NMCRIS activity no.: 139419

Archaeological Monitoring for PNM Transformer and Line Replacements in the Vicinty of 210 East Marcy Street and 107 Cienega Street, Santa Fe, NM

Karen L. Wening
and
Eric Blinman

Museum of New Mexico Office of Archaeological Studies
AN 495
2018

NMCRIS Activity No. 139419

MUSEUM OF NEW MEXICO
OFFICE OF ARCHAEOLOGICAL STUDIES

Archaeological Monitoring for PNM Transformer and Line Replacements in the Vicinity of 210 East Marcy Street and 107 Cienega Street, Santa Fe, NM

Karen L. Wening and Eric Blinman

with contributions by
Susan M. Moga and C. Dean Wilson

PRINCIPAL INVESTIGATOR
Eric Blinman

ARCHAEOLOGY NOTES 495
2018

NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

1. NMCRIS Activity No.: 139419	2a. Lead (Sponsoring) Agency: City of Santa Fe	2b. Other Permitting Agency(ies): n/a	3. Lead Agency Report No.: n/a

4. Title of Report: Archaeological Monitoring for a PNM Transformer and Line Replacements in the Vicinity of 210 East Marcy Street and 107 Cienega Street, Santa Fe, New Mexico

Author(s): Karen L. Wening and Eric Blinman

5. Type of Report
☒ **Negative** ☐ **Positive**

6. Investigation Type
☐ Research Design ☐ Survey/Inventory ☐ Test Excavation ☐ Excavation
☐ Collections/Non-Field Study
☐ Overview/Lit Review ☒ Monitoring ☐ Ethnographic study ☐ Site specific visit
☐ Other

7. Description of Undertaking (what does the project entail?): Installation of 134 linear feet of new conduit, removal of three existing single phase transformers, installation of a 150kva 3-phase transformer and a 25kva transformer in downtown Santa Fe, New Mexico

8. Dates of Investigation: October 16–26, 2017

9. Report Date: 2/26/2018

10. Performing Agency/Consultant: OAS
Principal Investigator: Eric Blinman
Field Supervisor: James Moore
Field Personnel Names: Karen L. Wening

11. Performing Agency/Consultant Report No.: Archaeology Notes 495

12. Applicable Cultural Resource Permit No.: NM-17-027-M

13. Client/Customer (project proponent):
Contact: Matthew Holbert
Address: 4565 State Road 14, Santa Fe, NM 87505
Phone: Office: (505) 473-3229

14. Client/Customer Project No.: WO#27142

15. Land Ownership Status ***(Must be indicated on project map):***

Land Owner	Acres Surveyed	Acres in APE
City of Santa Fe	n/a	.0024
Public easement through private land owned by Albert Shultz	n/a	.0042
Public easement through private land owned by John Barker, Barker Realty	n/a	.0067
	n/a	
TOTALS		.0133

16 Records Search(es):

Date(s) of ARMS File Review Aug. 3, 2017	**Name of Reviewer(s)** Wening	
Date(s) of NR/SR File Review Aug 3, 2017	**Name of Reviewer(s)** Wening	
Date(s) of Other Agency File Review	**Name of Reviewer(s)**	**Agency**

17. Survey Data:

a. Source Graphics

☐ **NAD 27** ☒ **NAD 83** **Note: NAD 83 is the NMCRIS standard**

☐ **USGS 7.5' (1:24,000) topo map** ☐ **Other topo map, Scale:**

☒ **GPS Unit** **Accuracy** ☐ **<1.0m** ☐ **1-10m** ☐ **10-100m** ☐ **>100m**

b. USGS 7.5' Topographic Map Name **USGS Quad Code**

Santa Fe	35105-F8

c. County(ies): Santa Fe

17. Survey Data (continued):

d. Nearest City or Town: Santa Fe

e. Legal Description:

Township (N/S)	**Range (E/W)**	**Section**	**¼ ¼ ¼**
16N	**10E**	**24**	**NE, NW, SW.**
			, , .
			, , .
			, , .
			, , .
			, , .
			, , .
			, , .
			, , .

Projected legal description? ☒ **Yes** ☐ **No** ☐ **Unplatted**

f. Other Description (e.g., well pad footages, mile markers, plats, land grant name, etc.): 210 East Marcy, 107 Cienega St.

18. Survey Field Methods: NA

Intensity: ☐ 100% coverage ☐ <100% coverage

Configuration: ☐ block survey units ☐ linear survey units (l x w):

☐ other survey units (specify):

Scope: ☐ non-selective (all sites recorded) ☐ selective/thematic (selected sites recorded)

Coverage Method: ☐ systematic pedestrian coverage ☐ other method (describe)

Survey Interval (m): n/a **Crew Size:** 1 **Fieldwork Dates:** October 16-26, 2017

Survey Person Hours: **Recording Person Hours:** 48 **Total Hours:** 48

Additional Narrative:

19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.): Urbanized; natural environment includes piñon, juniper, prickly pear, cholla, yucca, and several species of muhly and grama grass. Soils are primarily the Bluewing Series which mostly consists of of terrace soils of gravelly sandy loam.

20. **a. Percent Ground Visibility:** 70% within excavated area

b. Condition of Survey Area (grazed, bladed, undisturbed, etc.): Urbanized; built environment and pavement

21. CULTURAL RESOURCE FINDINGS ☐ **Yes, see next report section**

☒ **No, Discuss Why:** Mechanical trench excavations bisected reworked infill that was imported to stabilize cienega deposits prior to home and business construction

22. Required Attachments (check all appropriate boxes): All of the information below is included in the attached report.

☒ **USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn**

☒ **Copy of NMCRIS Mapserver Map Check**

☐ **LA Site Forms - new sites (*with sketch map & topographic map)***

☐ **LA Site Forms (update) - previously recorded & un-relocated sites (*first 2 pages minimum)***

☒ **Historic Cultural Property Inventory Forms**

☐ **List and Description of isolates, if applicable**

☐ **List and Description of Collections, if applicable**

23. Other Attachments:

☐ **Photographs and Log**

☐ **Other Attachments**

***(Describe)*:** HCPI form for 107 Cienega contracted by private homeowner; house is not on State or National Register

24. I certify the information provided above is correct and accurate and meets all applicable agency standards.

Principal Investigator/Responsible Archaeologist:

Signature _____ **Date** 2/26/2018 **Title (if not PI):**

25. Reviewing Agency:

Reviewer's Name/Date

Accepted ( ) Rejected ( )

Tribal Consultation (if applicable):

☐ **Yes** ☐ **No**

26. SHPO

Reviewer's Name/Date:

HPD Log #:

SHPO File Location:

Date sent to ARMS:

CULTURAL RESOURCE FINDINGS

[fill in appropriate section(s)]

1. NMCRIS Activity No.: 139419	**2. Lead (Sponsoring) Agency:** City of Santa Fe	**3. Lead Agency Report No.:**

SURVEY RESULTS:
Sites discovered and registered: 0
Sites discovered and NOT registered: 0
Previously recorded sites revisited (*site update form required*): 0
Previously recorded sites not relocated *(site update form required):* 0
TOTAL SITES VISITED: 0
Total isolates recorded: 41 **Non-selective isolate recording?** ☒
HCPI properties discovered and registered: 0
HCPI properties discovered and NOT registered: 0
Previously recorded HCPI properties revisited: 0
Previously recorded HCPI properties not relocated: 0
TOTAL HCPI PROPERTIES (visited & recorded, including acequias): 0

MANAGEMENT SUMMARY: 0

IF REPORT IS NEGATIVE YOU ARE DONE AT THIS POINT.

SURVEY LA NUMBER LOG
Sites Discovered:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)

Previously recorded revisited sites:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)

MONITORING LA NUMBER LOG *(site form required)*

Sites Discovered (*site form required*) **:** **Previously recorded sites *(Site update form required):***

LA No.	Field/Agency No.	LA No.	Field/Agency No.

Areas outside known nearby site boundaries monitored? Yes ☐, No ☐ If no explain why:

TESTING & EXCAVATION LA NUMBER LOG (*site form required)*

Tested LA number(s)	Excavated LA number(s)

Administrative Summary

PNM, with the support of Essential Utilities, has replaced and upgraded electrical service equipment in the vicinity of 107 Cienega Street and 210 East Marcy Street, downtown Santa Fe. PNM removed three existing single-phase transformers and installed a 150kva 3-phase transformer at the East Marcy Street location using previously installed conduit for service. This transformer replacement disconnected residential service to 107 Cienega Street, which was restored by new conduit and placement of a new 25kva transformer. Conduit installation began at an existing service manhole on the east side of Cienega Street, crossed westward to enter the 107 Cienega Street property, and terminated on the east side of the The Santa Fe New Mexican building parking lot. Conduit installation was achieved by trenching at a width of 61 cm (24 inches) and a depth of 104 cm (41 in). Two transformer excavations were conducted, one south of the Radio Plaza Building that fronts East Marcy Street (6.90 by 3.80 by 1.61 m bgs), and another on the east side of 107 Cienega Street (1.54 by 1.39 by 1.04 m bgs). Two excavations are classified as "holes," one on the west side of the Radio Plaza building and another on the west side of the 107 Cienega property in The Santa Fe New Mexican building parking lot.

No archaeological sites or features were encountered during mechanical excavations. However, a broad, thick swath of redeposited natural sediments mixed with late nineteenth to mid-twentieth century artifacts was encountered in excavations proximate to 107 Cienega Street. This layer appeared to represent infill prior to home construction on Cienega Street. Reworked sediments were encountered in all other excavations as well, including in the area adjacent to the existing transformers south of Radio Plaza, where an incinerator associated with the KTRC radio station was located and may have stood from 1946 to 1971.

The project is within the Historic Downtown Archaeological Review District of the City of Santa Fe on private land and on land owned by the City of Santa Fe. There are no previously known archaeological sites within the project area. However, a recently completed electrical conduit monitoring project in the vicinity of the transformer removal site revealed modern disturbed deposits with approximately 40 artifacts dating to late Territorial or early Statehood periods. Recently completed monitoring in this area reached culturally sterile cienega clays at the bottom of the trench excavations.

A review of historic maps of Santa Fe shows that the project area is near an irrigation ditch indicated on Lt. Jeremy F. Gilmer's Plan of Santa Fe (1846–1847). However, no evidence of this feature was encountered during these excavations. Other early maps merely indicate the presence of either cienega or fields. Cienega Street appeared first as a proposed street on the 1913 Sanborn Fire Insurance Map, Santa Fe (Sheet 4). As of 1930, no structures had yet been built within the project area, according the Sanborn map from that year (Sheet 8). The existing structure at 107 Cienega Street appeared on the 1948 revision of the Sanborn map (Sheet 8), but no other structures were indicated in the adjacent areas, where transformer removal and replacement took place.

As stipulated in the City of Santa Fe Ordinance 14-3.13B(4), archaeological clearance is required for new construction of utility mains longer than 18.3 m (60 ft) in the Downtown Historic Archaeological Review District. NMAC 4.10.17 Standards for Monitoring applied to the project due to the portion of the conduit trench that crossed Cienega Street. OAS requested that the monitoring provision of our New Mexico General Archaeological Investigation Permit NM-17-027-M be activated following approval of the OAS monitoring plan by New Mexico Historic Preservation Division (NMHPD).

MNM Project No. 41.1075
NMCRIS Activity No. 139419
Archaeological Monitoring Permit No. NM-17-027-M

ACKNOWLEDGMENTS

The authors would like to thank Mr. Albert Shultz for sharing a plenitude of wonderful information on the fascinating history of the house at 107 Cienega Street. Without his generous help, we would not have a full portrait of the many interesting people and organizations found at 107 Cienega between the 1940s and the 1990s, chief among them Albert Schultz' father, Dr. Phillip Shultz. Also, many thanks to John Barker of Barker Realty for providing invaluable historical information concerning the Radio Plaza building at 210 East Marcy Street and to Matthew Holbert of PNM for supplying the 1971 survey of the Radio Plaza parking area. Last but not least, our thanks to the PNM and Essential Utilities crews for their help and patience.

Contents

Figure List

Table List

1 ⇊ Introduction

Between Oct. 16 and Oct. 26, 2017, OAS monitored the installation of approximately 134 linear feet of new conduit, the removal of three existing single phase transformers, and the installation of a 150kva 3-phase transformer and a 25kva transformer in downtown Santa Fe, New Mexico (Figs. 1.1 and 1.2) by the Public Service Company of New Mexico.

This work took place in the vicinity of 107 Cienega Street and on private property in the southwest parking area of Radio Plaza. Conduit installation started at an existing service manhole on the east side of Cienega Street, crossed the street to enter the 107 Cienega Street property, and terminated at the western property boundary, where the 25kva transformer was installed (Figs. 1.3–1.5).

Conduit installation was achieved through the excavation of trenches measuring 61 cm wide (24 in) and 104 cm deep (41 in). Two excavations were conducted for the installation of the transformers: one south of the Radio Plaza Building fronting East Marcy Street (6.90 by 3.80 by 1.61 m bgs) and another on the east side of 107 Cienega Street (1.54 by 1.39 by 1.04 m bgs). The removal of old transformers and the 150kva transformer installation project were proximate to, but independent of, the 107 Cienega Street service improvements.

The project was located within the Historic Downtown Archaeological Review District of the City of Santa Fe, on private land and on land owned by the City of Santa Fe (Cienega Street). There are no previously known archaeological sites within the project area, but a recent archaeological monitoring project encountered reworked deposits nearby. These deposits were virtually identical to those found during the current OAS investigation.

Ron Winters (personal communication, July 19, 2017) monitored the installation of an electrical conduit from Radio Plaza to the location of the proposed 150kva transformer installation in early 2017. This trench was immediately adjacent to the open concrete vault containing the three transformers that were to be removed in October 2017. Winters stated that he observed disturbed deposits and approximately 30 artifacts dating to Territorial or Statehood periods; this recent monitoring project also revealed culturally sterile cienega clays at the bottom of the conduit trench.

As stipulated in the City of Santa Fe Ordinance 14-3.13B(4), archaeological clearance is required for the new construction of utility mains longer than 18.3 m (60 ft) in the Downtown Historic Archaeological Review District. NMAC 4.10.17 Standards for Monitoring applied to the project as the portion of land where the conduit trench crossed Cienega Street is city property. OAS requested that the monitoring provision of its New Mexico General Archaeological Investigation Permit NM-17-027-M be activated following approval of the monitoring plan by New Mexico Historic Preservation Division (NMHPD).

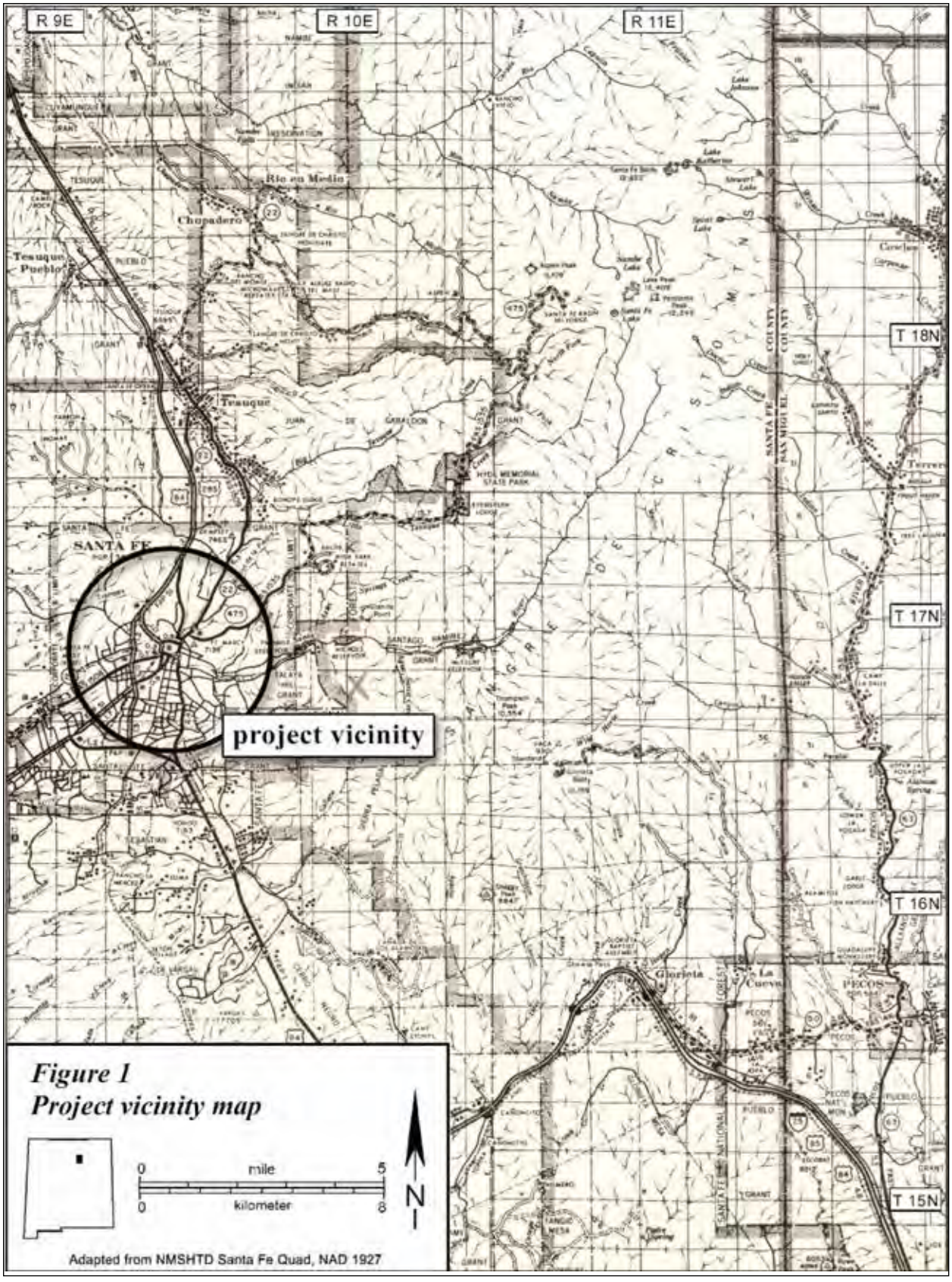

Figure 1.1. Project vicinity map.

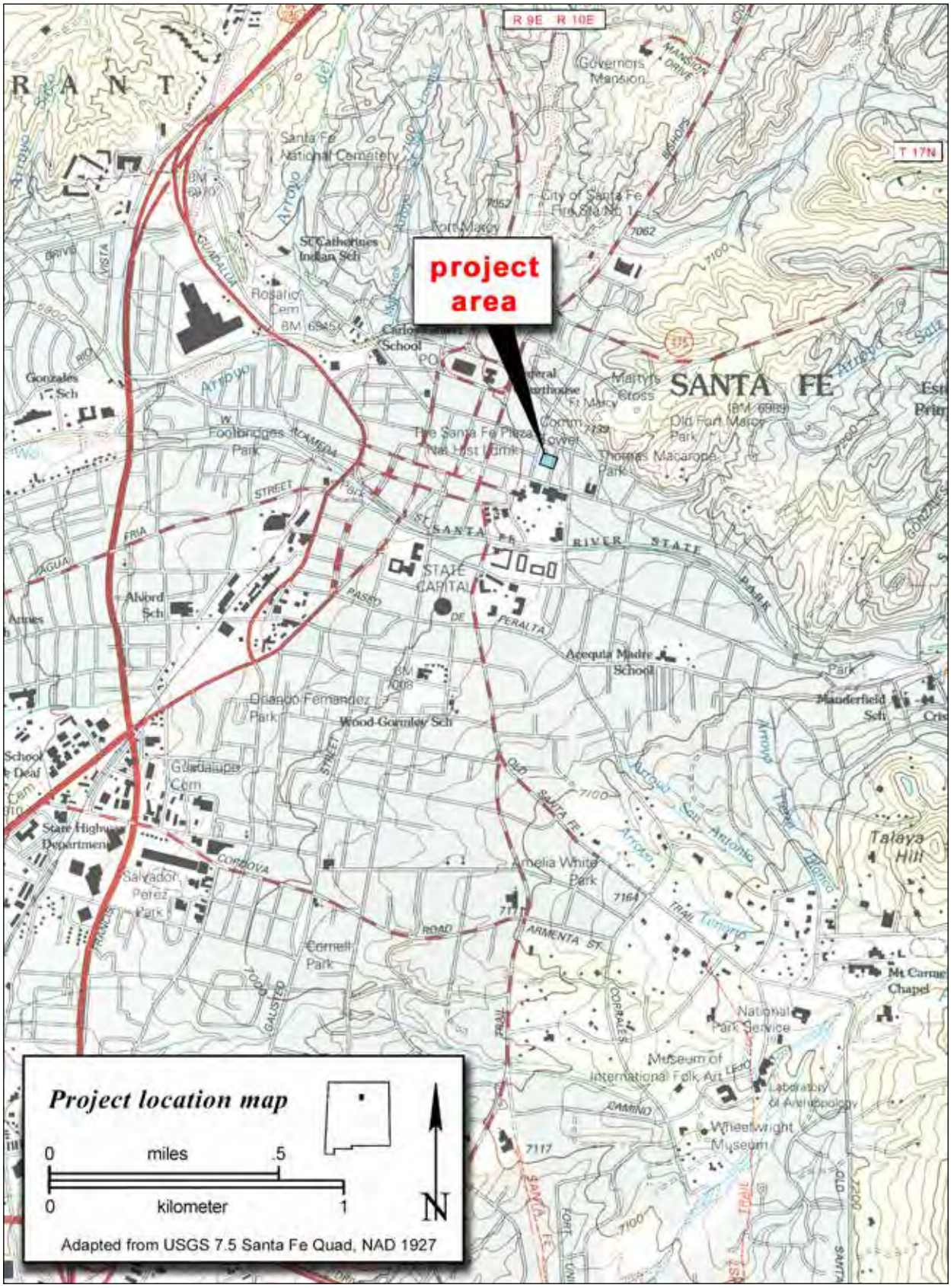

Figure 1.2. Project location map.

