Exhibit GG. Shreveport Airport Warehouse District Site Phase I Cultural Resources Assessment Report

SHREVEPORT REGIONAL AIRPORT

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Shreveport Airport Warehouse District Site Phase I Cultural Resources Assessment Report

A CULTURAL RESOURCE SURVEY OF A 55 ACRE TRACT AT THE SHREVEPORT REGIONAL AIRPORT IN CADDO PARISH, LOUISIANA

by
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Prepared for

Shreveport Airport Authority

Prepared by

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July 20, 2015

ABSTRACT

Cultural Resources Analysts, Inc., personnel completed a records review and cultural resource survey of a 22.3 ha (55.0 acres) parcel at Shreveport Regional Airport in Caddo Parish, Louisiana. This work was conducted at the request of the City of Shreveport to comply with the National Historic Preservation Act and obtain cultural resource clearance for state site certification of the project area. The records review for the project was conducted on June 8, 2015, and the fieldwork was conducted on June 19 and 20, 2015. The project parcel is located on the west side of Shreveport Regional Airport, approximately 11.2 km (7.0 mi) southwest of downtown Shreveport, Louisiana, and 12.6 km (7.8 mi) east of the town of Greenwood, Louisiana.

The purpose of this work was to locate, describe, and evaluate any archaeological materials or historic structures in the project area and provide recommendations for future management of cultural resources. This report includes a summary of all previous archaeological work conducted in the project area and includes a summary of archaeological and historic information that has been documented for each cultural resource.

The records review consisted of a search of online files maintained by the Louisiana Office of Cultural Development, Division of Archaeology, an examination of historic maps, and a review of historic structures listed in the Louisiana Historic Resources Inventory to identify any cultural resources or cultural resource investigations previously documented in the area. The records review indicated that three previous cultural resource investigations and three archaeological sites (16CD88–16CD90) had been documented within a 1.6 km (1.0 mi) radius of the project area. One of the previous surveys and one of the archaeological sites overlap the current project area.

The field investigation consisted of an intensive pedestrian survey supplemented with screened shovel tests excavated in areas where excavation was physically possible. Shovel tests were dug at 30 m (98 ft) or 50 m (164 ft) intervals, depending on project conditions. The entire project area was also visually inspected for cultural material during the shovel test survey. Approximately 10 percent of the project area was covered by modern structures or paved surfaces such as roads, parking lots, and an aircraft parking apron. A total of 118 shovel tests were excavated on 23 transects in the roughly 90 percent of the project area that was suitable for shovel testing. All shovel tests were negative for cultural material. No structures, structural remains, or other features older than 50 years were encountered within the project area during fieldwork.

Based on the findings of the records review and cultural resource survey, no archaeological sites or historic properties listed in, or recommended eligible for listing in, the National Register of Historic Places will be affected by construction activities. The area is considered cleared from a cultural resources perspective, and no additional management action is recommended.

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I. INTRODUCTION

During the period extending from June 8 to 20, 2015, Cultural Resources Analysts, Inc. (CRA), personnel completed a cultural resource file search and phase I archaeological survey of a property at Shreveport Regional Airport in Caddo Parish, Louisiana (Figure 1). The project area consisted of a single tract measuring approximately 22.3 ha (55.0 acres) in area and was located on the west side of Shreveport Regional Airport to the southwest of downtown Shreveport, Louisiana (Figure 2). This survey was conducted at the request of the City of Shreveport. The cultural resource file search, utilizing online files maintained by the Louisiana Office of Cultural Development Division of Archaeology/State Historic Preservation Office (SHPO), was conducted on June 8, 2015, and the fieldwork for the project was conducted on June 19 and 20, 2015.

Purpose of Study

The purpose of this cultural resource survey was to locate, describe, evaluate, and to make appropriate recommendations for the future treatment of any historic or prehistoric archaeological properties that may be affected by the development of the project area. All associated field notes, records, and site photographs will be curated at the Louisiana Office of Cultural Development, Division of Archaeology.

Figure 1. Map showing the location of Caddo Parish in the state of Louisiana.

All work associated with this investigation was conducted pursuant to standards set forth by the Louisiana Office of Cultural Development, Division of Archaeology (SHPO), to comply with the National Historic Preservation Act (NHPA) of 1966, as amended (36 CFR 800). Louisiana's Comprehensive Archaeological Plan (LCAP) was referred to for guidance during this investigation (Smith et al. 1983).

Project Description

The project area is located on the west side of Shreveport Regional Airport, southwest of downtown Shreveport and east of the town of Greenwood, in central Caddo Parish, Louisiana (Figure 2). The parcel is bound on the east by an aircraft parking apron and an arbitrary boundary; on the north by West Perimeter Road and an arbitrary boundary; on the west by an arbitrary boundary adjacent to Meriwether Road; and on the south by an arbitrary boundary. Measuring roughly 22.3 ha (55.0 acres) in area, the project area occupies portions of Section 19 of Township 17N, Range 14W. Approximately 10 percent of the project area is covered by modern structures or paved surfaces such as roads, parking lots, and an aircraft parking apron. The remainder of the survey parcel was suitable for shovel testing and is covered with grasses, isolated trees, and a small stand of secondary forest.

Summary of Findings

A records review using data available from the SHPO was conducted to identify any cultural resources or cultural resource investigations previously documented in the area. The review consisted of a search of online files maintained by the Louisiana Office of Cultural Development, Division of Archaeology, an examination of historic maps, and a review of historic structures listed in the Louisiana Historic Resources Inventory. The records review indicated that three previous

cultural resource investigations and three previously recorded archaeological sites (16CD88–16CD90) had been documented within a 1.6 km (1.0 mi) radius of the project area. One of the previous surveys and one of the archaeological sites (16CD89) overlap the current project area. In addition, the review of historic maps indicated that one structure was depicted within the project area on historic United States Geological Survey (USGS) topographic quadrangles.

The field investigation consisted of a pedestrian survey of the entire project area along with the excavation of shovel tests in areas where excavation was physically possible. Shovel tests were dug on a 30 m (98 ft) grid in high probability zones and a 50 m (164 ft) grid in low probability zones (Figure 3). Over the course of the project, 118 shovel tests were excavated on 23 transects in the roughly 90 percent of the project area that was suitable for shovel testing. All of the shovel tests were negative for cultural material. No historic structures, structural remains, or other features older than 50 years were encountered within the project area during fieldwork.

