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Prepared for:

Mason Joseph Company, Inc.
San Antonio, Texas

Prepared by:

Horizon Environmental Services, Inc.
Austin, Texas

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MANAGEMENT SUMMARY

Horizon Environmental Services, Inc. (Horizon) was selected by the Mason Joseph Company, Inc. (MJC) on behalf of a private real estate developer to conduct a cultural resources inventory survey and assessment for the proposed development of the approximately 7.4-hectare (18.4-acre) Residences at Bastrop tract in western Bastrop County, Texas. The proposed tract is located off the southwestern side of State Highway (SH) 71 (a.k.a. Farm-to-Market Road [FM] 384 and Union Chapel Road approximately 0.5 kilometer (0.3 mile) northwest of its intersection with FM 339 (a.k.a. Still Forest Drive) within the rural community of Wyldwood. The Area of Potential Effect (APE) for direct effects consists of the entire 7.4-hectare (18.4-acre) tract within which construction would occur, and the APE for indirect effects would include an assessment of possible viewshed impacts to any historic-age buildings (i.e., 50 years of age or older) on parcels adjacent to the project site. While detailed construction schematics are not currently available, anticipated impacts to the project site would include devegetation and ground disturbances extending to depths of approximately 0.6 to 0.9 meter (2.0 to 3.0 feet) below surface based on typical construction practices associated with construction of residential subdivisions and apartment complexes, though limited areas of deeper impacts may be associated with installation of subsurface utilities.

The proposed undertaking is being sponsored by a private real estate developer on privately owned land utilizing funding provided by the US Department of Housing and Urban Development (HUD); as such, the project falls under the jurisdiction of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. As the project represents a publicly sponsored undertaking with the potential to impact potentially significant cultural resources, the project sponsor is required to provide for a cultural resources inventory of the project area.

On October 9, 2020, Horizon archeologists Mckinzie Froese and Jacob Lyons, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources survey of the project area to locate any cultural resources that potentially would be impacted by the proposed undertaking. Horizon's archeologists traversed the project area and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. The project area is moderately densely wooded with cedar and live oak trees with a moderately dense understory of various grasses, weeds, and brambles. Decomposing limestone bedrock gravels were observed on the modern ground surface in portions of the project area. Three modern residential complexes constructed between 1975 and 1995 are present in the

northeastern half of the project area. Overstory vegetation surrounding the complexes has been largely cleared, an artificial stock pond has been created behind the westernmost of the residences, and a network of gravel driveways and two-track roads winds through the project area. Visibility of the modern ground surface was generally poor due to dense vegetative ground cover (<30%

In addition to pedestrian walkover, the Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of two shovel tests per 0.4 hectare (1.0 acre) for project areas between 1.2 and 4.0 hectares (3.0 and 10.0 acres) in size; as such, a total of 37 shovel tests would be required within the 7.4-hectare (18.4-acre) project area. Horizon excavated 38 shovel tests during the survey, thereby meeting the TSMASS for a project area of this size. The pedestrian survey and shovel testing revealed that sediments in the project area typically consist of shallow, gravelly silty loam sediments overlying dense, very gravelly, generally mottled clay sediments at depths ranging from 5.0 to 45.0 centimeters (2.0 to 17.7 inches) below surface, though this transition typically occurred at depths of 20.0 to 30.0 centimeters (7.9 to 11.8 inches) below surface. Dense deposits of rolled stream gravels or bedrock were encountered in some shovel tests. It is Horizon's opinion that shovel testing was capable of fully penetrating sediments with the potential to contain archeological deposits.

No cultural resources of prehistoric or historic age were observed on the modern ground surface or within any of the shovel tests excavated during the survey. Three modern residential complexes are present within the project area. These complexes were built between 1975 and 1995, and historical imagery indicates the project area was entirely undeveloped prior to 1970. No standing structures of historic age are present within the project area or on adjacent parcels.

Based on the results of the survey-level investigations documented in this report, no significant cultural resources would be affected by the proposed undertaking. In accordance with 36 CFR 800.4, Horizon has made a reasonable and good-faith effort to identify historic properties within the project area. No cultural resources were identified that meet the criteria for inclusion in the National Register of Historic Places (NRHP) according to 36 CFR 60.4, and Horizon recommends a finding of "no historic properties affected" for the proposed undertaking. No further archeological or historical investigations are recommended in connection with the proposed undertaking. However, it should be noted that human burials are protected under the Texas Health and Safety Code. In the event that any human remains or burial objects are inadvertently discovered at any point during construction, use, or ongoing maintenance in the project area, even in previously surveyed areas, all work should cease immediately at the location of the inadvertent discovery until a qualified archeologist can assess the find, and the Texas Historical Commission (THC) should be notified of the discovery.