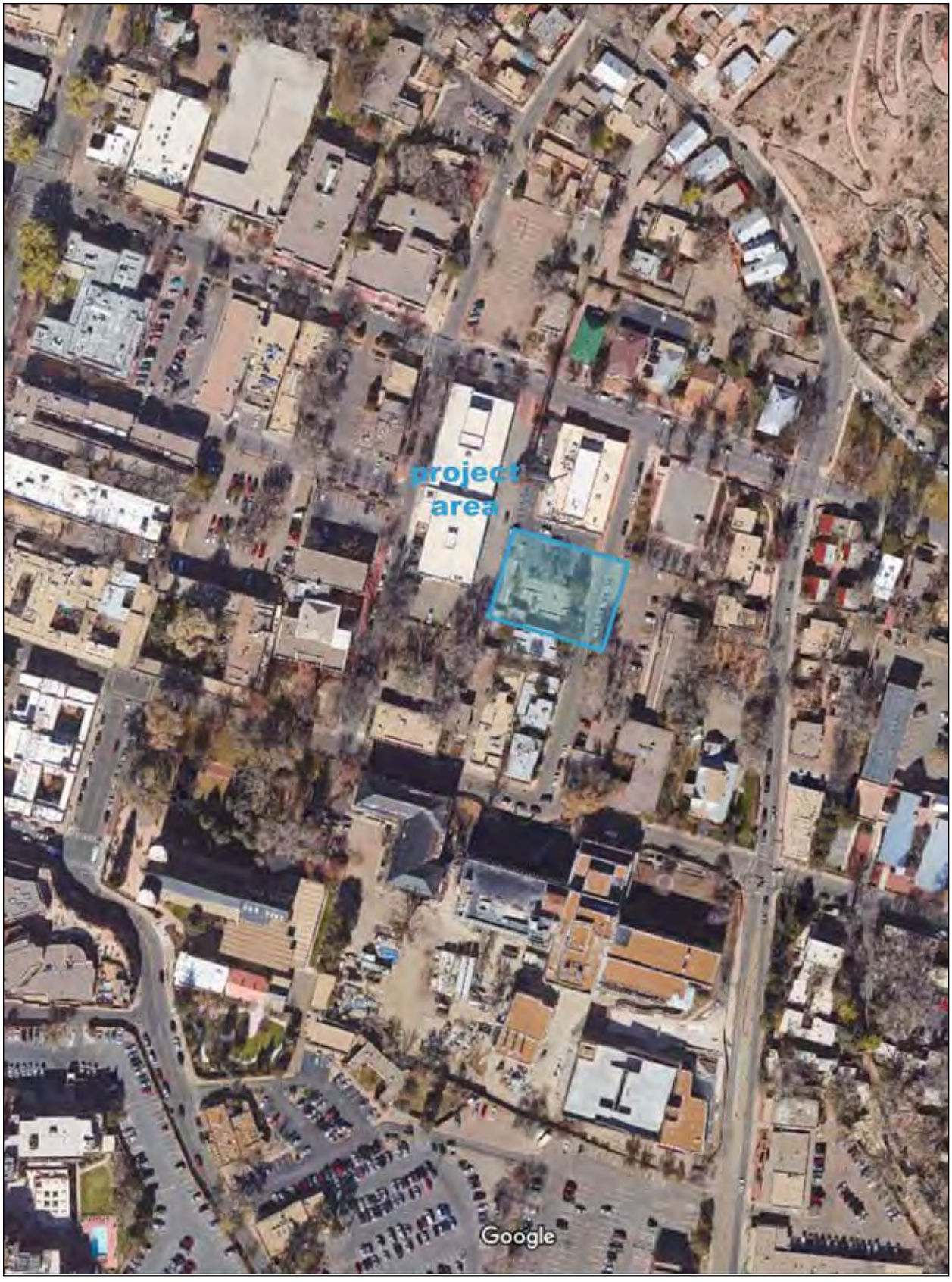

Figure 1.3. Aerial view of the project area.

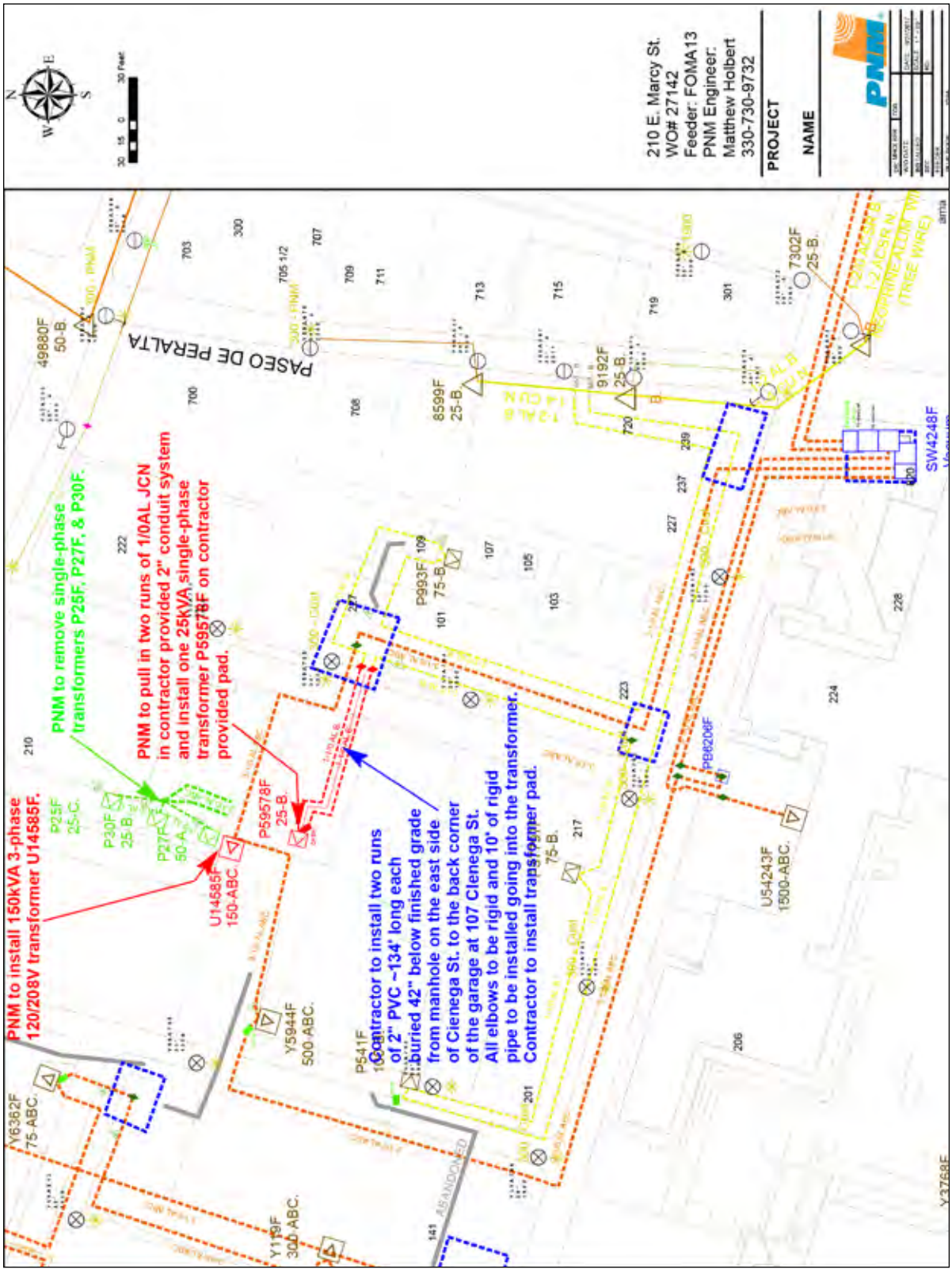

Figure 1.4. Schematic of proposed PNM conduit installation, transformer removals, and transformer installations.

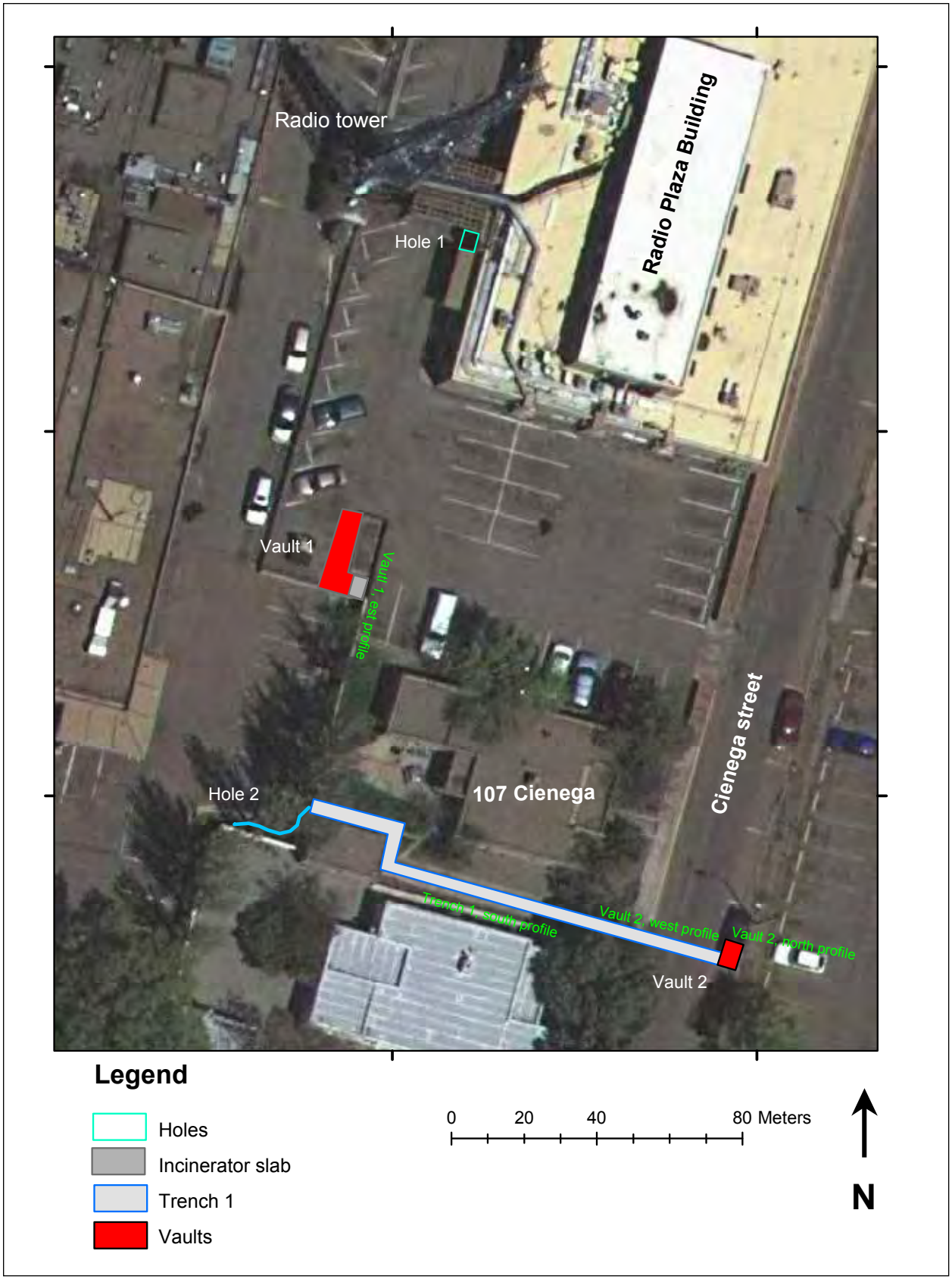

Figure 1.5. Aerial view of conduit trenching and transformer locations.

2 ⇓ Physical Environment and Historical Background

Numerous recent archaeological projects in downtown Santa Fe have provided information regarding the local history and environment of the area. Environmental and cultural history details for this report have been adapted from Hannaford 1997, Lentz 2005, Wenker 2005, Barbour 2011, and Lakatos 2011a.

Environment

Topography in the Santa Fe area alternates between nearly level plains, rolling terraces, and steep, rocky slopes. The main tributary drainage here is the Santa Fe River. Other major tributary drainages include Arroyo de la Piedra, Arroyo Ranchito, and Arroyo Barranca, among others. These tributaries have wide, level floodplains, while smaller tributary arroyos have cut deeply into the alluvial plain. Much of the riparian zone adjacent to the Santa Fe River holds deposited rich soils ideal for agriculture.

Geology

Santa Fe is located in a fault-zone feature within the structural subdivision of the Southern Rocky Mountain physiographic zone known as the Española Basin. The Española Basin is one of a chain of six or seven basins comprising the Rio Grande rift, which extends from southern Colorado to southern New Mexico (Kelley 1979:281). Considered an extension of the Southern Rocky Mountain Province (Fenneman 1931), this basin is surrounded by uplands of alternating mountain ranges and uplifted plateaus. The Rio Grande flows along the long axis of this feature (Kelley 1979:281).

The northern boundary of the Española Basin is composed of the eroded edge of the Taos Plateau. The Sangre de Cristo Mountains form the eastern edge of the basin, and the southern boundary is marked by the Cerrillos Hills and the northern edge of the Galisteo Basin. The La Bajada fault escarpment and the Cerros del Rio volcanic hills denote the basin's southwestern periphery. The Española Basin is bounded to the west by the Jemez volcanic field; the Brazos and Tusas Mountains form the northwestern boundary. Elevations along the Rio Grande through the basin vary from 1,845 m (6,053 ft) in the north to 1,616 m (5,301 ft) in the south. Altitudes in the surrounding area reach 3,994 m (13,103 ft) in the Sangre de Cristo Mountains, 3,522 m (11,555 ft) in the Jemez Mountains, and 2,623 m (8,605 ft) in the Brazos and Tusas Mountains (Kelley 1979:281).

The Rio Grande rift was established during the late Oligocene epoch (ca 30 million years BP) when a cycle of down-warping and extensional faulting succeeded a period of regional uplift (Kelley 1979:281). As the subsidence of the Española Basin proceeded through the Miocene and Pliocene epochs (ca 3 million to 25 million years ago), erosion from the Nacimiento, Jemez, and Brazos uplifts to the north and northwest, and from the Laramide Sangre de Cristo uplift to the east and northeast, provided most of the sediments for what is known as the Santa Fe group, the prominent geologic unit within the Española Basin (Folks 1975). Formations within the Santa Fe group, such as the Tesuque Formation, consist of deep deposits (more than 1 km thick) of poorly consolidated sands, gravel and conglomerates, mudstones, siltstones, and volcanic ash beds (Folks 1975; Lucas 1984).

Alluvial deposits of ancient and modern gravels are found in arroyos and on adjacent terraces. Tertiary volcanic deposits, Cenozoic sediments, and Precambrian rock are exposed in the surrounding areas; when combined with the aforementioned alluvial deposits, these deposits provide most of the materials needed for flaked stone artifact production. Chert is available in the Ancha formation (Kelley 1979:11–12). Sandstone, siltstone, andesite, basalt, and silicified wood occur in other nearby formations. The most commonly used chert in the study area outcrops in the Madera limestone formation and occurs in local gravel deposits. Small amounts of obsidian can be found scattered along the basalt-

capped mesas west of Santa Fe (Kelley 1979:12). A detailed soil map shows that the project area is dominated by the Bluewing Series (Folks 1975:15–16), which consists mostly of level to gently sloping terrace soils of gravelly, sandy loam. The project area is located at an elevation of 2,130.5 m (6,990 ft).

Climate

The Santa Fe area has a semi-arid climate. Generally, latitude and altitude are the two basic determinants of temperature; however, altitude is the more powerful variable in New Mexico; in general, mean temperatures decline faster with increased elevation than with increased latitude. Cold air drainage is a common and well-known feature of New Mexico valleys. Narrow valleys create their own temperature regimes by channeling air flow—the usual patterns are warm up-valley winds during the day and cool down-valley winds at night. In contrast, shifts in temperature over broad valley floors are influenced by the local relief (Tuan et al. 1973).

The Santa Fe weather station is at an elevation of 2,195 m (7,201 ft). The mean annual temperature reported by the station is between 48.6° and 49.3° C (Gabin and Lesperance 1977). Climatological data further indicate that the study area conforms to the general temperature regime of New Mexico—that is, hot summers and relatively cool winters.

The average frost-free period (growing season) in Santa Fe lasts 164 days. The earliest and latest recorded frosts occurred on Sept. 12, 1898, and May 31, 1877, respectively (Reynolds 1956:251). Although a frost-free season of 130 days is sufficiently long enough to allow for the growing of most indigenous varieties of maize through dry farming (Schoenwetter and Dittert 1968; Hack 1942), the unpredictability of late spring and early fall frosts creates agricultural risk.

Precipitation in the Santa Fe area can fluctuate widely. A maximum of 630 mm of precipitation was recorded in Santa Fe in 1855, compared to a minimum of 128 mm in 1917 (Reynolds 1956). The amount of precipitation is even more variable for any given month in successive years. Late summer is the wettest season in the annual cycle of the Santa Fe area, whereas June is one of the driest months. Precipitation records from Santa Fe indicate that more than 45 percent of the mean annual precipitation falls between July and September (Gabin and Lesperance 1977). Although October is drier than September, it is the fourth wettest month of the annual cycle, and significant precipitation (7.6 percent of the annual total) falls in Santa Fe in October. Late summer and fall moisture is derived from the Gulf of Mexico, when air masses from the region push inland bringing economically important monsoons (Tuan et al. 1973:20). Summer rains tend to be violent and localized, saturating the ground surface at the beginning of a storm and resulting in the loss of much moisture through runoff.

Flora

Local flora and fauna are typical of Upper Sonoran grasslands. Piñon-juniper grasslands support a variety of plant and animal species and are the most common habitat in the area. Characteristic vegetation here includes piñon, juniper, prickly pear, cholla, yucca, and several species of muhly and grama grass (Pilz 1984). The piñon-juniper community thins as it descends from the Sangre de Cristo foothills and grades into shortgrass plains midway between the foothills and the Santa Fe River (Kelley 1979:12). The open valleys contain grama grass, muhly, Indian ricegrass, galleta grass, soapweed yucca, one-seed juniper, Colorado piñon, occasional Gambel oak, and small stands of mountain mahogany. Arroyo bottoms contain various shrubs, including four-wing saltbush, Apache plume, rabbitbrush, big sagebrush, and wolfberry. The Riparian/Wetlands habitat is found only along perennial streams, such as the Rio Pojoaque and Rio Tesuque. Modern vegetation includes willow, cottonwood, salt cedar, rushes, and sedges (Pilz 1984). In the wider valley bottoms, ditch irrigation is practiced. This includes the area north of the present study area.

Fauna

Fauna native to the project area includes coyote, badger, porcupine, black-tailed jackrabbit, desert cottontail, spotted ground squirrel, prairie dog, and many species of bird. Mule deer and black bear are known to occur here in low numbers (Pilz 1984). Use of the area by elk and black and grizzly bears may have been more common prior to the turn of the century (Carroll 1984:2). Plains animals, such as buffalo and pronghorn antelope, may have also been present or available within a few days walk.

3 ⇓ Cultural Overview

Human occupation of New Mexico began at least with the Paleoindian period and was continuous through the arrival of European colonists, marking the transition between the prehistoric to historic periods.

Prehistoric Period

The record of prehistoric occupation began with the Paleoindian period, transitioning to the Archaic period as the glacial environment changed to postglacial. No Paleoindian sites have been defined for the immediate Santa Fe area, but ice age fauna, radiocarbon dates appropriate for Paleoindian landscape surfaces, and the discovery of Clovis points in the greater region suggest that early components eventually will be found in the area. The record of Archaic occupation is relatively better known in the Santa Fe area (e.g., Post 2010), but sites are sparse and are not expected to be found within the project area. Population density and archaeological evidence increased with the adoption of agriculture and a Formative way of life. The archaeological record of this area falls within the framework defined by Wendorf and Reed (1955).

Developmental Period

Sites from the Developmental period in the northern Rio Grande valley are comparable to the late Basketmaker III and Pueblo I periods of the Pecos Classification. A growing number of Developmental sites are being recorded in the Rio Grande valley. These tend to be small with a ceramic assemblage composed primarily of Lino Gray, San Marcial Black-on-white, and various plain brown and red-slipped wares. Most of the documented early Developmental sites are located in the Albuquerque and Santa Fe districts (Frisbie 1967; Reinhart 1967; Peckham 1984).

The settlement of the Rio Grande drainage has typically been attributed to immigration from either the southern areas (Bullard 1962; Jenkins and Schroeder 1974) or the Four Corners/San Juan area (Judge 1991; Stuart and Gauthier 1988:49; Lekson and Cameron 1995:185) and—although direct evidence is meager—from the Mesa Verde area (Ortman 2009).

Archaeological sites in the Santa Fe area with Developmental components include:

(1) Pindi Pueblo (LA 1), located in the Agua Fria area of south Santa Fe. Although primarily a Coalition period site, LA 1 has an ephemeral Developmental period component represented by a single jacal room and a pithouse (Stubbs and Stallings 1953:225). Kwahe'e Black-on-white ceramics were recovered at the site. A tree-ring date of 1218+vv was recovered below the jacal structure (Robinson et al. 1972:38).

(2) LA 618, a pithouse site with extramural features, located on East Palace Avenue, behind the old Fischer brewery. The site dates to the late Developmental period (Elliott 1988:17). Other Developmental sites near downtown Santa Fe include the KP Site (LA 46300). This site is near the project area on top of a ridge along the north side of the Santa Fe River valley near Fort Marcy. Here, a single trash-filled burned structure was tested (Wiseman 1989). Pottery types recovered during testing include Red Mesa Black-on-white, Kwahe'e Black-on-white, "Chaco II" possibly of the Red Mesa Rio Grande variety, Black-on-white, Escavada Black-on-white, Gallup Black-on-white, Chaco Black-on-white, Puerco Black-on-red, Cebolleta Black-on-white, Socorro Black-on-white, and Los Lunas Smudged. Obsidian chipped stone predominated the time period, although local chert types, particularly red jasper, were also used. Eleven tree-ring dates and two radiocarbon dates indicate that occupation of the structure occurred in the mid- to late 1000s and the accumulation of fill occurred in the early 1100s. Tree-ring cutting dates of AD 1116, AD 1117, and AD 1120 are associated

with Kwahe'e Black-on-white pottery. A wide variety of plant remains also were recovered; these included corn, squash, and beeweed. Fauna found here consisted of deer, antelope, and cottontail (Wiseman 1989:139). Not far from the KP Site, Mariah Associates recorded evidence of a Pueblo II (middle Developmental) village near Fort Marcy hill (Acklen et al. 1994).

(3) Ogapogeh, Pueblo de Santa Fe (LA 1051), in downtown Santa Fe. Several pits from the early Developmental period were exposed here. These pits contained cultigens radiocarbon dated to between AD 350 and AD 650, possibly some of the earliest domesticated *Zea mays* and squash in the northern Rio Grande valley (Lentz 2011:35–39).

Coalition Period

The Coalition period in the northern Rio Grande area is marked by substantial increases in the number and size of habitation sites coincident with population coalescence and expansion into previously unoccupied areas. This includes a shift from mineral pigment to organic paint (primarily Santa Fe Black-on-white) in decorated pottery.

In the beginning, this period was distinguished by an increase in the number of village sites, suggesting an overall increase in population, and by the replacement of semi-subterranean structures with surface dwellings consisting of rectangular rooms arranged in small roomblocks. Although above-ground pueblos were built, pit structure architecture continued into the early phases of this period. Rectangular kivas, which were incorporated into roomblocks, co-existed with subterranean circular structures (Cordell 1979:44). Frisbie (1967) notes the shift away from less optimal upland settings and a return to the permanent water and arable land adjacent to major drainages.

In the northern Rio Grande area, the Coalition period is characterized by two interdependent trends in population and settlement reflected in population growth. Whether this growth was due to immigration or indigenous population expansion is not fully understood. The Chama, Gallina, Pajarito Plateau, Taos, and Galisteo Basin districts, which had been the focus of little Anasazi use prior to AD 1100 and AD 1200, were settled during the Coalition period (Cordell 1979). An excess of 500 Santa Fe Black-on-white sites are listed for the Pajarito Plateau, although many of these sites are poorly documented (New Mexico Cultural Records Information System [NMCRIS], Archaeological Management Section, Historic Preservation Division). Sites representative of the Coalition period include LA 4632, LA 12700, and Otowi or Potsuwii (LA 169). Artifacts used to identify early Coalition sites include slab metates, side-notched projectile points, Santa Fe Black-on-white ceramics, and a variety of indented corrugated gray ware (Lang and Scheick 1989:5).

Anschuetz and Scheick (1999) identified four significant Coalition habitation settlement clusters in the Santa Fe Basin: (1) the Santa Fe downtown area at the contact between the foothills of the Sangre de Cristo Mountains and the lower piedmont; (2) the Rio Santa Fe valley near present-day Agua Fria; (3) the Arroyo Hondo locale at the southern limits of the contact between the mountain foothills and the lower piedmont; and (4) the lower Rio Santa Fe canyon in the Bocas de Centau locale upstream from the La Bajada Mesa escarpment. Each of these clusters is near a sizable spring (Anschuetz and Scheick 1999).

