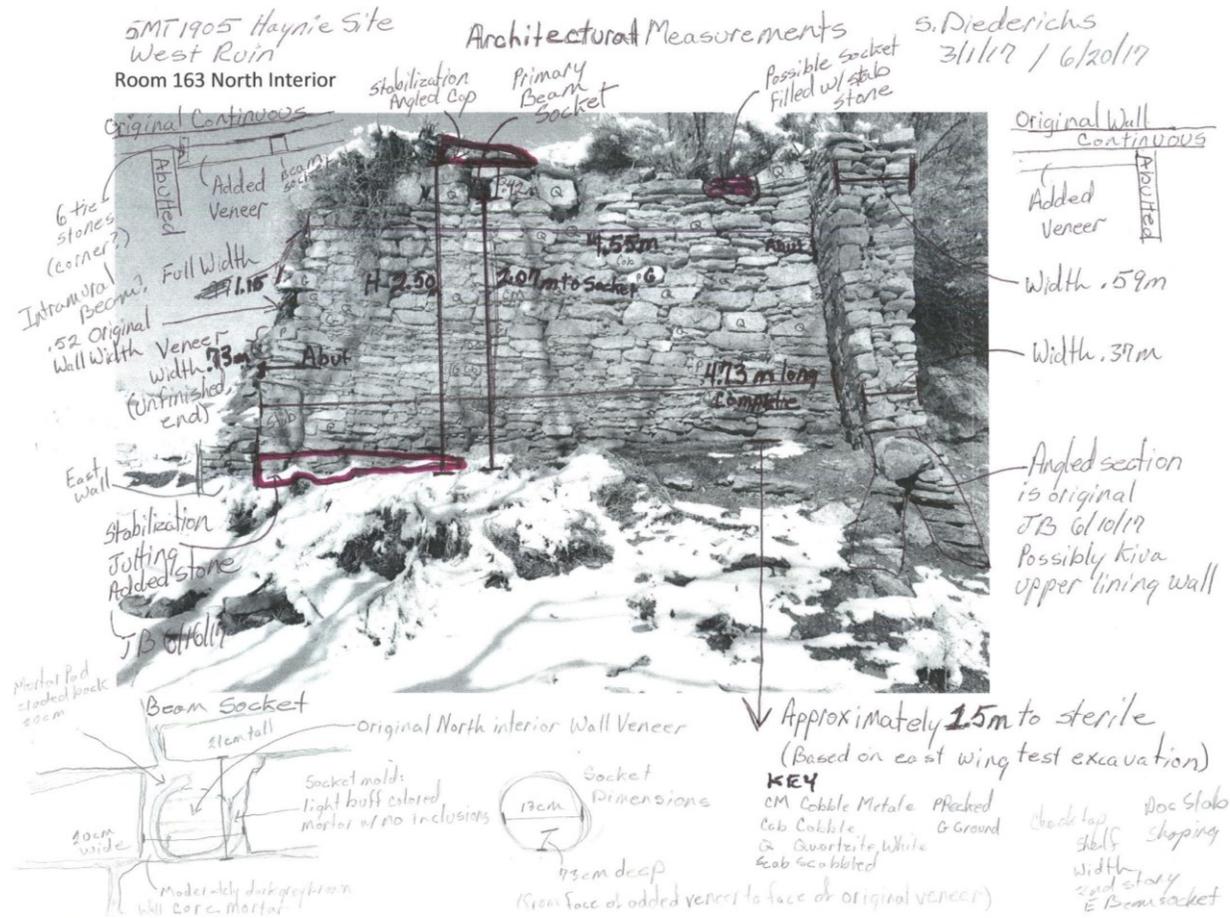


Figure 15. Architectural documentation annotations for the interior face of the north wall of Room 163 of the west great house, the Haynie site.



Figure 16. Veneer sampling of the remains of the west great house by Earthwatch Institute volunteers, the Haynie site.