Based on the findings of the records review and cultural resource survey, no archaeological sites or historic properties listed in, or recommended eligible for listing in, the NRHP will be affected by development activities in the project area. The area is considered cleared from a cultural resources perspective, and no additional management action is recommended.

Report Organization

This report is organized into six numbered Sections. Section I provides an overview of the project and summarizes the results of the archaeological investigation. Section II is an overview of the environmental setting of the project area. The results of the records review are detailed in Section III. Section IV contains the methodological approach of the archaeological investigation. The results of the cultural resource survey are presented in Section V, and CRA's conclusions and recommendations regarding future work in the project area are presented in Section VI.

Project Personnel

Benjamin Bilgri served as the field director for the project and oversaw daily operations. Field crew members included Richard McCoy and Caleb Hutson. Jay W. Gray served as Principal Investigator, and the report preparation was carried out by Benjamin Bilgri. The final report production was completed by the CRA CAD and publications departments. All documentation produced during fieldwork will be curated at the CRA office in Shreveport, Louisiana.

II. ENVIRONMENTAL SETTING

This section of the report provides a description of the modern environment and considers those aspects of the physical environment that may have influenced the location and methods for finding archaeological sites. The discussion of the modern environment specifically provides information regarding the physiography, soils, vegetation, and climate.

Physiography

The project area is located in central Caddo Parish in northwest Louisiana. Caddo Parish covers an area of 244,236 ha (603,520 acres), of which 11,422 ha (28,224 acres) are occupied by reservoirs, lakes, streams, and other waterways (Edwards et al. 1980). The project area's elevation is 72–81 m (236–265 ft) above mean sea level (AMSL), generally sloping downward from northeast to southwest.

The survey area is situated within the Tertiary Uplands of the South Central Plains "ecoregion", a term used by Daigle et al. (2006) to refer to geographic areas similar in environmental characteristics, vegetation, soils, and biotic and abiotic resources. The South Central Plains occupy portions of Louisiana, Oklahoma, east Texas, and Arkansas. The topography of the South Central Plains is typified by rolling plains

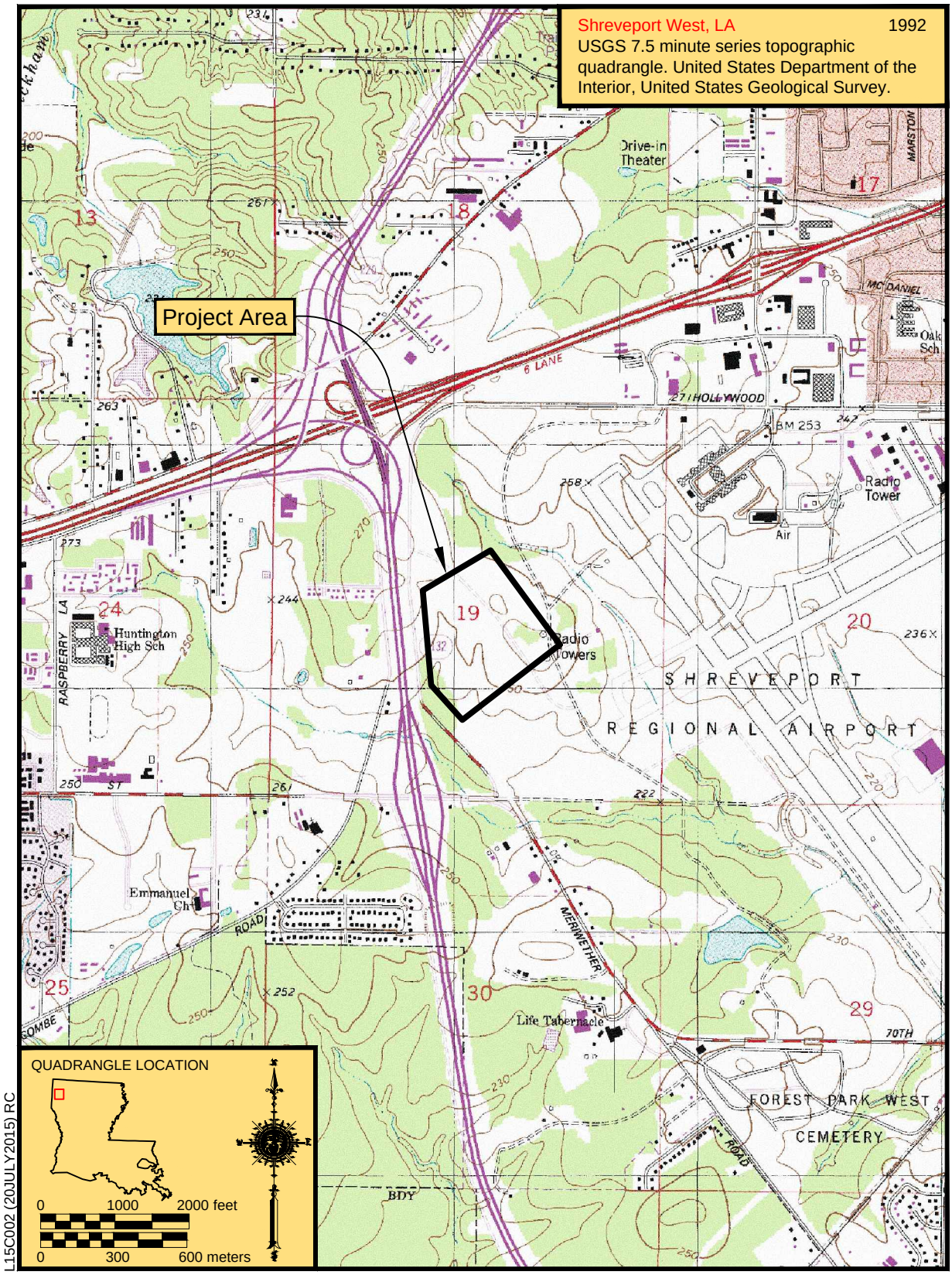

Figure 2. Topographic map showing the location of the project area.

