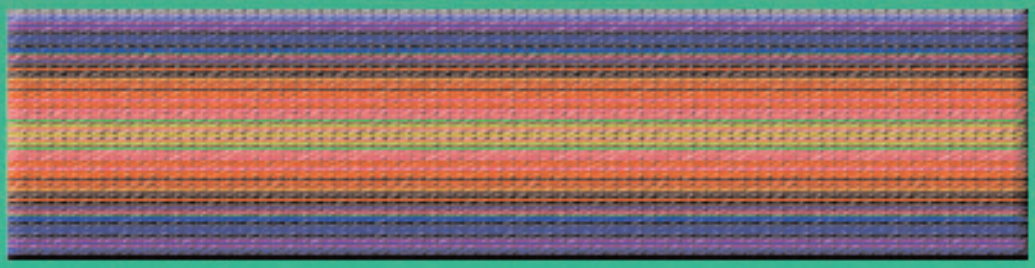
Preliminary report on the Phase I assessment at LA 111322 for the New Mexico Museum of History in Santa Fe, New Mexico

Stephen S. Post



Museum of New Mexico
Office of Archaeological Studies
Archaeology Notes 321
2003

MUSEUM OF NEW MEXICO

OFFICE OF ARCHAEOLOGICAL STUDIES

PRELIMINARY REPORT ON THE PHASE I ASSESSMENT AT LA 111322 FOR THE NEW MEXICO MUSEUM OF HISTORY IN SANTA FE, NEW MEXICO

Stephen S. Post
Project Director

Contributions by
Nancy J. Akins
David A. Hyndman
Patricia A. Maples

Timothy D. Maxwell
Principal Investigator

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SANTA FE 2003 NEW MEXICO

ADMINISTRATIVE SUMMARY

Between October 13, 2002, and February 29, 2003, the Museum of New Mexico, Office of Archaeological Studies, completed an initial archaeological assessment behind the Palace of the Governors in the Museum of New Mexico Administration Building parking lot at 113 N. Lincoln Avenue in Santa Fe, New Mexico. The project area is owned by the Museum of New Mexico Board of Regents. The investigation was conducted at the request of the Museum of New Mexico in conjunction with planning for the construction of the Palace of the Governors Annex and New Mexico Museum of History. The work was conducted in compliance with Cultural Properties Act of 1969 (§§18-6-1 through 17 NMSA 1978) and the National Historic Preservation Act of 1966. Funding for the construction comes from the U.S. Department of Interior, National Park Service, and the State of New Mexico.

The Palace of the Governors is on the National Register of Historic Places (#66000489) and on the State Register of Cultural Properties (District 260, #17). It is designated as a National Historic Landmark. The Palace of the Governors is assigned LA 4451 in the New Mexico Cultural Resources Information System files at the Archeological Records Management Section, Historic Preservation Division, in Santa Fe. Because the LA number refers to the Palace of the Governors and not adjacent property, archaeological work is assigned to LA 111322. LA 111322 refers to the area north of the Palace of the Governors, but limited to the Museum of New Mexico Board of Regents' property.

Initial assessment was limited to a 3-m-wide (north-south) by 40-m-long (east-west) strip between the Palace of the Governors and the Museum of New Mexico Administration building parking lot. Initial archaeological assessment was combined with the stabilization of the foundation of the existing Palace patio offices' north wall. Systematic excavation of all cultural deposits within the 40-m-long area north and under the foundation was followed by the installation of a concrete and rebar-reinforced grade beam. With completion of the excavation and stabilization, the site was temporarily backfilled in anticipation of Phase II excavation and data recovery in the late spring or early summer 2003.

In all, 51 sq m within the 120-sq-m area was examined. Excavation revealed the presence of intact cultural deposits and architectural features and pits with dates spanning the full historic occupation of the Palace of the Governors, ending with New Mexico statehood (A.D. 1610–1912). Based on these initial excavations, it is clear that the full range of research directions proposed in the data recovery plan (Post 2002) can be addressed. For some periods, the array of artifacts, features, and stratigraphically secure contexts will lead to substantial contributions to the existing historical and archaeological interpretations of construction and land-use patterns of the Palace of the Governors as well as examining the Palace of the Governors' place in local and regional social and economic systems. This report provides a preliminary description and evaluation of the findings and proposes changes to the Phase II excavation plan originally outlined in the data recovery plan (Post 2002).

MNM Project No. 41.690 NMMH
State Excavation Permit No. SE-186
Annual Burial Excavation Permit No. ABE-511

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INTRODUCTION

Between October 13, 2002, and February 29, 2003, the Museum of New Mexico, Office of Archaeological Studies completed an initial archaeological assessment behind the Palace of the Governors in the Museum of New Mexico Administration Building parking lot at 113 N. Lincoln Avenue in Santa Fe, New Mexico. The project area is owned by the Museum of New Mexico Board of Regents. The investigation was conducted at the request of the Museum of New Mexico in conjunction with planning for the construction of the Palace of the Governors Annex and New Mexico Museum of History. The work was conducted in compliance with Cultural Properties Act of 1969 (§§18-6-1 through 17 NMSA 1978) and the National Historic Preservation Act of 1966. Funding for the construction comes from the U.S. Department of Interior, National Park Service, and the State of New Mexico.

LA 111322 is located on unplatted lands of the Santa Fe Grant in Santa Fe County, NMPM (UTM location on file at the Archeological Records Management Section in Santa Fe). Figure 1 shows the project location. Figure 2 shows the excavation area and surrounding structures.

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The archaeological assessment and stabilization project was a collaborative effort between Museum of New Mexico administration and units, the architects and engineers, the construction, contractor, and the New Mexico Historic Preservation Division. The Museum of New Mexico units involved included the Office of Archaeological Studies (Dr. Timothy Maxwell, principal investigator) and the Palace of the Governors (Dr. Frances Levine, director). The architect was Roy Woods, assisted by Mark Kohl of Conron-Woods Associates of Santa Fe. The primary engineer was George Bradley of Chavez-Grieves in Albuquerque. The construction foreman was Don Gibson, ably assisted by Martin Lewis and Lawrence Trujillo of Longhorn Construction Co. of Albuquerque. Key Museum of New Mexico administrative staff included Dr. Thomas Wilson, director; John McCarthy, assistant director; Mac Rodriguez, building services; Steve Baca, security; and Jennifer Marshall, acting marketing director. New Mexico Historic Preservation Division staff who advised on the project were Jan V. Biella, deputy historic preservation officer; Dr. Glenna Dean, state archaeologist; Michelle V. Ensey, staff archaeologist; and Dr. Elizabeth Oster, staff archaeologist. All cooperated in a way that made possible the completion of a difficult and complex project.

The Office of Archaeological Studies' crew should be recognized for their hard work and professionalism. The quality of archaeological data recovered is directly attributable to their skills. OAS crew included Jessica Badner, Matt Barbour, Saundra Daras, Thoras Dye, Candace Lewis, Tom McIntosh, Susan Moga, Lynn Sanchez, and Peter Waller.

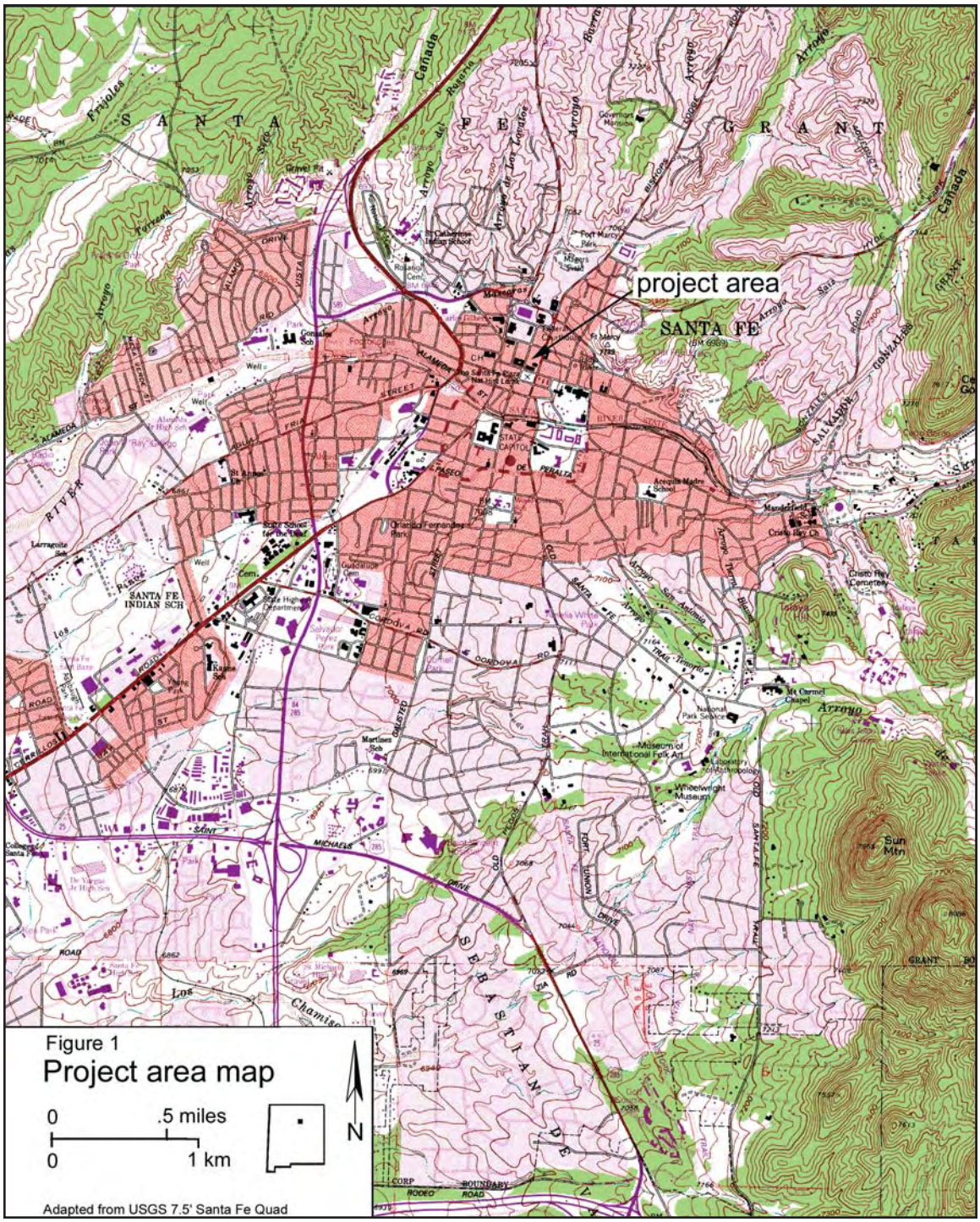

Figure 1
Project area map

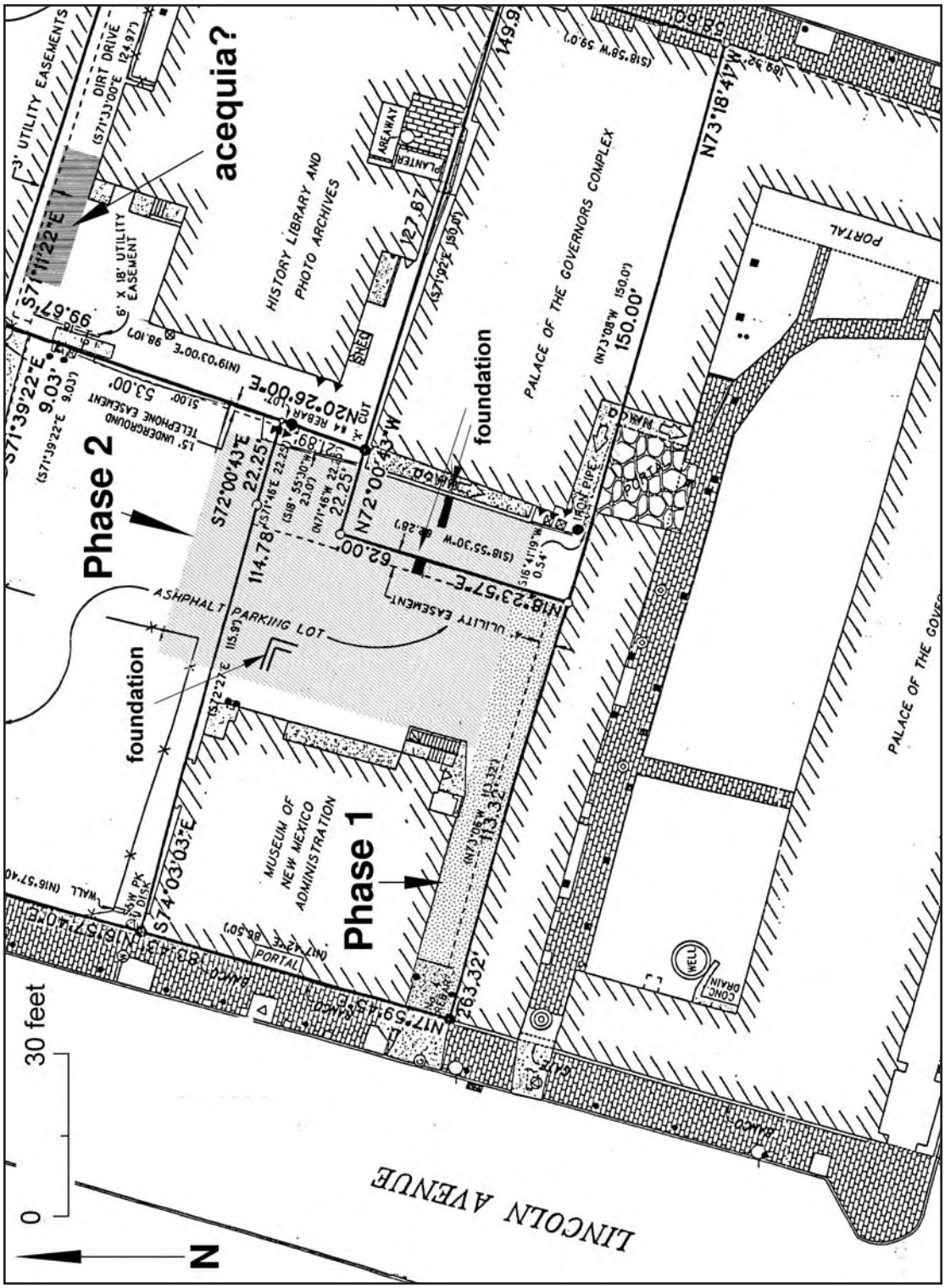

Figure 2. Plat of the project area showing potential foundation locations and two planned excavation areas.

Further recognition must be extended to the 30 volunteers that contributed over 1,500 hours of time to the field project and laboratory processing. Their consistent good cheer, patience, and dedication were an inspiration to all professional staff involved. Volunteers always allow us to reach beyond our initial goals to a higher level of accomplishment.

PHASE I EXCAVATION PROCEDURES

Phase I excavations occurred during fall 2002 and winter 2003. The work coincided with the stabilization of the north wall of the Palace of the Governors' patio offices. Wall stabilization entailed undercutting the existing wall and inserting a combination of stabilization materials and devices under the existing foundation. To prevent the wall from collapsing, undercutting and stabilization was staged, which means that archaeological examination of buried deposits also was staged. This initial effort extended from the Museum Administration Building parking lot driveway along the north wall of the Palace of the Governors' patio offices, east to the corner of the Palace patio offices and the original Palace Annex, which forms the southeast corner of the parking lot. This initial section was 40 m long and 3 m wide, covering 120 sq m (Fig. 2).

For safety and access reasons, and because of potential subsurface disturbances resulting from the Museum Administration Building construction, only a 2-m-wide strip extending north from the north wall of the Palace patio offices was investigated within the driveway. Phase I excavations were backfilled and will be reopened during the Phase II investigation later in 2003.

For the first three weeks of the project, the site was open-air. This led to concerns that the foundation of the Palace patio offices could not be adequately protected from moisture once it was exposed by the excavation. To solve this problem, the Museum installed a waterproof canvas tent over the excavation area. For the last 3.5 months of the project, work was essentially conducted indoors. The tent protected the foundation and allowed the exposed excavation unit walls to dry, allowing for better stratigraphic characterizations. Also, dry excavation units allowed work to progress at a faster pace than is often possible for typical late fall and winter season projects.

The following is a summary of the excavation sequence and procedures.

On October 13 and 14, 2002, Sunbelt Geophysics, Inc., of Albuquerque, New Mexico, conducted a geophysical remote sensing investigation of the entire Museum of New Mexico Administration Building parking lot. Geophysical data were acquired by utilizing three different instruments, each able to provide rapid, high-density coverage. These included a Geonics EM-61 high-resolution metal detector with two different antenna sets; a Geometrics G-858 cesium vapor magnetometer; and a Geonics EM-38 ground conductivity meter (Hyndman and Maples 2002:1) A spatial control grid was established and marked at 1-m intervals that closely approximated the eventual excavation grid. East-west data acquisition traverses were separated by 1 m. Data were collected and five days later preliminary results were presented by David Hyndman of Sunbelt Geophysics, Inc., to Museum of New Mexico staff.

Following the geophysical survey, Longhorn Construction of Albuquerque, the construction contractor for the project, removed the asphalt and cement aprons from the base of the north wall of the patio offices. Mechanical excavation below the asphalt focused on removing all material related to the paving and maintenance of the driveway and parking lot. Typically, this resulted in the removal of 5 to 15 cm of asphalt-impregnated fill.

A 1-by-1-m Cartesian grid was established for the entire Museum Administration Building parking lot. A primary datum was set and an electronic transit was used to establish key grid corners and to establish base elevation points. Vertical controls were maintained with a series of subdatums. They were placed at convenient locations minimizing the distance from the measured point to the subdatum. The main site datum elevation was set at 10.0 m and all elevations calculated from that point.

Excavation strategy and sequence were determined by the stabilization requirements. For this reason, excavation of the 40-m-long area was subdivided into three phases. The first two phases entailed excavating 1-by-1-m units in 4-m intervals. In other words, the first phase entailed the excavation of eleven units, all at 99N: 97, 100, 104, 108, 112, 116, 120, 124, 128, 132, and 136E.

The second phase included ten units, also at 99N: 98, 101, 105, 109, 113, 117, 121, 125, 129, and 133E. The final phase included the 19 remaining unexcavated units: 99N/99, 102, 103, 106, 107, 110, 111, 114, 115, 118, 119, 122, 123, 126, 127, 130, 131, 134, and 135E.

The first phase units were excavated in 13 or 14, 10-cm arbitrary levels allowing definition of the different site strata. The second and third phase units were excavated in arbitrary units or within identified stratigraphic units but ranged from 10 to 20 cm in thickness. The thickness of the arbitrary level was determined by the thickness of stratigraphic unit. Most fill was screened through 1/4-inch or 1/8-inch hardware cloth, depending on the context.

Following the 130-cm-deep excavation of the first eleven units, soil and rock beneath the foundation of the Palace patio offices had to be removed. Removal of the soil and rock created space for installation of the concrete grade beam and helical anchors below the existing foundation. The procedure was as follows: (1) cutting a horizontal slot across the unit below the existing foundation and installation of an 8-inch-wide metal plate; (2) cutting two vertical slots 15 to 20 cm wide and 20 cm in from each grid line from the metal plate to the floor of the excavation; (3) installing two 3-inch pipes with threaded caps, which were lodged under and eventually welded to the metal plate; (4) excavation of all soil and foundation rock 20 cm under the existing foundation to the bottom of the excavation floor (this was unit 98 North) in arbitrary levels; (5) auger testing to a depth ranging from 80 cm to 120 cm within 98 North to determine the depth of the cultural deposit and to check for human remains within the cylinder that would be disturbed by helical anchor installation; (6) helical anchors were installed by hydraulic drilling to a depth of 15 ft through the excavated floor; (7) removal of soil from under the existing cobble foundation, shoring the foundation with metal wedges, and welding wedges to the metal plate; (8) installation of rebar and wooden forms, followed by pouring concrete; (9) forms were removed and excavation of adjacent units proceeded, and the process was repeated.

Variations in this process included (1) stratigraphic excavation of the 20 cm under the existing foundation for the last two phases; (2) the use of a single stabilizing pipe under the horizontal metal plate, once a plate could be laid on top of the adjacent plate end; and (3) the last two units were excavated and horizontal plates, vertical pipes, foundation rocks wedged, and all welded in one phase rather than in two phases.

Once all 40 units were excavated to 130 cm below the exposed surface under the parking lot level, then the units in 100 North that corresponded with the first eleven units excavated in 99 North were excavated stratigraphically to a depth of 60 cm. Once the 100 North units were lowered, the first phase 99 North units were excavated an additional 60 cm to a depth of 190 cm below the initial excavation surface. This additional depth allowed for installation of the helical anchor brackets. The brackets were the final step in stabilizing the substrata below the foundation.

Recording included descriptions of soil, artifact variety and frequency, evidence of disturbance, horizontal and vertical location and associations, and temporal associations. The south, east, and north excavation unit walls were profiled. Stratigraphic descriptions included soil type, texture, color, natural and cultural inclusions, and estimated age of the deposits.

Defined features were excavated using standard archaeological hand tools. Depending on the type of feature, the fill was screened through 1/4 or 1/8-inch mesh. Half of each feature exposed within the excavation unit was excavated in arbitrary 10-cm levels. If the feature extended into an adjacent unit slated for excavation, the remaining portion was excavated in stratigraphic blocks determined by feature content and condition. At least one exposed cross section was profiled and different feature strata were described using a Munsell Color Chart and standard stratigraphic terminology.

Depending on the size and location of the features, they were excavated in part or completely. Examples of partly excavated features were the architectural foundations and large colonial and Territorial period pits and shafts extending into the portion of the site that will be excavated during Phase II. Regardless of the feature portion that was excavated, feature maps and profiles were

drawn and tied into the grid system and site elevations. Detailed drawings will allow for integration of additional morphological and contextual data when feature excavations are completed

For feature recording, graphic depictions included a scale, north arrow, and key to abbreviations and symbols. Written descriptions used standard forms that included provenience, dimensions, soil matrix, artifact content, construction, time frame, excavation technique, and other data. Excavation records include photographs of the feature excavation progress and the final appearance. Photographs include a metric scale, north arrow, and mug board with the LA, feature number, and date. All photographs were listed on a photo data sheet. Photographic formats include black-and-white prints, color slides, and digital images.

Architectural features were recorded and sampled as described in the Architectural Data section of the research design (Post 2002:62–63). The two main colonial foundations and cross-walls were drawn, profiled, and photographed. Mortar samples were taken from all foundations. These foundations were dismantled in units 98 and 99 North across the excavation area. The dismantled cobbles were measured and weighed and are currently stockpiled at the Palace of the Governors. These cobbles will be incorporated into the new building and museum.