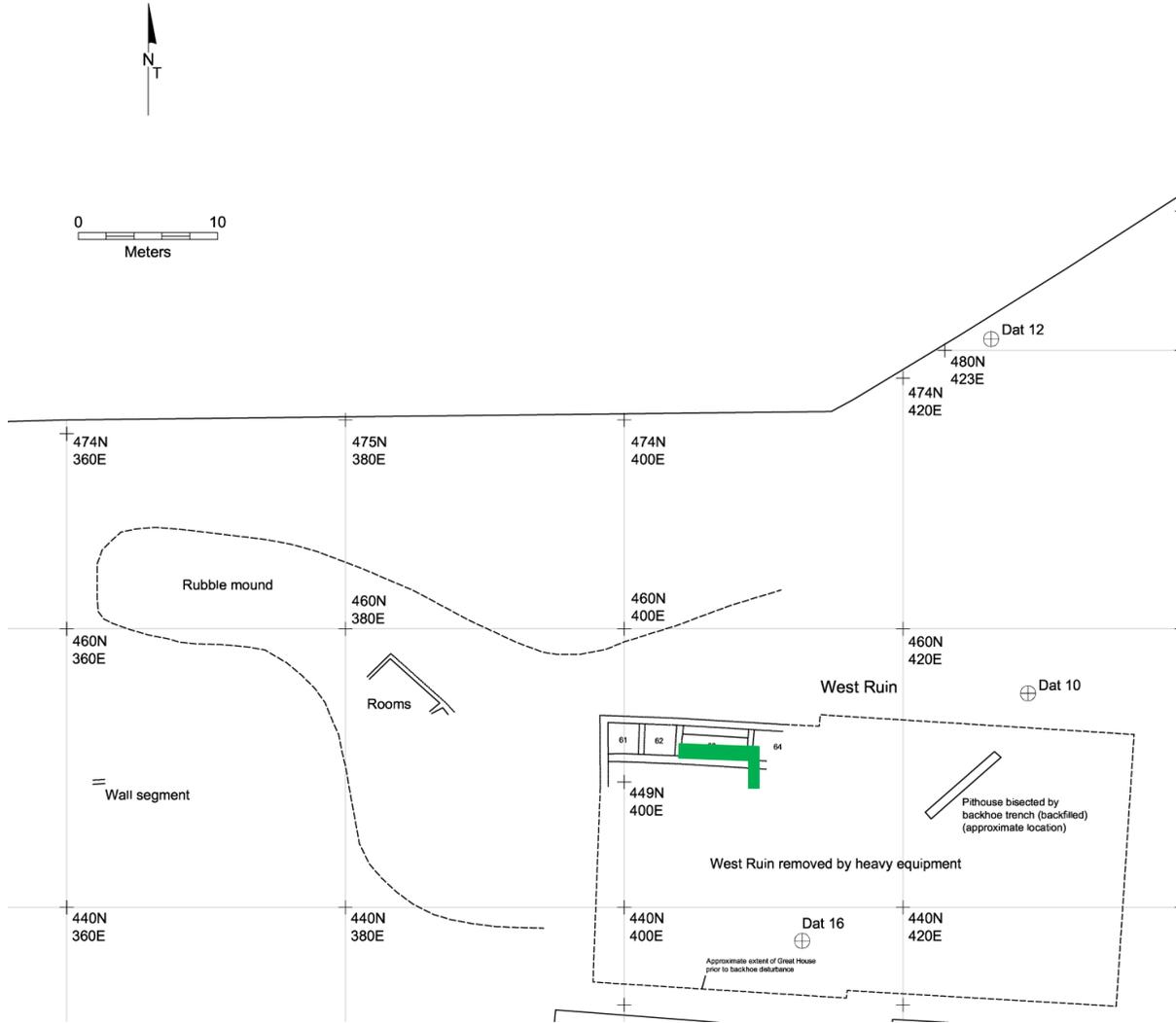


Figure 17. West great house, the Haynie site; masonry walls stabilized during the 2017 field season are highlighted in green.