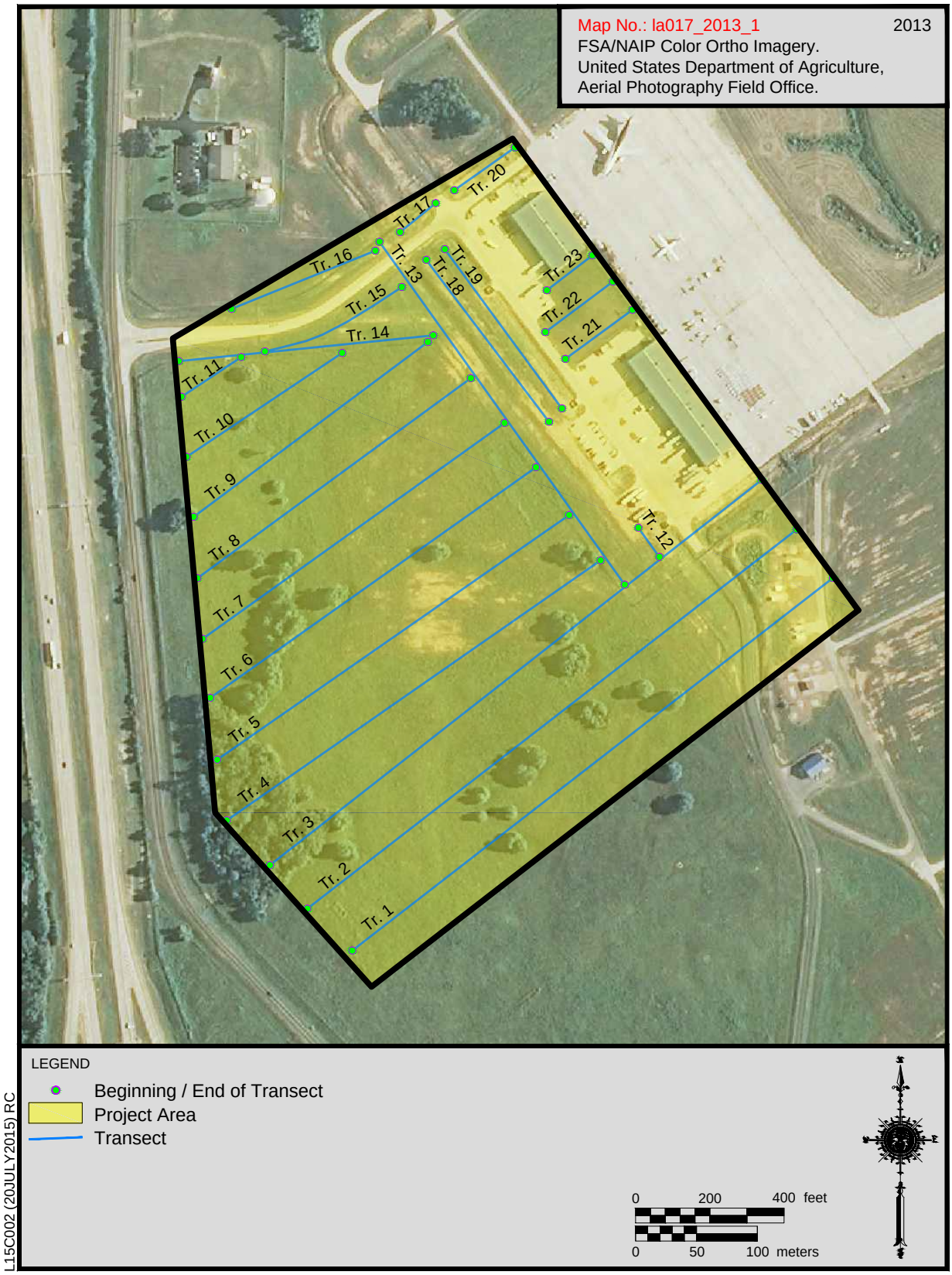

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Figure 3. Aerial view showing the location of the project area, transects, Shreveport Regional Airport infrastructure, and local vegetation conditions.

interspersed with sandy low hills, bottomlands, and flat fluvial terraces. The Tertiary Uplands within this ecoregion are dissected by multiple small intermittent streams and are primarily composed of silts, sands, and clays of Eocene age, with some deposits of Paleocene sediments being found in the western portions of the unit (Daigle et al. 2006).

Soils

According to the Soil Survey of Caddo Parish, Louisiana, and the online Web Soil Survey maintained by the United States Department of Agriculture (USDA), the project area is mapped as containing soils from four different series. The majority of the eastern half and a portion of the northwest quadrant of the project area contain Keithville very fine sandy loams, while a smaller portion of the survey area's eastern half is mapped as containing Meth fine sandy loams. The typically low-lying areas in the project area's west half are primarily occupied by a Metcalf-Timpson soil complex, containing small areas of both Metcalf and Timpson silt loams (Edwards et al. 1980; USDA 2015).

Keithville very fine sandy loams are the dominant soils found in the project area, present in much of the area's eastern half and a portion of its northwest quadrant. This soil is gently sloping, moderately well drained, and experiences medium surface runoff. Keithville soils typically form on ridgetops or drainage divides found in uplands. A typical Keithville pedon consists of an A1 horizon of brown (10YR 4/3) very fine sandy loam from 0 to 8 cm (0 to 3 in) below ground surface (bgs); an A2 horizon of yellowish brown (10YR 5/4) very fine sandy loam from 8 to 23 cm (3 to 9 in) bgs; and a B21t horizon of yellowish red (5YR 5/8) loam subsoil from 23 to 41 cm (9 to 16 in) bgs (Edwards et al. 1980; USDA 2015).

Meth fine sandy loams are mapped in much of the southeast quadrant of the project area. This soil is very gently sloping, well drained, and has medium surface runoff. Much like Keithville soils, Meth soils are typically found on upland ridgetops. A typical Meth pedon consists of an Ap horizon of dark yellowish brown (10YR 4/4) fine sandy loam from 0 to 18 cm (0 to 7 in) bgs; an A2 horizon of brown (7.5YR 5/4) fine sandy loam from 18 to 30 cm (7 to 12 in) bgs; and a B21t horizon of red (2.5YR 4/6) clay subsoil from 30 to 61 cm (12 to 24 in) bgs (Edwards et al. 1980; USDA 2015).

Metcalf silt loams are present in a complex interspersed with Timpson soils in the low-lying lands in the project area's west half. This soil is gently sloping, somewhat poorly drained, and experiences slow runoff. Metcalf soils commonly form on broad level or nearly level marine or stream terraces. A typical Metcalf pedon consists of an A1 horizon of dark grayish brown (10YR 4/2) silt loam from 0 to 8 cm (0 to 3 in) bgs; an E horizon of light yellowish brown (10YR 6/4) silt loam from 8 to 20 cm (3 to 8 in) bgs; and a Bt1 horizon of yellowish brown (10YR 5/6) loam subsoil from 20 to 41 cm (8 to 16 in) bgs (Edwards et al. 1980; USDA 2015).