The single articulated occurrence of human remains was excavated, recorded, removed, stored, and preliminarily studied in accordance with the burial procedures outlined in the data recovery plan (Post 2002:51–53, 63–64). The human remains are currently in secure storage at the Office of Archaeological Studies pending final study and Native American consultation. Appendix 1 provides the preliminary description of the skeletal remains. A final disposition plan will be submitted to the Historic Preservation Division for review.

Final Phase I recording included final excavation and stabilization photographs in all formats. A stratigraphic profile drawing of the north face of the 40-m-long trench was completed. A measured map was also drawn showing the extent of the excavation and feature locations, and their relationship to adjacent existing buildings.

PHASE I INITIAL ASSESSMENT RESULTS

The archaeological investigation at LA 111322 was conducted to determine the nature, extent, condition, and data potential of cultural deposits and features. Combined with the archaeological assessment was an architectural stabilization project focused on the foundation of the north wall of the Palace of the Governors' patio offices. An initial appraisal of the archaeological investigation is that intact, stratified cultural deposits dating from 1610 to 1912 exist and that there is a strong possibility that these deposits extend north into the Museum Administration Building parking lot. The architectural stabilization was successfully completed with a 40-m-long concrete and rebar-grade beam installed below the 1867 foundation of the patio offices. The following is a preliminary summary of the results of the archaeological investigation.

The Geophysical Survey

The geophysical survey was conducted by David Hyndman and Patricia Maples of Sunbelt Geophysics, Inc., of Albuquerque. The goal of the study was to identify magnetic and conductivity anomalies, and then determine if the anomalies could represent archaeological features and deposits or modern and recent disturbances. The geophysical study was completed for the entire project area, but this summary will only present the Phase I findings. A copy of the report is provided as Appendix 2.

Pertinent to Phase I was the potential for archaeological anomalies within the 120-sq-m area. Figure 3 (in Appendix 2) shows the processed results for the EM-61 metal HH (15 cm antenna) detection survey. Most evident are the linear anomalies that represent utility lines near the surface. Figure 4 (in Appendix 2) shows the EM-61 (1-m coil) response and the continued masking effect of the buried utility lines. These were identified as communication cables, a water line, an electric line, a gas line, and a discontinued sewer line. Figure 6 (in Appendix 2) shows the EM-38 conductivity and EM-61 HH contours. Again the major anomaly results from the interference of buried utility lines.

The geophysical survey for the Phase I area did not provide useful information on archaeological deposits. Some buried cables and lines were identified by utility company locators, while others were found early in the Phase I excavation. Clearly, the 3-m-wide corridor with the abundant buried lines was too narrow to effectively use the three instruments. Due to signal dispersion caused by high soil moisture content, ground penetrating radar was not considered for this project.

The Excavation Results

The Phase I excavation was sequenced, facilitating the stabilization effort. This staged strategy resulted in the placement of a 40-m concrete and rebar foundation below and tied to the existing foundation. This necessary sequencing meant that excavations could not be expanded into adjacent units to investigate features, strata, and anomalies as they were encountered. Instead, the exposed portion of the feature or deposit was excavated and recorded, and the remainder addressed when the adjacent unit could be excavated. Occasionally, this resulted in misinterpreted strata or delayed identification of features, but typically, these recognition problems were solved through subsequent stratigraphic examination or the eventual excavation of the adjacent unit.

Excavation proceeded systematically with almost full recovery of all artifacts from deposits that had not been mixed by utility line installation or recent construction. Early excavations relied

on arbitrary levels for control, later phases proceeded according to the stratigraphic sequence. As originally proposed, an 80-sq-m area was to be excavated to a depth of 130 cm. Because of the abundant artifacts, the stratified architectural features, and many large superimposed pit features from different eras, work progressed more slowly than expected. Instead of the anticipated ten weeks, the project lasted almost eighteen weeks. Within the 80-sq-m area that was originally slated for excavation, 41.5 units were excavated, of those 10 were excavated below the deepest cultural material-bearing level, which ranged from 1.20 to 1.90+ m below the initial excavation level. In all, 65.5 cubic m of soil were screened, 1,256 cobbles were measured and weighed, and over 195,000 artifacts were recovered along with a large number of charcoal and wood, adobe and mortar, and mineral and ore samples.

Because this is an interim report, the excavation results will be presented as brief descriptions, draft graphics, summary tables, and photographs. Feature descriptions are provided in Table 1. Figure 3 is an excavation map showing feature locations. Figure 4 is a representative stratigraphic profile of the area from 99N/128E to 99N/136E. These graphic and tabular data sources are referred to throughout the following description of results. The results will be presented by occupation periods as follows: pre-contact and protohistoric (A.D. 1200 to 1609); early Spanish Colonial (A.D. 1610 to 1680); Pueblo Revolt (1680 to 1692); Reconquest, middle to late Spanish Colonial (1693 to 1791); Spanish Colonial Presidio (1791 to 1821); Mexican period (A.D. 1821 to 1846); and American Territorial period (A.D. 1846 to 1912).

Precontact and Protohistoric Periods (A.D. 1200 to 1609)

Deposits or features from pre-contact and protohistoric (A.D. 1200 to 1609) periods were expected to be found below the deepest early Spanish Colonial levels. Across the excavation area, potential pre-contact and protohistoric levels ranged from 1.10 to 1.40 m below the initial excavation surface. Artifacts from the Prehispanic period were found in a silty loam that was consistent with low-energy flooding of the Rio Chiquito, Santa Fe River, and Arroyo Mascaras. This alluvial deposit ranged from 0.60 to 1.0 m thick in our excavation and it may extend to a greater depth because it was at our lowest excavation depths, which ranged from 1.30 to 1.90 m deep. Typically, arbitrary 10-cm levels within this alluvial deposit (Strata 11, 13, and 17) contained fewer than 20 artifacts from multiple Prehispanic periods. Santa Fe Black-on-white, Biscuit A and B, and glaze paint pottery were the primary decorated wares. Indented corrugated and smoothed micaceous plain wares were the common utility wares. Flaked and ground stone artifacts and animal bone were less common. The low frequency of Prehispanic materials is consistent with terminal excavation deposits identified at the Museum of Fine Arts (Post and D. Snow 1982) and initial excavations by D. Snow in and around the Palace of the Governors in 2000. Prehispanic period pottery was recovered from many later contexts, but in low numbers, reflecting the use of early deposits in construction materials, site fill, and other architectural and construction activities. Prehispanic-era artifacts reflect long-term ancestral Puebloan occupation of the downtown area with known room blocks located on top of Fort Marcy Hill, under the current city hall, under the San Miguel Chapel, and apparently along and east of Guadalupe Street (Deyloff et al. 2003). Room blocks may have formed a spatially dispersed, but culturally and ethnically related community.

Early Spanish Colonial Period (A.D. 1610 to 1680)

Early Spanish Colonial deposits, features, and artifacts were encountered throughout the excavation area as predicted in the research design. Unexpected was the extent and diversity of the deposits and features. These stratified associations indicate early Spanish Colonial contexts will be encountered north of the excavation area during the Phase II excavations. Four features and two spatially discrete deposits have materials that can be dated by the associated pottery to the early Spanish Colonial period.

Table 1. LA 111322 Feature Descriptions

Feature No.	Description	Grid Location	Elevations (mbd)	Dimensions (m) (Length x Width x Depth)	Time Period	Comments
1	Trash Pit	99-100N/103-104E	9.35 to 9.21	1.00 e-w x 0.84 n-s x 0.26 to 0.40	Territorial-Statehood	Re-deposited refuse
2	Posthole	99N/104E	9.49 to 9.04	0.16 e-w x 0.16 n-s x 0.45	Territorial	Located against the north wall of Palace building
3	Posthole	99N/100E	9.43 to 8.66	0.25 e-w x 0.25 n-s x 0.88	Territorial	Wood beam with plaster and nails
4	Posthole with wooden telephone pole	99N/112E	9.47 to 9.07	Hole: 0.24 n-s x 0.20 e-w x 0.40; Post: 0.65 length x 0.26 diam.	Territorial-Statehood 1911?	Telephone poles and lines were installed at the Palace in 1911
5	Wood post	99N/112E	9.46 to 9.36	Hole: 0.14 n-s x 0.06 e-w x 0.10; Post: 0.36 length x 0.11 diam.	Territorial	Located 0.10 cm from Palace wall, possible garden fence post or veranda roof support
6	Trash pit	100N/108E	9.53 to 8.87	1.5 n-s x 1.5 n-s x 0.65 to 0.80	Territorial	Filled with burned and unburned artifacts and a partial animal carcass
7	Cobble foundation (see text)					
8	Posthole with wooden post	99N/120E	9.68 to 9.02	Hole: 0.22 n-s x 0.16 e-w x 0.66; Post: 0.88 length x 0.15 diam.	Territorial	Possible fence post located near Palace wall
9	Cobble alignment/cross wall	99N/127-128E	9.25 to 9.04	1.50 n-w x 0.50 e-w x 0.21	Historic	Construction debris
10	Cobble alignment/cross wall	99-100N/120E	8.95 to 8.20	1.70 e-w x 0.60 n-s x 0.50 to .75	Late 18th or early 19th century	Adjacent to Fea. 7 cobble foundation
11	Charcoal stain/pit	99N/128E	8.95 to 8.86	0.48 n-s x 0.32 e-w x 0.09	Late 18th or early 19th century	Amorphous stain/pit with abundant charcoal, bones, sherds, and wood fragments
12	Trash pit/dump	99N/114-115E	9.36 to 8.05	1.00 n-s x 0.25 e-w x 1.31	Territorial	Copious amounts of mixed artifacts with complete glass bottles
13	Cobble alignment/cross wall	99N/101E	9.44 to 9.21	1.00 n-s x 0.40 e-w x 0.23	Territorial	Adjacent to Fea. 7 cobble foundation
14	Cobble alignment/cross wall	99N/98E	8.96 to 8.19	1.00 n-s x 0.75 to 0.87 e-w x 0.68 to 0.77	18th century	Adjacent to Fea. 7 cobble foundation
15	Cobble alignment/cross wall	99N/113E	8.99 to 8.44	0.75 n-w x 0.60 e-w x 0.55	18th century	Adjacent to Fea. 7 cobble foundation
16	Corner hearth	99N/98-99E	8.89 to 8.52	0.52 n-w x 0.30 e-w x 0.37	Unknown	Located in the corner of Fea. 7 cobble foundation and Fea. 14 cobble cross wall
17	Trash pit	99N/103 to 106E	9.13 to 8.03	3.05 e-w x 0.90 n-s x 1.10	Territorial	Previous cellar (?) filled with Territorial trash, complete bottles recovered
18	Roof fall/burned wood	99N/121E	8.48 to 8.42	1.10 e-w x 0.50 n-s x 0.06	17th century	Mass of burned latilla fragments and twigs, possible ramada roofing

Table 1. Continued.

Feature No.	Description	Grid Location	Elevations (mbd)	Dimensions (m) (Length x Width x Depth)	Time Period	Comments
19	Cobble foundation (see text)					
20	Posthole	99N/98E	8.42 to 8.40	0.12 n-s x 0.12 e-w x 0.02	Unknown	Adobe melt directly below posthole
21	Military cobble wall	98N/105-110E	105E: 9.20 to 8.10; 106E 9.29 to 8.03; 107E: 9.36 to 8.13; Mean: 9.27 to 8.08	1.25 ht x 5.00 wdt x 0.50 depth (more cobbles behind the 50 cm of excavated cobbles	19th century (1867)	Continuous cobble foundation or wall; possible basement of vault
22	Cobble cross wall	99N/106E	9.41 to 9.56	0.95 n-s x 0.30 e-w x 0.15	Territorial	Cobble wall extending n-s from patio office building; possible belltower foundation
23	Adobe foundation or fragmented wall	98-99N/133E	8.58 to 8.64	0.53 n-s x 0.25 e-w x 0.06	Unknown	Adobe bricks embedded in bottom of Stratum 29
24	Trash pit	98-99N/126-127E	9.20 to 8.30	1.14 e-w x 0.54 n-s x 0.90	Territorial	A large pit, probably dug out with picks and shovels, well-defined walls
25	Cobble cross wall	99N/106-107E	8.97 to 8.41	0.90 n-s x 0.66 e-w x 0.56	18th century	Adjacent to Fea. 7 cobble foundation
26	Hearth	99N/134 E	9.09 to 8.97	0.16 n-s x 0.34 e-w x 0.12	17th century (late)	Cobbles and oxidized adobe hearth filled with burned seeds, tubers, and grasses
27	Pit	99N/119E	9.60 to 8.57	0.85 e-w x 0.40 n-s x 1.03	Territorial	Filled with unused plaster or mortar, covered with adobe and cobble backfill
28	Thermal feature	99N/119E	8.64 to 8.56	0.55 e-w x 0.35 n-s x 0.08	Pueblo Revolt	Rectangular-shaped charcoal mass, possible roof fall, possible continuation of Fea. 18
29	Posthole	99N/135E	9.28 to 8.97	0.10 n-s x 0.08 e-w x 0.31	Unknown	Feature appears to be filled with Stratum 5 soil
30	Wooden post with posthole	99-100N/127-128 E	9.23 to 9.03	Post: 0.18 ht x 0.07 diam; Hole: 014 n-s x 0.12 e-w x 0.20	Territorial	Located approx. 80 cm north of Palace wall, a possible garden fence post or veranda support
31	Posthole	99N/99E	9.24 to 8.70	0.17 n-s x 0.14 e-w x 0.54	Territorial	Fence or ramada support (?)
32	Posthole	99N/123-124E	8.88 to 8.50	0.25 n-s x 0.25 e-w x 0.38	Territorial	Fence post (?)
33	Feature voided					
34	Thermal feature	98-99N/107E	8.58 to 8.30	0.55 e-w x 0.45 n-s x 0.28	18th century	Located below Fea. 7 cobble foundation, slag in fill

Table 1. Continued.

Feature No.	Description	Grid Location	Elevations (mbd)	Dimensions (m) (Length x Width x Depth)	Time Period	Comments
35	Pit	98-99N/115E	8.98 to 8.15	0.60 n-s x 0.30 e-w x 0.83	18th century	Hafted ground-stone, mano, large numbers of butchered animal bones, majolica sherd
36	Wood post	99N-130-131E	9.26 to 9.14	0.12 n-s x 0.11 e-w x 0.12	Territorial	Located directly under Palace patio office wall, wood disintegrated
37	Cobble cross wall	100N/124E	9.28 to 9.05	1.00 n-s x 0.40 e-w x 23	Territorial/Late Spanish Colonial	Adobe melt northwest of cobble alignment
38	Trash pit	100N/120 E	9.41 to 9.05	1.00 n-s x 0.70 e-w x 0.36	20th century	Abundant metal, thick window glass, light bulbs, test tubes, assay cups, and a copper weight in fill
39	Posthole	100N/132 E	9.75 to 9.20	0.18 n-w x 0.l8 e-w x 0.55	Modern	Possible drill hole #10
40	Smelter	99N/120E	8.10 to 7.96	1.20 e-w x 0.80 n-s x .0.09	Early Spanish Colonial	Compacted ash, slag, burned animal bones, black utility wares in fill
41	Pit	99-100N-121-122E	8.95 to 8.22	Length unknown, 0.85 width x 0.73 depth	18th century	Identified in north wall profile, to be excavated Summer 2003
42	Pit	99N/101-103 E	8.90 to 8.16	2.34 n-s x 1.00 e-w x 0.60 to 1.34	Unknown	Artifacts from fill: PIV mano fragments, stone tools, bones, and early 1600s to 1700s sherds
43	Pit	100N/129E	9.50 to 8.68	n-s not excavated in 100N x 0.20 e-w x 0.82	Unknown	Feature is visible in 100N south wall, to be excavated in summer of 2003
44	Pit	100N/133E	9.64 to 8.98	n-s not excavated in 100N x 0.57 e-w x 0.66	Unknown	Feature is visible in 100N south wall, to be excavated in summer of 2003

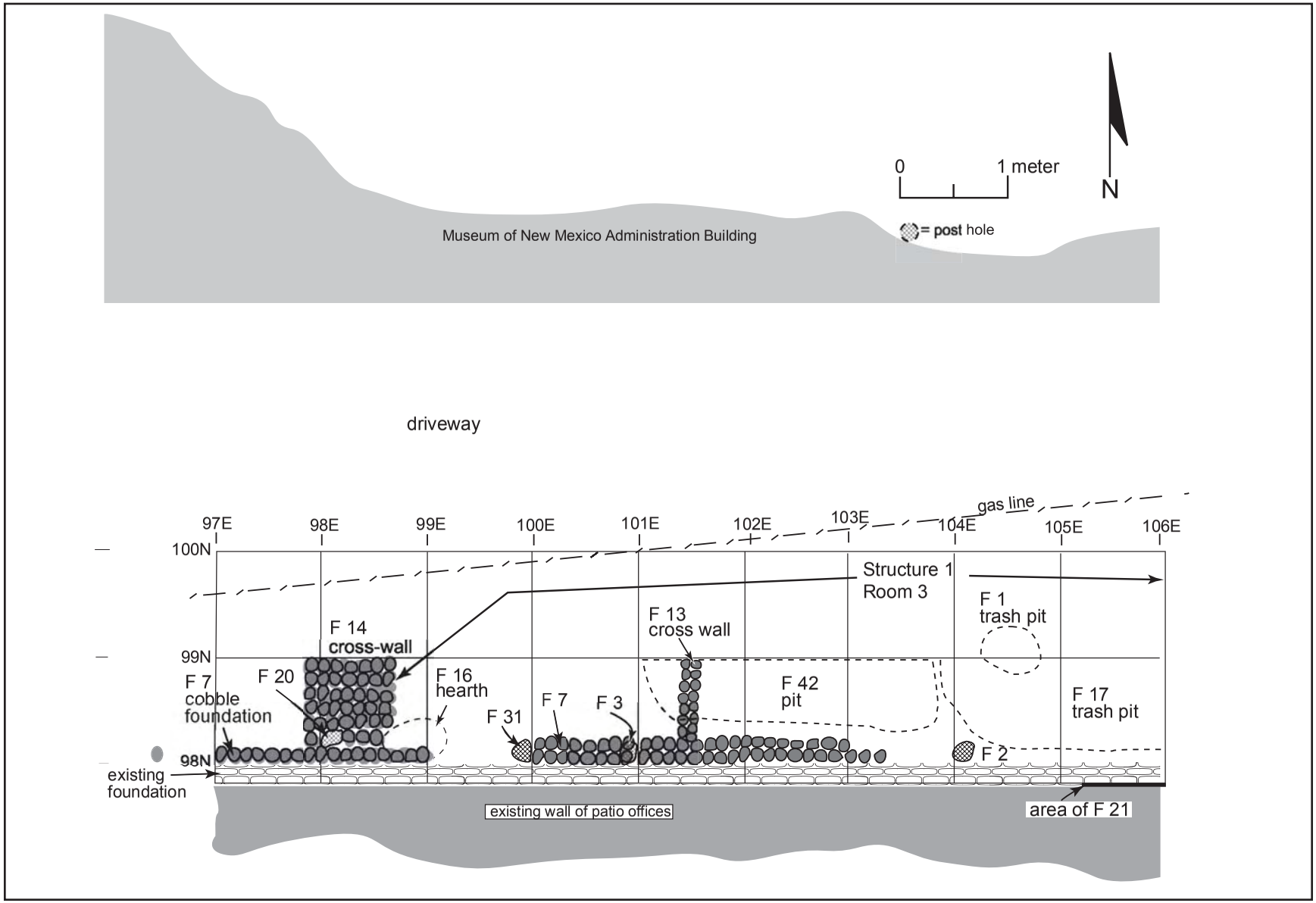

Figure 3a. LA 111322 excavation map.

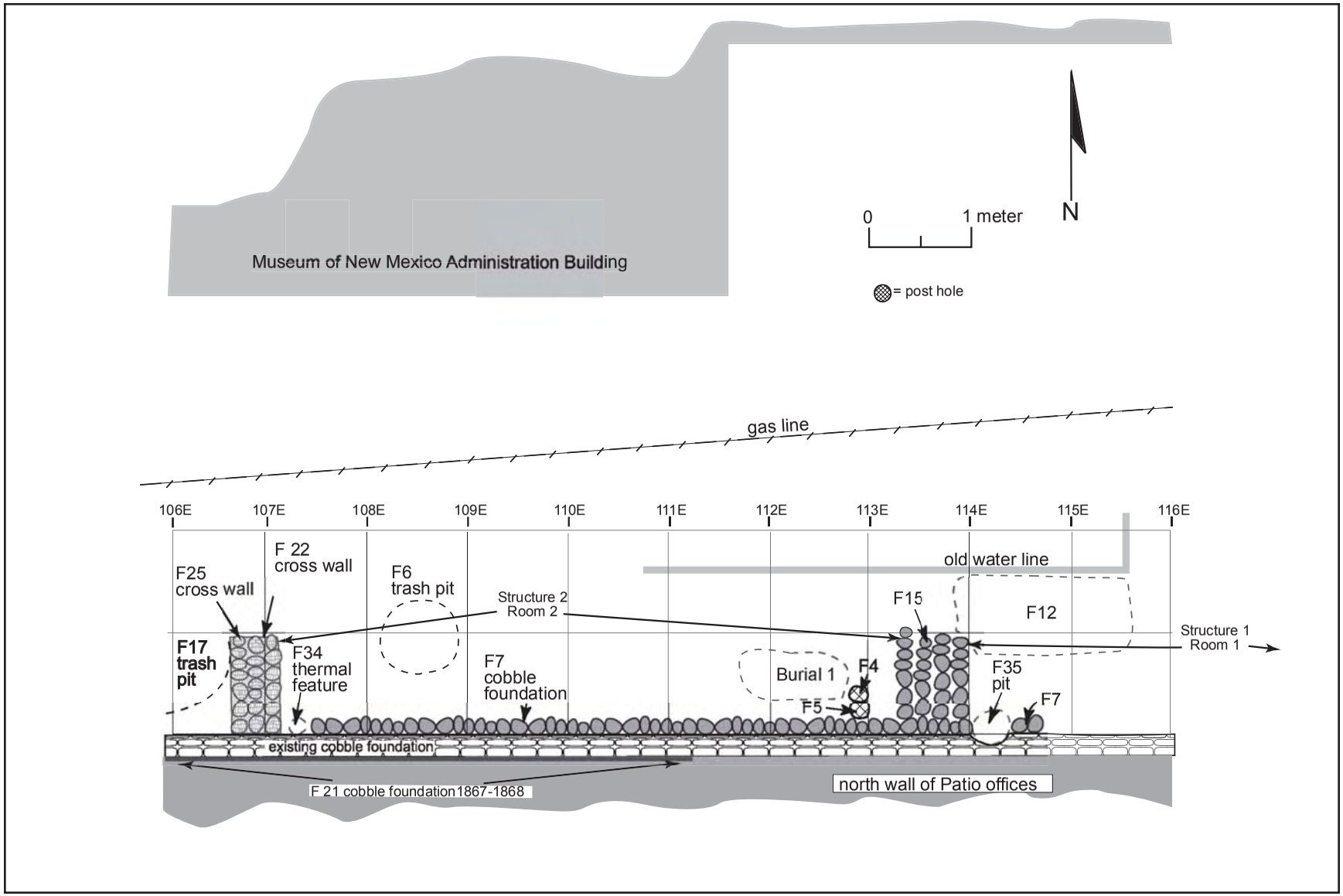

Figure 3b. LA 111322 excavation map.