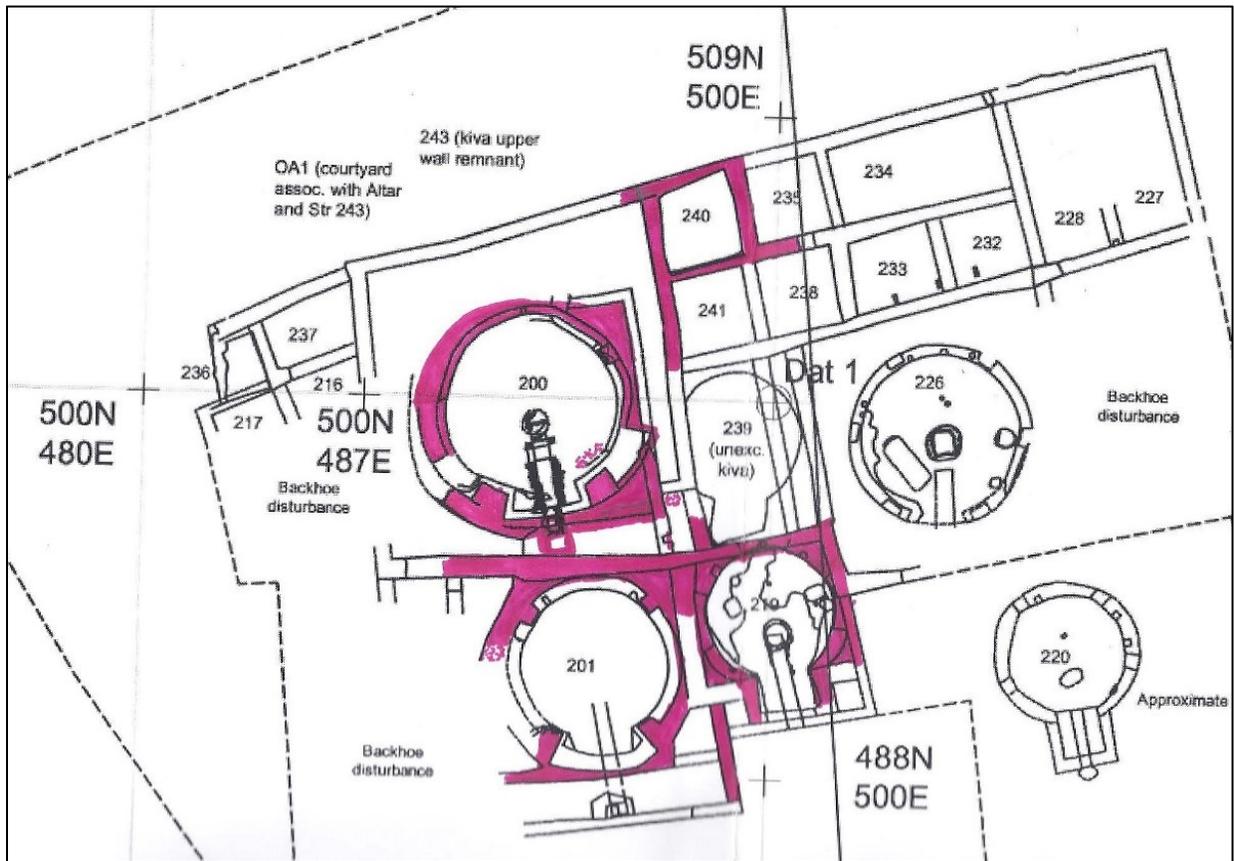