Finally, Timpson silt loams are mapped as part of the same Metcalf-Timpson soil complex in the low-lying portions of the west half of the project area. This soil is nearly level, moderately well drained, and experiences slow to medium runoff. Timpson soils form in alluvial sediments on Pleistocene age terraces. A typical Timpson pedon consists of an A horizon of dark grayish brown (10YR 4/2) silt loam from 0 to 18 cm (0 to 7 in) bgs; an E horizon of yellowish brown (10YR 5/4) very fine sandy loam from 18 to 36 cm (7 to 14 in) bgs; a BE horizon of strong brown (7.5YR 5/6) very fine sandy loam from 36 to 53 cm (14 to 21 in) bgs; and a Bt1 horizon of strong brown (7.5YR 5/8) loam subsoil from 53 to 71 cm (21 to 28 in) bgs (Edwards et al. 1980; USDA 2015).

Shovel tests excavated in the majority of the project area displayed intact profiles that generally corresponded with the soil series mapped in their respective locations. However, several tests excavated adjacent to elements of Shreveport Regional Airport infrastructure in the eastern portion of the project area displayed significant disturbance.

In general, disturbance in these areas consisted of truncated or absent upper soil horizons, with elevated or sloped areas overlooking parking lots or loading docks often displaying subsoil at the surface (see Figure 5). At the extreme eastern edge of the project area, shovel tests excavated in level grassy areas on Transects 20–23 (see Figure 3) often contained heterogeneous fill soil that lacked recognizable natural stratigraphy. The observed disturbance in portions of the eastern half of the project area is likely the result of construction activities associated with Shreveport Regional Airport infrastructure. Google Earth aerial imagery indicates that most of the standing structures, roads, and parking lots in these areas were constructed between 2002 and 2009.

Vegetation

The Tertiary Uplands were historically vegetated with shortleaf pine and hardwood forest. Much of the native woodland has since been lost, and undeveloped areas of the Tertiary Uplands are presently typically vegetated with commercial pine plantations or pastureland. The land is primarily utilized for timber production, with poultry production, livestock grazing, and oil and gas activities representing secondary land uses. Within Caddo Parish, typical agricultural crops in these areas include cotton and soybeans (Daigle et al. 2006; Edwards et al. 1980).

At the time of the survey, approximately 90 percent of the project area was vegetated, with the remaining 10 percent covered by paved surfaces and standing structures associated with Shreveport Regional Airport interspersed with several small areas planted with short grass. Of the vegetated land surface, the vast majority was covered by open fields vegetated with tall grass. Isolated deciduous trees were present on the southwest-facing slope comprising much of the western two-thirds of the project area (see Figure 3). A small, intermittent stream ran from north to south along a shallow swale through the west half of the project area. Small isolated stands of deciduous trees were slightly more common bordering this stream than they were in the rest of the survey area. A roughly triangular stand of secondary forest with moderate to dense understory surrounded the intermittent stream at the southwest boundary of the project area. This stand of secondary forest measured roughly 200 m (656 ft) from north to south and 115 m (377 ft) from east to west at its greatest extent, and represented the largest portion of the project area that was not covered by open fields.

Modern Climate

Caddo Parish has a humid, subtropical climate heavily influenced by a fluctuating frontal boundary that is alternately dominated by warm and moist tropical air from the Gulf of Mexico and colder continental air from the north. Incursions of the cold continental air occur frequently during winter and spring, while the warm Gulf of Mexico air dominates during summer and autumn.

Daytime high temperatures average 34 degrees C (93 degrees F) in the summer months and 15 degrees C (59 degrees F) in the winter months. Daily low temperatures average 22 degrees C (72 degrees F) in the summer months and 4 degrees C (39 degrees F) in the winter months. Temperatures occasionally exceed 38 degrees C (100 degrees F) from June to September, and the warm summer pattern typically persists from April through October. Between October and March temperatures have been known to drop below freezing, but these periods are typically brief. Though snowfall is generally rare, snowfalls of short duration occasionally take place. The annual mean rainfall in the parish totals 114 cm (45 in), of which 56 cm (22 in) typically falls from April through September and 58 cm (23 in) falls from October through March (Edwards et al. 1980).

Description of the Project Area

The project area is an irregular polygon on the west side of Shreveport Regional Airport, approximately 11.2 km (7.0 mi) southwest of downtown Shreveport, Louisiana, and 12.6 km (7.8 mi) east of the town of Greenwood, Louisiana. The project area is bound on the east by an aircraft parking apron and an arbitrary boundary, on the north by West Perimeter Road and an arbitrary boundary, on the west by an arbitrary boundary adjacent to Meriwether Road; and on the south by an arbitrary boundary (see Figures 2 and 3). The polygon encompassing the project area measures approximately 720 m (2,362 ft) from north to south and 610 m (2,001 ft) from east to west at its greatest extent, and covers 22.3 ha (55.0 acres).

Located in Section 19 of Township 17N, Range 14W, the project area is depicted on the Shreveport West, Louisiana, 7.5-minute USGS topographic quadrangle (USGS 1992). Elevations in the project area vary by roughly 9 m (29 ft), from approximately 72 m (236 ft) AMSL near the stand of secondary forest at the project area's western boundary to 81 m (265 ft) AMSL at the top of a ridge near an airport service road in the southeast quadrant of the survey area. The topography of the project area slopes generally downward from northeast to southwest.

At the time of the survey, roughly 10 percent of the project area was covered with active infrastructure associated with the UPS and FedEx cargo facilities of Shreveport Regional Airport, including eight modern standing structures and several paved surfaces. The modern standing structures included two large administrative and storage structures near the project area's eastern boundary and six smaller storage, control, and administrative structures associated with six radio towers in the southeast quadrant of the survey area. Paved surfaces included portions of three roads (two airport service roads and West Perimeter Road), parking lots, loading docks, and a small portion of an aircraft parking apron. Several small flat areas planted with short grass were present at the borders of parking lots and between the two largest modern structures. With the exception of the largest flat grassy area (see Figure 3), all of these developed areas were not suitable for shovel testing and were subjected to visual inspection and intensive pedestrian survey only.