A Coalition pit structure, LA 143460, was recorded in downtown Santa Fe at the Federal Courthouse building. This structure, probably contemporaneous with the Coalition component at nearby LA 1051, yielded problematic chronometric dates (Scheick 2005:238). Overall, this site appears to have been occupied around the eleventh century and is probably part of Ogapogeh village.

Coalition populations made extensive use of a broad range of environmental settings, including a variety of resource extraction and processing activity loci, agricultural fields and features, and small dwellings in the environs of large villages close to major drainages.

Coalition components, LA 608–LA 609, were investigated under Fort Marcy Hill and the Cross of the Martyrs (Acklen et al. 1994). Near Pindi Pueblo, the Agua Fria Schoolhouse site has a significant Coalition period component dating to between AD 1175 and AD 1325 (Lang and Scheick 1989).

A significant Coalition component dating to between AD 1175 and AD 1275 was investigated at Ogapogeh, Pueblo de Santa Fe (LA 1051), at the current location of the Santa Fe Convention Center (Lentz 2011). Substantial evidence was documented for ceremonial closures and ritual activities for structures and features dating to between AD 1175

and AD 1275. In the late thirteenth century, LA 1051 was abandoned by Coalition populations (Lentz 2011:39–110).

Classic Period

The Classic period postdates the abandonment of the San Juan Basin by sedentary agriculturalists. This period is characterized as a time when regional populations may have reached their maximum size and large communities with multiple plaza and roomblock complexes were established (Wendorf and Reed 1955:13). The Classic period in the northern Rio Grande area coincides with the appearance of locally manufactured red-slipped and glaze-decorated ceramics in the vicinity of Santa Fe, Albuquerque, Galisteo, and the Salinas area after AD 1315, and with Biscuit wares on the Pajarito Plateau, in the Tewa Basin, and in the Chama area slightly later (Mera 1935; Warren 1979).

Classic period sites are characterized by bimodal distribution: large communities associated with agriculturally focused smaller structures (e.g., fieldhouses) on the one hand and seasonally occupied farmsteads on the other. These sites contrast with the preceding Coalition period, when a greater range of site types characterized settlement patterns and the population had not yet aggregated into large communities.

The first glaze-painted pottery, called White Mountain Redware, was made in the Acoma and Zuni areas; types include Wingate Black-on-red (AD 1050–1200), Puerco Black-on-red (AD 1000–1200), and St. Johns Polychrome (AD 1175–1300). Rio Grande copies of the Zuni area Nutria-phase polychromes began with the introduction of Los Padillas around AD 1300. Investigations of the large biscuit ware pueblo sites on the Pajarito Plateau include initial studies by Adolph Bandelier (1882), Hewett (1953), and Steen (1977).

In the Santa Fe area, the Galisteo Basin saw the evolution of some of the Southwest's most spectacular ruins. Many of these large pueblos were tested or excavated by N. C. Nelson in the early twentieth century (Nelson 1914, 1916). Possibly the first stratigraphic excavation in the United States was executed by Nelson on the roomblocks and midden of San Cristobal Pueblo (LA 80). Large sites in the Galisteo Basin, such as Galisteo Pueblo, San Lazaro Pueblo, San Cristobal Pueblo, San Marcos Pueblo, and Pueblo Blanco, were summarized by Smiley et al. (1953). The School of American Research conducted extensive research at Arroyo Hondo (Lang 1977). Most of the Classic period sites in the Galisteo Basin were established in the early 1300s. These were of short duration. By the late 1400s, the area appears to have experienced a substantial decline in population. This decline has been attributed to environmental instability.

The late phase of the Classic period is bracketed by Coronado's explorations of 1540 and the founding of Santa Fe in 1605 or 1610 (Chavez 1979; C. T. Snow 1999). It is also characterized by population decline. Many farmsteads and fields were abandoned following droughts in the 1400s and early 1500s. Population centers shifted to areas along the major river valleys. In the Santa Fe area, few pueblos remained occupied even into the 1500s. Pindi had been abandoned relatively early, in AD 1349 (Stubbs and Stallings 1953). Arroyo Hondo (Schwartz and Lang 1973) and Agua Fria Schoolhouse had both been abandoned by AD 1425 (Lang and Scheick 1989). Cieneguilla was abandoned in the late 1400s or early 1500s, although some researchers believe it was re-occupied, possibly until 1680 (Schroeder 1979; Elliott 1988). At approximately 500 rooms, the pueblo was the largest in the area at the time.

Classic period pit structures and features dating between AD 1365 and AD 1435 were encountered at Ogapogeh, Pueblo de Santa Fe (LA 1051), in downtown Santa Fe. This site appears to have functioned as a centrally located integrative center for surrounding Classic period villages (Lentz 2011). Abandoned in AD 1435, its Classic period population may have relocated to the Tano Basin. After the first Spanish explorations (*entradas*) of the mid- to late sixteenth century, Native American groups underwent numerous changes in lifestyle, social organization, and religion. The introduction of new crops and livestock contributed to major changes in subsistence, as did mission programs, which introduced unfamiliar ideologies and new European-styled industries. Incursions by Plains groups led to the abandonment of many pueblos and a constriction of the region occupied by the Pueblo Indians (Chavez 1979; Schroeder 1979). Exposure to new diseases to which the Pueblo groups had no natural defenses, intermarriage, numerous casualties during and after the 1680 Pueblo Revolt, and the abandonment of traditional

lifestyles all contributed to a significant decrease in Pueblo populations over the next few centuries (Dozier 1970; Eggan 1979; Simmons 1979).

The first European contact with the northern Rio Grande valley occurred in the late winter or early spring of 1541, when a foraging party made up of Francisco Vázquez de Coronado's men set up camp near Ohkay Owingeh (San Juan Pueblo). Having heard of Coronado's earlier plundering further south, the pueblo occupants hastily abandoned their homes, and the Spaniards looted the deserted villages. After scouting and ransacking several more pueblos—including Zuni, Hopi, and Acoma—in a futile attempt to find gold, Coronado returned to New Spain. Two friars left behind were promptly martyred. In another instance, several unfortunate clergymen left behind by the 1581 Chamuscado expedition at Puaray, near Bernalillo, suffered similar fates (Hammond and Rey 1953:244, 259; Eggan 1979; Simmons 1979:178).

In 1591, San Juan Pueblo was visited again, this time by the Gaspar Castaño de Sosa expedition. Castaño de Sosa erected a cross at the pueblo; received obedience to the King of Spain; and appointed a Tewa governor, a mayor, and other administrators (Schroeder and Matson 1965:121, 129).

With the goals of missionization, territorial expansion, and the acquisition of mineral wealth—i.e., gold and silver—the colonizing expedition of Don Juan de Oñate arrived at Ohkay Owingeh (San Juan Pueblo) on July 11, 1598, and proclaimed it the capital of the province. During the winter of 1600 and 1601, the Spaniards moved across the river to a partly abandoned 400 room pueblo roomblock, which they renamed San Gabriel de los Caballeros (Ellis 1989).

The first Catholic mission church, called San Miguel, was built at the southern end of the village (Stubbs and Ellis 1955; Ellis 1989). Soon, New Mexico was divided into seven missionary districts. A Spanish magistrate was appointed for each pueblo, and all pueblos were subsumed under Oñate's leadership (Spicer 1962:156; Ellis 1989; Lentz and Goodman 1992). In December of 1598, Juan de Zaldivar, a nephew of Oñate, rode to Acoma Pueblo for the purpose of trading for food and other goods. Threatened by reports of the Spaniards' potentially warlike intentions, and antagonized by the soldiers' attitudes toward the Pueblo women, the Acomas attacked the group, killing 12, including Juan de Zaldivar.

In January of 1599, under Oñate's orders, a Spanish expedition led by Juan's brother, Vicente, retaliated against the Acomas by siege and cannonade. Most of the village was burned. More than 600 people were killed. Approximately 500 others were imprisoned. The prisoners of war were forced into slavery and the right foot of 20 men over the age of 25 was amputated. Zaldivar transported eight women to Mexico, where they were to work as servants or prostitutes. Others were dispersed as slaves to other colonizers. By 1620, the survivors of the Acoma massacre had rebuilt their community (Garcia-Matson 1979:456–457; Goodman 2010:19–20).

The Spanish colony at San Gabriel did not survive the first decade of the seventeenth century. Oñate returned to Mexico in disgrace, and in 1610 the capital was moved from San Gabriel to the current site of Santa Fe by Oñate's successor, Don Pedro de Peralta (Ellis 1989; C. T. Snow 1999; Lentz and Goodman 1992).

Over the next 20 years, churches were built in all of the area's pueblos. Native American secular and church officers were established in each village. These officers included governors (*gobernadores*), magistrates or mayors (*alcaldes*), tax collectors (*fiscales*), and other pueblo officials. During the 1620s the villages were peaceful, and the number of conversions to the Catholic Church increased. By 1630, 50 Franciscan missionaries were working in 25 missions and a Catholic school was operating in each (Spicer 1962:158; Noble 1989; Hordes 1990; Lentz 2004:8–9).

Historic Period

Although the impact of European colonization of the Americas was probably felt in New Mexico in advance of the presence of Europeans, and although sixteenth century exploration resulted in the first historic records of the region, the initiation of the historic period is most conveniently placed at the start of permanent settlement at the beginning of the seventeenth century.

Spanish Colonial Period in Santa Fe

In 1609, Oñate's successor, Don Pedro de Peralta, received orders from the Viceroy of New Spain to relocate the capital of New Mexico to a location near the Santa Fe River, at the foot of the Sangre de Cristo Mountains. It was intended that the town be planned

along the lines of the Reales Ordenanzas of 1573—a compilation of royal laws issued by King Philip II of Spain containing precise guidelines on how a Spanish colonial town should be laid out in the New World. Peralta may not have adhered to these specifications. The founding of La Villa Real de Santa Fe included the construction of irrigation ditches (*acequias*), fields, and domestic and administrative buildings. The small plaza-focused, fortified town had at its center the Casas Reales: a constellation of government offices, a military post, and governor's quarters; the final configuration is known today as the Palace of the Governors. East of the Plaza, facing west was a solid adobe church named Our Lady of the Assumption. South of the Plaza, across the river, was the Barrio de Analco, which was comprised of the residences of the Mexican Indians who accompanied Oñate on his colonizing mission and of other Indians of mixed tribal derivations (*genizaros*). Serving this community's spiritual needs was the Chapel of San Miguel (Stubbs and Ellis 1955; Hordes 1990; C. T. Snow 1999).

In the seventeenth century, Santa Fe likely resembled a typical Mexican town on the northern frontier of the vast Spanish empire. Despite its isolation, the town was provisioned once or twice a year with merchandise hauled 1600 miles along the Camino Real from Mexico City. What could not be obtained from Spanish sources was grown or built. Farming and ranching were the main industries, and Pueblo craftsmen were recruited to build churches and residences; supply vegetables, meat, and firewood; and provide local imitations of European ceramics for storage and dinner ware. Until 1680, Santa Fe grew at a fairly steady pace (Noble 2008:vii; Lentz 2011). However, throughout the 1600s and as late as 1715, the town and its surrounding settlements were frequently attacked by marauding native groups. During this period, settlers built defensive towers (*torreones*) and guard posts (e.g., La Garita, in northeastern Santa Fe), and sought refuge in fortified communities like Agua Fria, La Cienega, and Chimayo (Lentz 2011:31).

Pueblo Revolt of 1680

The year 1676 marked the start of a series of events that ultimately led to the Pueblo Revolt of 1680. Forty-seven Pueblo religious leaders were jailed and flogged in Santa Fe for their adherence to traditional Pueblo beliefs. Among them was the San Juan moiety chief Popé, under whose leadership the Pueblo Revolt was subsequently planned and carried out by nearly all of the pueblos, including Hopi, Zuni, and Pecos. Only the southern Tiwa pueblos and the Piros did not participate. Twenty-one of the 33 Franciscan friars in the territory were killed, along with 400 Spaniards. In August of 1680, Santa Fe became the site of a well-planned siege by an alliance of Pueblo forces. On Aug. 18, 1680, a fierce battle raged on the plaza on each side of a critical irrigation ditch (the Acequia Madre) directly in front of the Palace of the Governors (Lentz 2004:70). Once the water supply to the Palace was cut off by the insurgents, Governor Antonio de Otermín surrendered. On Aug. 21, 1680, the Spaniards were allowed to evacuate the city without any further resistance (Hackett and Shelby 1942:11, 56–57; Noble 1989; Hordes 1990).

The Pueblos held firm to their independence for 12 years. In the winter of 1681 and 1682, an attempted reconquest by Otermín was turned back. Otermín managed to sack and burn most of the pueblos south of Cochiti before returning to Mexico. Taking advantage of inter-Pueblo factionalism, the definitive *reconquista* was initiated in 1692 by Don Diego de Vargas. Far from "bloodless," as many accounts suggest, a coalition of Pueblo fighters was besieged, starved, and eventually slaughtered on Black Mesa. Seventy Pueblo leaders were executed (Twitchell 1925; Hackett and Shelby 1942; Dozier 1970; Simmons 1979:186).

Reconquest

After De Vargas regained control of the province in 1692, the Spanish government granted free title to tracts of land to encourage the resettlement of the New Mexico province. By 1696, northern New Mexico had been re-occupied, and a number of Hispanic colonists lived on approximately 140 land grants. The pueblos were granted their own "Pueblo Leagues." These were frequently encroached upon by Spanish colonists, and later, by Anglo-American settlers (Noble 1989; Hordes 1990).

Soon after 1698, Hispanic pioneers, such as Sebastian Martín and his family, settled north of Santa Fe along the upper Rio Grande, or the Rio Arriba. In the 1700s, this large area, which stretched to Taos, was the northern frontier of Spanish settlement. Life there was difficult and dangerous, with frequent Navajo, Ute, Apache, and Comanche

raids, in addition to drought, storms, and epidemics. In 1747, many of the northern frontier settlements were abandoned due to frequent attacks by Utes. Settlements such as Los Luceros were not re-occupied until 1750, and even then, guards had to be assigned to the residents (Lentz 2011:12–13).

One of many Spanish settlers to occupy the northern Rio Grande was Don Ignacio Roybal, who, in 1793, settled on the Pojoaque Pueblo land grant at Jacona. He began building an irrigation ditch, the Acequia Larga de Jacona, which encroached on the San Ildefonso Pueblo League to the west. This flagrant Spanish intrusion on Native American land remains one of the longest standing water-rights cases in United States history (Hall 1987).

In 1695, the second villa decreed in New Mexico by the Spanish government was established 2 miles east of present day Española. Having been founded by Don Diego de Vargas, the villa was named La Villa Nueva de Santa Cruz de la Cañada. Thus, Santa Fe became the first official villa in 1610, Santa Cruz the second in 1695, and Albuquerque the third in 1706 (Twitchell 1925; Pearce 1965; Hordes 1990; C. T. Snow 1999).

Mexican Period (1821–1846)

With the signing of the Treaty of Cordova on Aug. 24, 1821, Mexico secured its independence from Spain, and New Mexico became part of the Mexican nation. New Mexico remained one of the "internal provinces" attached to the *comandancia* of Chihuahua, where the area joined Chihuahua and Durango to form the Internal State of the North. On Jan. 31, 1824, the Internal State was dissolved and New Mexico reverted back to Mexican territory. The Treaty of Cordova decreed that all Indians residing in New Mexico be granted full Mexican citizenship. The *encomienda* system, a program of indentured servitude, was abolished. The concept of genizaros—displaced Native Americans who lost their tribal identity following capture—was suspended. Perhaps more importantly, the brief Mexican Period saw the opening of the Santa Fe Trail. Expanded trade networks brought new settlers and goods into the area for industrial manufacture. The Santa Fe Trail was the first American trans-Mississippi pathway to the West and the only route that entered another country (Simmons 1988; National Park Service 1990; Lentz 2004).

In the early fall of 1821, William Becknell set out from Franklin, Missouri, carrying a small load of goods to trade with the Native Americans of the Rocky Mountains. He made his way across Raton Pass where he was met by Mexican troops. Instead of being taken prisoner for entering the territory illegally, he was escorted to Santa Fe to dispose of his goods. Trade became centered in Santa Fe, and goods overflowed into the Mexican provinces, where many merchants found lucrative markets for their wares. Trade with Santa Fe in turn brought Mexican silver coins, furs, wool, and raw materials to the north. Josiah Gregg brought the first printing press to New Mexico in 1834. Despite the increase in trade, conflicts with local Native Americans and a lack of adequate finances continued to plague New Mexico.

It is not known if conditions in Santa Fe improved under Mexican rule. However, the opening of free trade routes with U.S. industrial centers provided an economic boost to the area. Several civic projects were undertaken to beautify the town. The Mexican Period ended abruptly with the annexation of New Mexico by the United States, an event that went largely unnoticed by most of the population outside of Santa Fe (Simmons 1988; Elliott 1988:34–35; Hordes 1990; C. T. Snow 1999; Lentz 2004, 2011).

Territorial Period (1846–1912)

The short-lived Mexican period ended when General Stephen Kearny accepted the surrender of Acting Governor Juan Bautista Vigil y Alaríd. The U.S. flag was run up over the Palace of the Governors on Aug. 18, 1846. Through the Treaty of Guadalupe Hidalgo, enacted Feb. 2, 1848, the Mexican War ended, and U.S. dominion in New Mexico was officially established.

In 1850, New Mexico was made a territory of the United States. Under Territorial U.S. laws, Pueblo Indians were afforded the same rights as all U.S. citizens. In Santa Fe, plans were made for Fort Marcy and earthen embankments were erected on top of what is now known as Fort Marcy Hill. Constructed in preparation for any local resistance to the American presence, the fort was never occupied, although it appears to have been placed at that location to enforce U.S. hegemony over the former Mexican province.

Instead, the complex of barracks, buildings, and corrals constructed just north of the plaza became known as Fort Marcy. The fort was officially

decommissioned in 1895 but was used intermittently by the military until 1906, when the Fort Marcy Hospital became Santa Fe High School (Barbour 2011:73–145; Lentz and Barbour 2011:63–145).

During the American Civil War, the Army of the Confederacy fought to gain control of the Santa Fe Trail in northern New Mexico. The Confederacy's plan was to take over the proposed Southern Pacific Railroad route near the Mexican border. Uniting the Confederacy with transportation routes to the ports and gold fields of California would have bolstered the economy of the southern states and given the Confederate Army military and political power over most of the country. The Confederates also planned to annex a portion of Mexico. According to its architects, the vast territory would add to the South's slave-based economy, which would stretch from the Pacific to the Atlantic (Barbour 2011; Lentz and Barbour 2011).

In February and early March of 1862, the Confederate Army, under the command of Brigadier General Henry Sibley, successfully defeated Union troops at Valverde, New Mexico. The Confederate Army briefly controlled a portion of New Mexico along the Rio Grande from El Paso to Santa Fe and occupied Fort Marcy in March 1862. Sibley also planned to capture Fort Union, east of Santa Fe. In its role as protector of the Santa Fe Trail, Fort Union served as the headquarters and supply depot for the Department of New Mexico and also played a key role in maintaining control over the territory.

The Battle of Glorieta, which took place along the Santa Fe Trail at Glorieta Pass, resulted in the Union Army taking control of New Mexico (Swanson 1988). During the decisive battle, both armies formed at the opposing ends of Glorieta Pass. On the morning of March 28, 1862, both sides advanced simultaneously and a pitched battle was fought in the woods at Pigeon's Ranch, near Pecos. Although the battle itself was a Confederate victory, Sibley conceded defeat after receiving word that a Union detachment had diverged, crested Glorieta Mesa, and destroyed the Confederate supply train at Johnson's Ranch. Confederate forces retreated from New Mexico, returning to Texas with a third of Sibley's original troops. The Battle of Glorieta forced the Confederacy to abandon their plans to conquer the West, and the Union Army retained control of a main military supply route: the Santa Fe Trail (Swanson 1988; National Park Service 1990).

Following the Civil War, livestock became the dominant industry in the western valleys and in the Llano Estacado, east of the Pecos River. Undaunted by Comanche, Navajo, Ute, and Apache raids, the New Mexico cattle and sheep industries thrived as new markets opened in the eastern United States. In the 1870s, conflicts between cattlemen, sheep ranchers, and homesteaders resulted in the Lincoln County range wars, which ended only after the intervention of federal troops during the administration of Governor Lew Wallace. Opportunities in land speculation led to the formation of the Santa Fe Ring, a group of attorneys, businessmen, ranchers, and promoters who controlled both economic and political life in the territory. Many prominent New Mexican citizens played a role at this time; these included Lawrence Murphy, John Chisum, John Tunstall, and Thomas B. Catron. Gunmen like Frank McNab and Billy the Kid were employed as "enforcers" (Mullin 1968).

Opened at the beginning of the Mexican Period, the Santa Fe Trail brought a minor economic boom to Santa Fe; the arrival of the railroad signaled the demise of the famous trade route. The first train of the Atchison, Topeka and Santa Fe Railway arrived in Las Vegas, New Mexico, on April 4, 1879. Though Santa Fe citizens prepared themselves for a boom, bad planning meant that the main line of the railroad bypassed the city. The train stopped instead at a depot at Lamy, more than 20 miles from Santa Fe. The lack of accessibility gradually brought about a general business decline, and, after 1880, Santa Fe lost its prominence as a social and economic center. In 1883, in an effort to revitalize the economy, the town council created a fictitious celebration, the Tertio-Millennial. Although not nearly as successful as its sponsors had hoped, the Tertio-Millennial made Santa Fe a tourist destination (Hannaford 1997:5; Barbour 2011:414).

In 1869, a French Franciscan priest, Jean Baptiste Lamy, began construction of the St. Francis Cathedral on the adobe remains of the previous 1806 "fifth" Parish church (Chavez 1947). Archbishop Lamy brought a strong stabilizing presence to Santa Fe society previously known for its unruly "Wild West" atmosphere. Lamy died in 1884, two years before the cathedral was completed. New Mexico failed to obtain statehood in 1850, 1867, 1870, and again in 1889. Finally, on Jan. 6, 1912, President William Howard Taft signed a bill making New Mexico the 47th state of the Union.

4 ⇓ Field Methods, Personnel, and Reporting Schedule

Monitoring of this utility project was conducted by Karen Wening, under the supervision of James L. Moore, OAS project director permitted by ARC in the City of Santa Fe. Eric Blinman served as principal investigator during the project. No sites or features were encountered during monitoring, but functionally or temporally diagnostic artifacts were collected from excavation back dirt and trench walls.

Following excavation of the trenches, trench segments were faced with hand tools. Trench walls were examined for exposed cultural deposits and features. Trenches were closely examined in areas with artifact content, in areas of darkened soil that might indicate cultural organic content, and in areas with changing sediment composition. Soil profiles of the trench walls were drawn at intervals necessary to fully characterize variability of overall stratigraphy. Massive disturbances were documented with respect to location. Excavations were mechanically backfilled as soon as practical.

No intact cultural deposits or features were found, so hand excavation was unnecessary. However, the expansive stratum that represented cienega infill was fully documented using scaled plan and profile maps, photography, and GPS unit mapping within the confines of all mechanical excavations. No human remains were encountered.

This document serves as the preliminary report per NMAC 4.10.17 Standards for Monitoring and includes a brief cultural, historical, and interpretive context; a brief description of the project location and purpose; field methods employed during the monitoring project; a description of the subsurface stratigraphy consisting of natural and cultural layers; artifact analysis conducted; and characterization of recovered artifacts and samples.

This report provides interpretations and management recommendations for any cultural resources that were encountered. The preliminary draft copy of the report will be submitted to PNM, ARC, and HPD for review and comment. A final report will be submitted for review and comment within 6 to 12 months of field work completion, depending on the findings. Once any comments have been addressed, a final report will be produced by OAS within one year of review. Sufficient copies of the final report will be produced to fulfill the client's distribution needs and statutory requirements.