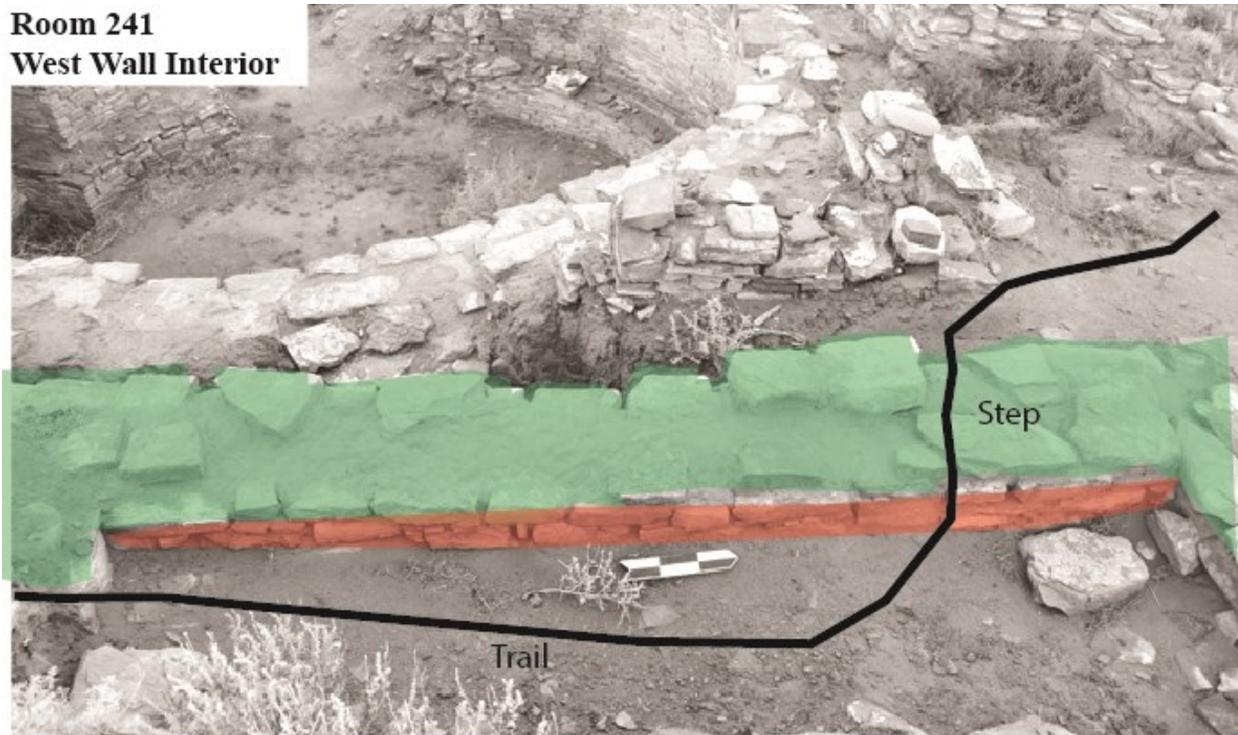