The remaining approximately 90 percent of the project area was primarily covered by open fields and was suitable for shovel testing. As discussed above, vegetation in the vast majority of the project area consisted of tall grasses, with isolated deciduous trees being present on the southwest-facing slope (Figure 4) and in slightly greater concentrations bordering a small intermittent stream that traversed the project area in a shallow swale from north to south. A roughly triangular stand of secondary forest with moderate to dense understory surrounded the intermittent stream at the southwest boundary of the project area. This stand of secondary forest measured roughly 200 m (656 ft) from north to south and 115 m (377 ft) from east to west at its greatest extent, and represented the largest portion of the project area that was not covered by open fields.

The gentle slope to the southwest and elevated areas immediately to the south and west of the parking lots were the most visibly prominent topographic features within the project area. These elevated areas appeared to represent the natural contours of the land, with the surface of the parking lots having been excavated downward during construction in order to create a level surface (Figure 5). A chain-link fence separated the undeveloped portions of the project area from the areas surrounding the two largest administrative and storage structures.

Surface visibility was generally minimal throughout the shovel tested portions of the project area due to grass coverage. However, many of the elevated areas immediately adjacent to the parking lots and roads had experienced significant erosion and had moderate to good surface visibility, though subsoil was generally present at or near the

Figure 4. Project area overview facing southwest, showing open fields and isolated deciduous trees. Stand of secondary forest near western boundary of project area is in distance.

Figure 5. Project area overview facing east, showing two large Shreveport Regional Airport administrative and storage structures and elevated areas adjacent to parking lots.

surface in these locations. At the extreme eastern edge of the project area, shovel tests excavated in level grassy areas on Transects 20–23 (see Figure 3) often contained heterogeneous fill soil that lacked recognizable natural stratigraphy. With the exception of the truncated or absent upper soil horizons observed in shovel tests excavated adjacent to elements of airport infrastructure, shovel tests excavated in the majority of the project area displayed intact profiles that generally corresponded with the soil series mapped in their respective locations. The weather during the survey was mostly sunny.

III. PREVIOUS RESEARCH AND CULTURAL OVERVIEW

On June 8, 2015, a search of online files maintained by the Louisiana Office of Cultural Development Division of Archaeology (SHPO) was conducted to: 1) determine if the project area had been previously surveyed for archaeological resources; 2) identify any previously recorded archaeological sites that were situated within the project area; 3) provide information concerning what archaeological resources could be expected within the project area; and 4) provide a context for interpreting any cultural resources identified within the project area. The examination of SHPO data consisted of a review of professional survey reports and records of archaeological sites for an area encompassing a 1.6 km (1.0 mi) radius of the project area. The review of professional survey reports and archaeological site data in the area can provide basic information on the types of archaeological resources that are likely to occur within a project area and the landforms that are most likely to contain these resources. In addition to the examination of site data, a review of available historic maps and the Louisiana Historic Resources Inventory was conducted to identify any mapped historic structures in the vicinity of the project area and aid in locating potential historic sites. The results of the records review are discussed below.

Previously Documented Cultural Resource Surveys and Archaeological Sites

The SHPO maintains an online database containing professional survey reports and archaeological site data for the entire state of Louisiana. Examination of this data indicated that three prior archaeological surveys and three archaeological sites (16CD88–16CD90) were documented within a 1.6 km (1.0 mi) radius of the project area. One of the previously recorded surveys overlapped the entire area of the current project, and one of the archaeological sites (16CD89) was located within the current project area (Figure 6). These prior archaeological surveys and sites are described below.

Shreveport Regional Airport Survey (Report #22-0353)

SHPO Report 22-0353 documents the results of an archaeological survey of approximately 688 ha (1,700 acres) encompassing Shreveport Regional Airport. The survey was conducted in November and December of 1977 by Jon L. Gibson, Steven J. Brazda, and Rain Barnes for the Shreveport Airport Authority and HTB of Louisiana, Inc. The 1977 project consisted of a pedestrian survey supplemented with periodic shovel tests. The survey tract defining the 1977 work encompassed the entire current project area, but the methodology of the fieldwork did not conform to the current SHPO standards. A total of five cultural loci were recorded during the 1977 project, three of which received trinomials and were officially designated as archaeological sites (16CD88–16CD90) (Gibson 1977).

Site 16CD88 consisted of two prehistoric lithic flakes found roughly 12 m (40 ft) apart. Neither of these artifacts was diagnostic, and the site was recommended not eligible for listing in the NRHP. Site 16CD90 was comprised of a scatter of historic artifacts,

including historic ceramic, glass, and metal fragments and a fragment of cattle bone. This site was assessed as retaining little integrity, and it was similarly recommended not eligible for listing in the NRHP (Gibson 1977). Both Site 16CD88 and 16CD90 are located well outside the current survey area (roughly 110 m [361 ft] southeast and 160 m [525 ft] northwest respectively), and will not be impacted by any development activities in the project area.

Site 16CD89 consisted in 1977 of one partial Bassett projectile point and one lithic flake found on the surface of a ridge roughly 6 m (20 ft) apart. No subsurface artifacts were found, and the site was recommended not eligible for listing in the NRHP (Gibson 1977). The mapped 1977 footprint of Site 16CD89 is located in the northeast quadrant of the current project area, primarily overlapping a flat grassy area between the two large administrative and storage structures and partially overlapping a parking lot. The Site 16CD89 area was tested during the current project, but the site could not be relocated (see Section V).

I-220 Corridor Survey (Report #22-0517)

This report describes the results of a pedestrian and shovel test survey of a proposed alignment of Interstate 220 in the vicinity of Cross Lake in west Shreveport. This investigation was performed in the summer of 1977 for Howard, Needles, Tammen and Bergendoff by the Research Institute, College of Pure and Applied Sciences of Northeast Louisiana University. The 1977 project corridor measured approximately 122 m (400 ft) in width and 24 km (15 mi) in length. No cultural resources were identified during this survey, and the surveyed areas passed no closer than roughly 730 m (2,395 ft) northwest of the current project area (Price and Heartfield 1977).

Northwestern State University Regional Archaeology Program Management Unit 1 Survey (Report #22-1701)

SHPO Report 22-1701 documents the results of archaeological surveys carried out by Northwestern State University during the 1991–1992 grant year under the auspices of the Regional Archaeology Program. These investigations involved the survey of multiple areas covering a combined total of approximately 162 ha (400 acres) in Management Unit 1, which encompassed 14 parishes in northwest Louisiana. A total of 42 new archaeological sites were recorded during these investigations and 6 previously recorded sites were revisited (Girard 1992). None of the surveyed areas examined during this project were located closer than approximately 630 m (2,067 ft) from the current project area, and none of the examined sites will be impacted by any development activities in the current project area.