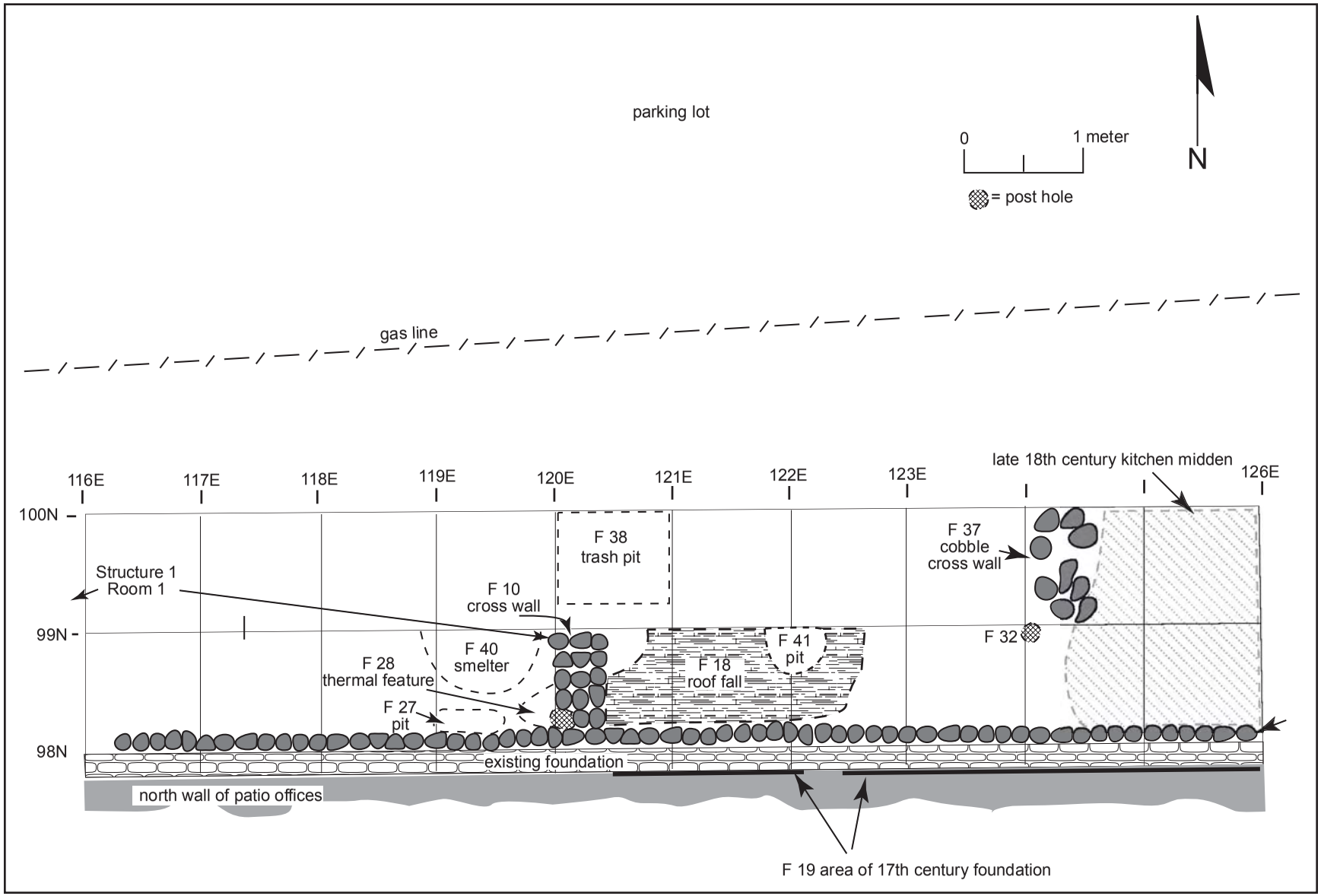

Figure 3c. LA 111322 excavation map.

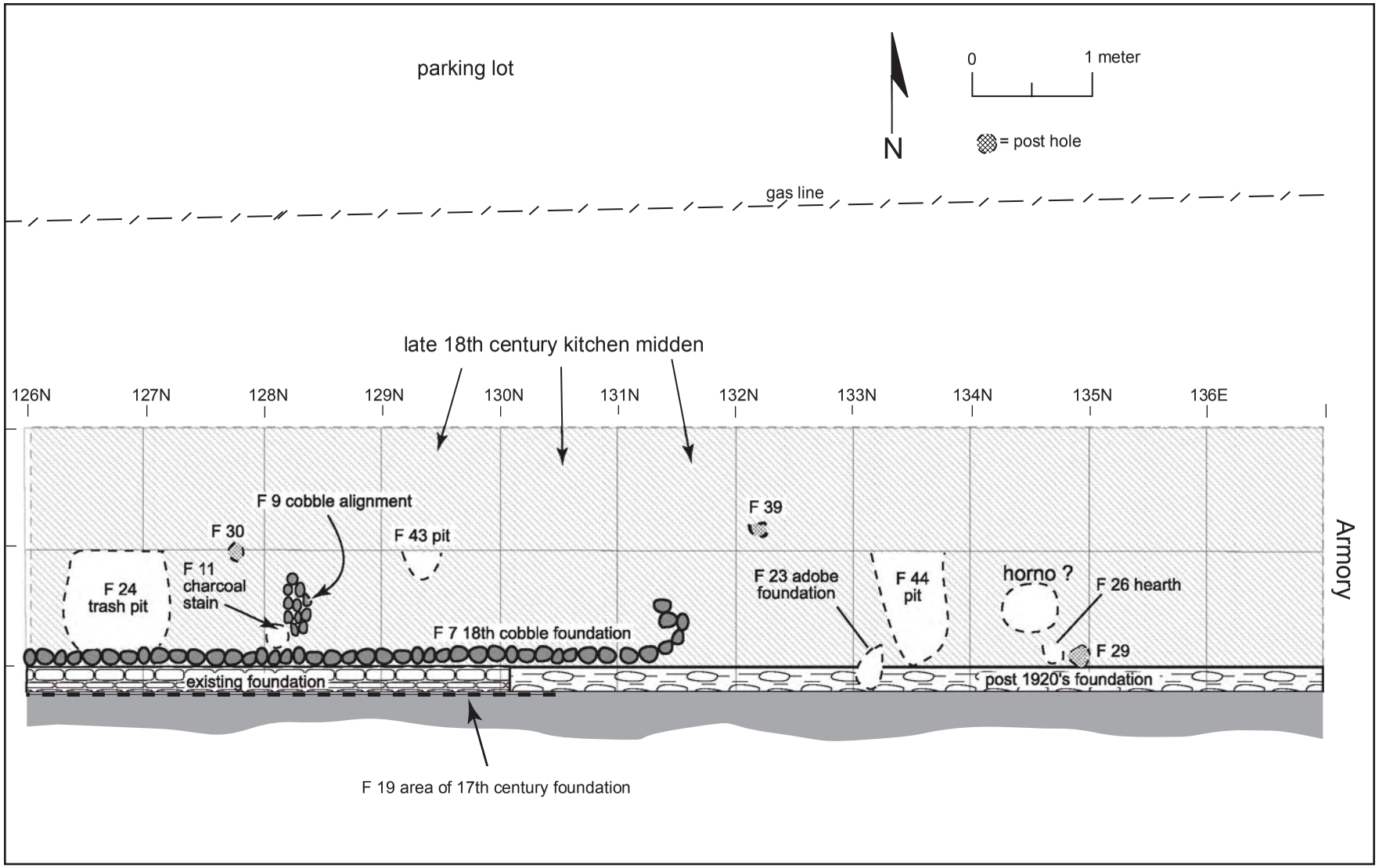

Figure 3d. LA 111322 excavation map.

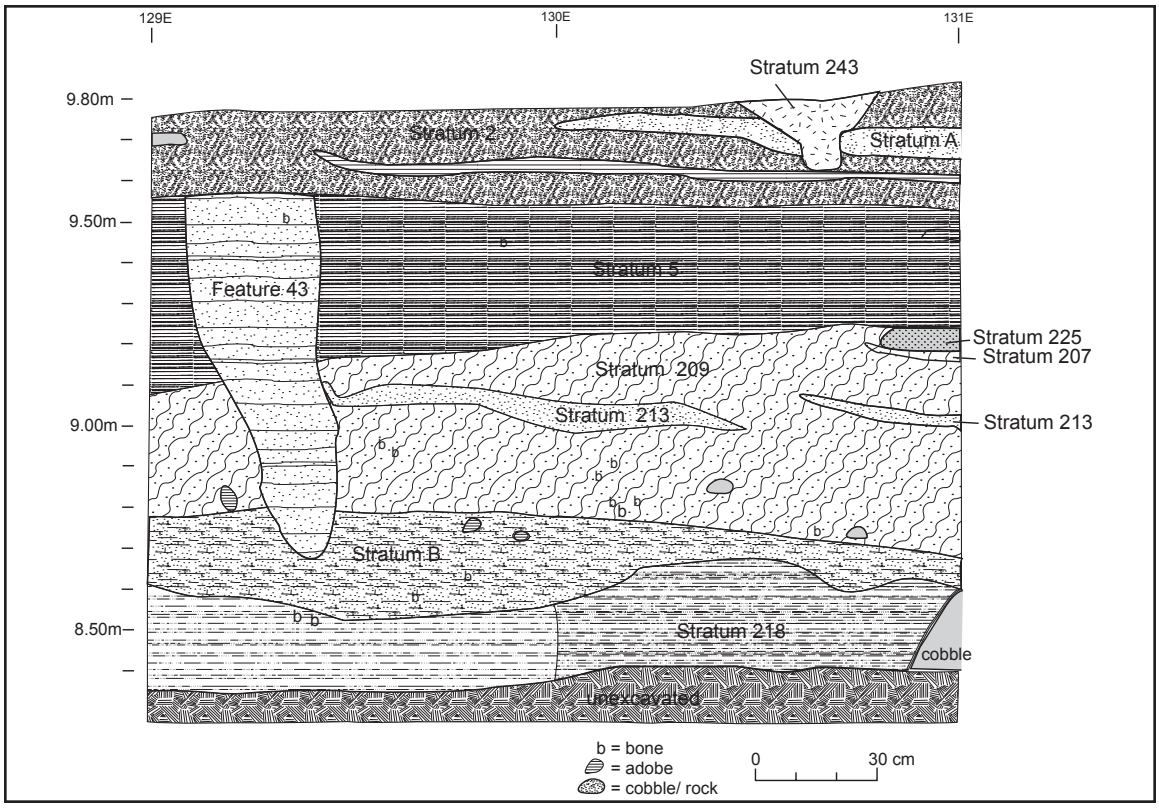

Figure 4a. North wall profiles of LA 111322, 99N/129E-130E.

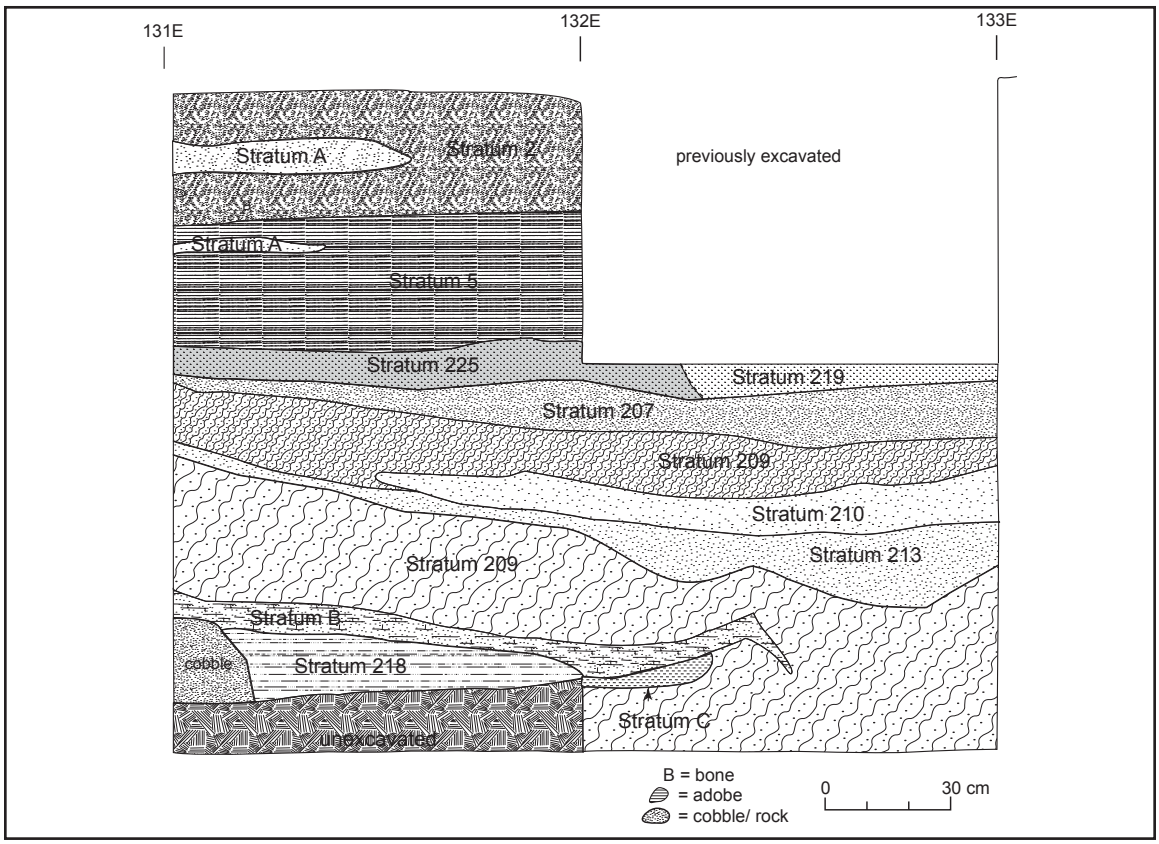

Figure 4b. North wall profiles of LA 111322, 99N/131E-132E.

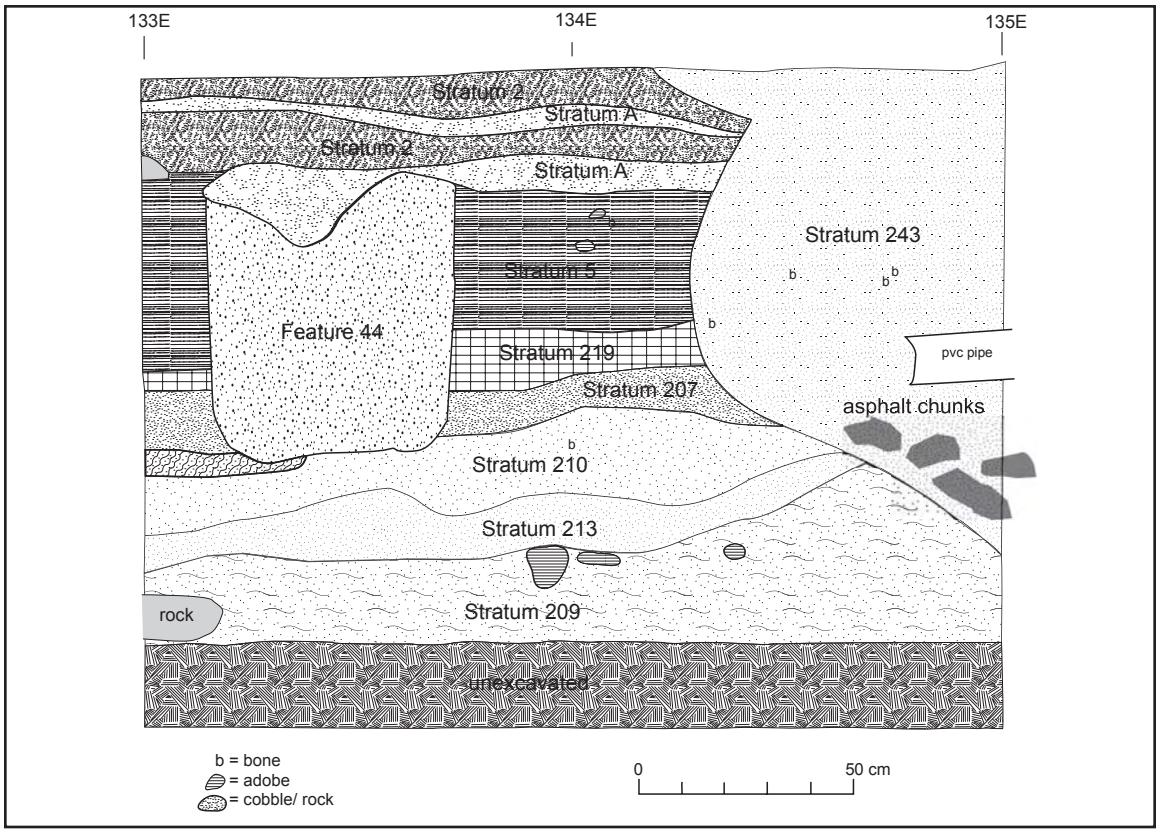

Figure 4c. North wall profiles of LA 111322, 99N/133E-134E.

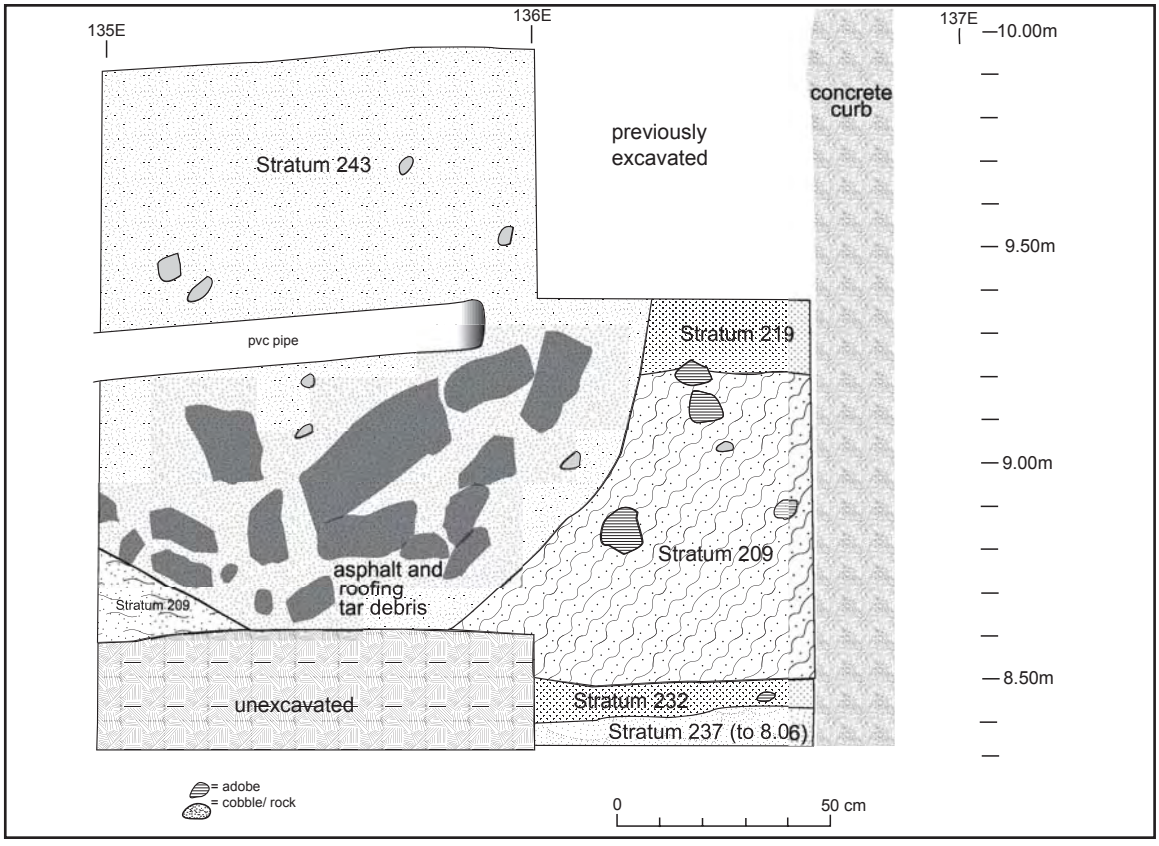

Figure 4d. North wall profiles of LA 111322, 99N/135E-136E.

The largest and most evident feature was the massive cobble foundation (Feature 19) exposed beneath the Palace patio office building at an 8.48 m to 8.18 m elevation or 1.10 to 1.50 m below the starting excavation level. The Feature 19 foundation segment was 12 m long from east to west (Fig. 3c, d). The east and west ends were unfinished or ragged suggesting that the wall or building was demolished and partly salvaged. The cobbles occur in one to four courses and two to three rows for a height ranging from 15 to 35 cm and a width of 50 to 75 cm. The actual width could not be determined because the foundation extended south beyond the excavation area under the patio offices. The cobbles were mortared and the mortar was almost indistinguishable from the enveloping matrix. A total of 156 cobbles were weighed and measured. An example of Feature 19 is shown in Figure 5.

Feature 19 was at least partially excavated into an existing cultural material-rich substratum. The upper 15 to 25 cm of this stratum (Stratum 13) contained varying frequencies of early historic and late Prehispanic ceramics. From 119 to 128E, the higher artifact frequencies resembled a sheet trash deposit consisting of ceramics, chipped stone, and bone. The initial interpretation is that Feature 19 was excavated into and constructed on top of a preexisting early 1600s deposit. The presence of the sheet trash deposit (Stratum 13) suggests that the open space behind the initial northern Casas Reales buildings was used as a garden and the refuse used as mulch or compost. The refuse is primarily from domestic activities as represented by storage, cooking, and service-consumption vessels. Stratigraphic positioning dictates that Stratum 13 predates the Feature 19 foundation.

Another 1600s refuse deposit was identified in the 99N/97–100E area. This lower layer contained a predominance of glaze-painted and late Biscuit ware or early Tewa series pottery. Marked increases in frequency suggest episodic dumping rather than the sheet accumulation seen with Feature 19. The relative age of this deposit and Stratum 13 in 99N/119E to 128E is not known. Detailed ceramic analysis may provide clues to the temporal sequence.

Two early Spanish Colonial features could be related to metallurgical activities. Association with metallurgy is based on the recovery of metal slag from primary contexts. Metal slag was recovered from other early Spanish Colonial contexts, but could not be associated with a specific feature. Each metallurgy feature is unique for this project.