Figure 18. Detailed map of the exposed architecture within the east great house, the Haynie site. Walls stabilized by Crow Canyon are highlighted in pink.

**Room 241
West Wall Interior**



0 50 100 cm

Key

- | | | | |
|---|---------|---|----------|
|  | New lay |  | Capping |
|  | Relay |  | Backfill |
|  | Repoint | | |

Figure 19. Photograph of the interior of the west wall of Room 241 in the east great house showing stabilization work completed in 2018, the Haynie site.

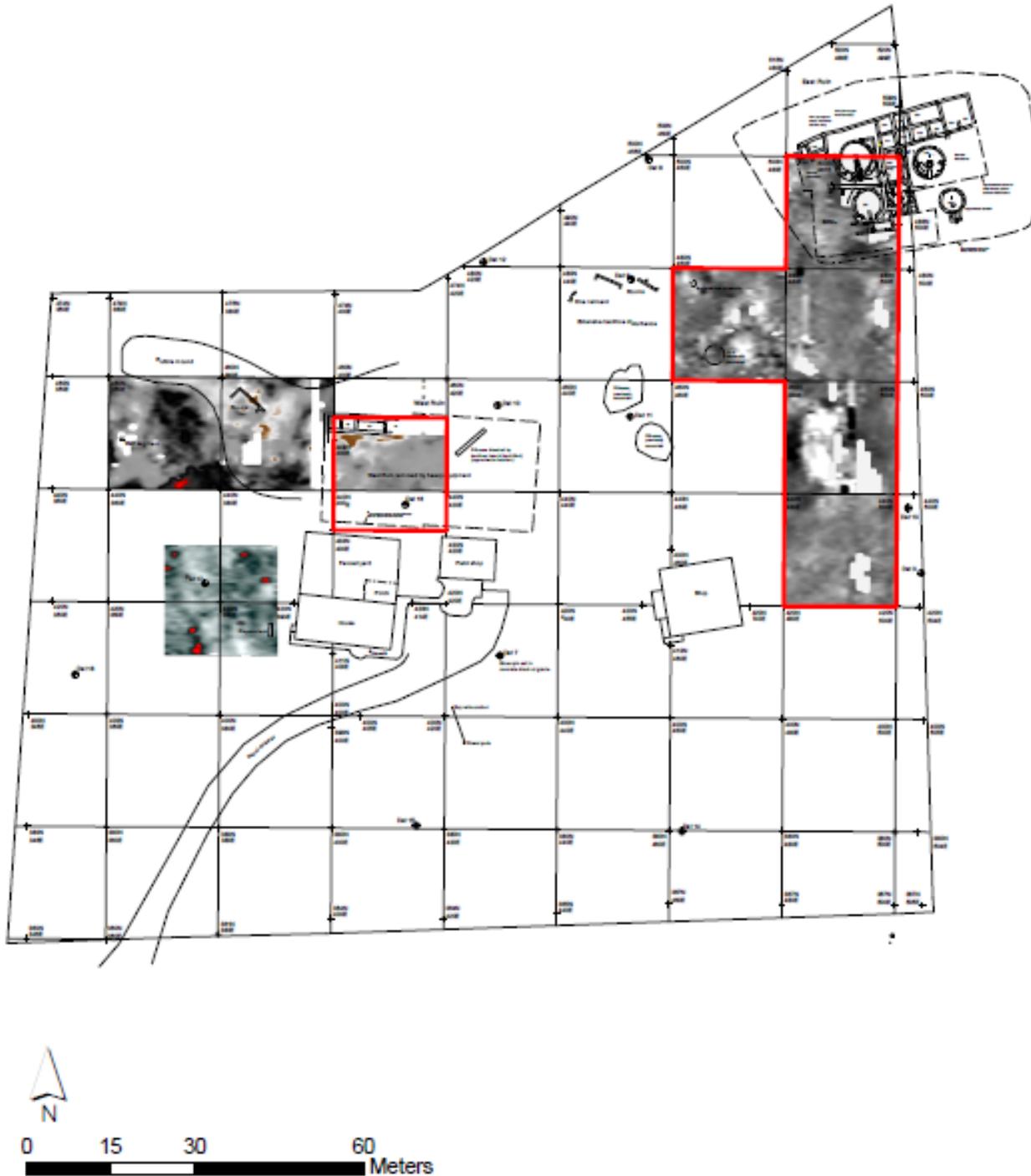


Figure 20. Areas outlined in red are locations of geophysical grids on the Haynie site (SMT1905). The five grids surveyed in 2018 are located along the east property line; the grid over the west great house was surveyed in 2017. Image created by Mona Charles, Powderhorn Research LLC, 2018.



Figure 21. Mona Charles conducting gradiometer survey west of the east great house with Crow Canyon supervisory archaeologist Rebecca Simon assisting, the Haynie site.