Historic Map and Louisiana Historic Resources Inventory Data

Following the file search, a review of available historic maps and the Louisiana Historic Resources Inventory was conducted to help identify any historic structures that may be located within the project area. The Louisiana Historic Resources Inventory is an online database maintained by the SHPO containing information on historic standing structures listed in the NRHP in the state of Louisiana. The historic maps provide information on the dynamics of the cultural landscape in response to political and social changes, as well as technological innovations associated with agricultural industries. The review of the Louisiana Historic Resources Inventory indicated that no historic standing structures listed in the NRHP were present within a 1.6 km (1.0 mi) radius of the current project area.

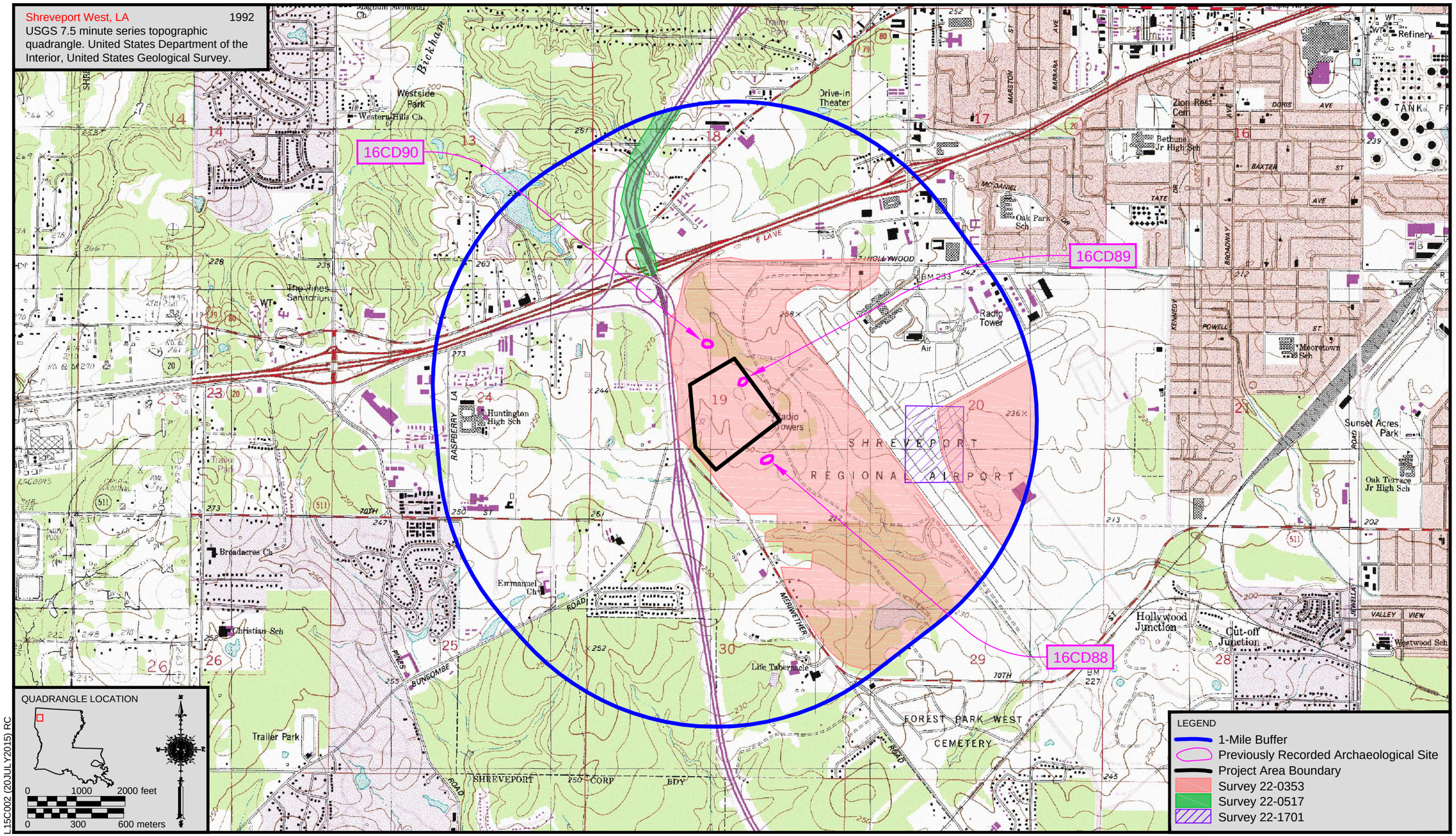

Figure 6. Topographic map showing the locations of previously recorded archaeological sites and surveys within a 1.6 km (1.0 mi) radius of the project area.

The following USGS maps were reviewed:

1945 Greenwood, Louisiana, 15-minute series topographic quadrangle map (USGS 1945);

1955 Greenwood, Louisiana, 15-minute series topographic quadrangle map (USGS 1955a);

1955 Shreveport West, Louisiana, 7.5-minute series topographic quadrangle map (USGS 1955b);

1959 Shreveport West, Louisiana, 7.5-minute series topographic quadrangle map (USGS 1959);

1969 Greenwood, Louisiana, 15-minute series topographic quadrangle map (USGS 1969a);

1969 Shreveport West, Louisiana, 7.5-minute series topographic quadrangle map (USGS 1969b);

1975 Shreveport West, Louisiana, 7.5-minute series orthophotoquad (USGS 1975);

1980 Shreveport West, Louisiana, 7.5-minute series topographic quadrangle map (USGS 1980); and

1992 Shreveport West, Louisiana, 7.5-minute series topographic quadrangle map (USGS 1992).

One structure is depicted overlapping the project area's western boundary on the 1945 quadrangle (see Figure 7). This structure is not depicted on any of the later maps, and was likely no longer extant by 1955. No evidence of this structure was observed in the project area during the current survey, and no cultural material was recovered from shovel tests excavated in the area.

Three radio towers are depicted in the southeast quadrant of the project area in a triangular arrangement beginning on the 1955 maps. These three towers are present on all subsequent maps until the 1980 map, on which only the easternmost two towers are depicted. Two radio towers are present in the same locations on the 1992 map. The six radio towers and their associated structures observed in the project area during the current survey were in the same approximate location as the two radio towers depicted on the 1992 map, but it is unclear whether any of these were the same radio towers depicted on topographic quadrangles dating back to 1955. While six modern storage, control, and administrative structures were present near the radio towers during the current survey, no structures of any kind are depicted near the radio towers on any of the available topographic quadrangles.