Any artifacts located on State of New Mexico land will be curated with the Archaeological Research Collections of the Museum of Indian Arts and Culture. Artifacts and samples from private land will be curated only if ownership is released by the landowners.

5 ⇓ Archaeological Sites and Register Properties in the Project Area

The project is located within the boundaries of the Santa Fe Historic Downtown Review District (LA 4450), which covers a large portion of downtown Santa Fe and encompasses more than 70 individual LA numbers and localities. Historic downtown Santa Fe is listed on both the New Mexico State Register of Cultural Properties (SR 260) and the National Register of Historic Places (NR 73001150). Previous excavations in the project vicinity have led to the documentation of prehistoric and historic sites, most of which are defined on the basis of historic components dating to the Territorial and Statehood periods.

Previously registered archaeological sites and register properties are presented in Figure A.1. Sites located within a 150 m buffer of the project area are listed in Table A.1. A recently monitored trenching project (Ron Winters, personal communication, July 19, 2017) on the adjacent Radio Plaza property revealed no intact cultural features, and no archaeological sites were defined. Archaeological sites and register properties in the project vicinity include the Santa Fe Presidio (LA 35100), the Sisters of Charity complex (LA 161535), Sena Plaza (LA 125367 and LA 55368), the Saint Francis Cathedral (LA 9077), and La Garita (LA 608). These resources are also listed as various localities within the Santa Fe Historic District (LA 4450; SR 260). Other sites in the vicinity of the project area include La Fonda (LA 54000), the Nusbaum/Spiegelberg House (LA114241), and La Posada (LA 129141). Some of these will be discussed in detail below.

LA 35100, El Presidio de Santa Fe (SRCP 260, LA 4450, Locality 34) refers to the Spanish Colonial military fort, which may not have been formally constructed until 1697 (D. H. Snow 2011:6–7). In the years following its initial construction, it appears the fort may have been in almost constant need of repair until an expansive rebuild occurred between 1780 and 1791. The rebuild involved incorporation of the Palace of the Governors and lands north to present day South Federal Place. The new fort included a guard room, a jail, and a supply master's office with a bastion at the east (National Historic Landmark Nomination, Palace of the Governors 1999:9, 32). A massive east wall may have extended north to the present Scottish Rite Temple and west to Grant Street (Arnold 1989). Two major archaeological investigations have been conducted on the grounds of the presidio (Post in prep; Schaafsma 1982). Excavations yielded architectural, thermal, storage, burial, landscape, construction, and demolition features from the early 1600s to the twentieth century along with hundreds of thousands of artifacts spanning 300 years of Santa Fe history from the Spanish Colonial to the Territorial periods (Post in prep).

LA 9077, La Conquistadora (SR 88) and La Conquistadora Chapel (SR 141), (adapted from C. T. Snow 1999). La Conquistadora, also known as Nuestra Señora de la Paz, the oldest Marian figure in the United States, was brought to New Mexico by Fray Alonzo de Benavides in 1625 after he assumed the position of Custodian of the Franciscans in the province. Carried to Mexico in 1680 by refugees fleeing the Pueblo Revolt, La Conquistadora was brought back to New Mexico by Don Diego de Vargas between 1692 and 1693. Considered by De Vargas to be his personal saint, he vowed to build a church for the figure but died before he was able to fulfill his promise. Eight years after De Vargas's death in 1704, the residents of Santa Fe rallied to replace the parish church, or *parroquia,* destroyed during the Pueblo Revolt. At the same time, a decision was made to build a special chapel specifically for La Conquistadora. Work on the new church and chapel started in 1712. These were dedicated in 1717. Although both La Conquistadora Chapel and the figure of La Conquistadora have been greatly modified over the centuries, they remain a part of the spirit of Santa Fe.

LA 161535, the Sisters of Charity Complex. LA 161535 is a multi-component historic site with

evidence of both late seventeenth/early eighteenth and late nineteenth to mid-twentieth century occupations. The complex was tested by OAS in 2008 and excavated in 2011 (Moore 2011 in prep) prior to the construction of the Drury Hotel. The two phases of the Drury project investigated the remains of a number of historic structures and features associated with LA 161535 on the Drury Hotel's property located at the corner of Palace Avenue and Paseo de Peralta in downtown Santa Fe.

This property was owned by the Sisters of Charity from 1865 to 1978, when it was sold to the State of New Mexico. Most of the former structures were represented by foundations and were built in the late 1800s and early 1900s. Short segments of foundations were found for the Old Seminary Building, the first St. Vincent Sanatorium and an associated boiler building, and the first St. Vincent Hospital. More extensive sections of foundations were documented for a two-story brick orphanage and an adobe dormitory. A small bathroom building and a subterranean vegetable cellar associated with the orphanage were also completely excavated. Other associated features included upright slabs associated with a fountain and a walkway that were part of the landscaping for the first sanatorium, a fire plug, a brick cesspit, and a layer of debris probably associated with the fire that destroyed the first sanatorium. Three Spanish Colonial period features were also examined: a lime slaking pit, a midden, and a probable road surface. Analysis of Spanish Colonial artifacts indicate that the lime slaking pit was built and used in the years immediately following the Spanish reconquest of New Mexico.

LA 54000, La Fonda Hotel. The La Fonda project area would become the site of a three-story parking garage owned by the La Fonda Corporation of Santa Fe. In January 1985, salvage archaeology conducted by the Laboratory of Anthropology revealed several historic features, including dugouts, house foundations, a midden, and a well. Two Hispanic components dating to the Spanish Colonial (1539–1680 AD) and U.S. Territorial (1846–1912) periods were identified (Wiseman 1989).

LA 608, La Garita (partially adapted from Lentz 2011:31). In Spanish, *la garita* is a catchall term for a military outpost, city gate, lookout post, or watchtower. During its lifespan, it may also have served as a granary, a warehouse for arms and gunpowder, and a prison. The structure began its existence as a *torreon* in 1697, on the property of Antonia de Moraga who may have lived or sought refuge in it during Indian attacks (B. Ellis 1978). On the east side of the current Bishop's Lodge Road, the terrain provided good concealment for marauding Native groups in the seventeenth century. Thus, a torreon for protection and, later, a guardpost were needed at this location. The property was sold to the Spanish Crown and remained in its possession for the next 72 years. The next mention of La Garita comes in 1775 in the form of a petition from Roque Lovato, the armorer for the Santa Fe presidial company, to Governor Juan Bautista de Anza for "a piece of unoccupied land at the north edge of the city." La Garita was probably under construction by 1805 and became a fortified powder magazine in 1807, under the New Mexico Governor Joachín del Rael Alencaster.

The site was excavated by Bruce Ellis in 1954. The project was featured in a later issue of *El Palacio* magazine along with related archival research (1978:2–22). The nature and cultural affiliations of the original structure on the hill differ according to historic documents researched by B. Ellis, but multiple kivas and a torreon are referenced. B. Ellis' (1978:7–8; 17–18) excavations encountered remnants of an elevated wooden scaffolding or walkway with cut dates of 1805, matching those cited in archival documents linked to the construction of a gunpowder storehouse on the hill. Following excavations, B. Ellis (1978:17) concluded that the main section of the fort was a high walled, open courtyard rather than a roofed structure. Prehistoric components of LA 608 are summarized in Chapter 2.

Spiegelberg-Spitz House (adapted from C. T. Snow 1999). Almost immediately after Willi Spiegelberg obtained the lot on which this house was constructed in 1880, he proceeded to build a European-style, 10-room house of adobe bricks (SR 223; Purdy 1972). The Spiegelbergs occupied the house at 237 E. Palace Avenue until they returned to New York in 1888 at which time the house was sold to Teresa Symington, widow of Dr. John Symington, a politician and land speculator who came to New Mexico at the end of the Civil War (Twitchell 1925:387, 597). In 1900, Teresa Symington sold the house to Solomon and Emilia Spitz, owners of the Spitz Jewelry store on the plaza. The Spitz family owned the property until 1963, when it was sold to Dr. and Mrs. Edward Cook (Purdy 1972). Dr. Cook,

a well-known and highly respected orthodontist and children's dentist, used several rooms for his practice and lived in the remainder of the home until he and his wife purchased the Amelia Hollenbeck House near Camino del Monte Sol. In recent years, the Cooks have rented the property to Peyton Wright Gallery.

LA 174241, Feature 1.1 (Lentz 2012). An extensive, 24 m long, stratified trash midden near the south end of Cienega Street was encountered during monitoring for the PNM Downtown Systems Improvements Project in 2012. The top stratum contained domestic refuse from the post-World War II era, including glass and metal, saw-cut animal bone, and small fragments of Euroamerican ceramics. There were also several whole bricks of the type commissioned by Sister Blandina in the nineteenth century to construct the nearby girls' school.

LA 174243, Feature 2.1 was a wooden "box" sewer dated to the Territorial period (Lentz 2012). The sewer was located on Palace Avenue between Otero and Cienega Streets and consisted of decomposing, wet ½ inch by 8 inch milled pine planks nailed together in a square casing with highly corroded square nails. Inside the casing was a ceramic pipe dated to 1908. A maker's mark stamped into pipe read "BFB CO. Pueblo."

LA 114257 was assigned to a historic and prehistoric artifact deposit observed while monitoring a utility trench within Cienega Street. No NMCRIS number was assigned to this site. No further information regarding this site is available.

6 ⇓ Historic Land Use in the Project Area

The project area is located entirely within the boundaries of the Cienega de Santa Fe, a broad swampy area formed in an abandoned channel, or oxbow, of the Santa Fe River (Plewa 2009:264). Additional information in this chapter regarding the Cienega de Santa Fe area has been adapted from C. T. Snow (2015).

This swampy area of Cienega de Santa Fe represented an important resource for Hispanic settlers and was used communally for grazing and growing hay (Plewa 2009:264). Perhaps covering more than 38 acres in 1610, the *cienega* was one of the landscape features that led Pedro de Peralta to situate the capital in this location. It was also an important source of water through the early twentieth century (Plewa 2009:265). Geomorphologist Tara Plewa suggests that a ditch from the cienega to the Casas Reales, or Palace of the Governors, was one of the first acequias built after the founding of Santa Fe.

It is likely that the cienega, identified by Plewa in 2009 as an oxbow or meander of the Santa Fe River, existed for a thousand or more years prior to the formal founding of the villa by the Spanish. After the Santa Fe River abandoned the oxbow that eventually became the cienega, the former channel filled with sediment and organic matter. As the area was colonized by wetland plants, considerable organic matter was deposited but did not decompose. This created what has been termed "cienega muck" (Plewa 2009:267). Such black sediments have been encountered in nearly every utility excavation conducted in the project area. Several springs occurred within the cienega, the northernmost of which were centered at nearly the exact location of the transformer behind the Radio Plaza building (Fig. 6.1).

Located north, east, and southeast of the present plaza, the full extent of the cienega remains unknown. However, the cienega appears to have been bounded roughly by modern day Paseo de Peralta, on the north and east, and by the Santa Fe River, on the south. The western boundary of the cienega is less clear and may have stretched south and west beyond the present day Palace and Washington Avenues.

The cienega was considered municipal property and was subject to sporadic episodes of trash dumping and attempts to enlarge the springs, thus the cienega proper went undeveloped until the early nineteenth century, when local citizens such as the Alarid and Sena families, in addition to others, began building homes along present day Palace Avenue. The core portion of the cienega between Palace Avenue and Marcy Street, east of Washington Street to a line west of Paseo de Peralta, was not developed until the early twentieth century.

Photographed from Fort Marcy Hill in 1873 by Timothy O'Sullivan, a military photographer with the Wheeler Survey for the U.S. Geological Survey, the cienega stunned viewers with its size and with the realization that the marshy area would dictate the settlement pattern of a huge area of downtown Santa Fe (Fig. 6.2). Even more amazing, however, was that the O'Sullivan photograph depicted only a portion of the cienega, as it once covered an area at least twice as large located both south and east of the modern cathedral basilica. Having remained undeveloped until as recently as the first decade of the twentieth century, today the northern part of the marsh is present only in name—Cienega Street.

Robert Spitz whose family owned property on the east side of the former cienega, related tales of older family members shooting ducks on the waters of the marsh around the turn of the twentieth century (personal communication, 1988–1992). According to local lore, in the 1960s, former city utilities director Ormonde Earp poured hundreds of yards of concrete and asphalt around the intersection of Washington Avenue and Marcy Street in an attempt to stabilize the road bed and adjacent structures there (Tigges, personal communication, 1989–1992).

Drainage of the cienega was apparently being considered as early as 1915, when *The Santa Fe New Mexican* reported that the "suggestion was made

Figure 6.1. Map of Cienega de Santa Fe, adapted from Plewa 2009:271.

Figure 6.2. View of Santa Fe, New Mexico from Marcy Hill by the Wheeler Survey, 1873. Courtesy of the Palace of the Governors Photo Archives (NMHM/DCA), negative number 144633.

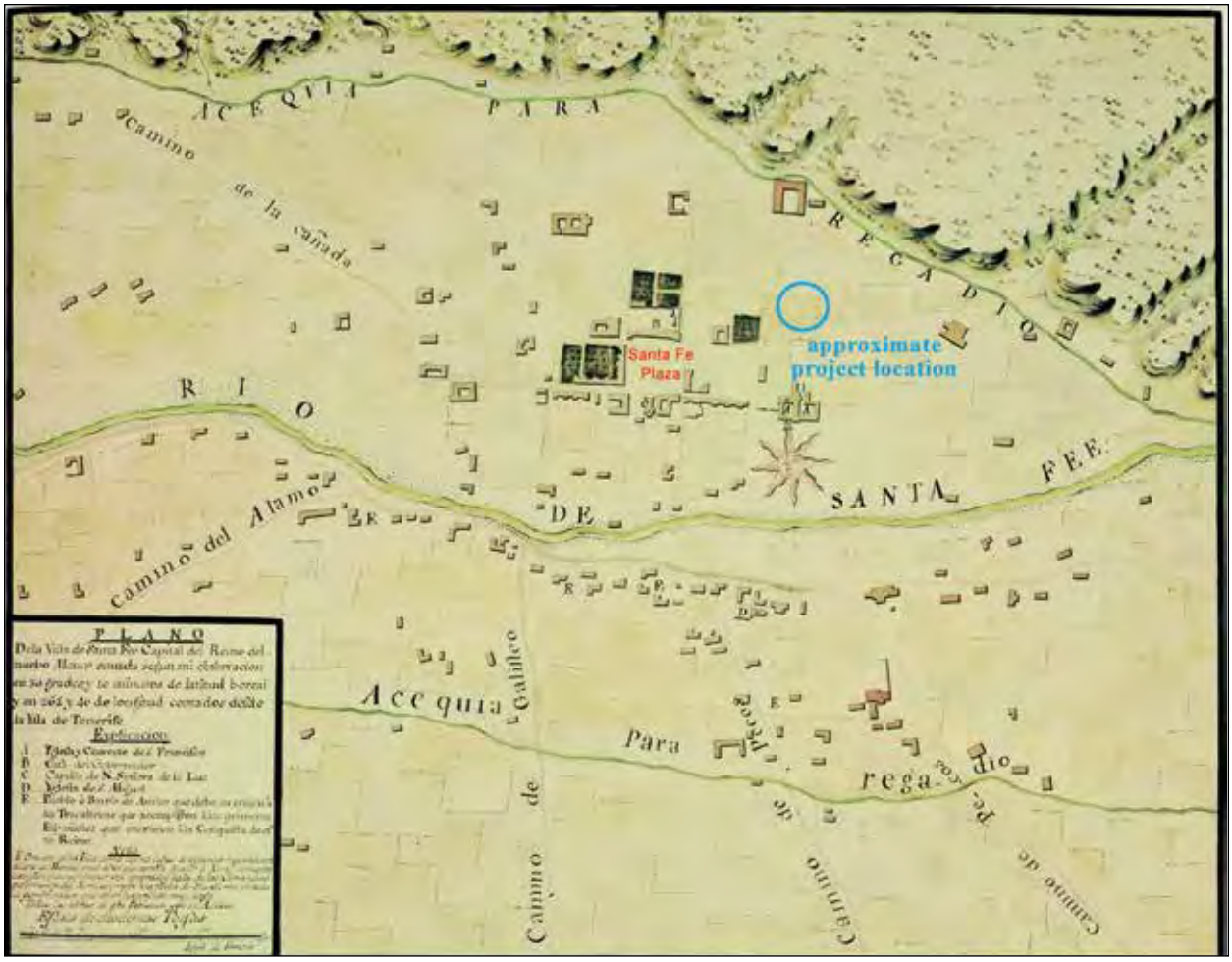

Figure 6.3. Jose de Urritia's 1766 map of Santa Fe, with approximate location of project area.

today to drain the cienega between Palace Avenue and Marcy street, that culverts be built under Otero street, allowing the water to escape." This stretch of land would have encompassed the project area. *The New Mexican* further stated that "Otero street has been one of the principal sufferers from mud and water" (*The Santa Fe New Mexican*, Feb. 17, 1915:8). Apparently the drainage procedure also involved digging trenches from the cienega to the Santa Fe River (Spiegel and Baldwin 1963:139), though obviously in locations more proximate to the river than Cienega Street.

By the summer of 1919, the Santa Fe Realty Company announced that the plat of the cienega had been approved by the city council and that home lot prices would be available in late June of that year ("What is a Santa Fe Home Worth to You?" *The Santa Fe New Mexican*, June 14, 1919:5). This same realtor was already listed as the owner of three large lots of land fronting East Marcy and Cienega Streets as early as 1912. Lots fronting Marcy Street were advertised shortly after ("Don't These Prices Look Right to You?" *The Santa Fe New Mexican*, June 16, 1919). A similar announcement of a home lot auction in the cienega by the New Mexico Realty Company preceded this by several days ("Auction Sale, Choice Building Plots in Santa Fe" *The Santa Fe New Mexican*, June 10, 1919).

Historic Map Review of the Project Area

A review of historic maps from Santa Fe shows the project area remained undeveloped until the first half of the twentieth century. Jose de Urrutia's map of Santa Fe (1766) depicts the project area as being part of the agricultural fields that surrounded the built environment of the time (Fig. 6.3). Lt. Jeremy F. Gilmer's Plan of Santa Fe (1846–1847) includes an irrigation ditch that passes near the project area (Fig. 6.4) and the project area itself is characterized

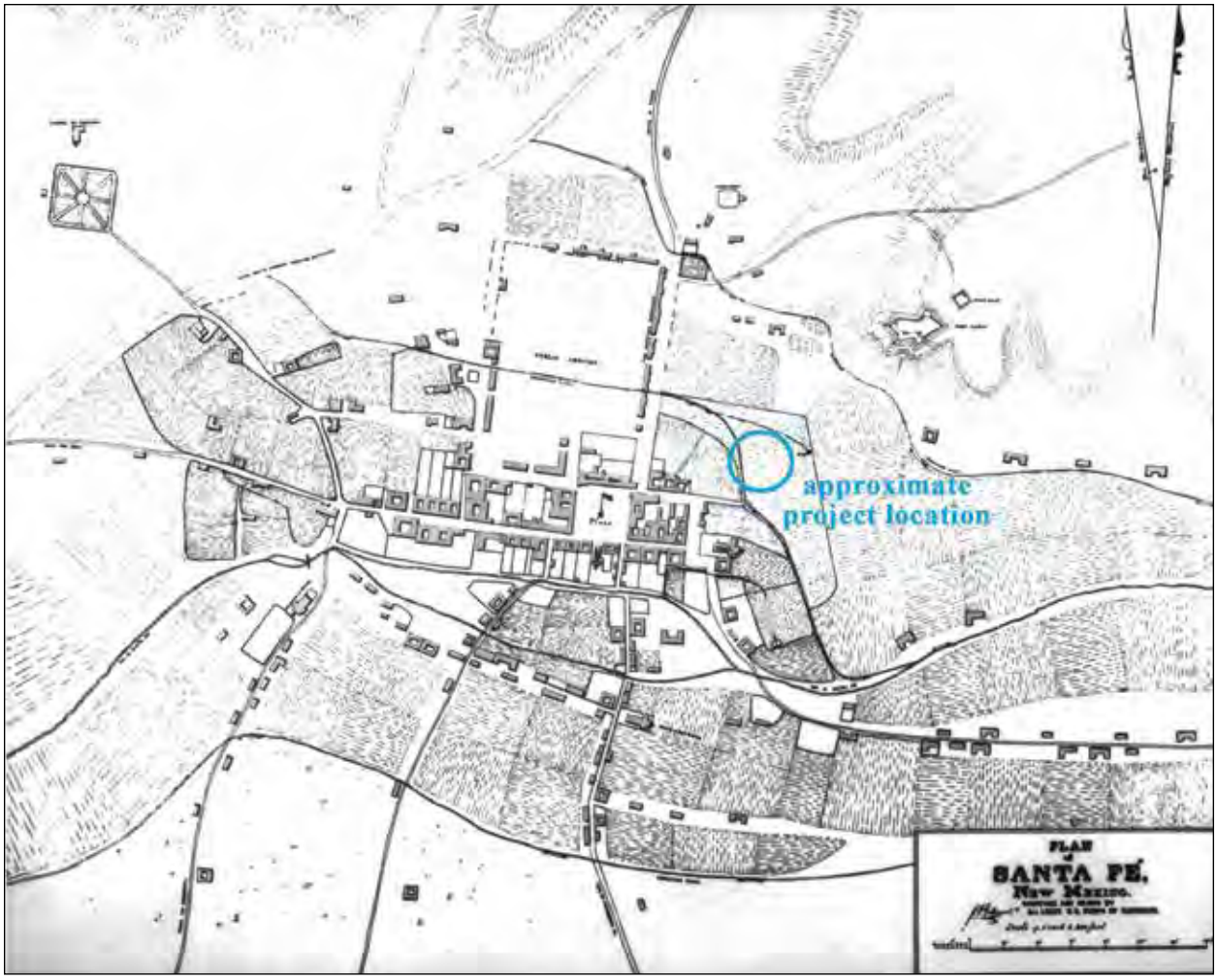

Figure 6.4. Lt. Jeremy F. Gilmer's Plan of Santa Fe, 1846, with approximate location of project area.

as fields or as having another non-built land use, possibly a cienega. This rural character continues into the 1880s (Fig. 6.5), though there is no indication of agricultural use.

Sanborn Fire Insurance Maps document the insurable, built environment of downtown Santa Fe beginning in the 1890s. The insurance maps are not necessarily comprehensive documentation of all buildings, but they depict those deemed insurable or those that were part of the active urban landscape at the time. Building inventories from 1883 and 1891 omit the utility project area vicinity, while including structures on Washington and Palace Avenues several blocks away. By 1912, King's map of Santa Fe attributes ownership of three large lots on the south side of East Marcy Street and virtually all of Cienega Street (referred to only as "street") to the Santa Fe Realty Co. (Fig. 6.6). This was one of two realty companies advertising the sale of lots in the project area in 1919 in addition to the New Mexico Realty Company. Cienega Street remained unnamed and undeveloped a year later, appearing only as "proposed st" on the 1913 Sanborn map (Fig. 6.7). Although the street is indicated, the utility project area is omitted, implying that no buildings were constructed in the area between Otero and Cienega Streets.

Development of the block defined by Otero, Marcy, and Cienega Streets and Palace Avenue had begun by 1930, as indicated on Sheet 4 (Fig. 6.8). Lots had been defined within the block, and two lots hosted buildings. The lots that include or are immediately adjacent to the project area (14, 15, 17, and 18) remained undeveloped. By 1948, three homes had been built on the combined Lots 17 and 18, with addresses of 106, 107, and 109 Cienega Street (Fig. 6.9).