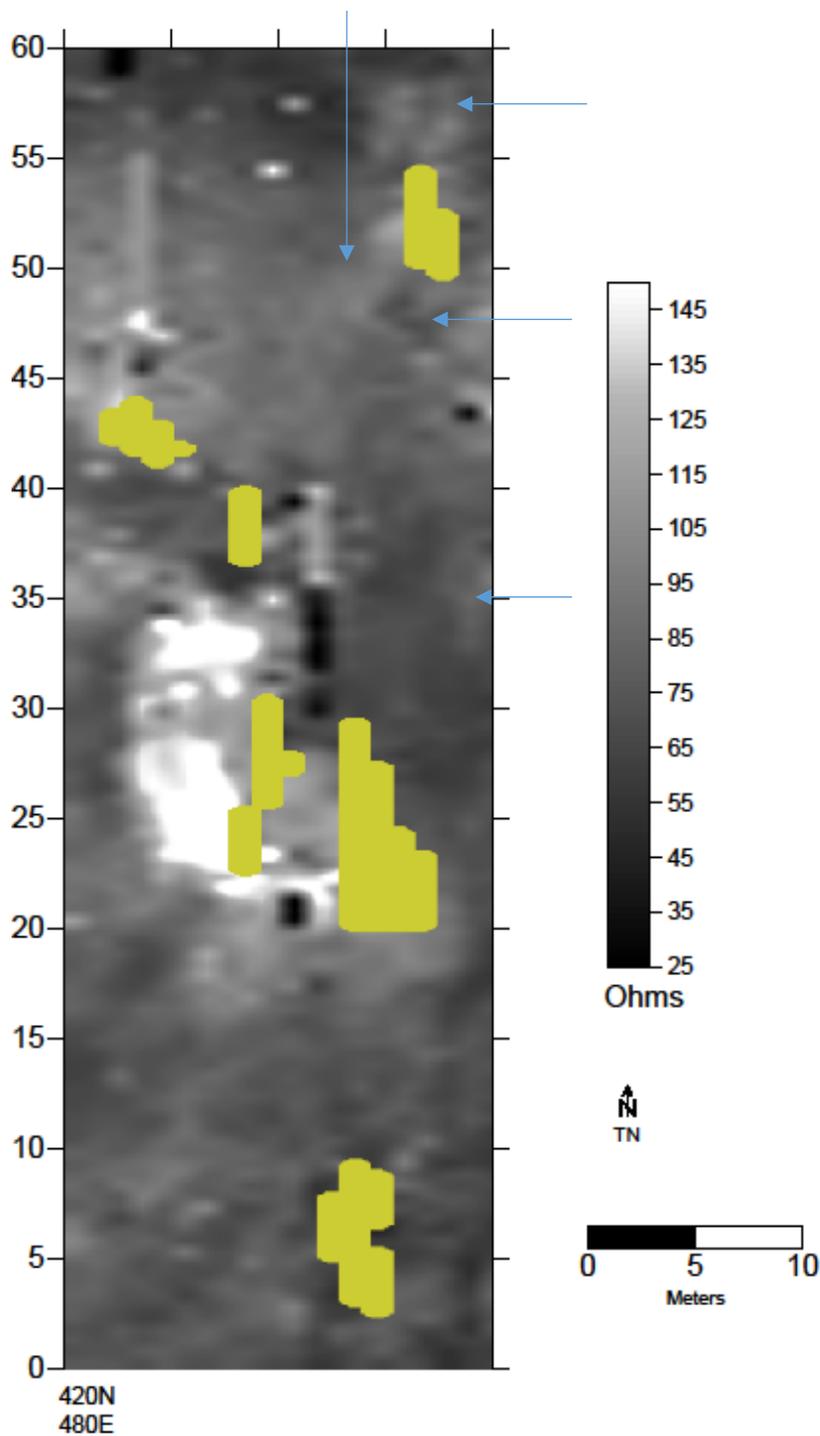


Figure 22. Electrical resistance survey conducted during 2018 of Grids 1, 2, and 3, the Haynie site. Yellow indicates dummy values, and blue arrows point to areas of interest for further investigation. Image created by Mona Charles, Powderhorn Research LLC, 2018.