Feature 34 was exposed below the eighteenth-century foundation (Feature 7) in 98–99N/107E (Fig. 6). Its position below Feature 7 indicated that it predated the foundation construction. Artifacts recovered from Feature 34 did provide a more reliable date. However, an archaeomagnetic sample was collected from the oxidized feature rind. Feature 34 is morphologically different from other metallurgy features reported from early Spanish Colonial contexts in northern New Mexico. The pit profile was U-shaped. The sandy-clay feature interior was oxidized, forming a 2-cm-thick rind. The lower 12 cm of pit fill was stratified ash and charcoal containing small slag fragments. Feature dimensions were 55 cm long, 45 cm wide, and 28 cm deep. The feature was excavated into Stratum 11, which was interpreted as a Prehispanic occupation stratum. Other recently reported small-scale Spanish Colonial metallurgy features have been large oval basins, such as those reported at Comanche Springs (Ramenofsky 2002).

Feature 40 was encountered in 99N/119–120E. It was excavated into Stratum 11 and capped by Stratum 13 (the seventeenth-century sheet trash deposit). At an elevation of 8.10 m, the top of Feature 40 was 10 cm below the bottom of Feature 19, the early Spanish Colonial foundation. The large, shallow, oval-shaped pit had an irregular bottom covered with a thin layer of ash (Fig. 7). It measured 120 cm long (north-south) by 80 cm wide by 4 to 9 cm deep. The width is a partial dimension because the feature extended north into 100N/120E. One piece of slag and two burned cobbles contacted the feature bottom. The feature fill was difficult to distinguish because it had been mixed with Stratum 13. Interestingly, Stratum 13 from the immediate area yielded five pieces of metal slag that may be associated with feature use. This simple open pit form is similar to the Comanche Springs features (Ramenofsky 2002), but Feature 40 is not oxidized. Based on strati-

Figure 5. Feature 19, early Spanish Colonial foundations (lower) and Feature 19, middle Spanish Colonial foundation (middle), and 1867 foundation (upper).

Figure 6. Feature 34, metallurgy feature partly excavated and in profile.

Figure 7. Feature 40, open pit metallurgy feature and ash lens.

graphic position, Feature 40 is the oldest early Spanish Colonial feature found during the excavation. It predates the Feature 19 foundation and the Stratum 13 sheet trash deposit. It is excavated into a noncultural material-bearing layer, marking the beginning of the historic occupation. While an absolute or reliable date is unavailable, it is likely that the feature dates to the first half of the 1600s.

A third feature was actually a burned wood, oxidized sand and silty layer that was on a surface equivalent to the top of the Feature 19 foundation, postdating the foundation construction. Feature 18 was at least 110 cm long (east-west) by 50 cm wide (north-south; a partial measurement) by 6 cm thick. It was described as a mass of burned latilla fragments and twigs. The wood was capped by a layer of soil that was impregnated with Coalition period pottery. The early date of the pottery suggests that soil from a Prehispanic period sheet trash deposit was used to cover the roof. This feature was surrounded by Stratum 13, but the mixed ceramic assemblage makes it difficult to assign a date. This is the only architectural feature from the 1600s that was burned and it likely dates to the latter half of the century.

Artifacts from the 1600s were primarily Pueblo-made pottery and butchered domestic animal bone. From Stratum 13, an estimated 3,400 artifacts were recovered. The Pueblo-made pottery is a combination of colonial wares and utility wares. Glaze-paint pottery represents the Keres and Tano production areas south of Santa Fe and late Biscuit ware or early Tewa series pottery represents the Tewa production areas to the north. Colonial wares, such as soup plates and bowls, plates, and a limited variety of specialized forms, including candlestick holders, were found. Utility wares were the common mica-paste varieties found throughout the northern Rio Grande.

The domesticated animal bone minimally includes sheep, goat, cow, and pig. Other species were probably recovered, but reliable field identification was beyond the field project scope. Most of the animal bone was unburned and axe-cut, suggesting food prepared for consumption by

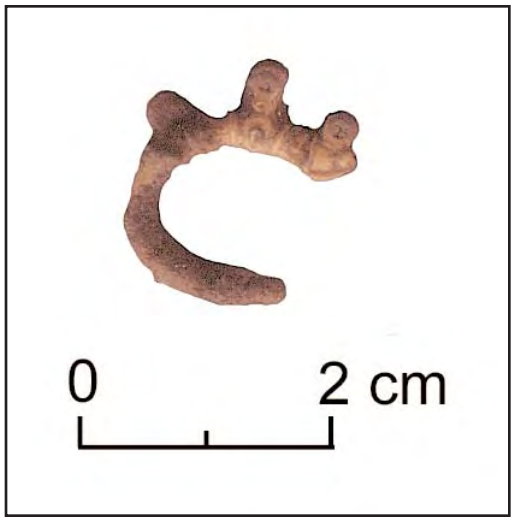

Figure 8. Seventeenth-century gold ornament.

Spanish residents. Food may have been prepared by Pueblo or other Indian servants, or by Mexican-Indian servants, depending on how early in the occupation the deposits were formed. Metal artifacts were highly corroded and difficult to identify. The low frequency of metal artifacts is typical for secular sites in the Santa Fe area. However, mission sites have yielded a wider array and volume of metal artifacts, suggesting that access to imported goods was uneven. One item of particular interest is a small gilded ornament or piece of jewelry. This unique artifact was recovered from Stratum 13. Currently, the piece is being cleaned and conserved. Initial identification suggests that it may be an animal figure from the eastern Mediterranean sea, perhaps from a Persian or Moorish source (Fig. 8).

Imported ceramics, like the metal artifacts, were very rare. Pieces of Puebla polychrome and bichrome majolica were identified, but most of the pottery remains unidentified pending detailed laboratory analysis. Seventeenth-century majolica was commonly found during excavations in 1974–1975 (Seifert 1979); about 380 sherds were recovered and classified. As analysts sort through various classes of material, it is probable that more majolica will be found.

For the early Spanish Colonial period, the research design hypothesized that architectural and material cultural data would be recovered and this was the case. Architectural data will be used to examine the historical aspects of Palace architectural transformation leading up to the Pueblo Revolt of 1680. The material cultural data will be used to examine changing social and economic interaction and organization as church, state, and Native American groups and institutions competed for access to the economic centers of New Spain in an environment of limited and unpredictable resources. The data recovered during Phase I excavations will be used to address these research issues and it is likely that Phase II will provide additional data with which to examine early Spanish Colonial settlement of Santa Fe and New Mexico.

Pueblo Revolt Period (1680 to 1692)

At the outset it can be stated that cultural features or deposits from Pueblo Revolt period were not encountered. This may be partly because differentiating between Pueblo Revolt and early Spanish Colonial materials can be difficult. It is likely that Pueblo Revolt period materials were present, but were in mixed contexts and could not be recognized in the field. Detailed analysis may result in the identification of Pueblo Revolt period materials and Phase II excavation may encounter Pueblo Revolt materials or features as more area is examined.

Reconquest/Middle to Late Spanish Colonial Period (1693 to 1760 or 1791)

Immediately after Don Diego de Vargas, his soldiers, and colonists returned to Santa Fe, they moved into the Casas Reales modified and inhabited by Tano Indians during the Pueblo Revolt. According to translated accounts, there was friction between Vargas and his replacement governor Don Cubero regarding the rehabilitation of the Casas Reales. The apparently substantial and relatively habitable pueblo/Casas Reales, which consisted of multistoried buildings surrounding two plazas were demolished by Don Cubero and replaced with structures that Vargas criticized as inferior (Shishkin 1972; C. T. Snow 1993a). The implication is that Cubero substantially razed the

existing buildings and constructed new ones.

In 1708, the Duke of Albuquerque ordered Governor José Chacón to tear down the presidial castle in the villa (SANM II:142, in C. T. Snow 1993a:23). C. T. Snow suggests that if the order were followed, substandard replacement buildings were constructed. Part of the Palace may have been two stories high, and by 1715 it was supported by nine buttresses with only one serviceable large room that was used as a chapel (C. T. Snow 1993b). The remaining rooms had crumbling walls that were supported by buttresses and other added supports (SANM II: 253, in C. T. Snow 1993a:24). Other structures mentioned as part of the Palace grounds were a corral, two entrances on the south side of the Palace, a horse-driven flour mill, a coachroom, and a well in the courtyard (C. T. Snow 1993a:24). Other documents indicate that the Palace had two towers, one of which stored gunpowder (SANM II: 169, in C. T. Snow 1993a:24). Critical in this translation is the description of the southern entrance to the Palace from the plaza and the presence of a wide covered passageway that opened into two courtyards housing the bodyguard and the quarters (for the governor?) (Snow 1993a; Shishkin 1972; Twitchell 1925). These interior courtyards were enclosed by buildings to the north. This is the only translated account that specifically mentions the enclosed courtyards and buildings, and therefore is a critical reference to the early eighteenth-century layout of the Palace.

Below the current Palace patio offices' foundation and above the probable seventeenth-century foundation, our excavation exposed a mostly continuous segment of a massive cobble foundation. This massive cobble foundation is currently believed to date to the 1700s and the above-paraphrased description strongly supports the temporal assignment. The foundation appears to be from a wall or building that would have enclosed the inner Palace courtyard in a manner similar to the current layout. Because there were no formal floors or intramural features identified along the length of the foundation, it most probably represents the back or north wall of a building that had its primary access from the south.

The foundation segment spanned 34 m from 97E to 131E. It was typically excavated into deposits that contained late seventeenth-century ceramics. However, this was not consistent along the foundation, indicating that deposits were disturbed or mixed. Feature 7 had a range of course and row configurations: from one course and three rows to three to four courses and at least three rows (Fig. 9). Different configurations reflect intrusions into the foundation by later material borrowing, pit excavation, and basement installation. The cobbles were set in mortar, although differentiating between mortar and footing trench backfill was occasionally difficult. Maximum dimension for the foundation was 40 cm high by 70 to 90 cm wide. A total of 807 cobbles were recorded. They had mean dimensions of 24 cm long by 17 cm wide by 10 cm thick and a mean weight of 9 kg. All were unmodified river cobbles of metamorphic and igneous origin.

During the 1974–1975 excavations (Seifert 1979; C.T. Snow 1974) a long massive cobble foundation similar in size and construction to Feature 7 was exposed in Rooms 1, 5, and 7. It was reportedly used in pre-Pueblo Revolt construction and was reused during subsequent Palace construction between 1693 and 1725. Construction of Feature 7 on top of Feature 19 under the north wall of the Palace patio offices suggests that Feature 19 supported a smaller or lesser building than was appropriate to post-Reconquest construction. Instead of expanding the existing foundation, a new foundation and presumably, a new building was erected. The relatively thin deposit that separated Features 7 and 19 and the homogenized character of the fill suggests a short interval between the demolition and construction and the building site was leveled or prepared. Preparation would have raised the ground level 40 to 50 cm as determined by the height of Feature 7.

Pottery types from Stratum 6 and other strata associated with Feature 7 provide limited temporal resolution because portions of Feature 7's associated strata have been disturbed or replaced with fill and artifacts from later periods. For example from 123E to 131E, late eighteenth- or early nineteenth-century borrow pit activity removed most of the associated soil and replaced it with kitchen debris from that period. Stratigraphic evidence indicates that the building or wall on top

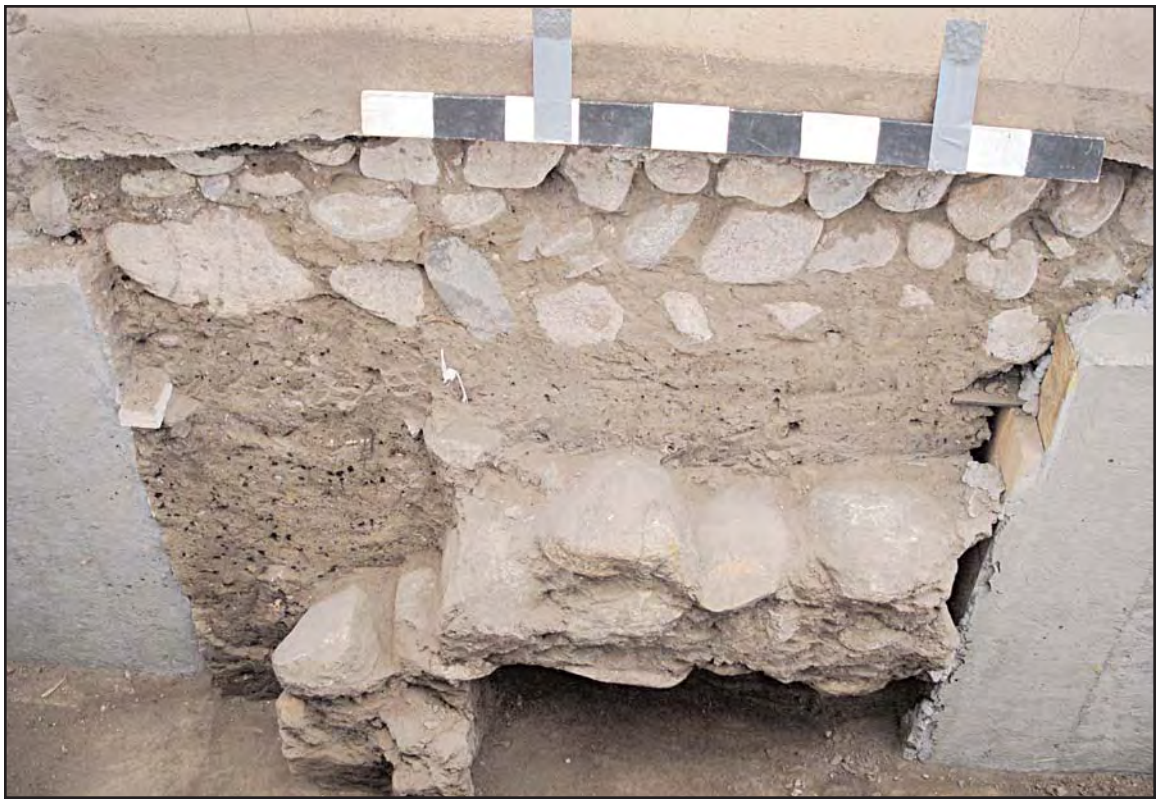

Figure 9. Feature 7, middle Spanish Colonial foundation and 1867 foundation.

of Feature 7 in this area was demolished and removed to the top of the foundation followed by rapid deposition of soil mixed with refuse. In the western site area from 98 to 120E, fill associated with Feature 7 underwent multiple replacement or mixing episodes as the three rooms in Structure 1 were built, used, deteriorated, and demolished. Associated deposits were wholly or partly replaced with adobe block-laden fill mixed with a range of artifacts, primarily dating to the middle nineteenth century. The most intact or potentially reliable deposits occur between 108E and 113E, where Feature 7 was excavated into a deposit containing primarily late seventeenth-century sheet trash and it sits on top of Stratum 11, which marked the base of the historic era strata.

The preliminary interpretation of Feature 7 is that it represents the north wall of a long building that may have been one or two stories high. This building could have been erected between 1693 and 1715. By 1715, the Palace and associated buildings were described as being in poor condition and needing repair. Two governors in 1731 and 1737 claimed to have rebuilt the royal houses and "plaza de armas" during their term (Shishkin 1972). The extent of the rebuilding, remodeling, or renovation is not described. However, it is possible that work on the buildings that enclosed the near Palace courtyard might have been part of these efforts.

In 1766, Jose Urrutia drew a map of Santa Fe (Fig. 10), in which the Palace is portrayed without an enclosed patio, as is implied by the 1715 description. Other buildings in the immediate area show plazas or placitas, while the Palace does not. It seems unlikely that Urrutia would not show a courtyard at the Palace, if one were present, while depicting the surrounding buildings with courtyards. This seems particular unlikely since he was part of a military inspection team. From this indirect evidence, Feature 7 and its superstructure may not have been standing in 1766. It is possible that buildings were in such disrepair that rather than maintain them, they were destroyed. Support for this hypothesis is suggested by the massive midden deposit that occurred from 124E to 136E. This deposit was stratified, and based on field observation, may have middle nineteenth-

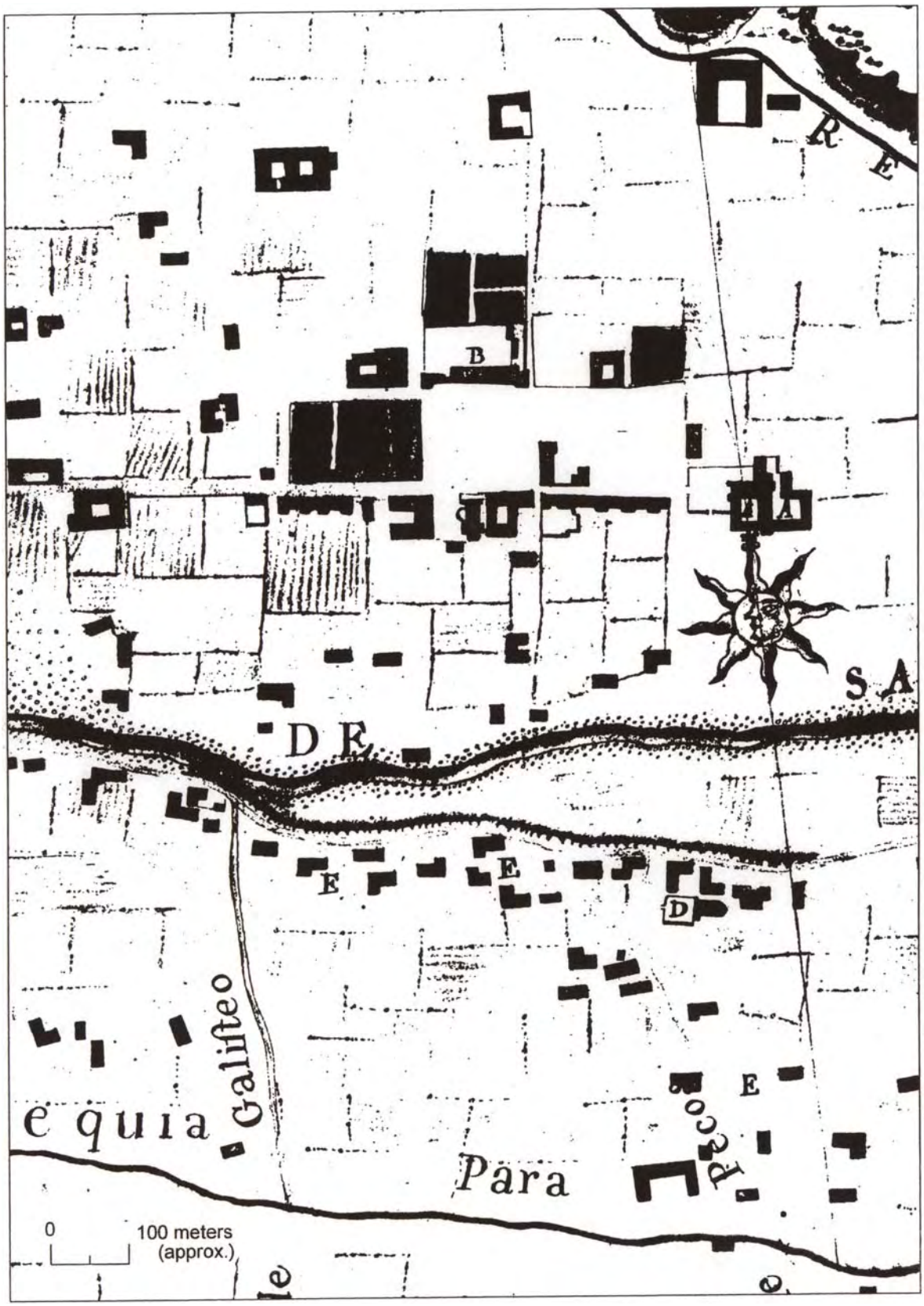

Figure 10. Urrutia map of 1766 (B marks location of the Palace of the Governors).

century pottery in the upper levels and late eighteenth-century pottery in the lower levels, suggesting that it began to accumulate about the same time that the presidio was built in 1789–1791. Feature 7 was partly dismantled and capped by the stratified midden. One possible explanation is that this area was used for material borrow during the presidio construction and the large pit that remained was used as a dump by the cooks and workers of the Palace.

Therefore, based on ceramics, stratigraphic relationships, the Urrutia map and translated documents, it is probable that Feature 7 foundation remains from a building that was erected by 1715, and was mostly demolished by 1766. If it was the building described in 1715 then it housed military personnel and supported activities of the government and the governor. Thorough demolition of the building and site preparation and construction in the late 1860s have contributed to the lack of construction debris that can be directly attributed to the building. These same activities have obscured old living surfaces that formed outside the building.

Other features from the middle to late Spanish Colonial period were not positively identified. One large pit feature identified in the north profile wall of the excavation contained artifacts that were predominantly from the eighteenth century. Feature 41 was at least 0.85 m wide and 0.73 m deep with steep walls and a relative flat bottom. It may have been a borrow pit, but does not appear to have been a trash pit based on artifact frequencies. For all periods, the function of undifferentiated pits is difficult to identify. Phase II excavations may yield a larger sample of large pits from which functional inferences can be made based on analogy, stratigraphy, content, and morphology.

Artifacts from the 1700s were primarily Pueblo-made pottery sherds and butchered domestic animal bone. From Stratum 6, an estimated 3,400 artifacts were recovered. The Pueblo-made pottery is a combination of colonial wares and utility wares. Glaze-painted pottery rapidly declines early in the century with a change to almost all matte-paint decorated wares and variable frequencies of polished, plain, and micaceous utility wares later in the 1700s. Vessel forms continue to be dominated by colonial ware soup plates, bowls, and plates. Also, there is an increase in large bowls and jars, presumably used in dough-making. Spindle whorls were made from large worked sherds. Typically, they are made from polished wares, rather than decorated or micaceous pottery.

The domesticated animal bone minimally includes sheep, goat, cow, pig, turkey, and fish. Other species were probably recovered, but could not be reliably identified in the field. Most of the animal bone was unburned and axe-cut, suggesting food prepared for consumption by Spanish residents and servamts.

Metal artifacts were typically highly corroded and difficult to identify without additional cleaning. Metal artifacts continue to occur in low frequency, but are more abundant than from the 1600s contexts. There is also a wide distribution of small quantities of slag and raw ore, suggesting more metalworking in the open space behind the Palace during the 1700s.