The buildings at 105 and 107 Cienega Street still stand, but the lots have been redefined relative to those identified in the 1948 update of the Sanborn

Figure 6.5. Hartmann's map of Santa Fe, ca. 1885–1886, with approximate location of project area.

Figure 6.6. Detail of King's map of Santa Fe, with approximate location of project area.

Map. The lot that housed the building at 109 Cienega Street, once the residence of the Park family (John Barker, personal communication, 2017), is now serving the parking needs of Radio Plaza to the north (see Fig. 1.5). Presumably, the house was demolished in 1980 following the publication of a classified ad on January 13 of that year ("Job Estimate, Demolition needed" *The Santa Fe New Mexican*, Jan. 13–20, 1980).

With the combination of a portion of Lot 17 and the Radio Plaza property (Lot 12 in Fig. 6.6), the narrow strip of land along the west side of Radio Plaza was extended south, apparently absorbing the easternmost portion of what is depicted as the undeveloped Lot 14. This western strip of Lot 14 is now part of the parking area for Radio Plaza and is the location of the PNM transformer removal and installation project covered in this report.

Modern utility alignments at Cienega Street appear to include water, sewer, electric, and gas. These alignments parallel the street. The accompanying trenches were transected by the conduit trench within Cienega Street. These unmonitored utility installations interrupted the opportunity provided by the PNM conduit trench project to characterize the stratigraphic record of landscape use within the project area.

Recent monitoring within the Radio Plaza property encountered cienega deposits in the lower stratigraphy of the profiles (Ron Winters, personal communication, July 19, 2017). Those deposits were present in the conduit trenching of the current project area as well. Past investigations suggest that the cienega limited the use of this area of Santa Fe

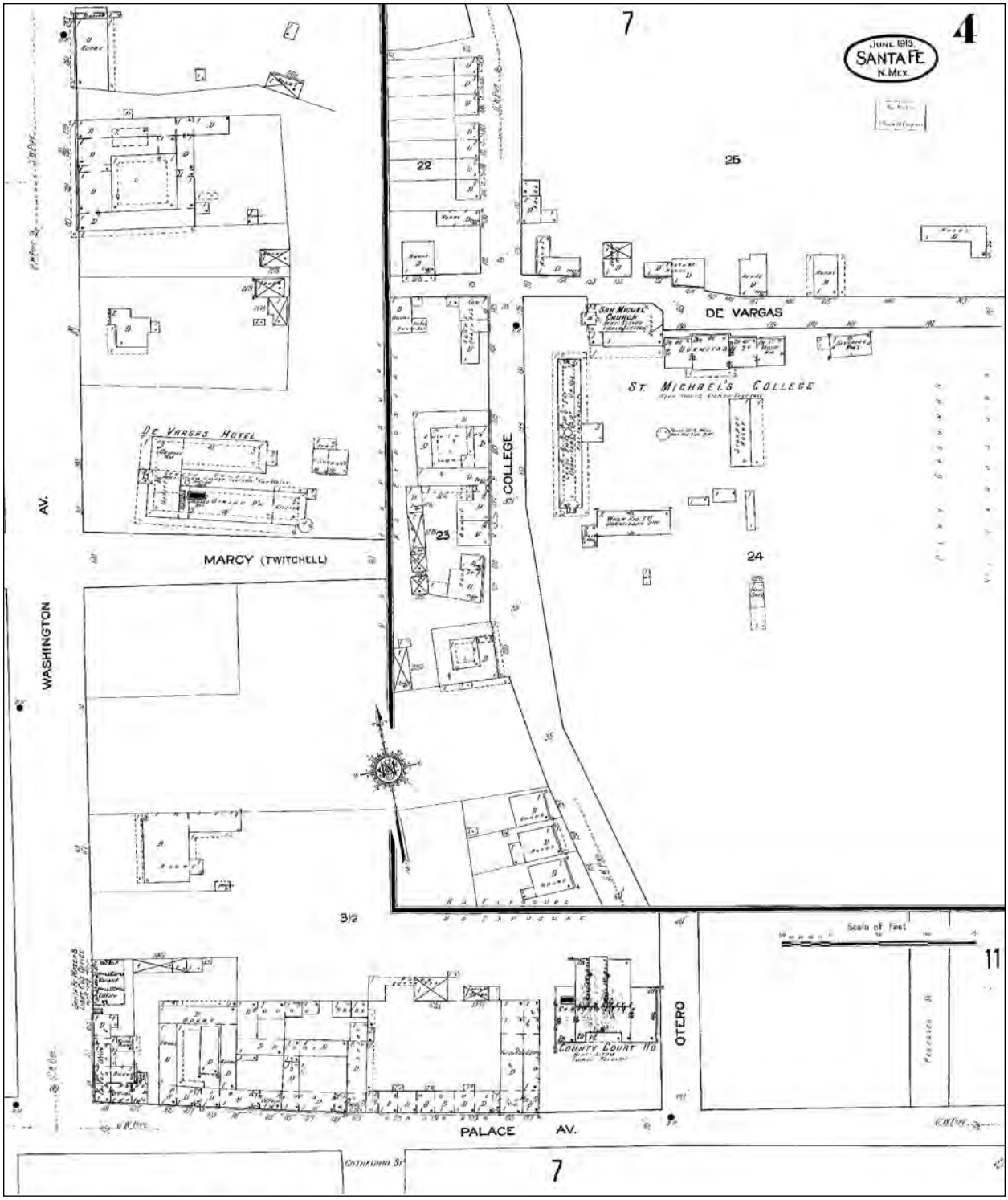

Figure 6.7. Detail of 1913 Sanborn Fire Insurance Map, Sheet 4.

Figure 6.8. Detail of 1930 Sanborn Fire Insurance Map, Sheet 8, with approximate location of project area.

Figure 6.9. Detail of 1930/1948 Sanborn Fire Insurance Map, Sheet 8, with approximate location of project area.

during pre-Spanish residential occupation. Spanish Colonial period use of the project area was either for agricultural land or for fallow cienega land. The depiction of an irrigation canal in Lt. Jeremy F. Gilmer's Plan of Santa Fe (1846–1847) is imprecise. No evidence of this canal was encountered within the project area, nor were features of any kind. Debris from the construction of the building at 107 Cienega Street was encountered in the driveway, though it originated entirely from redeposited contexts. The extensive reworking of the area south of Radio Plaza, from home demolition and repeated resurfacing of the parking lot, likely altered or removed cultural deposits or features associated with early residences and businesses in the area.

107 Cienega Street House

The house at 107 Cienega Street has a long and fascinating history, much of which was provided to OAS by Mr. Albert Shultz, the current owner of the property. Mr. Shultz provided the Historic Cultural Properties Inventory (HCPI) form recently completed for the house (Bechtol 2015). The form notes that the house was constructed between 1945 and 1947 and was converted to a physician's office in 1963, after being purchased by Dr. Phillip Shultz, the father of Albert Shultz. The building style is described as an L-shaped "simplified Territorial" structure with a separate garage (Bechtol 2015). The rear addition, which is constructed of PenTile, was built about 1957.

According to Bechtol (2015), the house at 107 Cienega Street was built at the same time as the two flanking houses at 105 and 109 Cienega Street. The latter was razed about 1980. These three homes were built by three families involved with the Canton Café at 125 West San Francisco St. The owner of the cafe is listed as Gee Soon Ooey, who went by Joe. The first owners of the house at 107 Cienega Street were listed as Edward Gee, a waiter and assistant manager at the cafe, and Henry Gee, a cook and cashier. The home at 105 Cienega Street belonged to George Park, the cafe manager. Edward Lim was the owner of the 109 Cienega Street home. The Canton Café opened in 1937, according to a July 17, 1937, advertisement in *The Santa Fe New Mexican*. In 1950, the Gees' son Robert was featured on the cover of *The New Mexican* describing his recovery from a hand wound sustained in the Korean War ("Korea-Wounded Marine Tells What It's Like" *The Santa Fe New Mexican*, Oct. 11, 1950). The home at 105 Cienega Street was advertised for rent as a home or office in 1975.

Due to its proximity to St. Vincent Hospital, Cienega Street was a prime location for physicians' offices, some of which were also located just across the street at the Kruger Building. Prior to 1951, Cienega Street was adjacent to other homes, but it was also proximate to the St. Vincent Sanitarium, Orphanage and Hospital (Bechtol 2015).

In 1963, the house at 107 Cienega Street was purchased by Dr. Phillip Shultz from Edward Gee. Dr. Shultz was a local physician who practiced at nearby St. Vincent Hospital across Palace Avenue. The house was remodeled and was Dr. Shultz' office for 15 years. During this time he shared the space with an impressive variety of businesses and non-profit organizations (Albert Shultz, personal communication, 2017). The house was inventoried for possible inclusion in the Historic Cultural Properties Register by Gayla Bechtol in March 2015 (see Fig. A.1). Following a Status Review by the State Historic Preservation division that same year, the Schultz house was identified as "contributing". One of the Schultz family's longtime tenants and friends was Herman Barkmann of Barkmann Engineering. At least five non-profit agencies also shared the space, including Central Clearinghouse, The Nature Conservancy, Concerned Citizens for Nuclear Safety, and the Black Mesa Defense Fund. For a short stint in 1980, the house served as the headquarters of the John Anderson presidential campaign. The long history of this house is not over. The house at 107 Cienega Street remains in the hands of the Schultz family and is slated for repairs.

7 ⇊ Stratum Descriptions and Monitoring Results

A full inventory of trench and vault artifacts is presented in Table 7.1.

Stratum 1

This is the uppermost layer beneath the landscaping gravel in Vault 1 behind the Radio Plaza building. Stratum 1 extends from 5–41 cm bgs (36 cm thick) and consists of heavily reworked alluvial clay, sand, rock, cienega muck (see Stratum 3), and modern trash (5YR 3/2 dark reddish brown).

The alluvial sediments in this layer are associated with Ancha Formation deposits eroding from the Sangre de Cristo Mountains east of the utility project area. Where Ancha Formation sediments are intact in downtown Santa Fe locations outside of the cienega boundary, the clay constituent forms the upper alluvial layer and the rounded boulders, cobbles, gravel, and coarse sand form the lower layer. This sometimes includes an intervening calcified clay stratum.

In Vault 1, the rock and clay layers are mixed with cienega muck, asphalt, concrete, Territorial penitentiary brick fragments, mid-twentieth century brick fragments, and rebar. Five late nineteenth to early twentieth century artifacts were recovered from this stratum in Vault 1: a green 7 Up soda bottle fragment, a piece of refrigerator glass, a fragment of thick glass shelving, window glass, and a nail fragment.

The debris in Vault 1 derives from 1940s home construction and demolition in this area, along with parking lot construction and the 1971 transformer installation and more recent modifications to the Radio Plaza building parking lot. Stratum 1 comprises all of the fill overlying the incinerator floor found in Vault 1 at 41 cm bgs. Only a few minuscule bits of charcoal were observed in this layer.

Since cienega muck underlays Stratum 1 in Vault 1, the presence of cobbles, boulders, and coarse sand suggests that some of the sediments in this layer were brought in from an off-site location, possibly to stabilize the cienega layer prior to home construction in the area.

Stratum 2

Stratum 2 is an alluvial deposit that consists of rounded boulders and cobbles mixed with coarse-grained sand. Its reddish-orange color owes to the high feldspathic granite content of both the rock and sand (5YR 4/6, yellowish red). Rock size ranges greatly here, from fist sized cobbles to boulders measuring 50 cm long. This stratum is highly unsorted and comprises one of the lower alluvial members of the Ancha Formation, which forms vast alluvial fans across the Santa Fe area from the eastern foothills to the Cerros del Rio volcanic field several miles west of the project area (Johnson and Koning 2012; Koning et al. 2002). Stratum 2 had been entirely redeposited in the project area and was primarily observed in Vault 1 behind the Radio Plaza building, where it had been mixed with early to late twentieth century construction debris down to 1.30 m bgs. The presence of this stratum near the surface in Vault 1 indicates the depth to which this area was dug, since this stratum underlies the cienega deposits, basically acting as a water conduit from the mountains to the marsh, the Santa Fe River, and the Acequia Muralla north of the utility project area (Plewa 2009:269; Spiegel and Baldwin 1963:138–139).

Stratum 3

Stratum 3 consists of reworked cienega deposits. It is one of two stratum designations for reworked cienega deposits, the other being Stratum 5. Stratum 3 is distinguished from Stratum 5 in that it consists almost entirely of dense, black cienega deposits and contains very little intrusive material such as other strata, construction debris, or artifacts. Sediments here consist of black silty clay (7.5YR 3/1). This

layer is most evident beneath the incinerator support slab in Vault 1, behind the Radio Plaza building and in Trench 1, south of 107 Cienega Street. It has been redeposited in both of these contexts; this is demonstrated in its mixing with Stratum 1 and with some concrete fragments likely derived from the construction of the concrete vault.

Cienega deposits are impermeable carbonaceous deposits interbedded with terrace gravel lenses of the Santa Fe River (Spiegel and Baldwin 1963:138–139). The cienega formed when a meander of the Santa Fe River was severed from the main route, creating an oxbow lake (Plewa 2009:266–267). The lake was continually supplied with water via underground seepage from the river as well as from arroyos flowing from the mountains. Also, the overlying alluvial deposits of the Ancha Formation are highly permeable, allowing rainwater to penetrate deep down into cienega deposits

In the project area, Stratum 3 occurs at various depths depending on the degree to which it has been reworked. It consistently makes up the bulk of the profile in the deeper parts of trenches and vaults. It is thickest and most intact behind Radio Plaza, beneath the incinerator, where it extends from .57–1.78 m bgs (1.21 m thick) in Vault 1. Beneath Cienega Street, it is much thinner due to its having been razed and truncated by road construction and utility installation, resulting in a total thickness of 44 cm (.60–1.04 m bgs). Although the cienega deposit continues west up the driveway of the house at 107 Cienega Street, its character differs enough there to warrant a separate designation as Stratum 5.

Stratum 4

Stratum 4 appears to represent imported fill used to stabilize the cienega deposit. Basically, it appears to be a calcified mix of Strata 1 and 2 that may have been razed from low hills bordering the cienega and brought to the area to provide a firm foundation for home and infrastructure development. Stratum 4 consists of calcified clay, sand, and 1 percent rounded gravels (5YR 6/4 light reddish brown). The sand content is quite low. Chunks and bits of hardened caliche account for about 20 percent. Stratum 4 occurs only in the portion of Trench 1 beneath Cienega Street and even its presence there is limited. It is located only near the east end of the trench between 1.7 and 5.0 m west of the east end, where it is situated between two previously installed utilities, specifically Vault 2 and a steel waterline. Its maximum thickness is 22 cm, extending from 28–50 cm bgs. It is sharply truncated at its west end by the steel waterline trench and is diffuse at its east end, where it blends with bounding strata reworked during the installation of the transformer on the east side of Cienega Street. Stratum 4 extends largely undisturbed across an abandoned utility trench located 3.60–4.10 m from the east end of Trench 1. Its relatively intact presence inside this trench may indicate that the roadway and old utility were backfilled simultaneously using Stratum 4 sediments.

Stratum 5

As with Stratum 3, this layer consists mostly of cienega sediments, but differs in that it is more intensively reworked with other strata, specifically Stratum 2, along with mid-twentieth century construction debris and artifacts. Stratum 5 spans the entire length of the ribbon driveway at 107 Cienega Street in Trench 1 and continues west into Hole 2. Overall, it dips slightly from east to west, its top boundary ranging from 10–60 cm bgs within this approximately 25 m long swath. This west-sloping upper boundary is a direct result of Stratum 6 having been deposited over Stratum 5 inside the 107 Cienega home lot—probably to cover the area with a comparatively clean, dry fill prior to construction. Stratum 5 may have been leveled inside the home lot as well. This layer invariably extends to the bottom of Trench 1 at 1.04 cm bgs. Its lower boundary has not been contacted in any excavation. Isolated granite cobbles from Stratum 2 also appear in the cienega deposit, another indication of redeposition of this layer. No bisecting utilities were observed in Stratum 5.

Stratum 5 is at least 1.41 m thick in the project area. This is inferred from two adjacent excavations of Trench 1 and Hole 2, which straddle a high adobe retaining wall at the west side of the 107 Cienega Street property. Each of these excavations displayed thicknesses of .51 m and .90 m, respectively, which together indicates that Stratum 5 is at least 1.41 m thick. Since its lower boundary was not contacted, this represents its minimal thickness in this area.

Stratum 5 contains low counts of construction materials including brick, limestone, concrete,

electric and plumbing fixtures, and a pocket of degraded concrete. All of the project artifacts come from Stratum 5. These include food and cosmetic bottles and jars ranging from the late nineteenth to mid-twentieth century. At its deepest point in Hole 2, Stratum 3 has been reworked with mid-twentieth century brick fragments and a large draft horseshoe, indicating that it was reworked to the deepest point contacted during the utility project.

Stratum 6

Stratum 6 appears to represent imported fill deposited atop the cienega layer as a stabilizing measure for the concrete driveway ribbons and backyard walkways at 107 Cienega Street. Stratum 6 occurs only in this location, where it gradually thickens in Trench 1 from the road west to the southwest corner of the garage. Along the driveway, Stratum 6 sits directly below the concrete ribbons from 0–10 cm bgs. Toward the west side of the lot, it slopes and thickens to 15–30 cm bgs but is consistently present beneath concrete. This layer has a distinctive reddish brown color (2.5YR 4/4) and a uniform sandy clay texture with tiny bits of caliche throughout. Construction debris was limited to several small brick fragments. No concrete or artifacts were found in this stratum.

Twentieth Century Disturbances in the Cienega Street Area

As discussed above, the entire project area lies within the boundaries of the Cienega de Santa Fe, a broad, marshy area that stretched across much of the eastern downtown area. Drainage of the cienega was first proposed in 1915, though homes were not built in the area until the late 1930s and 1940s. No documentation could be located regarding possible infill of the cienega in preparation for home construction, but the extent and thickness of reworked sediments containing artifacts ranging from 1800–1964 on the 107 Cienega Street property could certainly qualify as such.

Many homes and businesses fronting the north side of Marcy Street were fully constructed by the mid to late 1930s, but the Cienega Street area may have been slower to develop since houses do not appear on this road until the 1948 Sanborn Fire Insurance Map. The Radio Plaza building has apparently stood at its current location since late 1946, as the Jan. 5, 1947 opening of the new KTRC radio station was publicized in December of the preceding year ("Radio Station KTRC to [illegible] Formal Dedication [illegible] Opening on Jan. 5" *The Santa Fe New Mexican*, Dec. 26, 1946). The building appears as Radio Sta. K.T.R.C., on the 1930/1948 Sanborn map. The home at 109 Cienega Street also stood at that time but was demolished in 1980 to provide parking for Radio Plaza businesses. Since then, the parking lot for Radio Plaza has been bulldozed at least three times (John Barker, personal communication, 2017). Other disturbances in the project area consist primarily of utilities, most of which are water, electric, and gas lines running north–south in under Cienega Street. An abandoned utility trench that appears to have been hand-dug and backfilled was exposed in the Trench 1 profile near the center of Cienega Street.

Radio Plaza Utility Excavations

Vault 1 was located south of the Radio Plaza Building in the southwest corner of the parking lot where three existing transformers were located. Vault 1 was excavated for the purpose of removing and relocating these three transformers, which were installed inside a robust subterranean concrete vault, the base of which sits at 1.71 m bgs (Fig. 7.1). The concrete vault is set at the east edge of a large partially fenced area covered with landscape gravels. Vault 1 was an L-shaped excavation that wrapped around the south and west sides of the concrete transformer vault. It measured 6.90 by 3.80 m and was excavated to a depth of 1.78 m bgs.

Most of the disturbances in this area owe to the installation of the 1971 concrete vault and interior transformers and of four more recent conduits. Three of the latter run parallel to the vault across the graveled area at 1.47 m bgs. One turned east to connect with the transformers. In addition to the mid-twentieth century disturbances listed above, an incinerator was constructed at the southwest corner of Radio Plaza sometime after the building was completed. The incinerator does not appear on the 1930/1948 Sanborn map, but a Plat of Power Line Easement survey completed by Frank Rand in 1971 for PNM depicts the incinerator near the southwest corner of the lot. John Barker of Barker Realty, the current owner of the Radio Plaza building, said that

Figure 7.1. Vault 1, overview, pre-excavation.

Figure 7.2. Vault 1, incinerator support, view east.

the incinerator was used by the KTRC radio station to burn papers and similar refuse.

The purpose of the excavation of Vault 1 was twofold: to expose and remove the existing concrete enclosure so that the old transformers could be removed, and to provide adequate space for the new transformers. Backhoe excavation began by trenching along the west side of the vault to expose existing conduit and the base of the concrete vault. Following this, the south side was trenched several centimeters below the base of the concrete vault to 1.78 m bgs. The uppermost layer consisted of landscape gravels from 0–5 cm bgs. Beneath this was Stratum 1, a heavily reworked layer of alluvial clay, sand, rock, and mid-twentieth century and modern debris, from 5–41 cm bgs.

At 41 cm bgs, the concrete base slab of the incinerator was encountered (Fig. 7.2). The slab is 16 cm thick and extends 41–57 cm bgs. According to the 1971 survey, the incinerator platform measures 3 by 5 ft. On the north, it extends completely to the concrete vault wall, and on the south, it ends approximately 7 cm from the concrete retaining wall that borders the south side of the parking lot. Its eastern edge was not exposed, but if 1971 survey dimensions are applied,

Table 7.1. Trench and vault artifact inventory.

Excavation Type, No.	Location	Orien.	Length (m)	Width (m)	Depth (m bgs)	Northing	Easting	Strata	Context	Artifact Count
Radio Plaza										
Vault 1	southwest corner of parking lot	N-S	6.90	3.80	1.78	3949719	415409	1, 3	redeposited	5
Hole 1	west side of Radio Plaza	N-S	1.40	0.90	0.80	3949747	415419	2	redeposited	–
Cienega Street										
Vault 2	East side of Cienega St.	N-S	1.54	1.39	1.04	3949688	415440	1, 2, 3	redeposited	–
Trench 1	Cienega St and 107 Cienega property	E-W	38.0	0.61	.94–1.04	3949693	415421	5, 6	imported and redeposited fill	35
Hole 2	West side of 107 Cienega, east side of SF New Mexican parking lot	E-W	6.6	0.23	.90–1.85	3949698	415403	5	redeposited	1
Total										**41**

Orien. = Orientation

it should fall slightly beyond the edge of the parking lot asphalt (Fig. 7.3). This platform likely supported a pyramidal-shaped incinerator in common use from the turn-of-the-nineteenth century until the mid-twentieth century, when they were banned in many American cities. The platform of the Radio Plaza incinerator is not blackened or charred, which may indicate that the burning platform was raised above the ground similar to some of the models in Figure 7.4.

Directly beneath the incinerator support slab is cienega muck—Stratum 3—mixed with concrete chunks, indicating that the area beneath the incinerator slab has also been disturbed. The slab appears to be in situ, but the presence of concrete beneath it suggests either that the area was more deeply excavated or infilled during mid-twentieth century construction. Along the west side of the concrete enclosure, redeposited fill also contains early to late-twentieth century debris including fragments of Territorial Penitentiary brick, PenTile, recent brick, ceramic sewer pipe, cinder block chunks, asphalt, flagging tape, wire, and modern refuse. Despite the variety of construction related items in this vault, refuse was sparse overall. Concrete fragments were more numerous near the concrete enclosure, but were otherwise rare. From 1.30–1.78 m bgs, the cienega muck is mixed with the rock and sand of Stratum 2.