All mapped structures on these quadrangles other than those specifically discussed are well outside the project area and if associated structural elements should exist, they will not be impacted by any proposed construction activities.

Survey Predictions

In recent decades, many scholars have labored to develop predictive models to aid in the management and protection of cultural resources (e.g., Anderson et al. 1988, 1999; Anderson and Smith 2003; Campbell and Weed 1986; Hillman 1980; Johnson 1984a, 1984b; Johnson et al. 1986; Phillips and Willingham 1990; Servello 1983; Thomas et al. 1982; and Willingham and Phillips 1987). The factors that tend to be most commonly associated with prehistoric settlement are a close proximity to water and level ground. Historical draws to regions would have been the same as prehistoric, although through time there would have been increasing concern for suitability of land to certain prevailing industries, such as timber production or agriculture. Considering the soils data, information gleaned from historic maps, and the previously recorded archaeological sites surrounding the project area, certain predictions are possible regarding the presence of cultural resources within the project area.

The majority of the project area is covered with gentle southwest-facing slopes, with a few relatively flat areas also being present on ridgetops and in shallow bottoms. Despite the presence of a small intermittent stream traversing the western half of the project area from north to south, the survey area does not incorporate any permanent water sources, with the nearest natural perennial water source being an unnamed tributary of Brush Bayou, roughly 2.1 km (1.3 mi) southeast. Most of the project area was therefore considered to have a

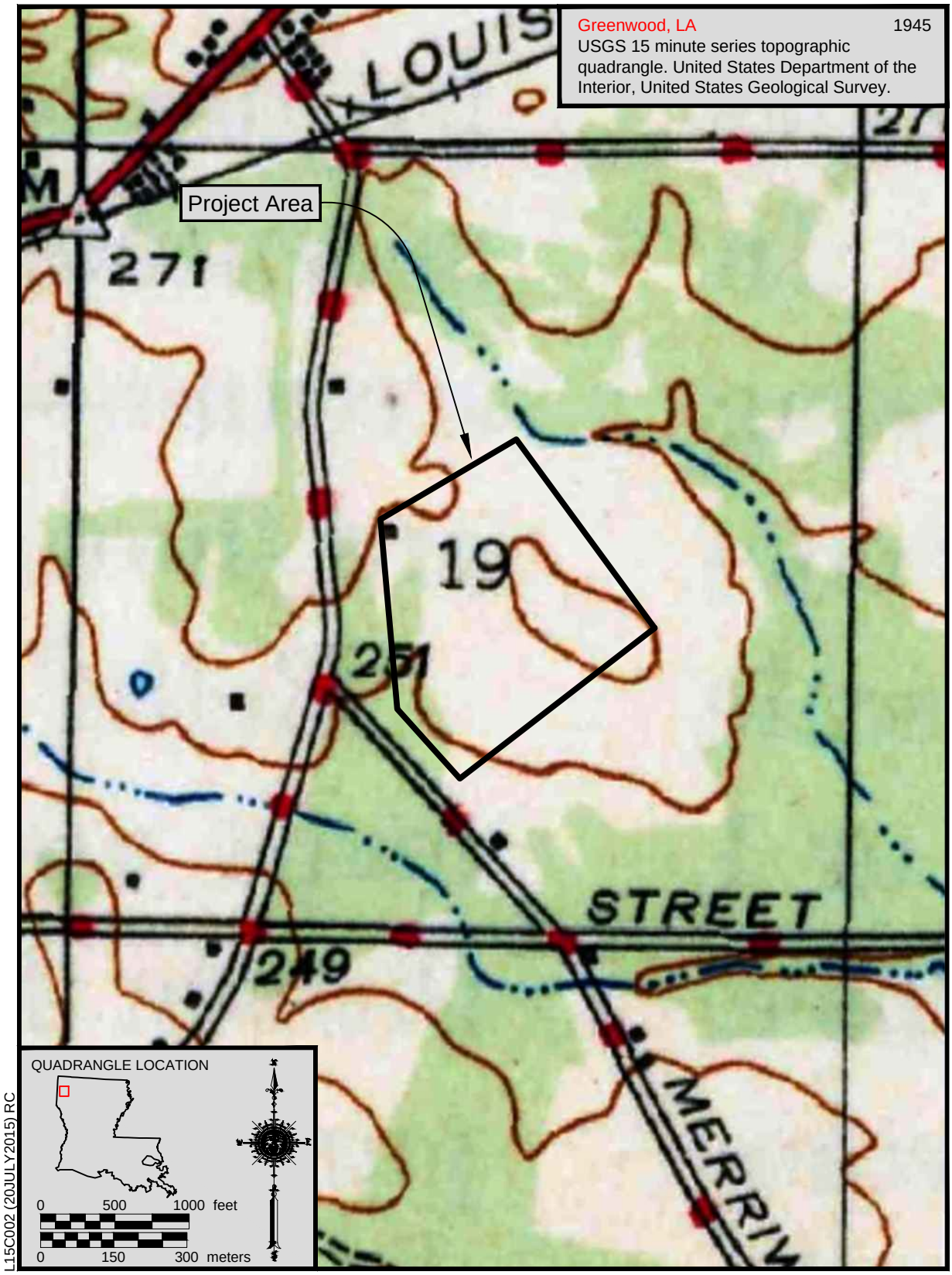

Figure 7. Project area depicted on 1945 Greenwood USGS 15-minute topographic quadrangle, showing one structure at the western boundary of the project area.

low probability of containing cultural material, while the transects immediately adjacent to the mapped location of Site 16CD89 (Transects 18–19 and 21–23) were considered to have a high probability of containing archaeological materials. Accordingly, the vast majority of the project area was shovel tested at a low probability interval of 50 m (164 ft), while the five transects mentioned above were tested at a high probability interval of 30 m (98 ft).

IV. METHODS

Field investigation consisted of an intensive pedestrian survey supplemented with screened shovel tests. Most of the project area was considered to have a low probability of containing cultural materials due to its distance from perennial water sources and from previously recorded archaeological sites, while those transects in the immediate vicinity of the previously recorded site 16CD89 were considered to have a high probability. The vast majority of the project area was therefore shovel tested at an interval of 50 m (164 ft), while Transects 18–19 and 21–23 (see Figure 3) were shovel tested at an interval of 30 m (98 ft).