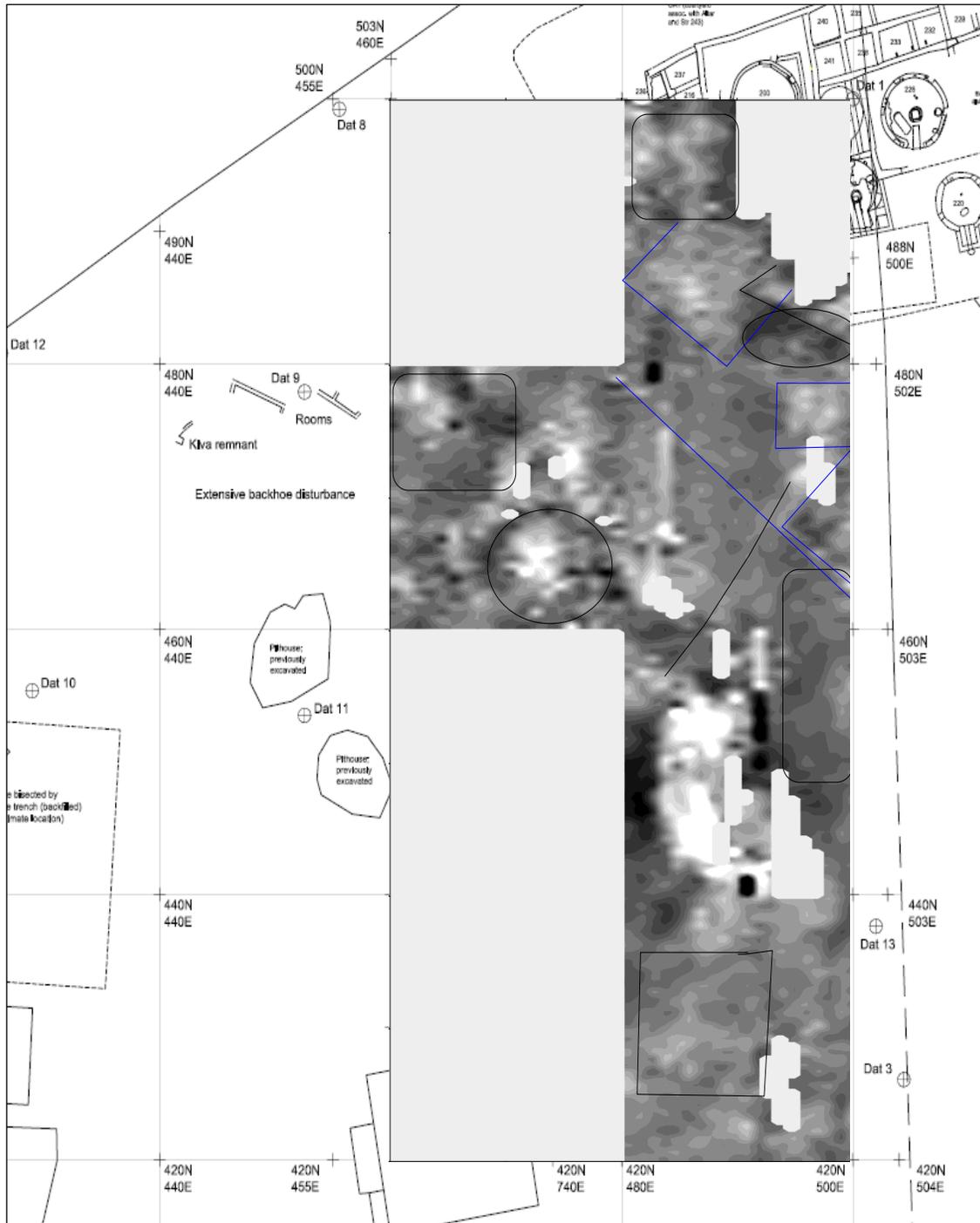


Figure 23. Electrical resistance survey conducted in 2018 of Grids 1, 2, 3, 4, and 5, the Haynie site. Areas of interest are highlighted in blue. Image created by Mona Charles, Powderhorn Research LLC, 2018.

Table 1. Excavation Units, 2018 Field Season, Architectural Block 100, the Haynie Site.