Five early twentieth century artifacts were recovered from Vault 1: four pieces of glass (refrigerator, window, and shelving) and a nail fragment, all of which were taken from the redeposited Stratum 1 layer above the incinerator slab base. The paucity of refuse in the vicinity of the incinerator probably owes much to the fact that the area was bulldozed multiple times, possibly resulting in the removal or relocation of associated debris.

Hole 1 was excavated to expose existing conduit on the west side of the Radio Plaza building and to allow its connection with the new transformer in the southwest corner of the parking lot (Fig. 7.5). The large cell phone tower between Radio Plaza and The New Mexican building is directly across the driveway to the west. Hole 1 measured 1.40 m north–south and .90 m east–west and was excavated to a depth of .80 m bgs. Beneath the 9 cm thick asphalt is a thick layer of concrete 9–54 cm bgs on the west edge. The concrete thins toward the Radio Plaza building to 9–24 cm bgs. Beneath the concrete to the bottom of the hole, at 80 cm bgs, fill consists of Stratum 2 rock and sand mixed with concrete dust and chunks. The top of the existing conduit was encountered at 80 cm bgs (Fig. 7.6). All fill had been entirely redeposited down to the level of the conduit. No artifacts were recovered from Hole 1.

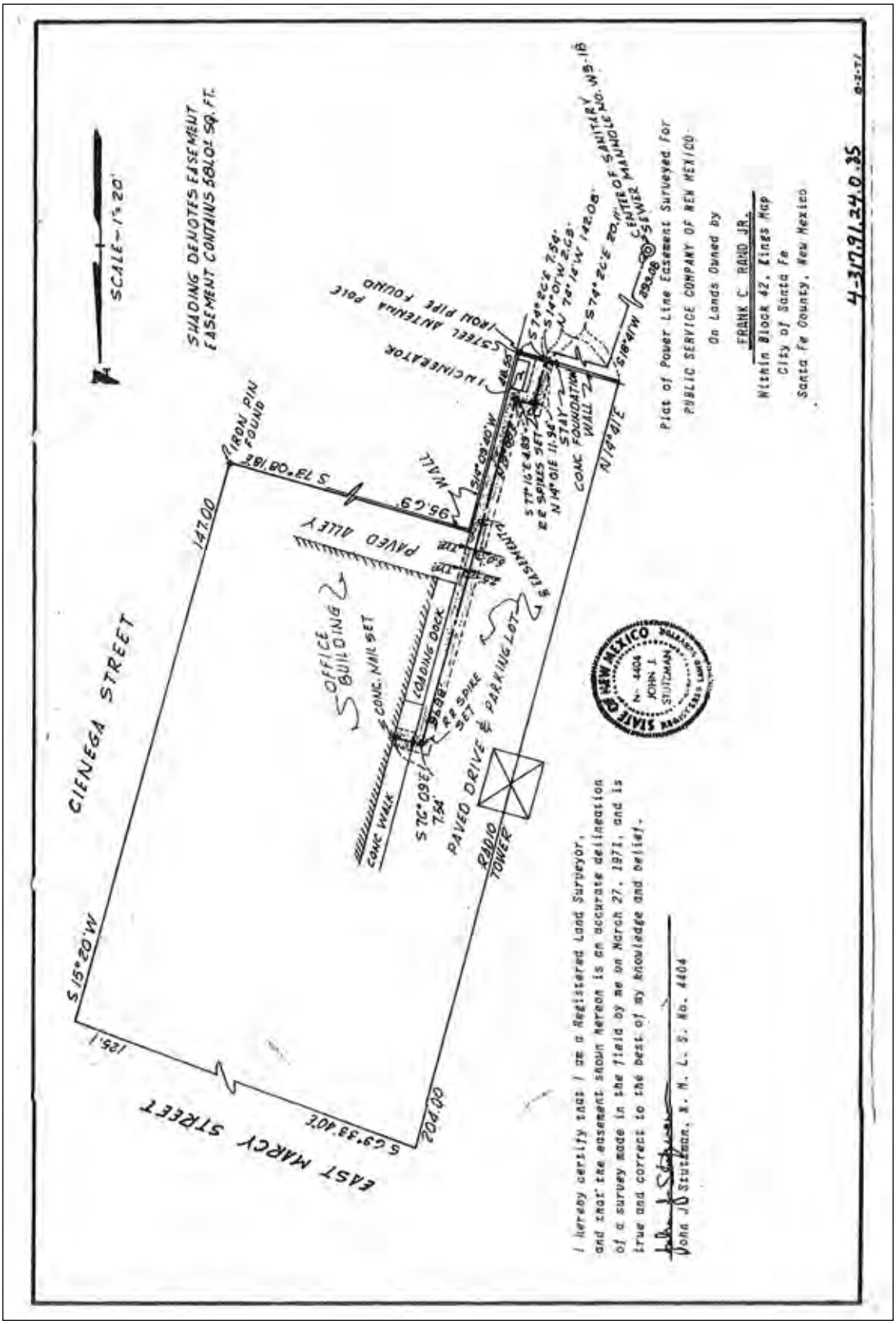

Figure 7.3. 1971 survey of 210 East Marcy Street, courtesy Matthew Holbert, PNM.

Figure 7.4. W. G. Nye and Loy E. Moore, owners of the Peerless Incinerator Company display their backyard incinerators as they hear reports of banning all incinerators, Oct. 20, 1954 (Courtesy, Los Angeles Public Library, Herald-Examiner Collection). The incinerator behind the Radio Plaza Building may have resembled the larger models.

Cienega Street Excavations

Vault 2 was located on the east side of Cienega Street opposite 107 Cienega. It was excavated adjacent to an existing vault that had been sunk into the sidewalk on the east side of the street (Fig. 7.7). Vault 2 measured 1.54 north–south by 1.39 m east–west and was excavated to 1.04 m bgs. The south wall was aligned with Trench 1, which extended west into the driveway of 107 Cienega Street. Disturbances in the area include the installation of the transformer on the east side of the road and the construction of Cienega Street and fronting homes. The vault is entirely within the Cienega Street roadway, which has been surfaced with a 10 cm thick layer of asphalt. Two profiles were photographed in Vault 2—the west and north faces.

Below the asphalt on the west face profile, a thin, barely discernible base course layer has been applied, below this is a red, graveled road surface 14–19 cm bgs (Fig. 7.8). The red gravel appears to be derived from Stratum 2 gravels, as it does not resemble the red cinder deposited today to provide traction on icy roads. The red road layer is present only as thin lenses in Vault 1, but became a well-defined, contiguous layer continuing west across Cienega Street.

Below the red road, three discrete layers of redeposited sediment occupy the entire west face profile. The uppermost is a reworked mix of Strata 1 and 2 and asphalt chunks 19–63 cm bgs. This is underlain by a 5 cm thick lens of Stratum 2 sand and gravel to 68 cm bgs. The black, silty sediments of the cienega muck are below this, to the bottom of the vault at 80 cm bgs.

All of these layers become increasingly reworked with proximity to the existing transformer on the east side of Cienega Street. This is most

Figure 7.5. Hole 1, overview, view southeast.

Figure 7.6. Hole 1, post-excavation, view east.

evident in the north profile of Vault 2, where only the dark sediments of Stratum 3, the cienega muck, can be discerned inside a well churned mix of Strata 1, 2, and 3 (Fig. 7.9). No artifacts were recovered from Vault 2, and no charcoal was observed in any stratum.

Trench 1 followed a dogleg path across Cienega Street up the driveway of the home at 107 Cienega, jogged north around the garage, and west to the high adobe wall bounding the property (Fig. 7.10). Trench 1 measured 38 m long, .61 m wide, and was excavated to varying depths ranging from .94–1.04 m bgs. Sediments in this trench are entirely redeposited from top to bottom along the entire length, but the nature of the mix varies depending on whether it is under the road, the driveway, or the west end of the 107 Cienega property.

Generally, the cienega stratum is deeper in the roadway, as it is partially razed and infilled consecutively with Stratum 4, Stratum 1, and the red road surface also found in Vault 2. These infilled layers were likely to have been deposited during previous utility installations, possibly following the excavation of an abandoned utility trench in the profile (Fig. 7.11). This particular sandwich of layers does not occur in any other part of Trench 1, suggesting the mix is associated with mid to late twentieth century utility installations and roadway restoration. This area also features the only occurrence of Stratum 4 in the project—a layer that appears to represent imported fill. At the far west end of Stratum 4 near the waterline, some isolated lenses of cienega muck are mixed with this imported layer.

The portion of Trench 1 under the driveway of 107 Cienega differs considerably from the area beneath the road. In this area, Trench 1 was dug between two thin concrete strips that form the driveway of 107 Cienega Street. This driveway style is ubiquitous in American neighborhoods in the 1940s and 1950s and is sometimes referred to as a ribbon driveway. The concrete strips were not disturbed during the excavation of Trench 1.

The primary difference here compared to the area under the road is the greater thickness of the cienega deposit and higher artifact counts (Fig. 7.12). Cienega deposits are closer to the surface here than in the road (10 cm bgs along the driveway), but dip slightly to the west, down to 60 cm bgs. The changes in the upper boundary of the cienega deposit owe

Figure 7.7. Vault 2, pre-excavation, view west.

to the fact that it is topped with a reddish-orange layer that appears to be import fill—Stratum 6. This layer thickens slightly 10–15 cm along the length of Trench 1, from Cienega Street to the west wall of the back yard at 107 Cienega, but is consistently associated with either the concrete driveway ribbons or the walkway that parallels the north wall of the garage. The reworked cienega deposit is overlain by Stratum 6 along the concrete driveway ribbons and walkways in the backyard. West of this, it is covered by a fairly thick layer of topsoil, from 0–60 cm bgs (Fig. 7.13). One interesting item near the west end of the walkway is a formidable concrete drain slab (Fig. 7.14).

The cienega layer extends completely to the bottom of Trench 1 at 1.04 m bgs and has been reworked along this entire depth with fragments of concrete, brick, limestone, rebar, pipe fittings, porcelain light fixtures, and the occasional piece of modern trash. Artifacts range from the late nineteenth to mid-twentieth century, and though they run the gamut functionally and temporally, the counts are very light (n = 44). Artifacts consisted of Native historic ceramics (n = 2), bone (n = 8), glass

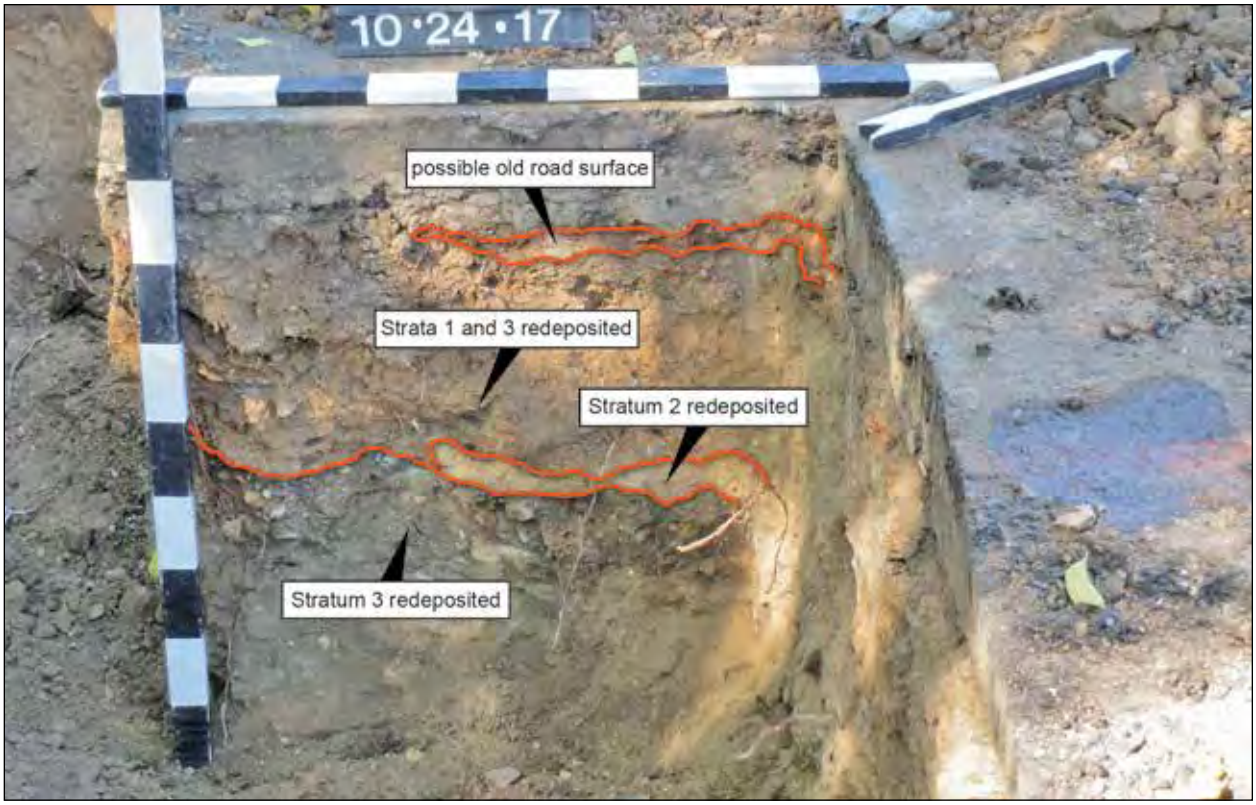

Figure 7.8. Vault 2, Profile 1, view west.__–

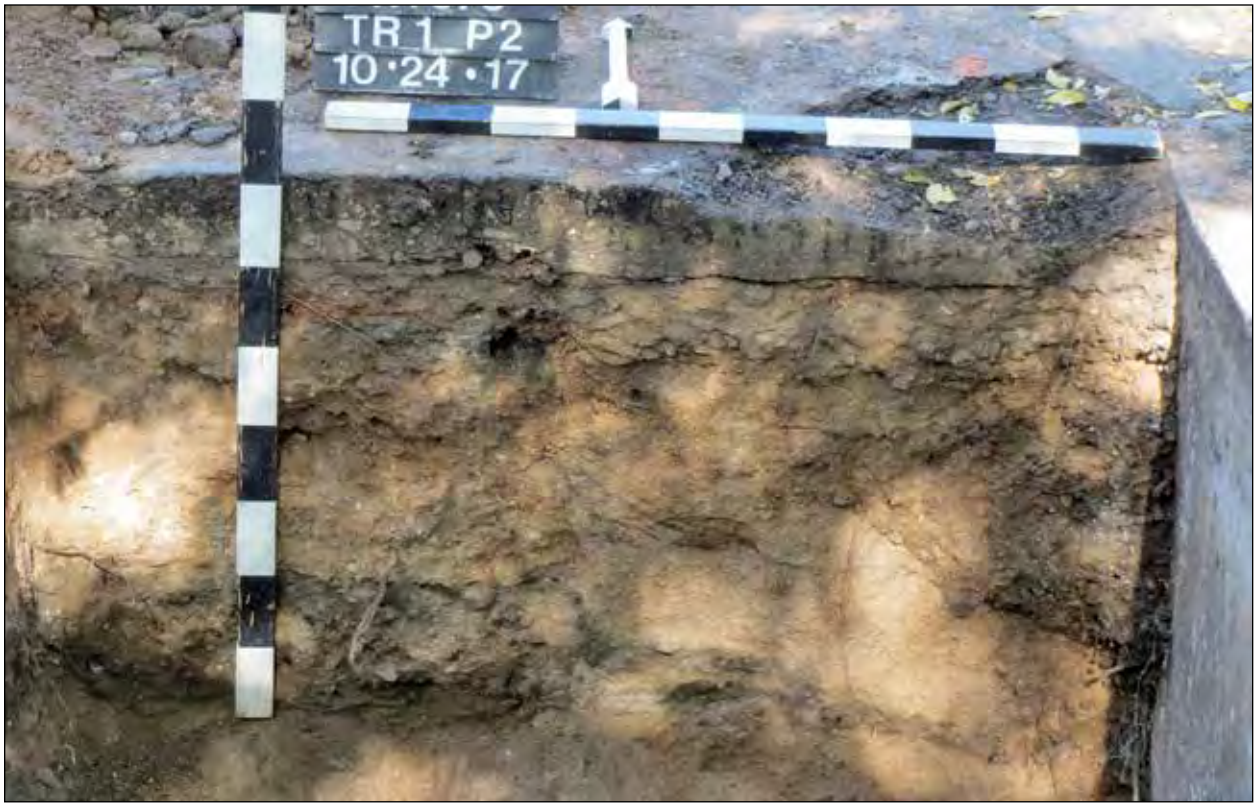

Figure 7.9. Vault 2, Profile 2, view north.

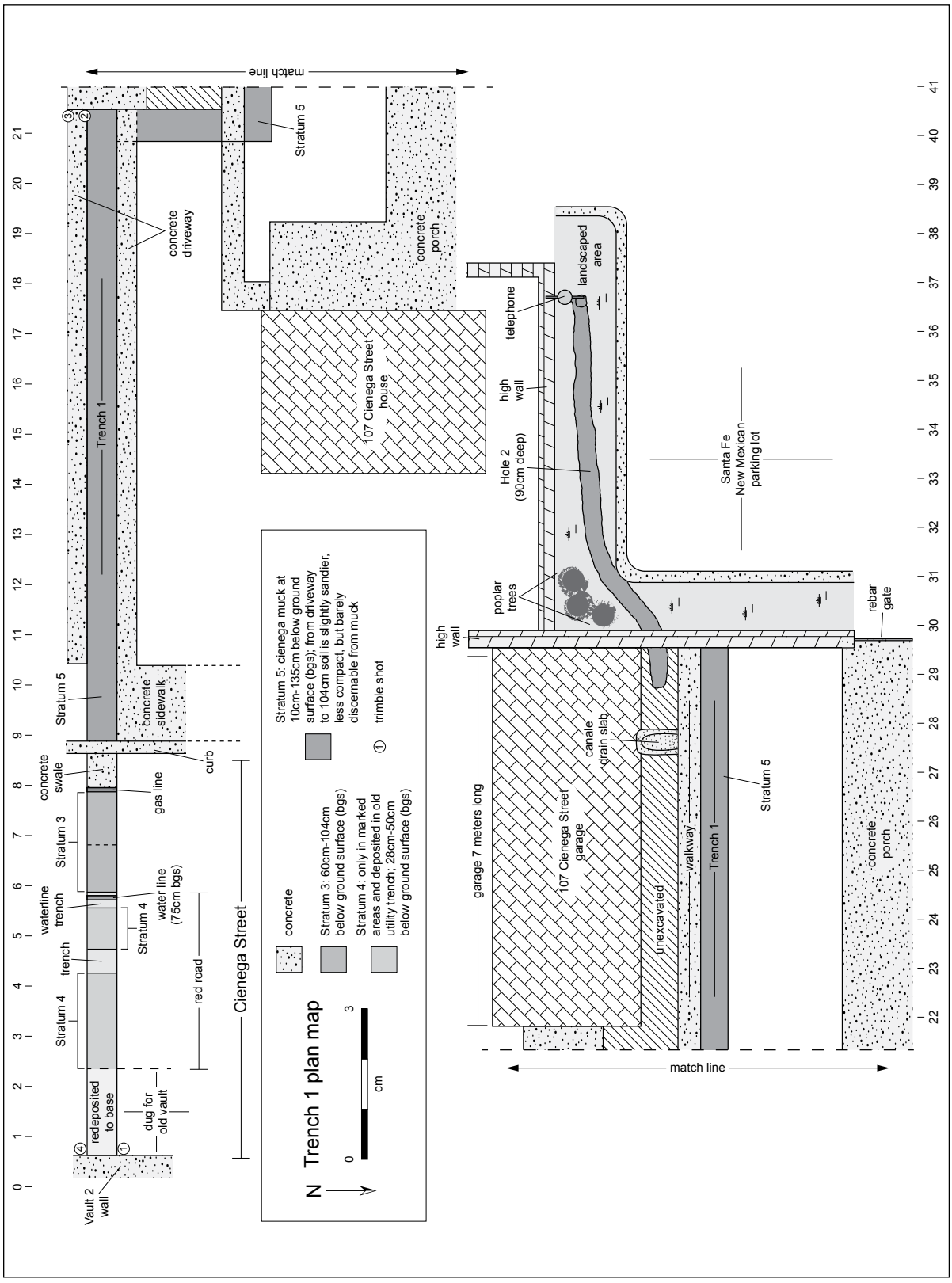

Figure 7.10. Trench 1, plan.

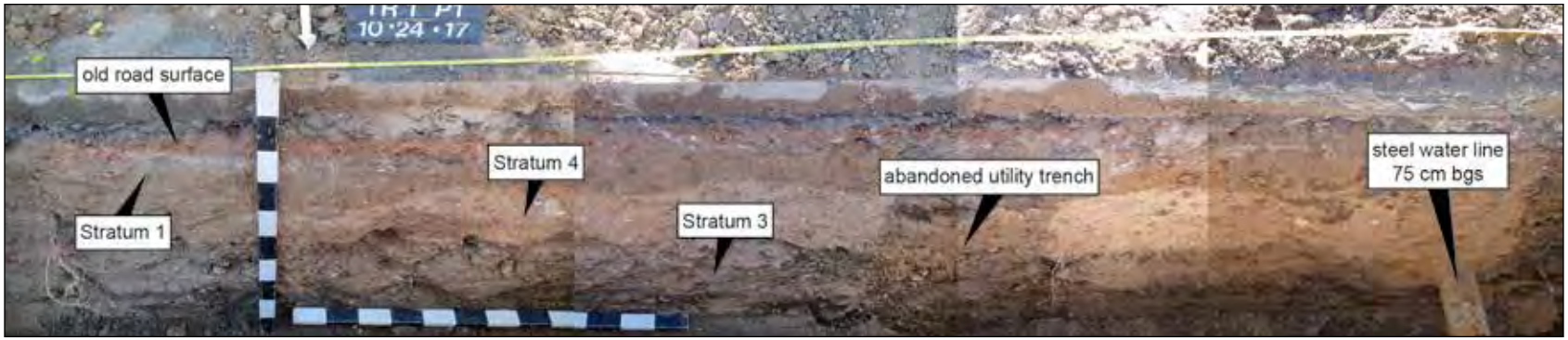

Figure Figure 7.11. Trench 1, Profile 1, view south.

Figure 7.12. Trench 1, Profile 2, below Cienega Street driveway.

Figure 7.13. Trench 1, Profile 4, far west end.

Figure 7.14. Concrete cañale drain slab at 107 Cienega St.

jars and bottles (n = 13), Euroamerican ceramics (n = 2), metal (n = 5), and mica (n = 5). Most of these reflect early to mid-twentieth century home construction debris or domestic household refuse, though some might date to the late nineteenth century. With the exception of a ceramic light fixture and a plate fragment found in the street portion of Trench 1 near the sidewalk, all artifacts from this area were recovered in the narrow strip between the ribbon driveway at 107 Cienega Street. No artifacts were recovered from Trench 1 west of the garage.

Construction debris is light and dispersed. Brick fragments invariably are of the type used to build the Territorial style houses at 105 and 107 Cienega Street. Though the 1957 rear addition at 107 Cienega is constructed of PenTile, no fragments of this material occur in the trench fill. The reworked cienega layer extends to the west retaining wall of the 107 Cienega Street property. West of this wall, the ground surface drops 1.11 m, which is the level into which Hole 2 was dug.

Hole 2 straddled a retaining wall that separates the backyard of 107 Cienega Street and the parking lot of The Santa Fe New Mexican building. The

Figure 7.15. Retaining wall bisecting Hole 2, view south.

Figure 7.16. Hole 2 overview, view east.