Research directions for this period focused on the configuration and uses of space at the Palace of the Governors and the mechanics and processes of local and regional economic interaction. From Phase I excavations it is clear that a range of questions relating to spatial organization and socioeconomic interaction can be addressed, and perhaps, that there is potential for subdividing the period between 1693 and 1791 into finer-grained temporal units. The construction of the 1700s foundation, its demolition, and the formation of a large midden at the east end of the excavation are strong indicators of change in spatial organization. The back of the Palace apparently went from a fortified enclosed courtyard, to a dilapidated or crumbling multipurpose outbuilding to being demolished and the space coopted for other Palace domestic and maintenance activities. During the 1700s there was a considerable accumulation of refuse-rich soil that may reflect various construction and renovation activities and the maintenance of a garden or agricultural field. This refuse-rich deposit should provide data on local and economic regional interaction. This sheet trash deposit combined with the late 1700s to middle 1800s stratified kitchen midden will provide

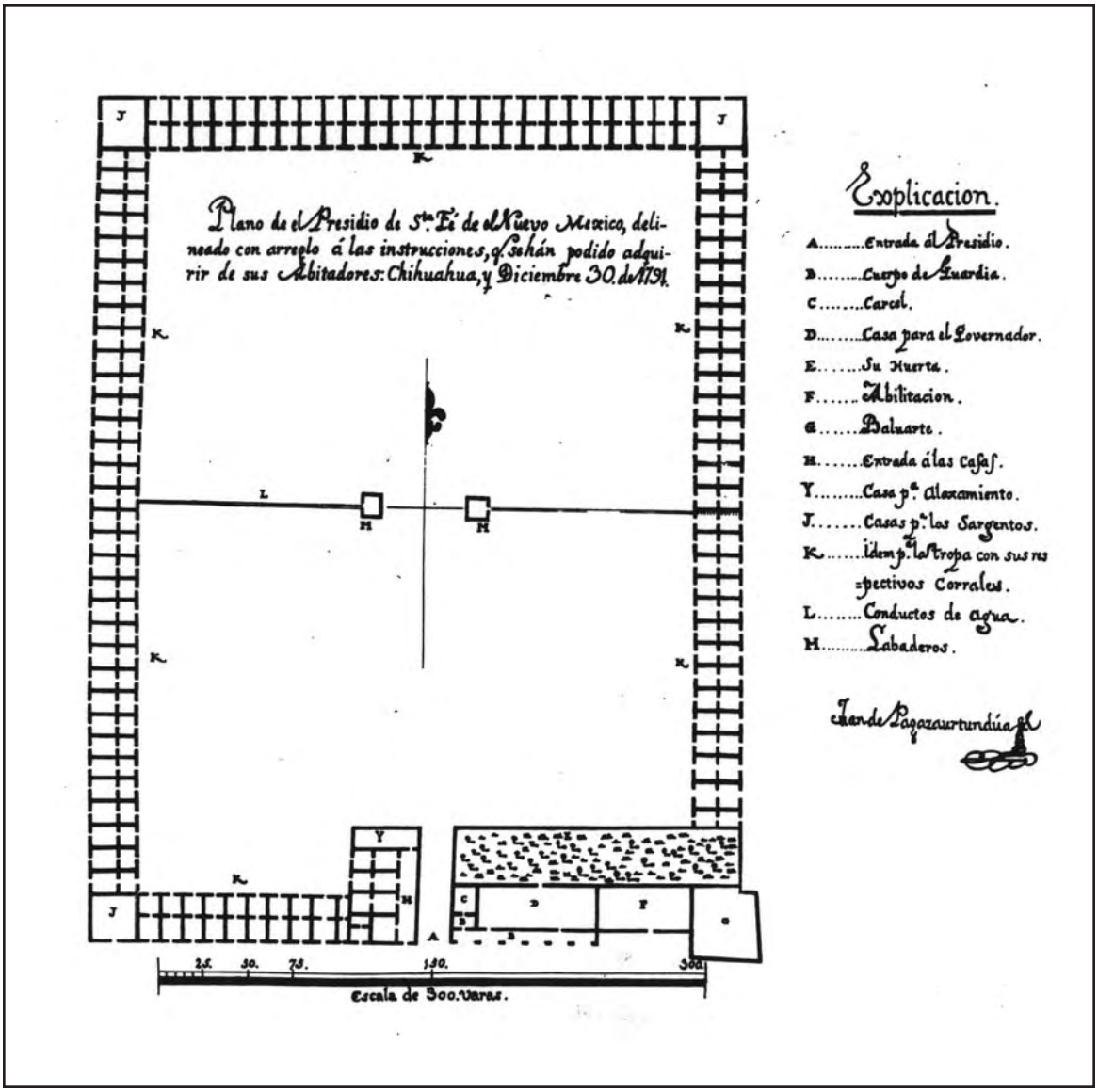

Figure 11. 1791 Presidio of Santa Fe map (from Simmons 1968).

interesting contrasts as New Mexico moved from recolonization, terminal imperialism, and the subsequent political changes in 1821 and 1846.

Late Spanish Colonial and Mexican Periods (1791 to 1846)

This fifty-five year period was one of rapid political and economic change. It also spans the time when the Palace went from a deteriorated civil-military headquarters to one building within a vastly expanded presidio. Leading up to and following the transition to Mexican rule in 1821, the Palace of the Governors and presidio was described as being in poor repair. To some, this characterization suggests that the presidio construction, while expansive, may have been less than permanent.

From this period, there is the map of the Santa Fe presidio featured in Marc Simmons book on colonial government in New Mexico (1968) (Fig. 11) and the Lt. William Emory map from 1846 that ostensibly documents the Palace of the Governors and the surrounding presidio at the

beginning of the American occupation. Both maps depict the space behind the Palace of the Governors as open, except for the one building shown by Urrutia in 1766. Based on these maps, expectations were low for encountering features or deposits that could be directly related to this period. What was expected were outbuildings and facilities or enclosures that supported the range of maintenance activities that were part of daily life at the Palace of the Governors.

Excavations exposed four foundation segments and a stratified and extensive midden deposit. Based on associated ceramics the deposits date to this period. The four cross-wall foundations remain from three rooms or enclosures that spanned the open space between the Palace of the Governors and the outbuilding shown on Urrutia's 1766 and Emory's 1846 map. The extensive midden overlies the eastern 8 m of Feature 7 and extends to the end of the excavation in 136E.

The four cross-wall foundations were made of large cobbles laid in mortar. Their construction is very similar to the 1600s and 1700s foundations that were exposed under the Palace patio offices, and that have already been described. Sections of Features 13, 15, and 25, measuring 1-m long, and a 2-m section of Feature 10, were exposed by excavation. These massive cobble foundations were 40 to 66 cm wide and 50 to 77 cm high. Cobbles ranged from 4 to 10 kg in weight. The foundations abutted and were not bonded with Feature 7, suggesting that they were added after Feature 7 was built. Based on their widths, the four foundations were suited to supported a single story building as specified in the 1781 presidio instructions (Rocha y Figueroa 1781).

The rooms (Structure 1: Rooms 1, 2, and 3) range from 5.75 to 7.75 m wide. Excavation within the rooms found construction debris in the form of adobe and mortar. Some of the adobe brick fragments were oxidized, but the majority appeared to be from structures. These fragments occurred on and below the floor of the rooms indicating that structures were demolished and the debris spread out behind the Palace of the Governors grounds. Above the inferred floor levels, in portions of rooms that had not been subject to extensive Territorial period intrusion, there was an increase in domestic and subsistence-related refuse. However, the increased counts were accompanied by an observed decrease in the average artifact size. This pattern is consistent with trampled contexts and situations where significant quantities of adobe have disintegrated. Artifact weight to count ratio will be monitored in an effort to differentiate processes and activities that affected deposit formation within the rooms as compared to other extramural contexts, such as storage pits or midden deposits.

Room function could not be inferred from construction evidence or from associated cultural materials. It is clear that the artifact-bearing deposits within the rooms result from discard or renovation activities that followed construction and use of the rooms or enclosures. In Room 3, in units 99N/98–99E, a feature (Feature 16) consisting of tumbled blocks, and fragments of burned adobe and plaster, occurred within a 1.20 east-west by 0.70 m north-south area. The burned adobe and plaster fragments occurred within a 20- to 25-cm-thick layer and they were lying in an unpatterned configuration. However, they were associated with a fire-hardened diagonal soil break that had a distinct northeast orientation and to the excavator appeared to be the back of a thermal feature. The disarticulated adobe and plaster fragments were reminiscent of hearth or fireplace lining and superstructure. The deposit and feature clearly had been truncated, but the close association of the material and the absence of similar clusters elsewhere within the late eighteenth-century contexts indicated that they were once part of a feature. Obviously, if Feature 16 were a remnant corner fireplace, then Room 3 was heated. A heat source would differentiate it from a simple storage shed or stable.

To the east of Structure 1 there is a stratified midden. This deposit, which accumulated on top of Feature 7, did not extend to the outside of Feature 10 (the eastern extent of Structure 1). The midden deposit extends from 124E to 136E and is stratified. Based on field observation it may have middle nineteenth-century pottery in the upper levels and late eighteenth-century pottery in the lower levels, suggesting that it began to accumulate about the same time that the presidio was built in 1789–1791. Seven distinct stratigraphic layers were identified within the midden deposit

(Fig. 4). These layers ranged in thickness from 4 to 6 cm to 65 cm thick. Strata varied between long continuous layers representing accumulative episodes to thinner, shorter layers that reflect rapid, short-term deposition. Within thicker strata there were lenses of charcoal and ash indicating regular cleaning of stoves, ovens, or hearths. Clean sand layers interspersed throughout thick refuse-laden strata suggest occasional covering or maintenance of the refuse area. Consistent within the deposit was the occurrence of abundant butchered domesticated animal bone, a predominance of sherds from storage and cooking vessels rather than service and consumption vessels, and an array of other household maintenance and subsistence-related items. Gypsum, cut mica, quartz crystal, pottery clay, spindle whorls, melted lead, slag, chipped stone debris and tools, including arrow points and strike-a-light flints, and low frequencies of ground stone fragments were also recovered. An estimated 45,000 artifacts were recovered from this deposit.

Within the deposit there were other potentially interesting indicators of features and spatial organization. Within unit 99N/134E, 1 m below the starting excavation level, Stratum 222 within Stratum 213 appeared as a pavement of burned cobbles and adobe intermixed with ash, charcoal, and refuse. This 80-cm-diameter cluster resembles a dismantled oven or horno that was piled or pushed into the midden. In addition to alerting excavators to the potential for encountering horno or oven foundations, it suggests that not only refuse, but worn out or decommissioned processing or cooking features were used to fill the large pit.

Various small pits were observed, mostly in profile, in the south and north unit walls. These pits primarily dated to the Territorial period indicating that this portion of the site continued to be actively used for maintenance and logistics, reaffirming that all space within and around the Palace was regularly transformed or modified. One pit was filled with burned corn husks, perhaps remaining from an isolated corn-roasting episode during the late nineteenth century.

Artifacts from the 1791 to 1846 period were primarily Pueblo-made pottery and butchered domestic animal bone, as was true for preceding periods. Artifacts from this period are particularly crucial because during various Territorial period renovations, including Jesse Nusbaum's work in 1909, deposits and artifacts from this period were habitually excavated and hauled away with limited examination of the deposits for archaeological materials. Examination of materials was mentioned, but rarely resulted in substantial or definitive documentation or useful temporal association (Snow 1993a). Therefore, the stratified midden represents the first systematic look at Palace domestic and subsistence activities for the end of the Spanish colonial and Mexican periods.

An estimated 45,000 artifacts were recovered from this period, including the midden. The Pueblo-made pottery continues to be dominated by the colonial wares, which included soup plates and bowls and plates. Powhoge Polychrome is the primary decorated pottery. Ogapoge, which was a common late eighteenth- and early nineteenth-century pottery type is almost nonexistent. Its absence has interesting temporal and economic significance, especially the time period it was made is well represented, but it is absent. Polychrome pottery from Western pueblos appears to be the most common non-Rio Grande pueblo ceramic. In terms of vessel forms, there is an increase in large bowls and jars, presumably used in dough-making. Spindle whorls were made from large worked sherds. Typically, they are made from polished wares, rather than decorated or micaceous pottery. The pottery-making clay is significant because it strongly indicates that some pottery was made at the Palace of the Governors. Questions like who was making the pottery, what forms were they making, and what technological methods were they following may relate to the ethnic composition of the Palace servants and workers.

The domesticated animal bone minimally includes sheep, goat, cow, pig, turkey, and fish. Other species were probably recovered, but could not be reliably identified in the field. Most of the animal bone was unburned and axe-cut, suggesting food prepared for consumption by Spanish residents. Obviously, the change to sawcut butchering is an important temporal marker. It is possible

that at the top of the midden sawcut bone will occur in low frequencies. An absence of sawcut bone would indicate that the midden predates the beginning of the American military occupation.

Macrobotanical remains have been rare. Few fruit pits and nut shells have been recovered from the midden. Flotation samples were collected from all strata, which may, when processed, add to the subsistence information. Wood charcoal continued to be abundant and the use of coal was virtually nonexistent.

Nonlocal goods and items continued to occur rarely. Metal and glass artifacts occur in low frequency and provide limited information on the dynamics of trade and economic status. Between 200 and 300 metal artifacts of mostly corroded iron were recovered. Most items are small hardware items that may have not been recyclable or worthy of salvage. It was expected that deposits that postdate the Santa Fe Trail opening would contain increased numbers of American-made goods. However, if they are present, the frequencies are very low. Instead, there is a continued reliance on local or regional commerce. An observation that is supported by the use of mica, heavy-metal ores, gypsum, and selenite for specialized activities. The lack of imported goods may also reflect differential discard patterns: household refuse of the governor and his family and staff may have been deposited in other locations, and kitchen and maintenance debris concentrated behind the Palace, but near the kitchens and other facilities.

Research questions for the late Spanish Colonial and Mexican periods focused on recognition, spatial organization, and economic dynamics, and the effect of changing political administration during the 55-year period. Phase I excavation demonstrates that the late Spanish Colonial and Mexican period components are well represented. In terms of the actual layout of the Palace and its surrounding grounds, little was known beyond the plan shown in the 1791 Santa Fe presidio map (Fig. 11). Problems with scale and the possibility that the presidio was not built as completely as depicted on the map rendered it more reliable for large-scale features and less accurate for lesser or more informal site structure characteristics. The three-roomed Structure 1 configuration exposed in the western half of the site immediately adds detail to the presidio plan. While function, construction, and size of these rooms cannot be determined from Phase I excavation, the foundations clearly supported substantial single-story walls. The collapsed fireplace in Room 3 indicates heated space and that the room probably had a roof. The other two rooms could have been open, but it is likely that they were roofed as well. The fact that Emory's 1846 map of Santa Fe does not show the rooms suggests that they had a lifespan of 55 years or less. Phase II excavation will further expose the foundations and will allow for excavation inside of Room 1, perhaps exposing up to one-fourth of the former footprint.

The stratified kitchen midden deposit with its tremendous volume of animal bone and pueblo-made pottery should provide information on changing economic and consumption patterns for the late Spanish Colonial and Mexican periods. Particularly significant is the unprecedented look at the exploitation of domesticated mammals. Exploitation and consumption patterns can be compared with assemblages from earlier and later Phase I and II assemblages, as well as assemblages from other eighteenth- and early nineteenth-century social and economic settings. Faunal analysis should provide information on status, availability and selection dynamics, and ethnicity of consumers and butchers or food preparers. Intra-assemblage variability can be examined from the seven main strata within the midden and compared with assemblages from rural, urban, and Native American contexts. Changes in pottery vessel forms and stylistic attributes may reflect changes in directions of pottery acquisition, food preparation techniques, and perhaps even changes in the foods that were prepared.

American Territorial Period (A.D. 1846 to 1912)

From 1846 to 1909, the Palace of the Governors went through changes related to military and Territorial government occupation. During this period, the Palace and immediate grounds under-

went regular and patchwork changes through renovation and remodeling. It was expected that evidence of Territorial period construction would include a range of architectural and construction debris and hardware. The artifact assemblage was expected to reflect local and economic change brought by the opening of the Santa Fe Trail and the completion of the Atchison, Topeka, and Santa Fe Railway. These transportation milestones increased New Mexico merchant access to outside markets, increased access to manufactured goods for New Mexico citizens in quality, quantity, and variety, and served as important mechanisms for American population influx. Based on available descriptions, the Palace patio offices were built in 1867 and were remodeled by Nusbaum in 1909. The existing cobble foundation appears to date to the 1867 construction episode.

Phase I excavations encountered considerable evidence of activities behind the Palace patio offices. Twenty features, including large adobe-lined pits, refuse-filled pits, posts and postholes, insubstantial cobble foundations, and extensive and dense sheet trash deposits, were encountered throughout the excavation area. Typically, Territorial period features replaced or masked large portions of the preceding occupation sequence. However, as described above, it was not so pervasive that all earlier deposits were disturbed, destroyed, or removed. The Territorial period archaeological record found in Phase I was perplexing and enlightening.

The initial assumption was that the Territorial period features and deposits would be near the surface exposed by asphalt removal. In the course of daily operations, Territorial period deposits were identified by high frequencies of manufactured goods, commercial kiln-fired bricks, milled lumber, and sawcut animal bone. Mixing and creation of sheet trash deposits and disarticulated and reduced features were expected to result from an array of utility line installations. This was partly true, especially in the western half of the excavation area. On the whole, however, the Territorial period features that were encountered at or within 20 cm of the initial excavation surface were relatively intact. Throughout most of the excavation area, the upper 20 to 30 cm of fill contained the highest proportion of Territorial period artifacts (Stratum 2). Except for an area between 118E and 123E, the debris is mixed and may not be assignable to a particular activity or span within the Territorial period. Field observations, however, suggest the bulk of the material post-dates 1879. Between 118E and 123E, an assemblage of assayer's containers, tools, and ore was recovered with the expected Territorial period collection. Hundreds of artifacts attributable to assaying were recovered. Initial research shows that an assayer (George Utter) operated out of the Palace of the Governors during the late 1870s and early 1880s (Shishkin 1969).

The twenty features that remain from the Territorial period are listed in Table 1. Individual postholes and pits will not be discussed in detail here. Instead, discussion will focus on classes of features and three specific features are discussed in more detail.

Early in the excavation, postholes and trash-filled pits were encountered. Posts and postholes are interesting because they reflect spatial organization, changing technology, and efforts to stabilize the Palace patio offices during the time it was used by the military and Territorial period government. Nine postholes, of which five contained a post or post remnant, were excavated. Eight of nine posts were round and one was irregular in shape. They range in diameter or maximum dimension from 7 to 26 cm. One pole in 99N/112E was a telephone pole. The irregular-shaped post was also in 99N/112E and it may have been a telegraph pole. Telephone service was installed at the Palace around 1900 (Shishkin 1972). Photographs from the 1860s to 1890s show telegraph poles in front of the Palace.

Other posthole locations are shown in Figure 3. Two postholes found in the south wall of units 99N/130E and 99N/134E correspond to the fence shown in the 1869 drawing of the Palace of the Governors (Fig. 12). This fence spanned the gap between the two buildings built by the military in 1867 and enclosed the inner courtyard. The west building is now the Palace patio office building. The gap has been partly filled by the restrooms that were installed in the 1940s and the covered portal to the east of the restrooms.

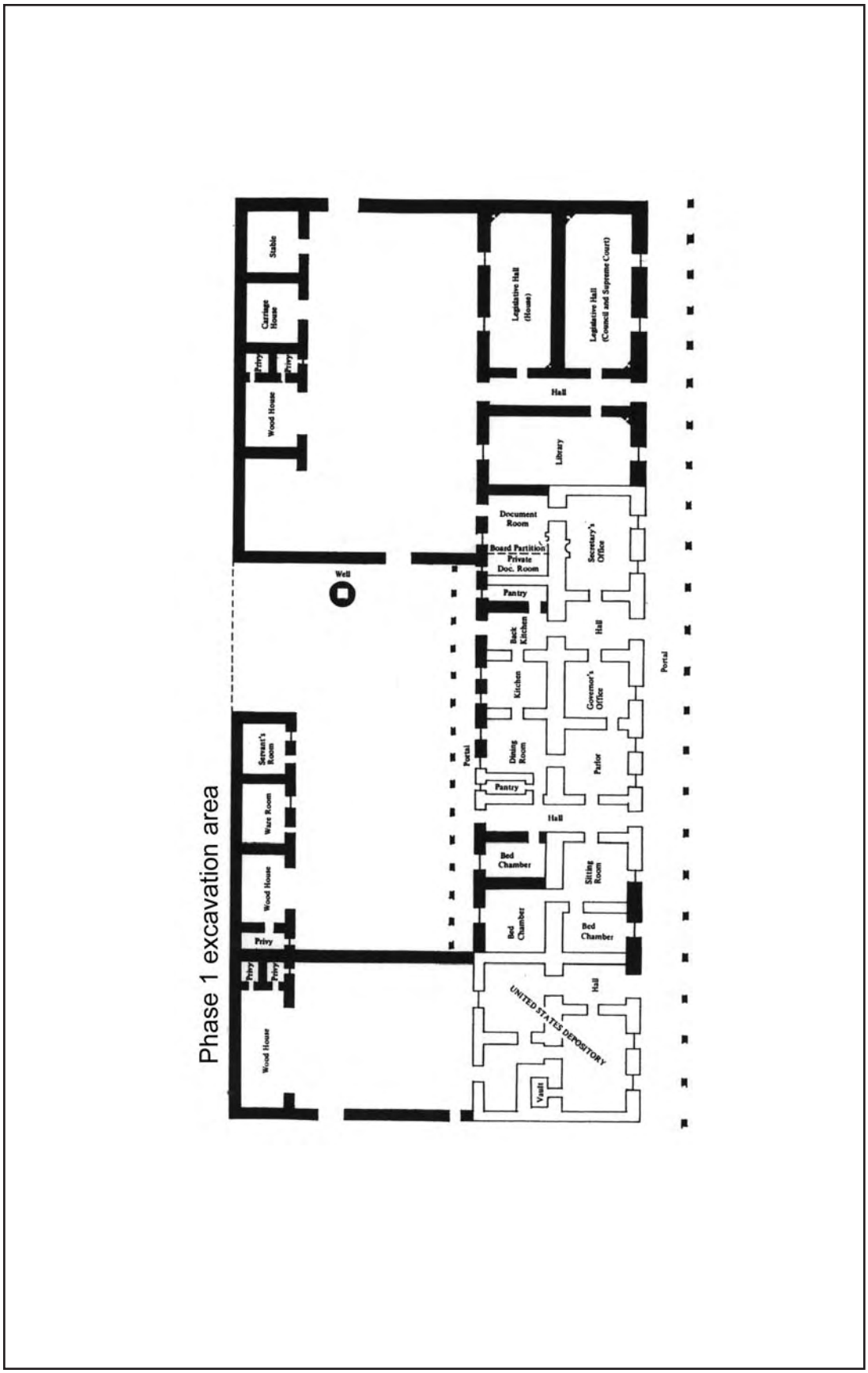

Figure 12. Ground plans of the Palace at Santa Fe, 1869 (from Shishkin 1972).