| Horizontal Provenience | Dimensions (m) | Primary Study Unit | Open | Closed |
|------------------------|----------------|---------------------|------|--------|
| 400N 377E | 1 x 1 | Arbitrary Unit 179 | | X |
| 401N 372E | 1 x 1 | Arbitrary Unit 179 | | X |
| 403N 371E | 1 x 1 | Arbitrary Unit 179 | | X |
| 403N 375E | 1 x 1 | Arbitrary Unit 179 | | X |
| 403N 381E | 1 x 1 | Arbitrary Unit 179 | | X |
| 403N 387E | 1 x 1 | Arbitrary Unit 179 | | X |
| 403N 388E | 1 x 1 | Arbitrary Unit 179 | X | |
| 404N 384E | 1 x 1 | Arbitrary Unit 179 | | X |
| 405N 369E | 1 x 1 | Arbitrary Unit 179 | X | |
| 405N 385E | 1 x 1 | Arbitrary Unit 179 | X | |
| 405N 390E | 1 x 1 | Arbitrary Unit 179 | | X |
| 407N 380E | 1 x 1 | Arbitrary Unit 179 | X | |
| 408N 372E | 1 x 1 | Arbitrary Unit 179 | X | |
| 408N 379E | 1 x 1 | Arbitrary Unit 179 | X | |
| 408N 381E | 1 x 1 | Arbitrary Unit 179 | X | |
| 410N 381E | 1 x 1 | Arbitrary Unit 179 | X | |
| 411N 324E | 1 x 1 | Arbitrary Unit 179 | X | |
| 413N 379E | 1 x 1 | Arbitrary Unit 179 | X | |
| 414N 372E | 1 x 1 | Arbitrary Unit 179 | X | |
| 414N 384E | 1 x 1 | Arbitrary Unit 179 | X | |
| 414N 385E | 1 x 1 | Arbitrary Unit 179 | X | |
| 415N 374E | 1 x 1 | Arbitrary Unit 179 | X | |
| 416N 385E | 1 x 1 | Arbitrary Unit 179 | | X |
| 420N 382E | 4 x 2 | Arbitrary Unit 176 | X | |
| 420N 384E | 1 x 1 | Structure 186/193 | X | |
| 420N 385E | 1 x 1 | Structure 186 | X | |
| 421N 384E | 2 x 2 | Structure 186/193 | X | |
| 423N 384E | 1 x 1 | Structure 193 | X | |
| 423N 385E | 1 x 1 | Structure 193 | X | |
| 424N 378E | 4 x 8 | Arbitrary Unit 179 | X | |
| 427N 388E | 1 x 1 | Arbitrary Unit 179 | X | |
| 434N 397E | 2 x 2 | Arbitrary Unit 1012 | X | |
| 448.5N 401.5E | 4 x 1 | Arbitrary Unit 183 | X | |

| Horizontal Provenience | Dimensions (m) | Primary Study Unit | Open | Closed |
|------------------------|-------------------|--------------------|------|--------|
| 451N 374E | 3 x 1 | Structure 1002 | X | |
| 452.4N 390.5E | 2 x 4 | Nonstructure 196 | X | |
| 452.4N 394.5E | 2 x 4 | Nonstructure 196 | X | |
| 454N 370E | 3 x 1 | Structure 1003 | X | |
| 454N 374E | 3 x 1 | Structure 1002 | X | |
| 457N 370E | 4 x 1 | Structure 1003 | X | |
| 461N 370E | 4 x 1 | Structure 1010 | X | |
| Segment 1 | | Structure 197 | | X |
| Segment 2 | | Structure 198 | | X |
| Segment 1 | | Arbitrary 180 | X | |

Table 2. Human Remains, 2018, the Haynie site.

| Element | Age Category |
|---|--------------|
| Cranial fragment | Adult |
| Right mandible fragment (including three teeth) | Adult |
| Left mandible fragment | Adult |
| Mandible fragment | Adult |
| Canine tooth fragment | Adult |
| Rib fragment | Adult |
| Radius fragment | Adult |
| Left pubic symphysis fragment | Adult |
| Tibia fragment | Adult |
| Femoral or humeral head fragment | Adult |
| Metacarpal or metatarsal fragment | Adult |
| Large long bone fragment (femur or humerus) | Adult |
| Six unidentifiable fragments | Adult |
| Cervical vertebra | Subadult |
| Thoracic vertebra | Subadult |
| Rib fragment | Subadult |
| Fibula | Subadult |
| Temporal bone fragment (petrous portion) | Infant |
| Occipital bone fragment (pars lateralis) | Infant |
| Right mandible fragment (unerupted incisor and first molar) | Infant |
| Left rib | Infant |
| Right rib | Infant |
| Thoracic vertebra fragment | Infant |

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