Figure 7.17. Hole 2, post-excavation, view south.

hole began near the northwest corner of the 107 Cienega Street garage and traced a gentle dogleg path through a landscaped island west to a small power box. This excavation required digging down to the base of the retaining wall and tunneling beneath—a total depth of 1.85 m bgs on the east side (Fig. 7.15). On the west side, Hole 1 was .90 m bgs. The total length including the sections on either side of the wall was 6.6 m; the width was .23 m. The east portion of the hole in the backyard is covered with grass, and the west portion is entirely within an island landscaped with poplar trees. Other than landscaping, disturbances to this area include irrigation lines, power lines, and thick tree roots that crisscross this narrow trench (Figs. 7.16 and 7.17).

Hole 1 was excavated entirely with a vacuum extractor, so artifacts could not be retrieved from the backdirt. However, brick fragments were observed during excavation and a large draft horse horseshoe was found at .48 m bgs. All of these items were on the west side of the retaining wall. The paucity of artifacts in this area is consistent with the portion of Trench 1 that parallels the garage, where only sparse brick fragments occurred.

Stratum 5, the reworked cienega deposit, occupies the entire profile beneath a .15 m thick layer of landscaping bark west of the retaining wall down to .90 m bgs. Inside the private property at 107 Cienega Street, Stratum 5 is overlain with a .60 m thick layer of topsoil and grass.

8 ⇊ Euroamerican Artifact Analysis

Susan M. Moga

Thirty-one Euroamerican artifacts were recovered during archaeological monitoring at 107 Cienega Street and the immediate vicinity (Table 8.1). The Euroamerican artifacts came from 10 of the 12 categories listed in the Historic Artifact Standardized Code format (Boyer et al. 1994) utilized by the Office of Archaeological Studies in which descriptive attributes, including material type, fragment, manufacturer, brand name, technique, paste, ware, color, and decorative motif, are recorded for each artifact. Recorded attributes are then entered into the electronic data base Statistical Package for the Social Sciences (SPSS).

Most of the Euroamerican artifacts (n = 24) were collected from redeposited soils. The remaining artifacts came from Stratum 1 (n = 5) and Stratum 3 (n = 2). The artifacts will be described according to the cultural context from which they were retrieved.

Stratum 5

It appears that Stratum 5 sediments were disturbed during previous utility and transformer installations and landfill activities within the project area. The Euroamerican artifacts found in this stratum consist of eight categories that include: Unassignable (n = 7); Economy & Production (n = 5); Food (n = 2); Indulgences (n = 1); Domestic (n = 1); Construction & Maintenance (n = 4); Personal Effects (n = 3), and Entertainment & Leisure (n = 1).

The Unassignable category usually consists of glass bottle fragments. These fragments could belong to several categories, but not to one specific category, so they have been classified as unassignable. Several hand-blown bottle panels of clear glass were collected and could only be dated by color (1880–1930). A clear glass jar base displayed the Hazel-Atlas Glass Company's (1920–1964) maker's mark. During this period, Hazel-Atlas was known to manufacture fruit jars, so the base is probably from a fruit jar. The base and body fragment from an amber, three-piece molded bottle (1830–1904) could not be identified and could be part of a beer, bitters, medicine, liquor, or chemical bottle.

Several thin sheets of mica (n = 5) were placed in the Economy & Production category, since mica has to be mined for use. Sheet mica is used for windows, heating elements, navigation compasses, pyrometers, and microwave ovens. It is impossible to estimate a time frame on this artifact, because the use of mica dates back to prehistoric times. Today, the Taos and Picuris Indians use mica in their pottery. Sheet mica is also found in aerospace components, laser devices, and radar and missile systems (Dolley 2008).

Two artifacts were classified as food items. A complete clear glass food jar with a worn red-stenciled label was machine manufactured by Anchorglass between 1945 and 1950. Information deciphered from the label reads: "Wieners…tomato sauce…Ingredients: tomato puree, flavoring, sodium nitrate…packed by…" This short-lived glass company was only a stepping stone for the corporate changes that occurred in the Anchor Hocking Glass Corporation and their numerous plants located between Los Angeles and Baltimore (Lockhart 2013:435, Toulouse 1971:46-49).

A sardine can was the other food item. Only three heavily rusted fragments were present, but the rounded corner with a folded rim displays the typical sardine can design, one which has changed very little since its introduction into the United States in 1875. In 1889, the key strip opening was invented; by 1904 sardine cans were being made by automatic machines (Rock 1981: 8).

Indulgences are luxury items consumed for pleasure and recreation and are not a necessity for human existence. The base and body of a green glass 7 Up soda bottle was the only indulgence item collected. 7 Up is a lemon-lime flavored, non-caffeinated soft drink created by Charles Leiper Grigg in 1929, just two weeks prior to the stock market crash of October 1929. It contained lithium citrate, a mood stabilizing drug which remained in the market until 1948 when the Food and Drug Administration banned the use

Table 8.1. Euroamerican artifacts recovered from 107 Cienega Street and vicinity.

Category	Function	Fragment	Material	Count	Begin Date	End Date	Manufacturer	Technique	Paste	Ware	Color	Decoration	Design
Stratum 5													
Construction/Maintenance	Pipe, threaded	Whole	Iron	1	1902	–	–	Extruded	–	–	Brown	–	–
Construction/Maintenance	Adapter, threaded	Whole	Iron	1	–	–	–	Mold	–	–	Brown	–	–
Construction/Maintenance	Rod	Section	Iron	1	–	–	–	Extruded	–	–	Brown	–	–
Construction/Maintenance	Nail, Wire	Whole	Iron	1	1890	–	–	Drawn	–	–	Brown	–	–
Food	Sardine Can	Body	Tinned Steel	1	1875	–	–	Flat, Sheet Machined	–	–	Brown, Gray	–	–
Economy/ Production	Mica: thin sheet	Body	Mica	5	–	–	–	Cut	–	–	Silver	–	–
Domestic	Plate or Saucer	Rim and Body	Ceramic	1	1800	–	–	Mold	Porc.	Porc.	White, Green	Hand-Painted	Curvilinear
Indulgences	Soda Bottle	Base and Body	Glass	1	1929	–	–	Automatic Bottle Machine	–	–	Green-Green (7 Up)	–	–
Personal Effects	Prescription Bottle	Body	Glass	1	1880	1930	–	Hand Blown	–	–	Clear	Embossed	Alpha.
Unassignable	Bottle, Indet.	Panel	Glass	2	1880	1930	–	Hand Blown	–	–	Clear	–	–
Unassignable	Bottle, Indet.	Panel	Glass	2	1880	1930	–	Hand Blown	–	–	Clear	–	–
Unassignable	Bottle, Indet.	Base and Body	Glass	1	1830	1904	–	3 Piece Mold	–	–	Amber	–	–
Entertainment/Leisure	Sheaffer's Skrip ink bottle	Whole	Glass	1	1922	–	Hazel-Atlas Glass Co.	Automatic Bottle Machine	–	–	Clear	Embossed	Alpha.
Unassignable	Bottle, Indet.	Panel	Glass	1	1880	1930		Hand Blown	–	–	Clear	Embossed	Alpha.
Unassignable	Jar	Base	Glass	1	1920	1964	Hazel-Atlas Glass Co.	Automatic Bottle Machine	–	–	Clear	Embossed	Alpha.
Personal Effects	Facial cream jar	Whole	Glass	1	1920	1964	Hazel-Atlas Glass Co.	Mold	–	–	White Milk Glass	Molded	Geometric

Table 8.1. (continued)

Category	Function	Fragment	Material	Count	Begin Date	End Date	Manufacturer	Technique	Paste	Ware	Color	Decoration	Design
Personal Effects	Facial powder jar	Whole	Glass	1	1920	–	–	Mold	–	–	White Milk Glass	Molded	Panelled
Food	Food jar	Whole	Glass	1	1945	1950	Anchorglass	Automatic Bottle Machine	–	–	Clear, Red	–	–
Total				**24**	–								
Stratum 1													
Construction/Maintenance	Nail, square	Head and Shank	Iron	1	1820	1900	–	Cut	–	–	Brown	–	–
Construction/Maintenance	Window Glass	Body	Glass	1	1800	–	–	Flat, Sheet Machined	–	–	Light green	–	–
Furnishings	Refrigerator	Shelf	Glass	1	1936	–	–	Mold	–	–	Light green	Ribbed	Ribbed
Furnishings	Shelf	Body	Glass	1	1917	–	–	Flat, Sheet Machined	–	–	Light green	–	–
Indulgences	Soda Bottle	Base and Body	Glass	1	1929	–	–	Automatic Bottle Machine	–	–	Green-Green (7 Up)	Embossed	Alpha.
Total				**5**									
Stratum 3													
Furnishings	Light fixture	Base	Ceramic	1	1930	–	–	Mold	Porc.	Porc.	White	Embossed	Alpha.
Transportation	Draft horseshoe	Whole	Iron	1	1835	–	–	Cast	–	–	Brown	–	–
Total				**2**									

Mid-Range Date: 1895.
Porc. = Porcelain; Alpha. = Alphabetical

of lithium in soda and beer. Lithium has an atomic weight of approximately seven, which, in theory, gave 7 Up its namesake, as well as the "Up" from the lithium (Graedon 1998; Kaufman 2014).

One Domestic item consisted of a rim and body fragment from a ceramic plate or saucer. The dish was molded white porcelain with three hand-painted thin green bands around the rim and was covered with a clear glaze. The arrival of porcelain in New Mexico dates from 1800; these dishes, however, are currently being manufactured, thus this artifact is probably more recent than the New Mexico arrival date.

The Construction & Maintenance category contained four hardware items. These objects were made from iron and were thoroughly rusted. They include a threaded pipe (1902+), a threaded adapter, a section of a rod, and a wire nail (1890+). These items are too low in frequency to represent any specific long term activity that could have taken place within the project area and probably represent neighborhood construction debris. The pipe and adapter were probably associated with residential plumbing activities or with prior utility installations in the neighborhood.

Personal Effects usually consist of unique items. The three personal items collected include a body fragment from a hand blown clear glass prescription bottle. The fragment is embossed with graduated increments for medicine dosages. Bubbles within the glass indicate a date range between 1880 and 1930. The other items are two small white milk glass cosmetic jars. The external screw finishes on both jars are broken; these probably had decorative metal lids. The larger jar could be a "Ponds" facial cream jar with an original paper label attached to it. The jar base has a Hazel Atlas maker's mark with the letters "H" over an "A", which dates between 1920 and 1964 (Fig. 8.1). The smaller, octagon shaped cosmetic jar, is packed with a white perfumed powder (Fig. 8.2). It does not display a maker's mark, but is probably from the same time frame as the facial cream jar, as Hazel Atlas manufactured a variety of cosmetic jars during this period (Toulouse 1971:239-241, Lockhart 2013:62).

The Entertainment & Leisure category has only one item classified under stationery supplies. It is an intact, clear glass, 2 oz. ink bottle with a bead finish for a cork closure. The bottle is machine-made and displays two side seams. Below the neck, at the shoulder, and above the base are extended round, molded rims surrounding the bottle. It is likely that this is a decorative motif. The neck is embossed with "2 oz" and the bottle base is embossed with "Sheaffer's Skrip" and the Hazel Atlas manufacturer's mark with the letters "H" over an "A" (Fig. 8.3). Originally, the bottles had colored paper labels indicating the ink color: blue, black, green, or red. The W. A. Sheaffer Pen Company was located in Fort Madison, Iowa. Their advertising logo for their ink was "Makes all pens write better!" The fountain pen ink has been marketed since 1922 and is still sold today in sturdy glass bottles with screw caps (Tancia Ltd. 2014).

Stratum 1

Stratum 1 is a reworked mixture of alluvial clay, sand, rock, cienega "muck", and 1940s construction materials. Five Euroamerican artifacts from three categories were retrieved from Stratum 1 and date from the early nineteenth and twentieth centuries.

Construction & Maintenance artifacts consist of the head and partial shank of a square nail (1820–1900) and a small fragment of light green window glass, which dates from the 1800s, in New Mexico.

Furnishing items (n = 2) include a piece of thick ribbed glass used for refrigerator shelving (1936). The ribbing helped contain spills inside of the refrigerator (Condor 1994). Another glass fragment was smooth and thick and was probably used either as shelving or as a glass table top.

The last item collected from Stratum 1 was classified as an Indulgence. It is a partial base and body fragment from a green glass "7 Up" soda bottle. A few letters with manufacturing information are embossed on the bottle base, but were indecipherable. Information on "7 Up" bottles was previously described under Stratum 5.

Stratum 3

Stratum 3 sediments are also reworked but are more distinguishable, as they consist mostly of dark cienega deposits mixed with red brick fragments and 1940s construction materials. Two artifacts from two categories were found in Stratum 3.

The base of a ceramic ceiling light fixture was assigned to the Furnishings category. It is molded porcelain and, based on photographic comparisons, probably dates to the 1930s. The underside was embossed with"…airfacts c…" but, after a variety

Figure 8.1. Ponds face cream jar.

Figure 8.2. Perfumed powder jar.

Figure 8.3. Sheaffer's Skrip ink jar.

of alphabetical concoctions, no company name was found. An intact, cast iron horseshoe was placed in the Transportation category. This very large shoe (6½ in by 6½ by ¼ in thick) belonged to a draft horse and was probably used for hauling heavy loads or equipment. Horse shoes were introduced in 1835 by Henry Burden who patented the first American horseshoe manufacturing machine. By 1861, the Burden Horseshoe Company received a contract to supply the Union Army with millions of horseshoes during the Civil War (Moore 2007; Morris 1987: 308). It is difficult to date this horseshoe. It could have been a relic that someone saved or actually from a work horse used in the vicinity. New Mexico inhabitants have been known to utilize horses up into the early l900s, when railways replaced animal transportation (Torok 2009:11).

Conclusions

This small Euroamerican assemblage from 107 Cienega Street and 210 East Marcy Street represents numerous human activities that took place in the vicinity; it is also possible that these items were redeposited in the project area.

A sardine can, soda bottle fragments, dishes, hardware items, a prescription bottle, an ink well, cosmetic jars, a food or fruit jar, a lighting fixture, a horseshoe, and other unidentifiable glass bottles are nothing extravagant and represent numerous items used on a daily basis by the average residential household.

Artifacts have been dated from their invention or patent dates, which could be much earlier than their usage dates at a site. Residential housing did not occur on Cienega Street and vicinity until the 1940s. So, a mid-range date of 1895 for the Cienega assemblage could explain the displacement of sediments with artifacts from other areas, as well as from other time periods.

The houses at 105, 107, and 109 Cienega Street, as well as others inside the Cienega boundary were probably built on reworked sediments imported to the area to stabilize the underlying cienega deposit. It is likely that this infill occurred in the Radio Plaza area as well, but extensive reworking of that property from repeated parking lot resurfacing and the demolition of the home at 109 Cienega in 1980 has no doubt altered or removed artifacts in that area.

9 ⇊ Faunal Analysis

Susan M. Moga

A small number of animal bones (n = 8) were recovered from the project (Table 9.1). Only *Bos tarus* (cattle) (n = 4) and *Ovis aries/Capra hircus* (sheep/goat) (n = 4) were present. All eight bones came from mature individuals.

All fauna was recovered from redeposited contexts in Trench 1: two under the Cienega Street roadway and six from the 107 Cienega Street property. The assemblage included a mix of bones processed by home butchering and commercial butcher saws. Electric saws were brought to New Mexico on the train along with other items from back east.

Though these two practices overlapped temporally in Santa Fe and are often found together in refuse deposits, in the Cienega Street area their co-occurrence is probably the result of the deposition of reworked sediments to stabilize the marshy land of the cienega prior to construction.

Two cow long bone fragments, the tibia and radius, displayed chop marks. A left proximal scapula fragment and the spinous process of thoracic vertebrae were sawn. The chopped bones are a result of home butchering, and the sawn bones are retail cuts purchased from a store. The radius also exhibits very fine cut lines from the de-fleshing of the bone. Animal gnawing is visible on two bone fragments. Apparently, the bones were either given to dogs immediately after butchering or they were disposed of in the upper stratigraphy of a trash area and were accessible to foraging carnivores.

The distal humerus of a sheep/goat was cut and chopped and was most likely butchered at home. The transverse process of the lumbar vertebrae was also chopped. Two sheep/goat rib fragments had been sawn; recent excavation breaks are also present. Some fine de-fleshing marks are visible on one rib fragment.

Environmental alterations, including root etching, and weathering, are present on most of the bones in the assemblage. These bones were exposed to various weather conditions causing the external bone surface (the cortex) to crack, crumble, and fall away from the bone. The bones also could have been subjected to the typical trash scatter procedure: As the odor of trash increases, inhabitants toss dirt over the garbage; the process is repeated over and over again. As the bones fall lower in the trash heap, moisture from rain and snow encourages root growth, which transverses the bone's surface and leaves embedded impressions on the bone. It is also notable that the bones did not display any evidence of burning, another indicator that the trash was buried and not burned.

In conclusion, this assemblage is far too low in frequency, with only eight bone fragments, to attempt comparative distribution patterns. It is most likely that a Hispanic neighborhood would raise a sheep/goat or a cow on their property and butcher it themselves up into the 1930s, especially during the Great Depression, and even into the 1940s, whereas, an Anglo population would not partake of such an event and would head straight to the butcher shop.

Table 9.1. Fauna recovered from 107 Cienega Street and vicinity.

FS No.	Taxon	Element	Age	Processing	Count	Stratum	Trench
2-1	*Bos tarus* (cattle)	Spinous process of thoracic vertebrae	Mature	Sawn and animal gnawing	1	1	Trench 1, Cienega St.
2-2	*Bos tarus* (cattle)	(L) Proximal tibia shaft	Mature	Chopped	1	1	Trench 1, Cienega St.
4-1	*Bos tarus* (cattle)	(L) Proximl scapula fragment	Mature	Both ends sawn	1	5	Trench 1, 107 Cienega St.
4-2	*Bos tarus* (cattle)	Right Medial radius	Mature	Chopped, excavation breaks and animal gnawing	1	5	Trench 1, 107 Cienega St.
4-3	*Ovis aries/capra hircus* (sheep/goat)	Right distal humerus	Mature	Cut and chopped	1	5	Trench 1, 107 Cienega St.
4-4	*Ovis aries/capra hircus* (sheep/goat)	Transverse process of lumbar vertebrae	Mature	Chopped	1	5	Trench 1, 107 Cienega St.
4-5	*Ovis aries/capra hircus* (sheep/goat)	Rib fragments	Mature	Sawn, excavation breaks	2	5	Trench 1, 107 Cienega St.
Total					**8**		

10 ⇓ Ceramic Analysis

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Two historic Native American sherds were recovered during the excavation project. One is a Powhoge Polychrome bowl sherd retrieved from the backdirt of Trench 1 in the Cienega Street roadway. The sherd's context in Trench 1 was entirely reworked, as it occurred in a redeposited mix of Strata 1, 3, and 5 that probably represents relocated fill deposited over cienega sediments prior to home construction on Cienega Street. The Powhoge sherd is well made with a thin, hard wall that reflects a manufacturing process prior to 1875 when wares were being produced for local consumption rather than for sale to tourists arriving on the railroad after 1880.

This is true of the second sherd as well. This sherd is a fragment of a Tewa red bowl or jar with a thin, hard paste. Since both sides of the sherd are polished, it could represent a bowl or jar sherd. Both sherds could potentially date to the late eighteenth century given their high quality. However, since both types continued to be produced into the nineteenth century, the earlier date is tentative only. With the arrival of the railroad in 1880, the overall quality of these pottery types declined in response to the growing tourist demand for local pottery. Wares produced after 1880 have softer, thicker walls and less defined design styles.

11 ⇓ Discussion

Five utility excavations were monitored for the current investigation: two near the Radio Plaza building at 210 East Marcy Street, and three in the vicinity of 107 Cienega Street. Up until the early twentieth century, this area was completely encompassed by the Cienega de Santa Fe, an expanse of wet, marshy land that dictated the settlement and development pattern of Santa Fe. Possibly as soon as 1915, work began to transform the *cienega* into marketable land by draining and stabilizing lots along East Marcy and Cienega Streets. This process involved deep, expansive reworking of the land. This work is reflected in the utility excavations. Without exception, all utility excavations encountered reworked deposits from top to bottom, regardless of depth. The expansive nature of re-deposition in this area owes to a series of major modifications to the land spanning about 100 years, beginning with the proposed drainage of the Cienega de Santa Fe in 1915. This was followed by home and business construction, remodeling, and demolition, interspersed with utility installation.

The land was subdivided into lots in 1912, several years before the proposal to make the broad, marshy land of the cienega suitable for building. Lots along East Marcy and Cienega Streets were owned by the Santa Fe Realty Company, who advertised their sale in 1919. Presumably, the lots were drained, infilled, and contoured around that time as well, though home building in the area lagged until the mid-1930s. By the time the 1930 Sanborn Fire Insurance Map had been drafted, numerous homes had sprung up on the north side of East Marcy Street. The south side of Marcy Street and all of Cienega Street remained vacant until well into the 1940s. The Radio Plaza building was one of the first to appear, opening for business in 1946, as the KTRC radio station. Homes along Cienega Street followed shortly after.

Deposits encountered during utility excavations reflected this history, though the discrete episodes connected with this time were thoroughly churned. This was evidenced by the mixing of several strata, including cienega deposits, and by the broad range of datable artifacts from the late nineteenth to the latter half of the twentieth century. Artifact assemblages included items that one might expect to find in a 1940s residential neighborhood: plumbing and electric fixtures, construction materials, food containers, and personal items. Virtually all of these items were concentrated in Trench 1, under the ribbon driveway of 107 Cienega Street, while other excavations yielded little or nothing in the way of cultural materials.

The reworked cienega deposits appear to have been bladed from Cienega Street up onto adjacent home lots in order to stabilize and level the properties prior to construction. This was indicated by the lower depth of marsh deposits in the roadway compared to those in the 107 Cienega Street lot, as well as the reworked character of the sediments. It is also possible that the cienega layer was bladed during roadway construction and utility installation. Blading activity truncated not only the swamp deposit, but the overlying rocky layer of the Ancha Formation as well, mixing the two with light household and construction refuse. Intact cienega deposits were not encountered during any utility excavations.

The Radio Plaza area was also subject to extensive reworking, but strata in those excavations could be more easily associated with either Stratum 2, the rocky Ancha Formation layer, or Stratum 3, the black cienega deposit. The area around the existing concrete vault consisted almost entirely of rocks, sand, and gravel, while sediments below the incinerator slab were an almost solid mass of cienega muck. Though the muck contained concrete, the small area beneath the slab was generally less disturbed. Since the presence of an incinerator was noted in a 1971 PNM survey, it is likely that the incinerator was standing at that time, partially protecting the area beneath it compared to other project locations.

12 ⇓ Conclusions and Recommendations

Archaeological monitoring was completed in October 2017 behind Radio Plaza on East Marcy Street and in the vicinity of 107 Cienega Street. No archaeological sites or features were encountered during the excavations conducted for this project. Cultural finds consisted exclusively of reworked deposits resulting from the early twentieth century reclamation of the Cienega de Santa Fe for residential and business development. Artifacts within these deposits consisted of light construction and household debris associated with the erection of early to mid-twentieth century residences in the Cienega Street neighborhood, along with low counts of late nineteenth century materials. No further archaeological monitoring is required within the project boundaries. As such, archaeological clearance is recommended for all excavations associated with the current undertaking.

References Cited

Acklen, John C., John A. Evaskovich, and Christopher A. Turnbow
1994 *Results of Archaeological Investigations of Old Fort Marcy, Santa Fe County, New Mexico*. MAI Project 1141. Mariah & Associates, Albuquerque, New Mexico.