Seven pits and pits filled with refuse were encountered within the western 30 m of the Phase I excavation area. These pits range from small (less than 1.0 m maximum dimension) to large (3.0 m maximum dimension). They are lightly trash-filled (for example Feature 24) to densely packed (for example Feature 12) with bottle glass, can metal, animal bone, and a variety of other materials and items. Features 1, 6, 12, and 38 appear to have been planned trash pits. They were excavated, filled with refuse, and covered. The filling occurred over a short period. Pits 17, 24, and 27 were excavated and filled after they had served other purposes. For instance, Feature 27 was filled with soil that had a refuse component, but it was more soil than refuse. Feature 17 is a 3.0-m wide by 1.9-m-deep pit that was intermittently used for trash deposition, but it was also filled with adobe and soil that had a minor refuse component. Feature 17 may have been a privy that was never used or it may have been a root cellar or basement to a building for which a foundation or superstructure was not found. Stratigraphy within Feature 17 suggests episodic filling rather than a single filling episode. An estimated 17,000 artifacts were recovered from these seven pits. From field observation of artifact manufacture dates, the majority of the pits appear to postdate 1880. The refuse is typically post-railroad. The period between 1846 and 1879 is not well represented in the pit assemblages or overall excavation area assemblage.

Two north-south cobble foundations (Features 13 and 22) were exposed in the upper 20 cm of 99N/101E and 99N/106E. These were simple cobble foundations consisting of one or two courses of medium-sized cobbles in two rows. Their position in the western end of the Phase I excavation area corresponds to the location of the bell tower shown in the 1908 Sanborn map (Fig. 13). More research into history of the bell tower will follow the Phase II excavation.

Finally, the most perplexing and unexpected Territorial period feature was a massive cobble and mortar wall (Feature 21) that was directly below the 1867 foundation of the Palace patio offices. This wall spanned 5.0 m from 105E to 110E. It was constructed of cobbles that exhibited a much greater size range and mortar was used more liberally than was observed for the colonial foundations. The wall is tied into the 1867 foundation suggesting they were built sequentially. The wall was at least 1.50 m deep and it was 5 m long. Based on probing, it appeared to be 60 or 70 cm thick. The east and west corners were exposed, but little could be observed about the east and west walls. The massive construction of the wall suggests a vault. Currently, a description of the 1867 buildings that includes a basement has not been found in various Palace documents. It is possible that the U.S. Army Quartermaster records in Washington, D.C. may have more information on the 1867 renovation.

An estimated 45,000 artifacts were recovered from Territorial period pits and other features and from the upper 20 cm of the site. Undoubtedly, colonial materials have been mixed in with the Territorial period sheet deposit, while the trash pits may have the most intact and reliable assemblages. The range and abundance of artifacts, materials, and samples is expected for late Territorial period contexts and deposits. Artifacts reflecting local and national economies were abundant. Artifacts that functioned in domestic, architectural, and maintenance activities included Pueblo and Euroamerican pottery and ceramics, glass and metal containers, window glass, miscellaneous hardware fasteners, plates, sheets, and wire, construction materials including adobe, brick, plaster, tar paper, coal and charcoal, and assay tools and containers. Animal bone continues to be abundant, reflecting the continued operation of the Palace kitchens into the 1880s.

Research questions for the Territorial period focused on architectural and economic change. Can episodes of new construction, remodeling, and renovation be recognized in the archaeological record? How are changes in political administration and transportation and their effect on local and regional economy reflected in the material record of the Palace of the Governors and adjacent grounds? Based on the excavation of features and deposits, and the recovery of artifacts from reliable and mixed deposits, these issues can be addressed with Phase I data and will be more completely examined by the Phase II excavations.

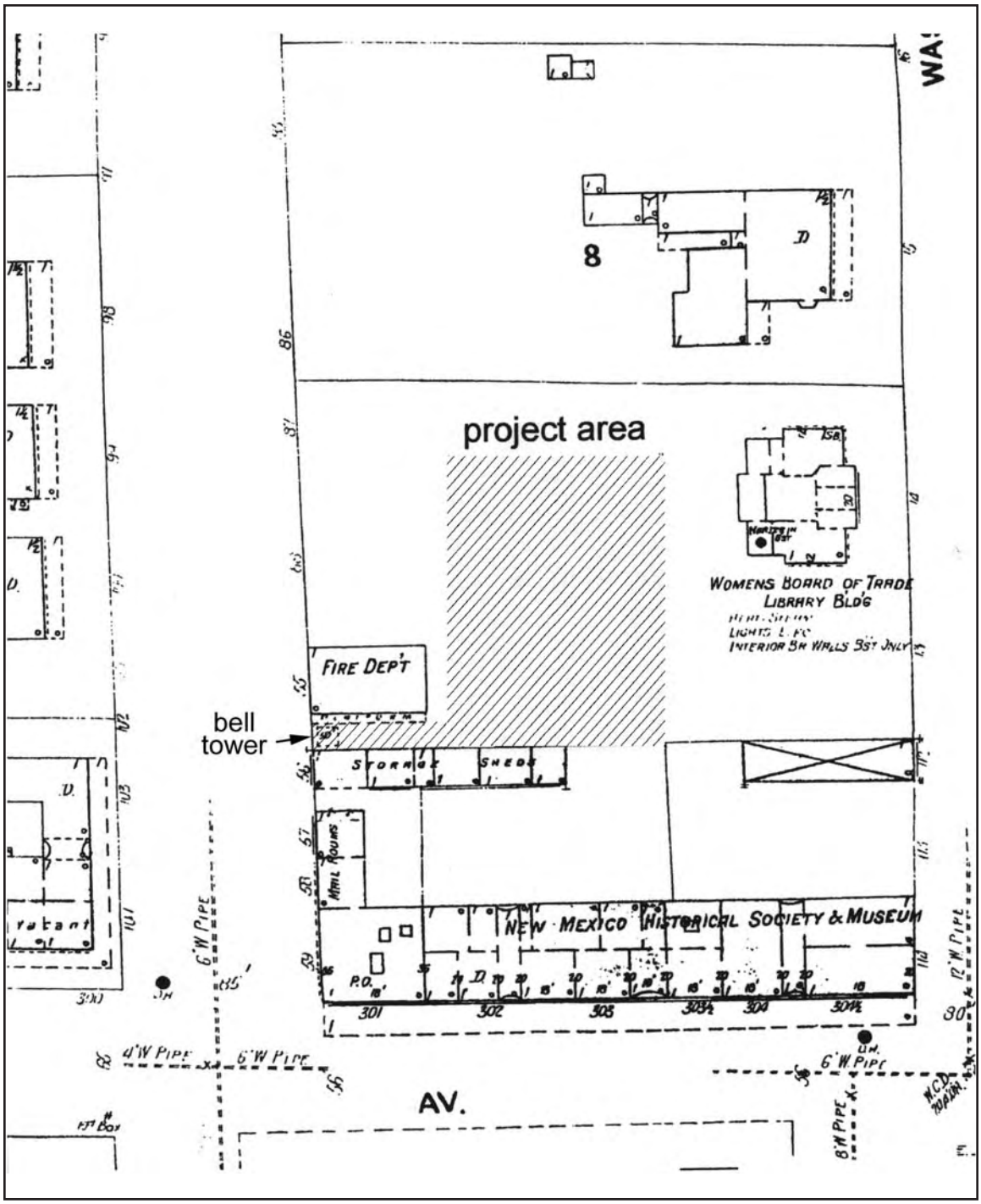

Figure 13. Sanborn Insurance map, 1908 (History Library, Palace of the Governors, Museum of New Mexico).

The most dramatic architectural change in the Palace layout occurred with the construction of the buildings that enclosed the inner courtyard in 1867. Overlying the seventeenth- and eighteenth-century footprint, these new buildings formally enclosed the near space creating the governor's garden. Separating the inner courtyard from the open space to the north changed the organization of the activities as evidenced by the variety and size of refuse-filled pits lining the north

wall of the patio offices that contain post-1880 refuse. Although the age of the 2,100 wagon loads of debris that were removed from the Palace grounds by Jesse Nusbaum in 1909 is unknown, it is very likely that it predated the 1867 military renovation of the Palace. With the remodeling, the fields and open space that were formerly immediately outside the north wall of the main governor's quarters and various offices shifted to the space beyond the north wall of the patio offices. This change in space and the probable shift in the refuse discard and accumulation is partly corroborated by the Marjorie Lambert's well excavation (1985), which recovered artifacts from the 1860s suggesting that later refuse was discarded outside the courtyard. While sheet trash discard behind the Palace patio offices continued into the 1880s, pits were incorporated into maintenance activities as the need to contain the large volumes of nonbiodegradable materials increased after 1879. Continued sheet trash disposal may have been limited to specific activities, such as are indicated by the assayer's assemblage.

Subdivision of the space north of the Palace patio offices may be indicated by fence posts located along the north wall. Some of the fence posts may have separated garden space from maintenance activities. Further change is indicated by the bell tower shown on the 1908 map. The belltower, fire station, and the later construction of the Elks Lodge (now the Museum Administration Building) reflect a changing streetscape along Lincoln Avenue and presumably progressively more urban use of the project area. Evidence of demolition or maintenance of buildings occurred as jumbled wall and roof materials in units132E to 136E. The upper 40 to 60 cm of fill contained mixed Territorial and colonial period artifacts with a considerable amount of tarpaper, gravel, asphalt, and other construction materials. The source of the building material is unknown, but it likely originates from the 1909 remodeling of the existing Palace patio office building. The first tar and gravel roof was installed at the Palace of the Governors in 1883 (Sze 1993:28). Further churning of deposits may have accompanied the construction of the Palace Armory. Overall, numerous changes in the architectural layout and spatial organization of the project area can be recognized from the Phase I excavations.

With the 45,000 artifacts recovered from feature and stratigraphic contexts, it should be possible to study changing economic patterns on a general level for the post-1879 Palace of the Governors. There is no doubt that the recovered sample and the additional Territorial period artifacts that will be recovered during Phase II will reflect consumer choice, status, and some aspects of administrative and domestic activities of the Palace occupants.

PROPOSED CHANGES TO THE PHASE II EXCAVATION PLAN

Phase I initial assessment of LA 111322 has determined that extensive intact cultural deposits and features are present below the Museum Administration parking lot. While stabilizing the existing Palace patio offices' foundation, a record of architectural change, dynamic spatial organization, and the potential to examine social and economic interaction for 394 years was clearly evident. Significant architectural features from early, middle, and late Spanish Colonial, Mexican, and Territorial periods were exposed as a stratified sequence of foundations and cultural deposits. Only the ancestral Pueblo and Pueblo Revolt periods are poorly represented in the 51.5-sq-m sample.

Currently, the artifacts, materials, and samples recovered from the first phase have been inventoried, and cleaning and processing is in progress. The artifact inventory is in electronic form and will be available as a guide to assessing, excavating, and interpreting the cultural deposits and features that are under the greater Museum Administration Building Parking lot (LA 111322) area. Field notes, drawings, and photographs have been organized and checked for accuracy to insure that they reflect the most current understanding of the stratigraphic sequence. Identification and tabulation of a small sample of artifacts may be completed to assess the temporal resolution of major stratigraphic units and features. Obviously, as Phase II begins it will be critical to recognize deposits that correspond, contradict, or elaborate on the Phase I sequence.

The project data recovery plan was submitted and approved in August 2002 with the understanding that changes in the excavation plan were possible. Based on the Phase I results there are a number of proposed strategy modifications that will be implemented. These proposed changes do not substantially affect excavation procedures or decision making, but take advantage of Phase I experience to streamline and better direct the field effort.

One assumption in the excavation plan was that the area north of the Administration Building was substantially disturbed by the construction and demolition of the Firestone Tire building, which had a basement. Originally, construction in this area was to be monitored without preliminary examination. Instead of waiting to monitor construction, four 40-m-long east-west backhoe trenches will be placed at 4-m intervals across the north half of the Museum Administration Building parking lot. These trenches will be excavated to a depth of 1.3 m. Trench walls will be cleaned, examined, and profiled. Stratigraphy will be evaluated using criteria that is based on Phase I excavation results. If they exist, undisturbed areas are expected to occur outside the footprint of the Firestone Tire building. Areas that have potentially intact cultural deposits that predate 1929 will be further examined by hand-excavated 2-by-2-m excavation units. As necessary, excavations will be expanded to define the limits and nature of the cultural deposits. Cultural deposits and features will be excavated and documented consistent with the research design.

In the research design, Phase II was to begin by placing 4-by-4-m excavation areas at each foundation identified by Bruce Ellis in 1967 (Post 2002:49). First, a 1-by-4-m unit would be systematically excavated and recorded. Identification of intact deposits would be followed by 100 percent hand excavation and artifact recovery. If intact deposits or stratigraphy is present, then the area bounded by the foundations would be excavated systematically by hand exposing all features and foundations. Identification of disturbed deposits would result in block excavation without screening and mechanical excavation in remaining areas to the top of the suspected Spanish Colonial occupation level. Excavation of the remaining 10-to 20-cm deposit within the area enclosed by the foundations and a sufficient area to expose and record foundations would be systematically excavated in 1-by-1-m units. Excavation below the post-Revolt Spanish Colonial level would proceed as a 1-by-4-m unit within the original 4-by-4-m units. If intact deposits were encountered, excavations would expand to define their limits and excavate features and recover artifacts and collect samples for analysis and interpretation. Any nonsystematic excavation or mechanical excavation would be conducted in consultation with HPD.

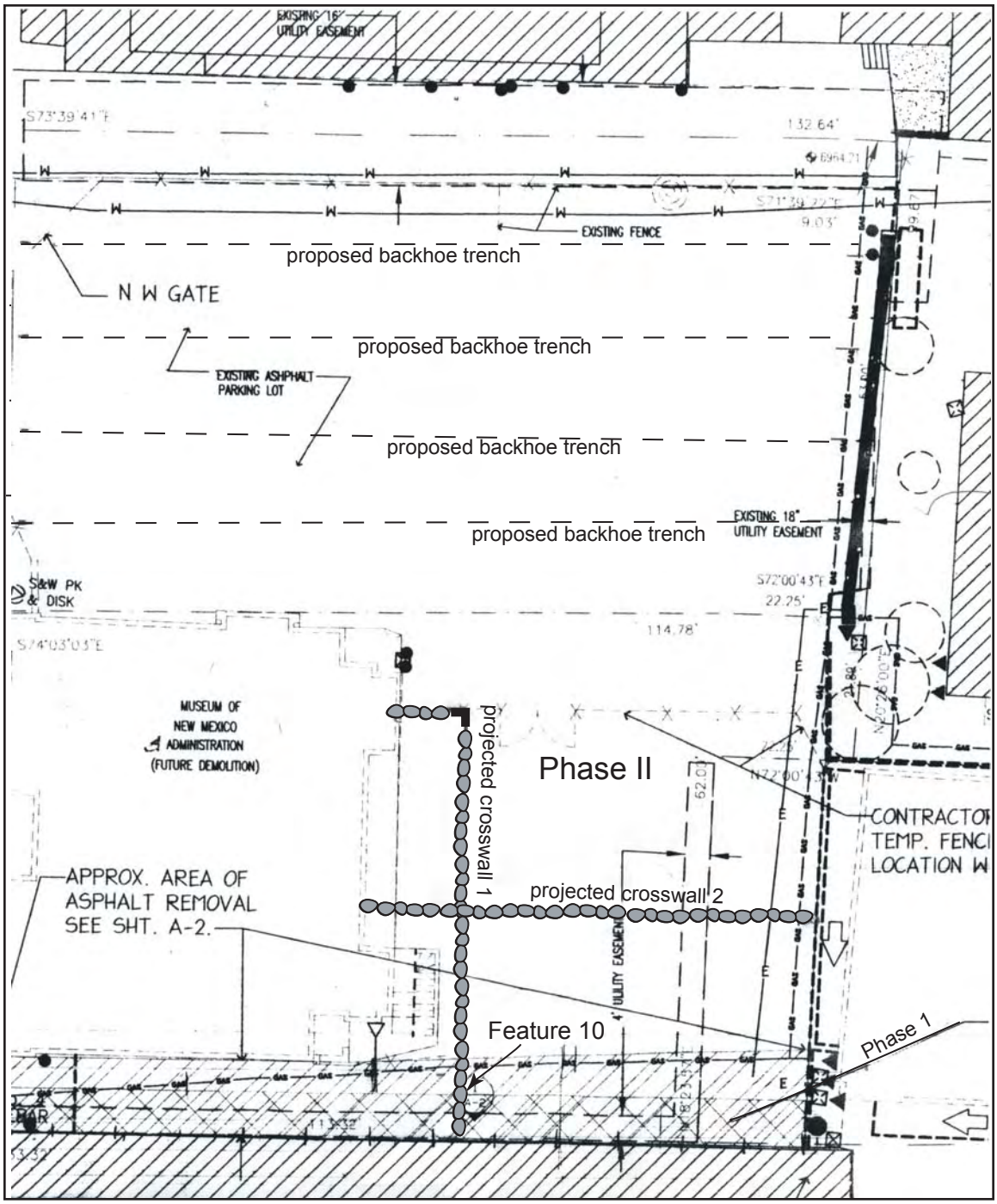

Figure 14. Site plan showing Phase I and II, projected cross walls, and proposed backhoe trenches.

Based on Phase I results, an alternative excavation strategy is proposed for Phase II. Phase I excavations combined with projection of the Bruce Ellis 1967 Spanish Colonial foundations show that a 170-sq-m area is potentially enclosed by wall or structure foundations. As shown in Figure 14, the area west of the Feature 10 north-south foundation may bound the interior of two eighteenth- or early nineteenth-century structures. The area east of Feature 10 encompasses the large, stratified late eighteenth- and early nineteenth-century kitchen midden described previously. It is expected that this area was enclosed, but primarily an outdoor activity area. Since the top of the midden corresponds with the top of the cobble foundations, they may be contemporaneous. Because these areas represent intact and bounded activity spaces, 100 percent hand excavation is proposed. Hand excavation of this 170-sq-m area to a 60 to 70 cm depth will expose the top of the foundations and midden. Because the upper 60 to 70 cm has been artifact-rich, but consists of mixed Spanish Colonial and Territorial period materials in the upper 20 to 30 cm, but later Spanish Colonial materials from 30 to 70 cm deep, 2-by-2-m excavation units will be used. The larger excavation units should provide sufficient horizontal and vertical control given the nature of the deposits. If finer-grained intact deposits or features are encountered in these upper levels, then excavation strategy will shift to 1-by-1-m units. The Territorial period upper layer will be excavated as a single stratigraphic unit and the lower Spanish Colonial layer will be excavated in two 20-cm-thick levels. All new features or stratigraphy will be excavated systematically and treated as analytical units. Clearing the enclosed space to the top of the foundations and midden should expose remaining features and define the extent of the midden. Excavation of the midden and foundations will follow the research design, except for the use of 2-by-2-m units.

Phase I excavation shows strong potential for seventeenth- and early eighteenth-century features below the foundations. Therefore, Phase II systematic excavation will proceed below the foundations and associated occupation levels. Excavation within the enclosed space will start at the southern Phase II limit and cover the area from east to west. Excavation will expand to the north and continue until the deeper cultural deposits are exhausted. Strata that are similar to Stratum 11 as defined in Phase I will not be further investigated. Stratum 11 is the pre-Hispanic level that has very low artifact frequencies mixed with a long term, gradual deposit of alluvial sand and silt. The top of Stratum 11 is the founding level for the historic occupation sequence.

North of the enclosure is a 270-sq-m area that, based on the 1766 Urrutia map and subsequent early Territorial maps, should be open space and cultivated fields. In this area, a 10 percent sample of randomly selected 2-by-2-m units will be excavated. Excavation will be systematic and proceed according to the stratigraphic sequence defined by the Phase II excavations within the Spanish Colonial enclosure and structures to the south. Intact cultural deposits and features will be completely excavated. If the cultural deposits end or are replaced by disturbed deposits, then three backhoe trenches, oriented north to south, will be excavated across the area presumed to have limited data potential. If no further intact deposits or features are encountered, excavation will halt. If intact features or deposits are encountered, they will be excavated following the above excavation strategy and the procedures defined in the research design (Post 2002).

All of Phase I excavation was not completed as prescribed in the research design (Post 2002:45-48). The bottom of the cultural deposit in all units from 99N/98E to 99N/136E was not reached, except in units 99N/100E, 99N/108E, 99N/112E, 99N/116E, 99N/120E, 99N/124E, 99N/128E, and 99N/132E. All of units 100N/97E to 100N/136E require complete excavation, except for 100N/97E, 100E, 104E, 108E, 112E, 116E, 120E, 124E, 128E, and 132E. The partially excavated units will require from 50 to 100 cm of additional excavation. These units will be excavated following the procedures established for Phase I.

CONCLUSION

Phase I excavations have demonstrated that complicated and potentially extensive, stratified subsurface cultural deposits and features exist within LA 111322. These deposits span the historic time range from A.D. 1610 to 1912 and later. From these initial results it is clear that extensive excavation will be needed for Phase II. Phase II work will not be constrained by the need for foundation stabilization, allowing for more systematic horizontal investigation of features and deposits. This change in excavation procedure will result in quicker and potentially more consistent interpretation and documentation of the different historic contexts. The changes in excavation procedures described in the preceding section are viewed as important because they refocus the excavation based on the Phase I findings. Excavations at LA 111322 are the last chance to reassess, interpret, and honor the historic and archaeological research that has been conducted in the past and to provide fresh data with which to build new interpretive frameworks for the Palace of the Governors and the archaeology and history of New Mexico.

REFERENCES CITED

Deyloff, Glenda, Lonyta Viklund, and Cordelia Thomas Snow
2003 *Final Archaeological Investigations Report and Data Treatment Plan for the Property at 125 Guadalupe Street, Santa Fe, New Mexico.* Southwest Archaeological Consultants, Inc. SW457d. Santa Fe, New Mexico

Lambert, Marjorie
1985 The Wells in the Palace of the Governors Patio and the Excavations and Repair of Well 1. In *Southwestern Cultural History: Collected Papers in Honor of Albert H. Schroeder.* Papers of the Archaeological Society of New Mexico, 10. Ancient City Press, Santa Fe.

Post, Stephen S.
2002 *A Data Recovery Plan for Excavation at the New Mexico Museum of History Site: 700 Years of Human Occupation in Santa Fe, New Mexico.* Museum of New Mexico, Office of Archaeological Studies, Archaeology Notes 311. Santa Fe.

Post, Stephen S., and David H. Snow
1982 *Archaeological Investigations for the Gallery Addition to the Museum of Fine Arts.* Museum of New Mexico, Laboratory of Anthropology Notes 282. Santa Fe.

Ramenofsky, Ann E.
2002 Changing the Balance of Power: Archaeology Writing History. Paper presented in the Global Processes and Local Agency in Spanish Colonization session, 67th Annual Meeting of the Society for American Archaeology. Denver.

Rocha y Figueroa, Gerónimo de la
1781 *Instrucción para el encargado en la Dirección de la Nueva Fábrica de un Presidio, Arizpe.* Spanish Archives of New Mexico, No. 814. Santa Fe, New Mexico.

Seifert, Donna J.
1979 *Archaeological Excavations at the Palace of the Governors, Santa Fe, New Mexico: 1974 and 1975.* Museum of New Mexico, Laboratory of Anthropology Notes 420. Santa Fe.