The transects were each assigned a consecutive numerical designation, and the shovel tests were numbered consecutively along each transect. Transect beginning locations and occasional shovel tests along the length of each transect were marked with flagging tape that specified the unique transect and/or shovel test designation. All shovel tests measured 30-x-30 cm (12-x-12 in) and were excavated to 50 cm (20 in) below ground surface or until sterile subsoil was encountered. In practice, sterile subsoil or fill soil was typically encountered between 10 and 40 cm (4 and 16 in) below ground surface. Fill removed from the tests was screened through .64 cm (.25 in) mesh hardware cloth or was trowel-sorted in instances where the soil was extremely clayey. The sidewalls and bottoms of shovel tests were examined for cultural material and features. Along each transect the ground surface was visually inspected for artifacts. The locations of the individual transects are presented in Figure 3.

Soil profiles exposed in each excavated shovel test were recorded using standardized recording forms. Shovel test form entries included the unique designation for each transect shovel test along with shovel test status (positive or negative) and the depth, soil texture, and predominant color of each stratigraphic zone encountered (including disturbances).

Universal Transverse Mercator (UTM) coordinates were recorded with a GeoExplorer 3000 Series GeoXT handheld global positioning system (GPS) unit manufactured by Trimble to verify locations within the project area. Beginning of transect (BOT) locations were flagged and numbered for crew members. After transects were completed, the locations of each BOT and end of transect (EOT) were recorded as UTM positions using the GPS unit. The quality parameters of the GPS unit were adjusted to only collect data that would satisfy a 3 m (10 ft) level of accuracy. For all points collected, 20 incoming GPS positions were averaged. The GeoXT GPS units are capable of sub-meter accuracy after post-processing. Photographs were taken of general conditions within the project area. All photographs taken during the project were recorded on standardized photographic log sheets.

V. RESULTS

The fieldwork portion of this project consisted of a combination of pedestrian survey and shovel testing. The project area consisted of a mix of areas not suitable for shovel testing due to their being occupied by infrastructure associated with Shreveport Regional Airport, and areas suitable for shovel testing. Approximately 10 percent of the project area was covered by infrastructure and subject to pedestrian survey only, and 90 percent of the project area was pedestrian surveyed and shovel tested.

The vast majority of the shovel tested portions of the project area were vegetated

with tall grasses at the time of the survey, with isolated deciduous trees being present on the southwest-facing slope and in slightly greater concentrations bordering a small intermittent stream that traversed the project area in a shallow swale from north to south. A roughly triangular stand of secondary forest with moderate-to-dense understory surrounded the intermittent stream at the southwest boundary of the project area. This stand of secondary forest measured roughly 200 m (656 ft) from north to south and 115 m (377 ft) from east to west at its greatest extent, and represented the largest portion of the project area that was not covered by open fields. Surface visibility was generally minimal throughout the shovel tested portions of the project area due to grass coverage. However, many elevated areas immediately adjacent to parking lots and roads had experienced significant erosion and had moderate to good surface visibility, though subsoil was generally present at or near the surface in these locations.

All 118 shovel tests excavated on 23 transects in the project area were negative for cultural materials, and no surface artifacts were observed. No aboveground or subsurface features were encountered, and no soil strata that resembled cultural midden were revealed. No historic structures, structural remains, or other features older than 50 years were encountered within the project area during fieldwork.

Shovel tests excavated in the majority of the project area displayed intact profiles that generally corresponded with the soil series mapped in their respective locations. However, several tests excavated adjacent to elements of Shreveport Regional Airport infrastructure in the eastern portion of the project area displayed significant disturbance. In general, disturbance in these areas consisted of truncated or absent upper soil horizons, with elevated or sloped areas overlooking parking lots or loading docks often displaying subsoil at the surface. At the extreme eastern edge of the project area, shovel tests excavated in level grassy areas on Transects 20–23 (see Figure 3) often contained heterogeneous fill soil that lacked recognizable natural stratigraphy. The observed disturbance in portions of the eastern half of the project area is likely the result of construction activities associated with Shreveport Regional Airport infrastructure.

VI. CONCLUSIONS AND RECOMMENDATIONS

Cultural Resource Analysts, Inc., personnel completed a file search on June 8, 2015, and fieldwork on June 19–20, 2015, for a 22.3 ha (55.0 acres) parcel at Shreveport Regional Airport in Caddo Parish, Louisiana. This work was conducted at the request of the City of Shreveport to comply with Section 106 of the NHPA, and to obtain cultural resource clearance for state site certification of the project area.

The proposed project area consisted of approximately 22.3 ha (55.0 acres) on the west side of Shreveport Regional Airport, roughly 11.2 km (7.0 mi) southwest of downtown Shreveport, Louisiana, and 12.6 km (7.8 mi) east of the town of Greenwood, Louisiana.

The records review consisted of a search of online professional survey reports and records of archaeological sites maintained by the SHPO, an examination of historic maps, and a review of historic structures listed in the Louisiana Historic Resources Inventory for an area encompassing a 1.6 km (1.0 mi) radius of the project area. The records review indicated that three previous cultural resource investigations and three archaeological sites (16CD88–16CD90) had been documented within this radius. One of the previous surveys and one of the archaeological sites overlap the current project area.

Field investigation during this project consisted of an intensive pedestrian survey supplemented with screened shovel tests excavated at 30 m (98 ft) or 50 m (164 ft) intervals, depending upon project conditions and the assumed likelihood of containing cultural resources based on the results of the records review. The majority of the project area was presumed to have a low probability

of containing cultural material, while the area in the immediate vicinity of previously recorded archaeological site 16CD89 was determined to have a high probability. A total of 118 shovel tests were excavated on 23 transects in the roughly 90 percent of the project area that was suitable for shovel testing.

Pedestrian survey and shovel testing of the project area resulted in negative findings. All shovel tests were negative for cultural material. No structures, structural remains, or other features older than 50 years were encountered within the project area during fieldwork. Observed shovel test profiles indicate that portions of the project area immediately adjacent to Shreveport Regional Airport infrastructure had been subjected to construction disturbance.

Based on the findings of the records review and the cultural resource survey, no archaeological sites or historic properties listed in, or recommended eligible for listing in, the NRHP will be affected by construction activities within the project area. The area is considered cleared from a cultural resources perspective, and no additional management action is recommended.

If any previously unrecorded archaeological materials are encountered during activities in the project area, the SHPO should be notified immediately. If human skeletal material is discovered, the construction activities should cease, local law enforcement and the SHPO should be notified immediately, and SHPO guidelines should be followed.

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