Anschuetz, Kurt F., and Cherie L. Scheick
1999 The Pre-Columbian Archaeology of the Geographic Subdivisions. In *A Study of Pre-Columbian and Historic Uses of the Santa Fe National Forest: Competition and Alliance in the Northern Middle Rio Grande*, ed. Cherie L. Scheick. Southwest Archaeological Consultants, Santa Fe and Santa Fe National Forest, Albuquerque.

Arnold, Carrie Forman
1989 The Palace of the Governors. In *Santa Fe, History of an Ancient City*, ed. David Grant Noble, pp. 129–147. School of American Research Press, Santa Fe.

Bandelier, Adolph
1882 *The Southwestern Journals of Adolph Bandelier: 1880–1882*, ed. Charles H. Lange and Carroll L. Riley. University of New Mexico Press, Albuquerque.

Barbour, Matthew J.
2011 *Archaeological Data Recovery Plan for the Executive Office Building, Santa Fe, New Mexico*. Archaeology Notes 441. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Bechtol, Gayla
2015 Historic Cultural Properties Inventory (HCPI) Base Form, 107 Cienega Street.

Boyer, Heffrey, Charles Hannaford, Guadalupe Martinez, and Adisa Willmer
1994 *Historic Artifact Analysis Standardized Variable and Attribute Codes*. Archaeology Notes 24d. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Bullard, William Rotch, Jr.
1962 *The Cerro Colorado Site and Pithouse Architecture in the Southwestern United States Prior to AD 900*. Papers of the Peabody Museum of Archaeology and Ethnology 44(2). Harvard University, Cambridge.

Carroll, Charles H.
1984 Norton-Tesuque 115 kV Transmission Project Cultural Resources Technical Report. Ms. on file, Public Service Company of New Mexico, Albuquerque.

Chávez, Fray Angélico
1979 Genízaros. In *Handbook of North American Indians*, Vol. 9, *Southwest*, ed. Alfonso Ortiz, pp. 198–200. Smithsonian Institution, Washington, DC.

Condor, Bob
1994 A Brief History of the Fridge, Plus the Latest Gadgets in the Chicago Tribune. Chicago Tribune, Chicago.

Cordell, Linda S.
1979 *A Cultural Resources Overview of the Middle Rio Grande Valley, New Mexico*. USDA Forest Service, Albuquerque.

Deyloff, Glenda
2000 *Results of Archival Study and Archaeological Monitoring of La Posada de Santa Fe Resort and Spa (LA 129141*). Southwest Archaeological Consultants Research Series 434B. Southwest Archaeological Consultants, Santa Fe.
2006 *Results of the Archival Study and Archaeological Testing on the Inn and Spa at Loretto Property, LA 153992, Santa Fe, New Mexico*. Southwest Archaeological Consultants Research Series 505. Southwest Archaeological Consultants, Santa Fe.

Dolley, Thomas P.
2008 *Mica in 2008 Minerals Yearbook*. U.S. Geological Survey.

Dozier, Edward P.
1970 *The Pueblo Indians of North America*. Holt, Rinehart and Winston, New York.

Eggan, Fred
1979 Pueblos: Introduction. In *Handbook of North American Indians*, Vol. 9, *Southwest*, ed. Alfonso Ortiz, pp. 224–235. Smithsonian Institution, Washington, DC.

Elliott, Michael L.
1988 *The Archaeology of Santa Fe: A Background Report*. Jemez Mountain Research Center 87–113. Albuquerque.

Ellis, Bruce T.
1978 Santa Fe's Tertio-Millennial, 1883. *El Palacio* 65(4): 121–135.

Ellis, Florence H.
1989 *San Gabriel del Yungue: As Seen by an Archaeologist*. Sunstone Press, Santa Fe.

Fenneman, Nevin M.
1931 *Physiography of the Western United States*. McGraw-Hill, New York.

Folks, James J.
1975 *Soil Survey of Santa Fe Area, New Mexico*. United States Department of Agriculture Soil Conservation Service. US Government Printing Office, Washington, DC.

Frisbie, T. R.
1967 The Excavation and Interpretation of Basketmaker to Pueblo I Sites Near Corrales, New Mexico. Master's thesis, University of New Mexico, Albuquerque.

Gabin, Vickie L., and Lee E. Lesperance
1977 *New Mexico Climatological Data: Precipitation, Temperature, Evaporation, and Wind, Monthly and Annual Means, 1850–1975*. W. K. Summers, Socorro.

Graedon, Joe
1998 *Rediscovering Lithium for Mood in The People's Pharmacy*, St. Martin's Press, New York.

Hack, John T.
1942 *The Changing Environment of the Hopi Indians of Arizona*. Papers of the Peabody Museum of American Archaeology and Ethnology 35(1). Cambridge.

Hackett, Charles W., and Charmion C. Shelby
1942 *Revolt of the Pueblo Indians of New Mexico and Otermin's Attempted Reconquest, 1680–1682*, Vols. 8 and 9. *Coronado Cuarto Centennial Publications, 1540–1940*. University of New Mexico Press, Albuquerque.

Hall, G. Emlen
1987 The Pueblo Grant Labyrinth. In *Land, Water, and Culture: New Perspectives on Hispanic Land Grants*, ed. C. L. Briggs and J. R. Van Ness, pp. 67–138. University of New Mexico Press, Albuquerque.

Hammond, George P., and Agapito Rey
1953 *Don Juan de Oñate: Colonizer of New Mexico, 1595–1628*. University of New Mexico Press, Albuquerque.

Hannaford, Charles A.
1997 *Archaeological Monitoring of Building and Site Improvements at the United States Courthouse and the Federal Oval, Santa Fe, New Mexico*. Archaeology Notes 218. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Hewett, Edgar L.
1953 *Pajarito Plateau and Its Ancient People*. Revised by B. B. Dutton. School of American Research and University of New Mexico Press, Santa Fe.

Hickman, H. Lanier Jr.
2003 *American Alchemy: The History of Solid Waste Management in the United States*. Forester Press, Santa Barbara, California.

Jenkins, Myra E. and Albert H. Schroeder
1974 *A Brief History of New Mexico.* University of New Mexico Press, Albuquerque.

Hordes, Stanley M.
1990 The History of the Santa Fe Plaza, 1610–1720. In *Santa Fe Historic Plaza Study I, with Translations from Spanish Colonial Documents*, ed. Linda Tigges, pp. 3–36. Santa Fe City Planning Department, Santa Fe.

Johnson, Peggy S. and Daniel J. Koning
2012 *Geologic and Hydrologic Maps of the Ancha*

Formation, Santa Fe County, New Mexico. New Mexico Bureau of Geology and Mineral Resources Open File Report 550. New Mexico Bureau of Geology and Mineral Resources, Socorro.

Judge, W. James
1991 Chaco: Current Views of Prehistory and the Regional System. In *Chaco and Hohokam: Prehistoric Regional Systems in the Southwest*, eds. P. L. Crown and W. J. Judge, pp. 11–30. School of American Research Press, Santa Fe.

Kaufman, Alexander C.
2014 The Original 7-UP was a Mind-Altering Substance. *The Huffington Post*, New York.

Kelley, V. C
1979 Geomorphology of the Espanola Basin. In *New Mexico Geological Society Guidebook*, 30th Field Conference, Santa Fe County.

Koning, D. J., S. D. Connell, F. J. Pazzaglia, and W. C. McIntosh
2002 Redefinition of the Ancha Formation and Pliocene—Pleistocene Deposition in the Santa Fe Embayment, North-central New Mexico. *New Mexico Geology* 24(3): 75-86.

Lang, Richard W.
1977 *Archaeological Survey of the Upper San Cristobal Arroyo Drainage, Galisteo Basin, Santa Fe County, New Mexico*. Contract Archaeology Program Report 37. School of American Research, Santa Fe.

Lang, Richard W., and Cherie L. Scheick
1989 *Limited Excavations at LA 2, the Agua Fria Schoolhouse Site, Agua Fria Village, Santa Fe County, New Mexico*. Research Series 216. Southwest Archaeological Consultants, Santa Fe.

Lekson, Stephen H., and Catherine M. Cameron
1995 The Abandonment of Chaco Canyon, the Mesa Verde Migrations, and the Reorganization of the Pueblo World. *Journal of Anthropological Archaeology* 14: 184–202.

Lentz, Stephen C.
2004 *Excavations at LA 80000, the Santa Fe Plaza Community Stage Location, Santa Fe, New Mexico*. Archaeology Notes 343. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2005 *El Pueblo de Santa Fe (LA 1051): Archaeological Testing of the Proposed Santa Fe Civic Center*. Archaeology Notes 355. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2011a *Ogapogeh, the White Shell Water Place*. Archaeology Notes 438. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2011b *El Pueblo de Santa Fe (LA 1051): Archaeological Testing of the Proposed Santa Fe Civic Center*. Archaeology Notes 355. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2012 *Results of a Program of Archaeological Monitoring, Phases I and II, for the Public Service Company of New Mexico Downtown Systems Improvement, Santa Fe County, New Mexico*. Preliminary Report 52. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
In prep Results of a Program of Archaeological Monitoring, Phases I and II, for the Public Service Company of New Mexico Downtown Systems Improvement, Santa Fe County, New Mexico. Preliminary Report 52. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Lentz, Stephen C., and Matthew J. Barbour.
2011 *Settlers and Soldiers. The Historic Component at El Pueblo de Santa Fe (LA 1051)*. Archaeology Notes 410. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Lentz, Stephen C., and Linda J. Goodman
1992 *Archaeological Testing and a Brief Ethnohistory of San Gabriel de Yunge Owinge, San Juan Pueblo, New Mexico*. Archaeology Notes 102. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Lockhart, Bill
2013 *Encyclopedia of Manufacturer's Marks on Glass Containers,* Volume A, ed. by the Bottle Research Group, Alamogordo, New Mexico.

Lucas, Mary Beth
1984 Norton-Tesuque 115 KV Transmission Project. Earth Resources Technical Report. Ms. on file, Public Service Company of New Mexico, Albuquerque.

Mera, H. P.
1939 *Style Trends of Pueblo Pottery in the Rio Grande and Little Colorado Cultural Areas from the Sixteenth to the Nineteenth Century*. Laboratory of Anthropology Memoirs 3, Museum of New Mexico, Santa Fe.

Montoya, Richard H.
2014 Archaeological Monitoring of PNM's *Installation of Electric Lines During Phase III in Downtown Santa Fe, City of Santa Fe, Santa Fe County, New Mexico*. Preliminary Report 68, Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Moore, James L.
2009 *Test Excavations and Data Recovery Plan for the La Villa Rivera/Marian Hall Complex (LA 161535) in Downtown Santa Fe, Santa Fe County, New Mexico*. Archaeology Notes 408. Office of Archaeological Studies, Museum of New Mexico, Santa Fe
In prep. Early Santa Fe Data Recovery for Drury Southwest at the La Villa Rivera/Marian Hall Complex, City of Santa Fe, Santa Fe County, New Mexico. Archaeology Notes 476, Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Moore, Sam
2007 Henry Burden's Horseshoe-Making Machine. *Farm Collector Magazine*, Ogden Publications, Inc., Topeka, Kansas.

Morris, Richard
1987 Horseshoe Economics: To Shoe or Not to Shoe, That is the Issue. *Nevada Historic Quarterly*, Vol. 30.

Mullin, N. Robert.
1968 *History of the Lincoln County War*. University of Arizona Press, Tucson.

National Historic Landmark Nomination
1999 Palace of the Governors National Historic Landmark Nomination. Online document at https://npgallery.nps.gov/GetAsset/06e1d5e1-eed9-4197-a60e-1111af89dfca.

National Park Service
1990 *Santa Fe National Historic Trail Comprehensive Management and Use Plan*. U.S. Department of the Interior, National Park Service, Denver.

Nelson, Nels C.
1914 *Pueblo Ruins of the Galisteo Basin, New Mexico*. Anthropological Papers of the American Museum of Natural History 15(1). New York.
1916 Chronology of the Tano Ruins, New Mexico. *American Anthropologist* 18(2): 159–180.

Noble, David G.
1989 *Santa Fe: History of an Ancient City*. School of American Research Press, Santa Fe.
2008 *Santa Fe: History of an Ancient City*. Revised. School for Advanced Research Press, Santa Fe.

Ortman, Scott G.
2009 Depopulation of the Mesa Verde Region Debated. *American Archaeology*, Vol. 4, Issue 1.

Pearce, Thomas M.
1965 *New Mexico Place Names: A Geographical Dictionary*. University of New Mexico Press, Albuquerque.

Peckham, Stewart L.
1984 The Anasazi Culture of the Northern Rio Grande Rift. In *New Mexico Geological Society Guidebook: Rio Grande Rift, Northern New Mexico*, pp. 275–286, ed. W. Scott Baldridge, Patricia Woo Dickerson, Robert E. Riecker, and Jiri Zidek. New Mexico Geological Society Thirty-Fifth Annual Field Conference, Oct. 11–13, 1984.

Pilz, Wayne B.
1984 Norton-Tesuque 115 kV Transmission Project Biotic Resources Technical Report. Ms. on file, Public Service Company of New Mexico, Albuquerque.

Plewa, Tara M.
2009 A Trickle Runs Through it: An Environmental History of the Santa Fe River, New Mexico. Ph. D. Dissertation, University of South Carolina, Columbia.

Post, Stephen S.
2010 *7,000 Years on the Piedmont: Fourteen Archaeological Sites along the Northwest Santa Fe Relief Route, Santa Fe County, New Mexico*. Archaeology Notes 357. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
In prep. Excavations for the New Mexico History Museum (LA 111322): 350 Years of Occupation and Changing Land Use Behind the Palace of the Governors in Santa Fe, New Mexico. Archaeology Notes 472. Office of

Archaeological Studies, Museum of New Mexico, Santa Fe.

Purdy, James
1972 Spiegelberg Spitz House National Register Nomination, Historic Preservation Division, Santa Fe.

Reinhardt, Theodore R.
1967 The Rio Rancho Phase: A Preliminary Report in Early Basketmaker Culture in the Middle Rio Grande Valley, New Mexico. *American Antiquity* 32: 458–470.

Reynolds, S. E.
1956 *Climatological Summary, New Mexico. Technical Report 5*. New Mexico Office of the State Engineer, Santa Fe.

Robinson, William J., J. W. Hannah, and B. G. Harrill
1972 *Tree Ring Dates from New Mexico I, O, U, Central Rio Grande Area*. Laboratory of Tree-Ring Research, University of Arizona, Tucson.

Rock, Jim
1981 *Tin Cans Notes and Comments*. Cultural Resource Management, Klamath National Forest, Region 5, Department of Agriculture, U.S. Forest Service.

Schaafsma, Curtis
1982 A Window on Santa Fe's History. *El Palacio* 88: 29–39.

Scheick, Cherie L.
2005 *Coalition Period Remains Under the West Alcove, U.S. Federal Courthouse, Santa Fe, New Mexico*. Southwest Archaeological Consultants Research Series 477C. Santa Fe.

Schoenwetter, James, and Alfred E. Dittert
1968 An Ecological Interpretation of Anasazi Settlement Patterns. In *Anthropological Archaeology in the Americas*, ed. by Betty J. Meggers, pp. 41–66. Anthropological Society of Washington, Washington, DC.

Schroeder, Albert H.
1979 Pueblos Abandoned in Historic Times. In *Handbook of North American Indians*, Vol. 9, *Southwest*, ed. Alfonso Ortiz, pp. 236–254. Smithsonian Institution, Washington, DC.

Schroeder, Albert H., and Dan S. Matson
1965 *A Colony on the Move: Gaspar Castaño de Sosa's Journal, 1590–1591*. School of American Research, Santa Fe.

Schwartz, D. W. and R. W. Lang
1973 *Archaeological Investigations at the Arroyo Hondo Site*. School of American Research, Santa Fe.

Simmons, Marc
1979 History of Pueblo-Spanish Relations to 1821. In *Handbook of North American Indians*, Vol. 9, *Southwest*, ed. Alfonso Ortiz, pp. 178–193. Smithsonian Institution, Washington, DC.
1988 *"Misery" as a Factor in New Mexican Colonial Life.* Archaeological Society of New Mexico Papers; 14: 227–230.

Smiley, Terah L., Stanley A. Stubbs, and Bryant Bannister
1953 *A Foundation for the Dating of Some Late Archaeological Sites in the Rio Grande Area, New Mexico: Based on Studies in Tree-Ring Methods and Pottery Analyses*. Laboratory of Tree-Ring Research Bulletin No. 6, Bulletin 24(3), University of Arizona, Tucson.

Snow, Cordelia Thomas
1999 Archival research. In *Preliminary Results of Archaeological Investigations and Archival Study at 60 East San Francisco Street, Santa Fe, New Mexico*, ed. Glenda Deyloff, pp. 14–35. Southwest Archaeological Consultants Research Series 442. Santa Fe.
2002 *Archbishop Lamy's Legacy: A Brief History of Land Ownership and Use of Present-Day Cathedral Park, Santa Fe, New Mexico*. Paper prepared for the Historic Preservation Division, Santa Fe.
2010 A Window to the Past: The San Miguel and La Conquistadora Chapels and Their Builders, 1610–1776. In *All Trails Lead to Santa Fe*, pp.147–159. Sunstone Press, Santa Fe.
2015 Chapter 2. Historical Investigations: Manhattan PNM Downtown Electrical Utility Replacement and Upgrade Cultural Resource Monitoring, Santa Fe, New Mexico. In *Archaeological Monitoring for Phase I of the Santa Fe Manhattan Distribution Upgrade Project along Washington and East Palace Avenue, City of Santa Fe, Santa Fe County , New Mexico,* ed. Jessica A. Badner, Richard M. Montoya, and Karen Wening. Archaeology Notes 77, Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
In prep Historical Background. In Results of a Program of Archaeological Monitoring, Phases I and II,

for the Public Service Company of New Mexico Downtown Systems Improvement, Santa Fe County, NM, by Stephen C. Lentz. Preliminary Report 52, Office of Archaeological Studies, Museum of New Mexico. Santa Fe.

Snow, Cordelia T., and David Kammer
1995 "Not Occupied…Since the Peace," The 1995 Archaeological and Historical Investigations at Historic Fort Marcy, Santa Fe, New Mexico. Online document at http://tinyurl.com/zs5r3ak.

Snow, David H.
1988 *The Santa Fe Acequia Systems: Summary Report on Their History and Present Status, with Recommendations for Use or Protection*. Planning Department, City of Santa Fe.
2003 *Preliminary Report of Archaeological and Historical Investigations, Cathedral Park, Santa Fe, New Mexico Downtown Historic District*. Cross Cultural Research Systems, Santa Fe.
2011 The Historic Use and Occupation of the Project Area. In *Settlers and Soldiers: The Historic Component at El Pueblo de Santa Fe (LA 1051)*. Archaeology Notes 410. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Spicer, Edward
1962 Cycles of Conquest. University of Arizona Press, Tucson.

Steen, Charles R.
1977 Pajarito Plateau Archaeological Survey and Excavations. Los Alamos Scientific Laboratories, Los Alamos, New Mexico.

Stuart, David E., and Rory P. Gauthier
1988 Prehistoric New Mexico: Background for Survey. Historic Preservation Bureau, Santa Fe.

Stubbs, Stanley A., and Bruce T. Ellis
1955 Archaeological Investigations at the Chapel of San Miguel and the Site of La Castrense, Santa Fe New Mexico. Monographs of the School of American Research, No. 18, Santa Fe.

Stubbs, Stanley A., and W. S. Stallings Jr.
1953 The Excavation of Pindi Pueblo, New Mexico. Monographs of the School of American Research and the Laboratory of Anthropology, No. 18, Santa Fe.

Swanson, Betsy
1988 The Battles of Glorieta Pass. In *Pecos, Gateway to the Pueblos and Plains*, ed. J. V. Bezy and J. P. Sanchez, pp. 32–39. Southwest Parks and Monuments Association, Tucson.

Tancia, Ltd.
2014 *A History of the Shaeffer Pen Corporation*. Kent, United Kingdom.

Tatum, Donald
2013 *Results of Archaeological Monitoring for the Petry Sculpture Garden, Santa Fe City Hall, Santa Fe County, New Mexico.* Archaeology Notes 458. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Torok, George D.
2009 El Camino Real de Tierra Adentro through the Pass of the North, Part II. *Chronicles of the Trail* 5(2):11. Las Cruces, New Mexico.

Toulouse, Julian H.
1971 *Bottle Makers and Their Marks*. Thomas Nelson, New York.

Tuan, Yi-Fu, Cyril E. Everard, Jerod D. Widdison, and Iven Bennet
1973 *The Climate of New Mexico*. New Mexico State Planning Office, Santa Fe.

Twitchell, Ralph Emerson
1925 *The Story of New Mexico's Ancient Capital: Old Santa Fe*. Rio Grande Press, Chicago.
2007 *Old Santa Fe: The Story of New Mexico's Ancient Capital*. Facsimile of number 281 of the original 1925 edition with a foreword by Richard Melzer. Sunstone Press, Santa Fe.

Viklund, Lonyta
2000 *Archaeological Investigations Beneath Sena Plaza, Santa Fe, New Mexico*. Southwest Archaeological Consultants Research Series 437. Southwest Archaeological Consultants, Santa Fe.
2005 Appendix VII: Historic Artifact Summary. In *Coalition Period Remains Under the West Alcove, U.S. Federal Courthouse, Santa Fe, New Mexico*, ed. Cherie L. Scheick. Southwest Archaeological Consultants Report No. 477C. Santa Fe.

Warren, A. Helene
1979 The Glaze Paint Wares of the Upper Middle Rio Grande. In *Archaeological Investigations in Cochiti Reservoir, New Mexico, Vol. 4, Adaptive Change in the Northern Rio Grande Valley*, ed. Jan V. Biella and Richard C. Chapman, pp. 187–216. Office

of Contract Archeology, University of New Mexico, Albuquerque.

Wendorf, Fred, and Erik Reed
1955 An Alternative Reconstruction of Northern Rio Grande Prehistory. *El Palacio* 62:131–173.

Wening, Karen
In prep Monitoring at the Joseph M. Montoya Federal Building in the Federal Oval for the GSA Transformer Replacement Project, Santa Fe, New Mexico. Archaeology Notes 490. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Wilmer, Adisa J.
1990 *Archaeological Monitoring Along Washington Avenue, Santa Fe, New Mexico*. Laboratory of Anthropology Notes 515. Santa Fe.

Wilson, Chris
1997 *The Myth of Santa Fe: Creating a Modern Regional Tradition*. University of New Mexico Press, Albuquerque.

Winters, Ron
2015 *An Archaeological Monitoring Report for a Century Link Project on West Marcy Street in Santa Fe, New Mexico*.

Wiseman, Regge N.
1988 *Pottery Production for the Spanish: A Preliminary Analysis of the Indian-Made Ceramics Recovered by the La Fonda Project, Santa Fe, New Mexico*. Museum of New Mexico Research Section, Laboratory of Anthropology Notes 499. Santa Fe, New Mexico.
1989 *The KP Site and Late Developmental Period Archaeology in the Santa Fe District*. Laboratory of Anthropology Notes 494. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
1992 Early Spanish Occupation of Santa Fe: Excavations at the La Fonda Parking Lot. In *Current Research on the Late Prehistory and Early History of New Mexico*, ed. Bradley J. Vierra, pp. 207–214. New Mexico Archaeological Council, Special Publication No. 1. University of New Mexico, Albuquerque.

Wozniak, Frank E.
1992a *Archaeological and Historical Investigation of the Phase One Area of the Grant Park Site, Santa Fe*. Archaeological Review Committee Case #AR7-1992. Planning Department, City of Santa Fe.
1992b *Archaeological Investigation of the Phase Two Area of the Grant Park Site, Santa Fe*. Archaeological Review Committee Case #AR7-1992. Planning Department, City of Santa Fe.

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