Shishkin, J. K.
1969 Unquiet Centures: A Biography of the Palace of the Governors. Manuscript on file, Fra Angelico Chavez Library and Photo Archive, Museum of New Mexico, Santa Fe.

1972 *The Palace of the Governors.* Museum of New Mexico Press. Santa Fe.

Simmons, Marc
1968 *Spanish Government in New Mexico.* University of New Mexico, Albuquerque.

Snow, Cordelia T.
1974 A Brief History of the Palace of the Governors and a Preliminary Report on the 1974 Excavations. *El Palacio* 80(3):1-22.

1993a A Living Artifact, The Palace of the Governors: Archaeological Excavations from 1884 to 1987, and a Review of the History of the Building from 1610 to 1846. On file Palace of the Governors, Museum of New Mexico, Santa Fe.

1993b When the Palace Had Two Stories. *La Cronica,* Newsletter of the Palace of the Governors.

Sze, Corrine P.
1993 Final Report: Architectural History of the Palace of the Governors—1846-1993, Preliminary Search for Primary and Secondary Sources. Project Identification Grant, Palace of the Governors, Getty Grant Program. On file, History Division, Museum of New Mexico, Santa Fe.

Twitchell, Ralph E.
1925 *Old Santa Fe.* Santa Fe, New Mexican Publishing Corporation.

APPENDIX 1. HUMAN REMAINS

Nancy J. Akins

LA 111322 Palace of the Governors, Burial 1

Burial position: Burial 1 was placed on her back, arms along her sides, and her head on the left side. The right arm was slightly out at the hip and the lower arm twisted so that the palm was up and fingers curled. The left arm was straight with the hand against the femur, palm down, and fingers curled under. Both legs were extended at the hip. The spine-cranium orientation was 98 degrees. The left lower leg crossed over the right just above the ankles. Feet were aligned with the legs, the right resting on the right side,and both with the toes up slightly, resting against the pit wall.

Associations: No artifacts were unambiguously associated with this burial. The sherds, bones, and other material found in the pit were probably part of the fill used to cover the body. She is laid out parallel with the foundation wall so must postdate construction of the building. No evidence of a pit could be discerned in the wet soil but after drying, it appeared as a deep (62 cm) unfinished pit not much larger than needed for the interment (42 cm wide at the middle of the femurs and approximately 160 cm long). Fill around the body was somewhat cleaner than in the layer above but this layer appears to continue beyond the confines of the excavation. Soil adhering to the bones was often small clumps of soil resembling that which results from earth worm activity. The hard sticky nature of these clumps is consistent with this type of activity.

Disturbance: None detected but moist soil conditions have caused considerable damage and contributed to the overall poor preservation.

Sex: Female based on the shape of the ventral arch, subpubic concavity, and ischiopubic ramus of the innominates and the nuchal crest, mastoid process, and glabella on the cranium. Small size and gracile skeletal structure also indicate a female.

Age: 40–45. Pubic symphysis: Todd stage 8 and 9 (40–49 years); Suchey-Brooks stage 5 (25–60, mean 49 years). Fairly light wear on teeth and the lack of any but slight arthritis suggests the young end of the range —probably 40–45 years.

Condition: Fair to very poor. Many of the softer or spongy bones (vertebra, sternum, carpals, long bone ends, and parts of the innominates) have deteriorated into powder. Most other bones are soft and break upon the slightest touch. Others split and crumbled as they dried. Most ends and edges are eroded, obscuring some conditions. Some cranial fragments remain solid as do parts of the innominates and the femurs.

Representation: The burial was essentially complete when uncovered. However, as noted above, the condition is poor and many parts disintegrated into powder once they were uncovered. Many of the conditions usually monitored in this analysis could not be noted as present or absent because of the overall poor condition.

Dental:

Inventory: All but three of the left mandibular (PM2-M2) teeth have no associated bone.

Missing: Upper third molars—probably congenitally absent; upper right premolars, lower right lateral incisor. Some of these may not be missing as there are two oddly shaped teeth that could be abnormal teeth or could be supernumerary teeth. The larger of the two has a beveled wear surface that may have occluded with and caused the unusual wear on the lower right canine. The other is barrel shaped with three small cusps and no wear.
Hypoplasias: Lines: maxillary RM2, RC, RI1, LI1; mandibular LC, LI2, LI1. Linear pits: R maxillary canine. Several teeth were coated with calculus and no observations were made.
Caries: Cervical caries on both maxillary M2s.
Abscesses: Unknown, little associated bone.
Comments: Wear on the anterior teeth (scored from 1 to 8) ranges from 1 to 4 for the maxillary teeth and 3 to 4 for the mandibular teeth. Molar wear (scored 1 to 10 for each of 4 quarters) ranges from 16 to 19 for the upper right maxillary molars, 10 to 18 for the upper left maxillary molars, is 16, 9, and 16 for the left mandibular molars, and is 18, 18, and 15 for the right mandibular molars. Teeth range from clear of calculus to heavy coatings. Mandibular central incisors have a fairly strong double shovel (3 or 4 on a scale of 6). Shoveling of incisors suggests a Native American.

Measurements: Dental, no cranial, few postcranial (Table A1).

Table A1. Measurements for Burial 1 from the Palace of the Governors

Measurement (mm)	Right	Left
Humerus: maximum diameter midshaft	* 20..0	--
Humerus: minimum diameter midshaft	* 13.1	--
Femur: maximum diameter of head	37.9	37.6
Femur: anterior-posterior subtrochanteric diameter	26.1	26.5
Femur: medial-lateral subtrochanteric diameter	20.3	21.2
Femur: anterior-posterior midshaft diameter	* 23.5	* 23.2
Femur: medial-lateral midshaft diameter	* 22.2	* 22.7
Femur: midshaft circumference	* 71	* 70
Tibia: maximum distal epiphyseal breadth	--	44.9
Tibia: maximum diameter at nutrient foramen	--	27.6
Tibia: minimum diameter at nutrient foramen	--	20.6
Tibia: circumference at nutrient diameter	--	73
Calcaneus: maximum length	--	69.4
Calcaneus: middle breadth	--	38

Nonmetric Observations: Very few cranial, no postcranial.

Taphonomic Observations: One cranial fragment—probably from along the coronal suture has a small 16 mm diameter cylindrical hole in the outer surface. It does not go through to the inner surface and appears to be postmortem. The edges are chipped back slightly and rounded at the exterior surface. It is almost like a drill hole in that it is regular and cylindrical. Absent any evidence of infection or healing, it is most likely taphanomic but the cause is unknown.

Congenital or Developmental: In addition to the two anomalous teeth described above, there is a fused phalanx 2 and 3 from the left foot. However, the condition of the bone precludes many observations. Both the tali and distal tibae have squatting facets.

Bone Loss: Most bone is thin and fragile suggesting osteoporosis. Focal bone loss is present on the ventral aspect of the pubis just off of the pubic symphysis on both sides. This consists of a cluster of small pits that are well circumscribed with no sign of recent activity. That on the left side is shallower and has fewer pits. All of the major leg bones have small scattered porosities that probably indicate osteoporosis.

Bone Formation: Both femurs have small raised patches of sclerotic bone on the anterior surface of the shafts. Similar areas are present on the posterior of the left tibia and shafts of both fibulae.

Porotic Hyperostosis: The orbits are not complete but the remaining portions have no sign of porosity. Both the parietals and occipital have small scattered and well remodeled pores along the sutures.

Vertebral Pathology: Very few vertebra fragments were preserved. The superior surfaces of the 4th and 5th lumbar vertebra bodies have small osteophytes.

Arthritis: Most joint surfaces are absent or badly damaged. No observations could be made on the presence or degree of lipping on the humerus, but the left humerus has periarticular resorptive foci on the anterior surface. The left ulna has slight lipping on the perimeter of the proximal surface. Articular facets on the cervical vertebrae and the carpals may have very slight lipping but are to incomplete to assess. Both femurs have slight lipping around the head and the nutrient foramina, both have pinpoint surface porosity, and both have barely discernable periarticular resorptive foci. Distal ends are badly damaged but fragments suggest at least some lipping. The patellas have slight lipping and some periarticular resorptive foci. No observations are possible on the proximal tibia fragments and the distal ends have slight lipping and periarticular resorptive foci. The same is true for the tarsals and proximal ends of the metatarsals and phalanges. Distal ends are generally too fragmentary for observation. Squatting facets on the tali have both coalesced and pinpoint surface porosity. Corresponding facets on the tibae do not.

Comments: Portions of the parietals and occipital are thick but not pathologically so. There is no evidence of excessive thickening of the cortex or the diploe.

This individual is quite small and gracile but larger than at least one from LA 3333. Of the few measurements, the femur head diameter is only slightly smaller than the mean for four females from Peña Blanca (37.6 and 38.9 mm). The maximum humerus diameter (20.02 mm) is just under the means for females from the Pojoaque/Nambe area (n=7, 20.5 mm). Morphology of the anterior teeth suggest a Native American.

APPENDIX 2. GEOPHYSICAL INVESTIGATION ADJACENT TO THE PALACE OF THE GOVERNORS, SANTA FE, NEW MEXICO

David A. Hyndman and Patricia A. Maples

A geophysical investigation has been conducted over a parking lot adjacent to the Palace of the Governors in Santa Fe, New Mexico. The geophysical efforts were performed in support of an archaeological study in preparation for construction activities at the site. The geophysical investigation was designed in two parts; an initial deployment of rapid, low cost geophysical methods to screen the site, to be followed by a more costly ground penetrating radar survey if appropriate. This report documents the initial geophysical efforts.

Field activities for the initial geophysical deployment were conducted on 12–13 October 2002. Equipment and technical expertise for the surveys were provided by Sunbelt Geophysics of Albuquerque. Oversight, support, and archaeological guidence were provided by the Office of Archaeological Studies of the Museum of New Mexico.

Methodology

A spatial control grid was established utilizing a transit and tape, and was marked with wooden stakes and small dots of spray paint. The grid consisted of parallel east-west data acquisition traverses separated by 1 m. The position of the grid is shown with respect to local landmarks in Figure 1. The data from the thin strip of coverage to the north of the History Library were distorted by interference and provided no useful information. This portion of the investigation has been omitted from subsequent figures in order to preserve a reasonable aspect ratio to the data images.

Geophysical data were acquired over the grid utilizing three different instruments, each able to provide rapid, high-density coverage. These included a Geonics EM-61 high-resolution metal detector with two different antenna sets, a Geometrics G-858 cesium vapor magnetometer, and a Geonics EM-38 ground conductivity meter. The instruments used in the investigation are shown in Figure 2.

Metal Detection Survey

A quantitative metal detection survey was conducted utilizing a Geonics EM-61 metal detector. This survey was performed both to locate subsurface metallic objects of possible historical interest and to identify buried utilities/objects that might interfere with subsequent instruments. The EM-61 is a time domain electromagnetic instrument specifically designed for mapping buried metal to a depth of up to 3 m depending on the antenna set deployed. It consists of a transmitter coil, receiver coil(s), associated electronics, and a data logger. The transmitting coil generates a magnetic pulse, which penetrates the soil. This pulse induces eddy currents in the subsurface. These currents dissipate rapidly in soil, but persist in buried metal, which possesses a very high conductivity. The long-lived eddy currents from metal induce a signal in the receiver coil(s), which is integrated over the late portion of the time gate between pulses. This signal, in millivolts (mV), is proportional to the quantity and depth of buried metal.

The EM-61 was deployed with two difference antenna sets. The entire site was surveyed using the so called "Hand Held" (HH) coils, which are 15-cm-diameter antenna designed for maximum spatial delineation of small, relatively shallow objects. A portion of the site was resurveyed utiliz-

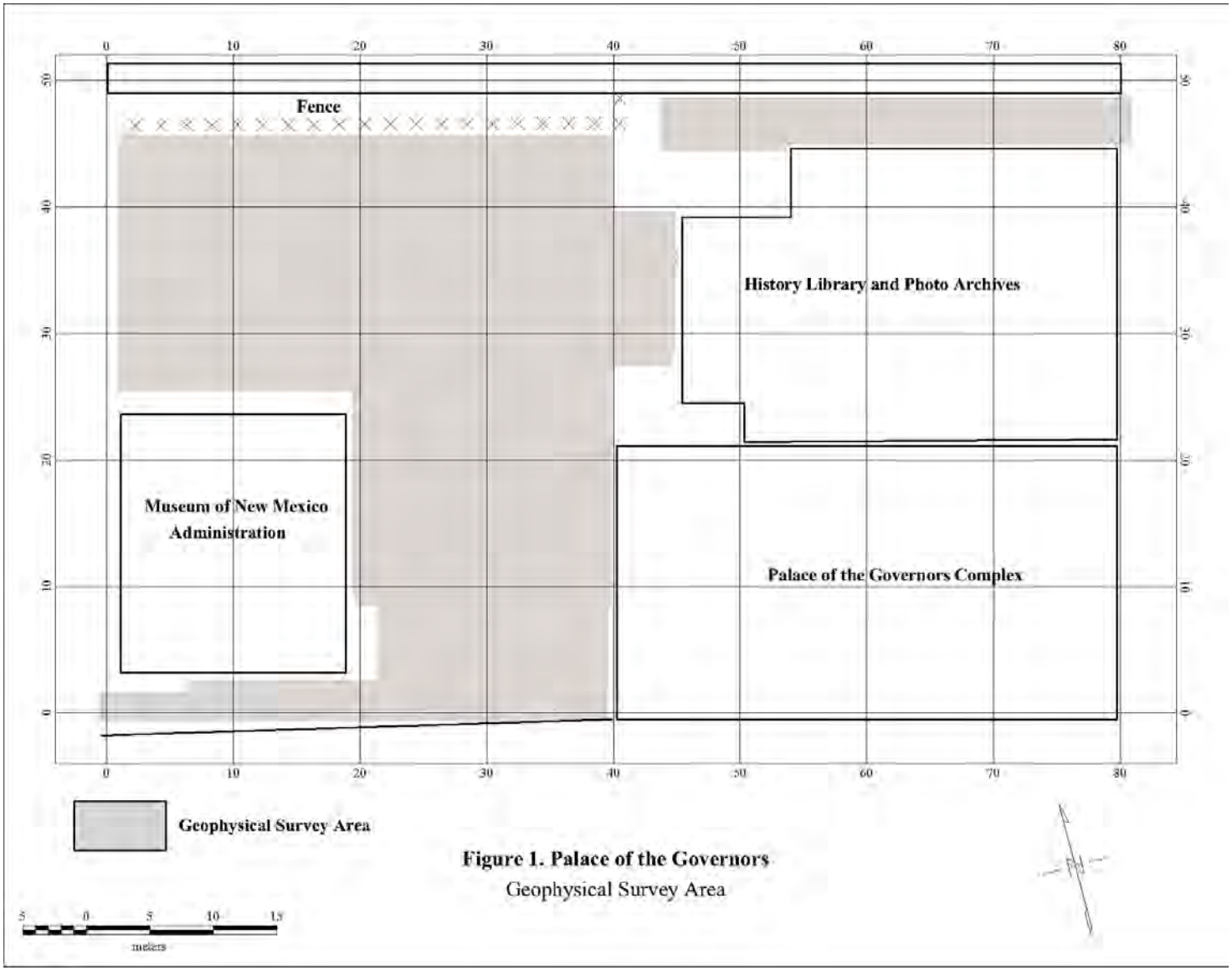

Figure 1. Palace of the Governors
Geophysical Survey Area

EM-61 with 15 centimeter antenna

EM-61 with one-meter antenna

Geometrics G-858 Magnetometer

Geonics EM-38 Conductivity Meter

Figure 2. Geophysical Instruments

ing the 1-m antenna over parallel north-south traverses. The 1-m antenna set provides greater depth of penetration but with less spatial resolution. EM-61 data were acquired every 0.2 cm along the parallel traverses. Data were recorded on a data logger and transferred to a computer for processing and image preparation.

Electrical Conductivity

Electrical conductivity surveying measures the ease with which induced currents flow in the ground. Electric current flows most easily by electrolytic conduction between free charged particles. This requires a supply of moisture, porosity to contain the moisture, permeability to provide a path, and a source of free ions to carry the charge. Any human activity that creates lateral changes in soil moisture, porosity, permeability, or ionic content of the soil may create a measurable anomaly. Generally, human activities in an arid climate increase the conductivity of effected areas by trapping moisture in compacted earth or increasing the availability of free ions. Examples are foundations, hard packed soil, and middens.

Electrical conductivity data were acquired with a Geonics EM-38 ground conductivity meter. This instrument provides a measurement of the electrical conductivity to a depth of approximately 1.5 m. The conductivity data were acquired approximately every 0.3 m along each traverse, with the measurements stored in a data logger for subsequent processing and analysis.

Magnetic

A magnetic survey was conducted in order to map lateral contrasts in subsurface magnetic properties. Potential targets might include cobbles, architectural stones, fire alteration, iron objects, and other anomalies in the magnetic properties of the soil.

The magnetic data were acquired with a Geometrics G-858 cesium vapor magnetometer. Measurements were made approximately every 0.25 m along each traverse with the magnetic sensor held approximately 0.5 m above the ground. The measurements were stored in a data logger for subsequent processing and analysis with a computer.

Results

Metal Detection Survey

The results from the EM-61 survey utilizing the HH (15 cm) antenna are presented in Figure 3. Annotations are made for the observable (surface) metal objects that generated a response, including a fence, cut-off fence posts, and an electrical power box. Underground utilities are observed along the southern and eastern edges of the survey.

Numerous "hits" remain after accounting for the observed metallic objects. It is likely that many of these are from innocuous debris under the asphalt pavement, as would be expected in an area that has seen many years of use. Excavation will be required to determine the historic significance of any particular object. The portion of the survey marked ? contains numerous very small features with a "pin prick" character that seem to form a northwest-southeast trend. This area received the follow-on metal detection survey by the EM-61 deployed with the 1-m antenna.

The data from the deeper seeking 1-m antenna are shown in Figure 4. This image reveals a buried line, possibly two, running from the northeast corner of the Museum Administration building to the southeast corner of the survey. Electrical power conduit can be observed near each end of this feature, and interference from alternating current would account for the character of the data seen in Figure 3.

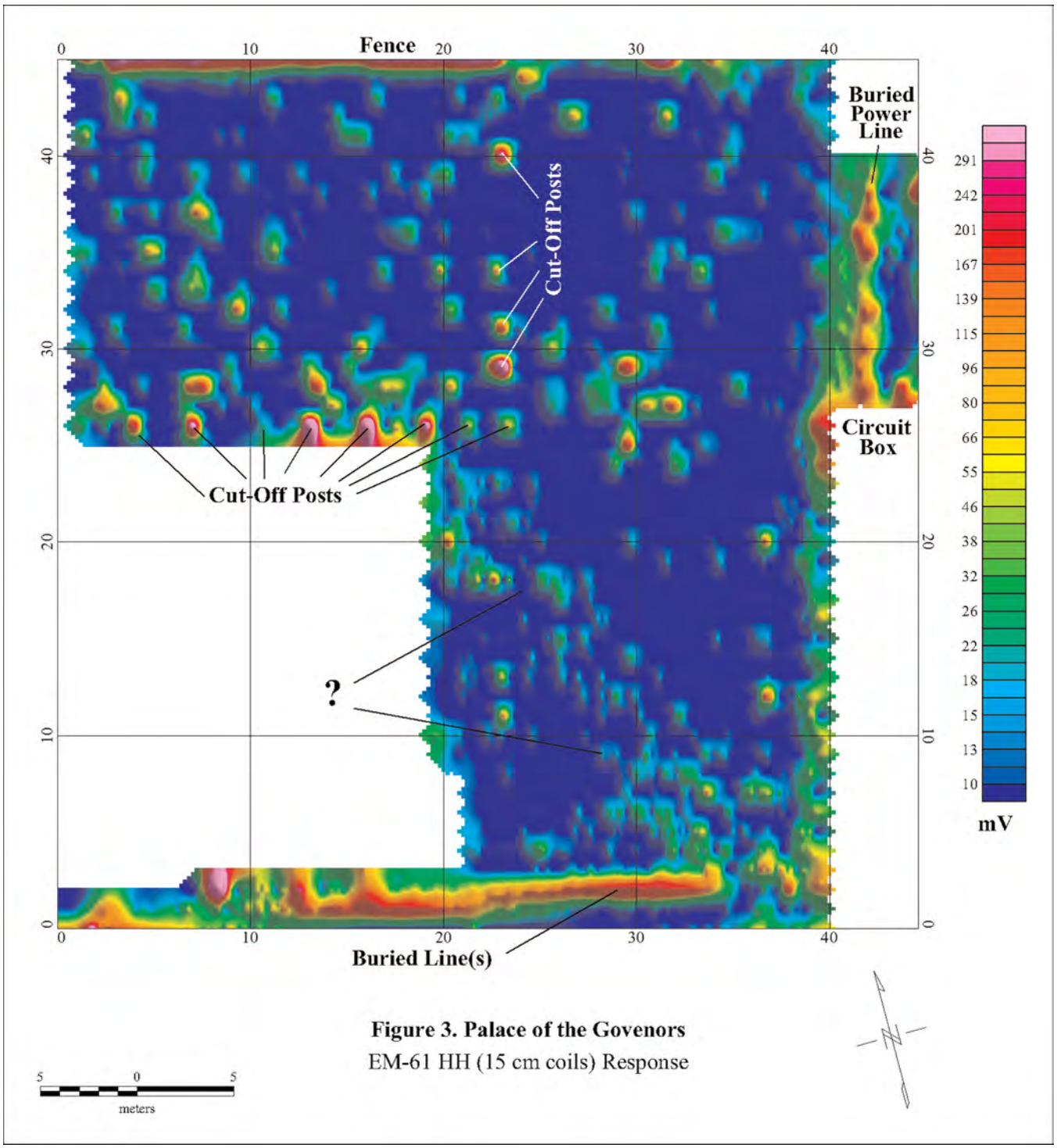

Figure 3. Palace of the Govenors
EM-61 HH (15 cm coils) Response

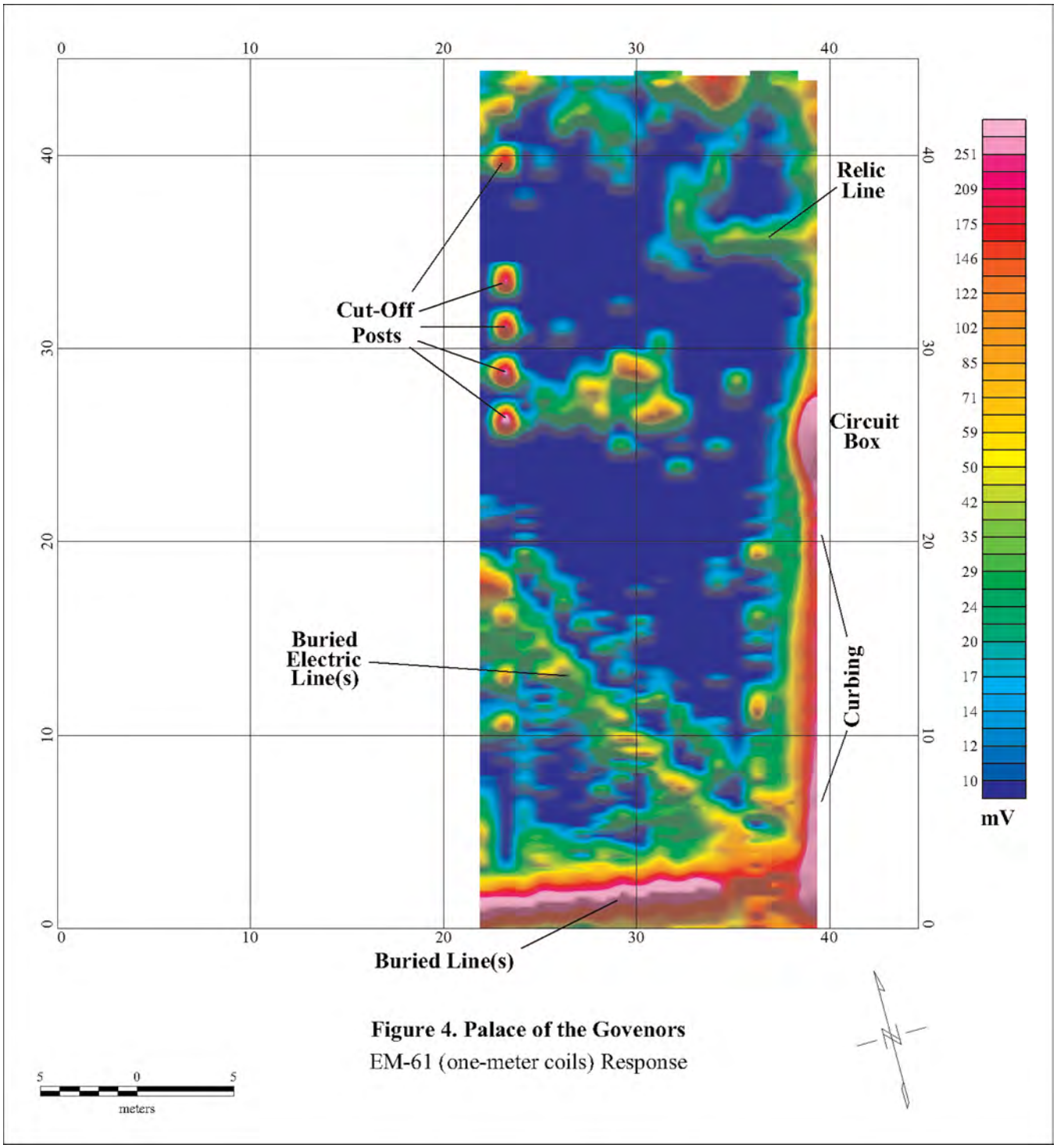

Figure 4. Palace of the Govenors

EM-61 (one-meter coils) Response

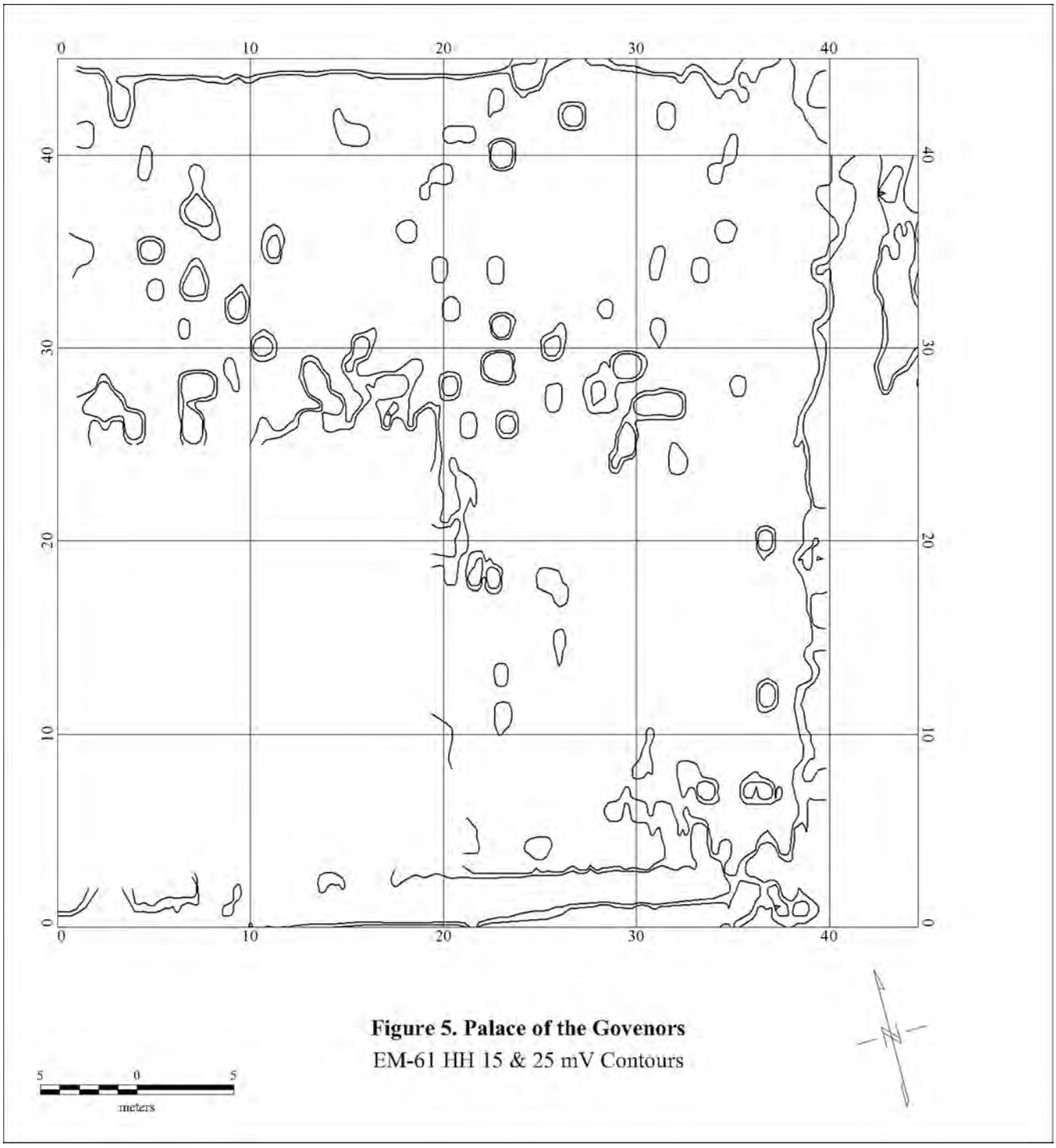

Figure 5. Palace of the Govenors
EM-61 HH 15 & 25 mV Contours

Figure 5 displays the 15 mV and 25 mV contours of the EM-61 HH data presented in Figure 3. These contours will be superposed on the images of the electrical conductivity and magnetometer data sets in order to delineate the features generated by these significant buried metallic objects.

Electrical Conductivity Survey

The EM-38 electrical conductivity data are presented in Figure 6, together with the contours of the EM-61 HH response (Fig. 5). The EM-38 data were rather noisy due to nearby electric power lines, the general elevated electromagnetic pollution typical of urban environments, and the numerous subsurface metallic objects detected by the EM-61. Low-pass spatial filtering was applied to these measurements in order to damp the noise and provide an image of larger scale conductivity contrasts.

A trough of low conductivity (blue) is observed running coincident with the buried electric line(s) seen in Figure 4. This feature is generated by the metallic wires and conduit distorting the induced current from the instrument.

A conductivity high (red) is observed in the northern part of the survey in an area free of subsurface debris. This feature is consistent with hard-packed earth, such as a building foundation or a cellar.

Magnetic Survey

The magnetometer data are imaged in Figure 7 together with the EM-61 HH contours. The general trends from low (blue) to high (red) magnetic field strength are generated by the fence, dumpster, buildings, and other surface features. Of initial interest are the small features, especially those that do not correlate with metallic debris (EM-61 contours). Several examples are marked with a question mark. These anomalies may be generated by magnetic stones/cobbles, fire alteration of the soil, or possibly small iron objects that were missed by the EM-61.

Two additional features are labeled A and B. Each of these displays a linear trend in magnetic relief that is not correlated to buried metal detected by the EM-61. Feature A extends approximately north-south for over 10 m and may be connected to a perpendicular feature, suggesting a building foundation. Feature B extends into the area of high conductivity noted on Figure 6.

An alternate projection of the magnetic data is presented in Figure 8, which is the gradient of the shaded relief shown in Figure 7. This projection provides a qualitative examination of the "character" of the magnetic response. Feature A and Feature B are seen to be associated with a change in this magnetic character. Feature A displays an intriguing rectangular appearance with fairly well defined western and northern edges. The shape of Feature B is less defined, but clearly there is a change from east to west indicating a subsurface lateral contrast in magnetic properties. This change is immediately to the east of the conductivity anomaly noted on Figure 6. These magnetic features may be generated by building foundations.

Conclusions and Recommendations

The geophysical investigation adjacent to the Palace of the Governors has provided several observations:

- The area is somewhat noisy due to numerous subsurface metallic objects, buried lines, and electromagnetic emissions. This noise degraded the electrical conductivity and magnetometer surveys.

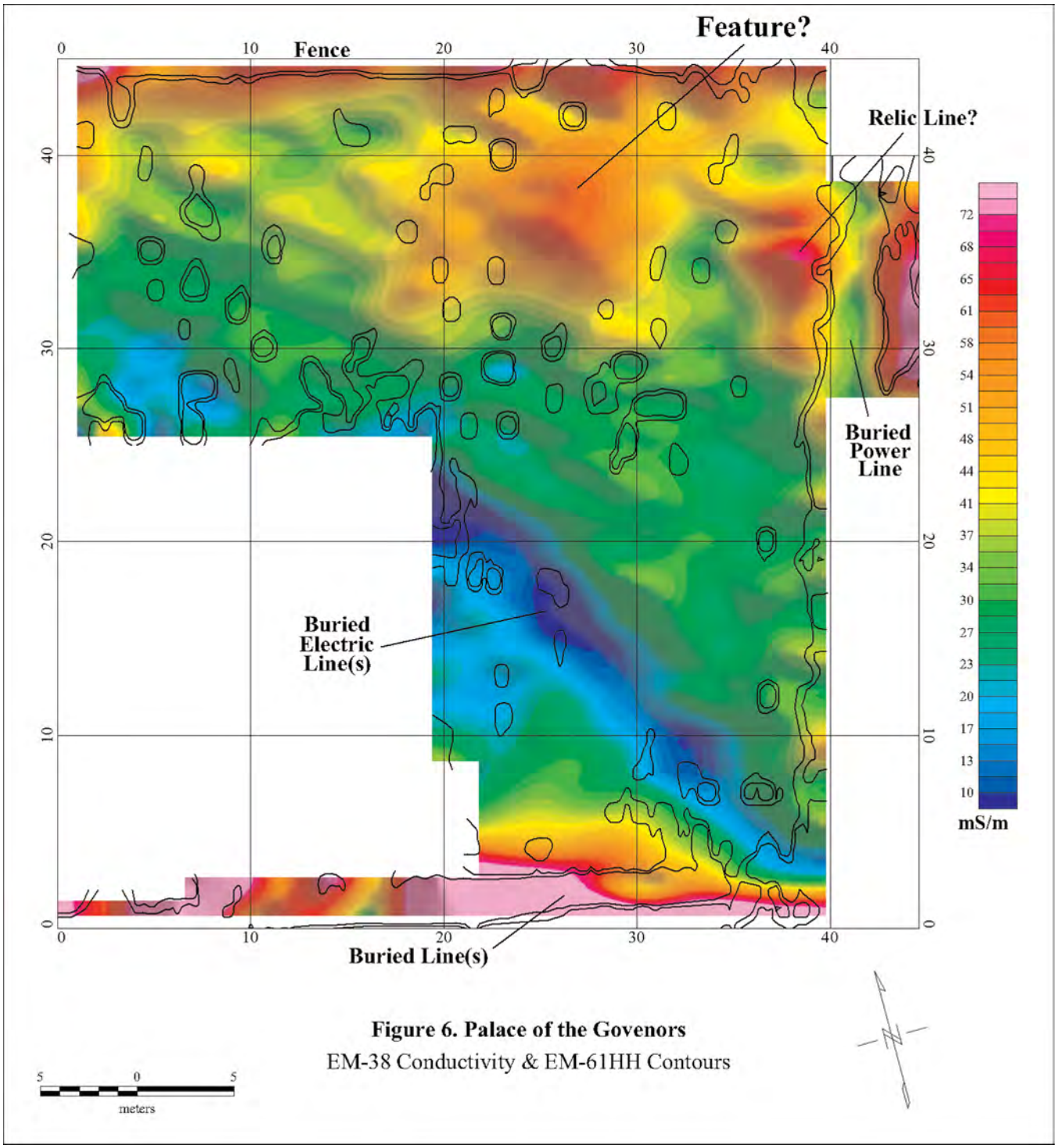

Figure 6. Palace of the Govenors

EM-38 Conductivity & EM-61HH Contours

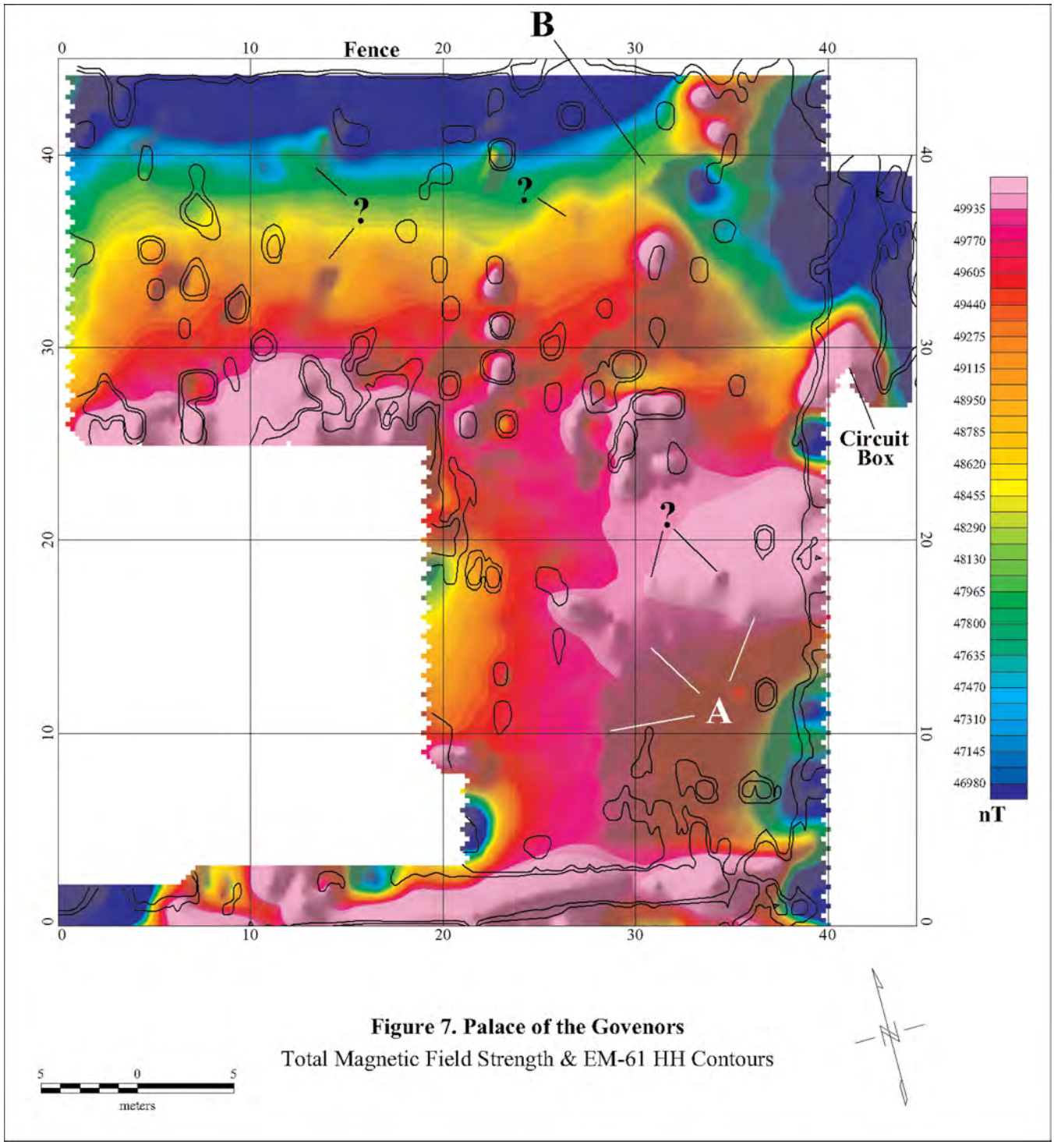

Figure 7. Palace of the Govenors
Total Magnetic Field Strength & EM-61 HH Contours

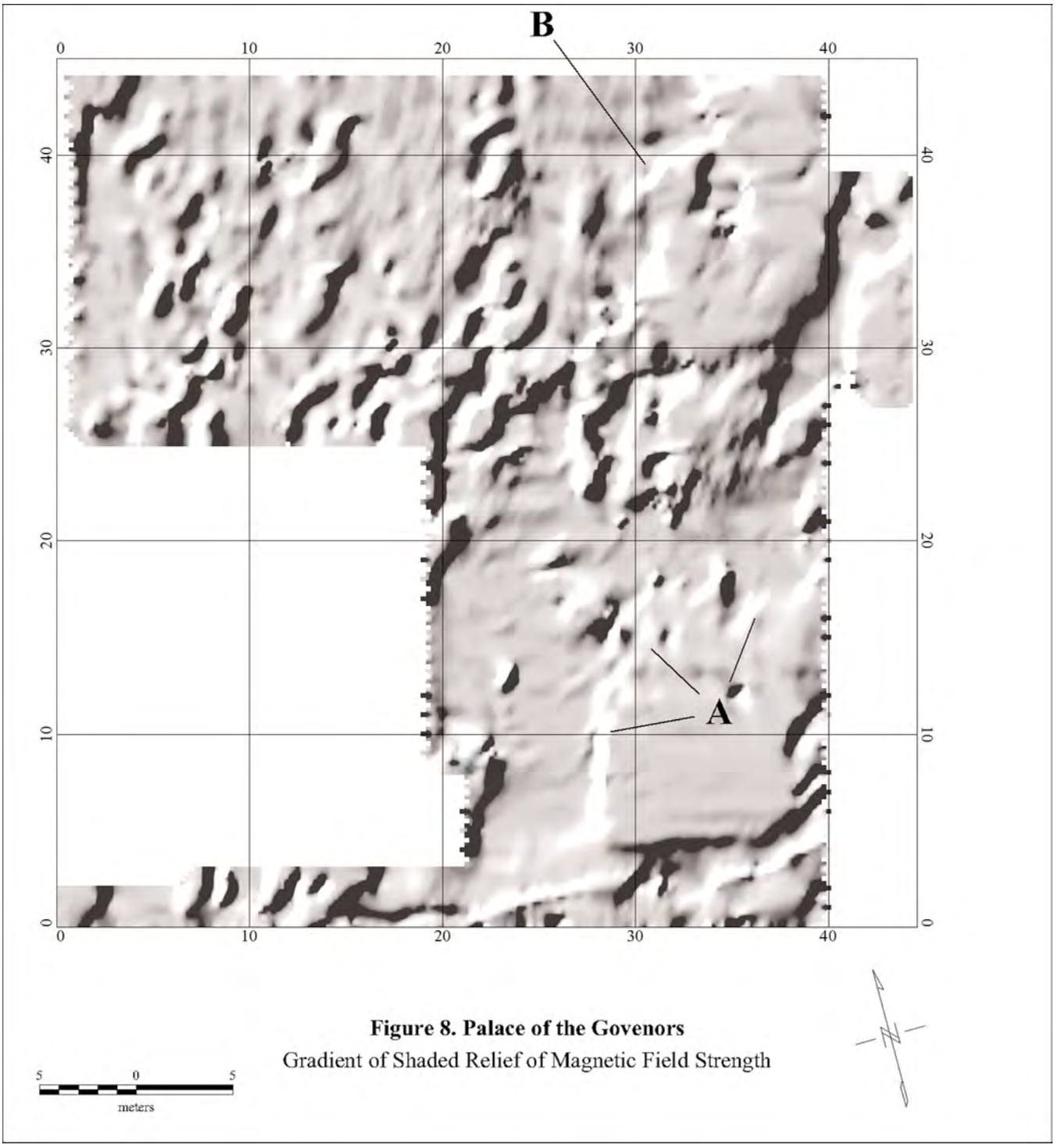

Figure 8. Palace of the Govenors
Gradient of Shaded Relief of Magnetic Field Strength

- The EM-61 metal detection surveys revealed the buried lines and many discrete buried objects (Figs. 3, 4). Determining the historical significance of any of these buried objects will require excavation.
- The EM-38 electrical conductivity survey revealed a high conductivity feature suggestive of hard-packed earth such as a building floor or cellar (Fig. 6).
- The magnetometer survey provided some small-scale magnetic "bumps" that do not correlate to buried metallic objects detected by the EM-61 (Fig. 7). These may be magnetic stones, cobbles, or fire-altered earth.
- The magnetometer data also display two larger-scale features suggestive of subsurface lateral changes in the magnetic properties of the soil (Features A and B, Figs. 7, 8).

It is difficult to recommend further, intensive geophysical investigations at this site as cost-effective, although marginal gains in subsurface characterization are possible at modest cost.

The performance of Ground Penetrating Radar (GPR) is highly dependant on the electrical conductivity of the soil. The EM-38 survey shows a general background conductivity of ~30 mS/m (green, Fig. 6), which is at the upper end of the useful range for GPR. In addition, the large number of subsurface metallic objects would provide some noise and the nearby building could be expected to reflect unwanted signal into GPR records. Certainly a follow-on GPR survey should not be expected to provide robust results.

It is likely that further magnetometer and electrical conductivity surveys would at least help clarify the anomalies that have been identified. Repeat coverage along perpendicular traverses (north-south) should prove useful and would entail modest additional effort.

It has been reported that a prominent rock foundation has been revealed by the limited excavation at the site. It is possible that this feature could be traced beyond the excavated area by acquiring very high density EM-38 and magnetometer data along closely spaced traverses oriented perpendicular to the foundation. The electromagnetic noise observed in the EM-38 data could be damped by acquiring numerous readings at each station along traverse and averaging these readings to a mean for each station. This would require approximately 30 seconds per station to obtain ~50 readings, and some subsequent data processing. Although slow compared to the continuous data acquisition along the traverse previously used, this methodology would likely be worthwhile to extend a known feature.