TABLE OF CONTENTS

LIST OF FIGURES

Page

LIST OF TABLES

Page

1.0 INTRODUCTION

Horizon Environmental Services, Inc. (Horizon) was selected by the Mason Joseph Company, Inc. (MJC) on behalf of a private real estate developer to conduct a cultural resources inventory survey and assessment for the proposed development of the approximately 7.4-hectare (18.4-acre) Residences at Bastrop tract in western Bastrop County, Texas. The proposed tract is located off the southwestern side of State Highway (SH) 71 (a.k.a. Farm-to-Market Road [FM] 384 and Union Chapel Road approximately 0.5 kilometer (0.3 mile) northwest of its intersection with FM 339 (a.k.a. Still Forest Drive) within the rural community of Wyldwood (Figures 1 to 3). The Area of Potential Effect (APE) for direct effects consists of the entire 7.4-hectare (18.4-acre) tract within which construction would occur, and the APE for indirect effects would include an assessment of possible viewshed impacts to any historic-age buildings (i.e., 50 years of age or older) on parcels adjacent to the project site. While detailed construction schematics are not currently available, anticipated impacts to the project site would include devegetation and ground disturbances extending to depths of approximately 0.6 to 0.9 meter (2.0 to 3.0 feet) below surface based on typical construction practices associated with construction of residential subdivisions and apartment complexes, though limited areas of deeper impacts may be associated with installation of subsurface utilities.

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On October 9, 2020, Horizon archeologists Mckinzie Froese and Jacob Lyons, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources survey of the project area to locate any cultural resources that potentially would be impacted by the proposed undertaking. The cultural resources investigation consisted of an archival review, an intensive pedestrian survey of the project area, and the production of a report suitable for review by the State Historic Preservation Officer (SHPO) in accordance with the Texas Historical Commission's (THC) Rules of Practice and Procedure, Chapter 26, Section 26, and the Council of Texas Archeologists (CTA) Guidelines for Cultural Resources Management Reports.

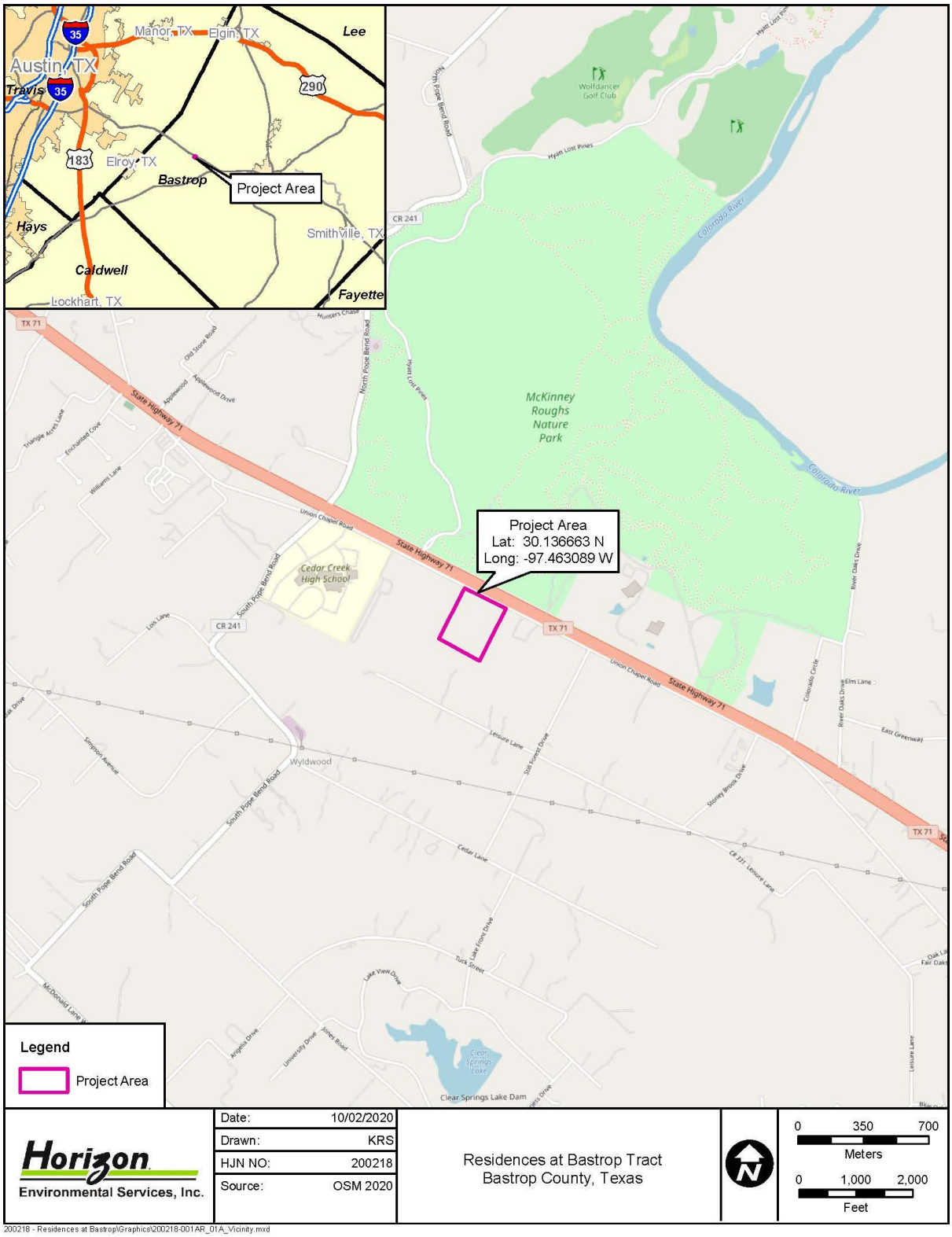

Figure 1. Vicinity Map of Project Area

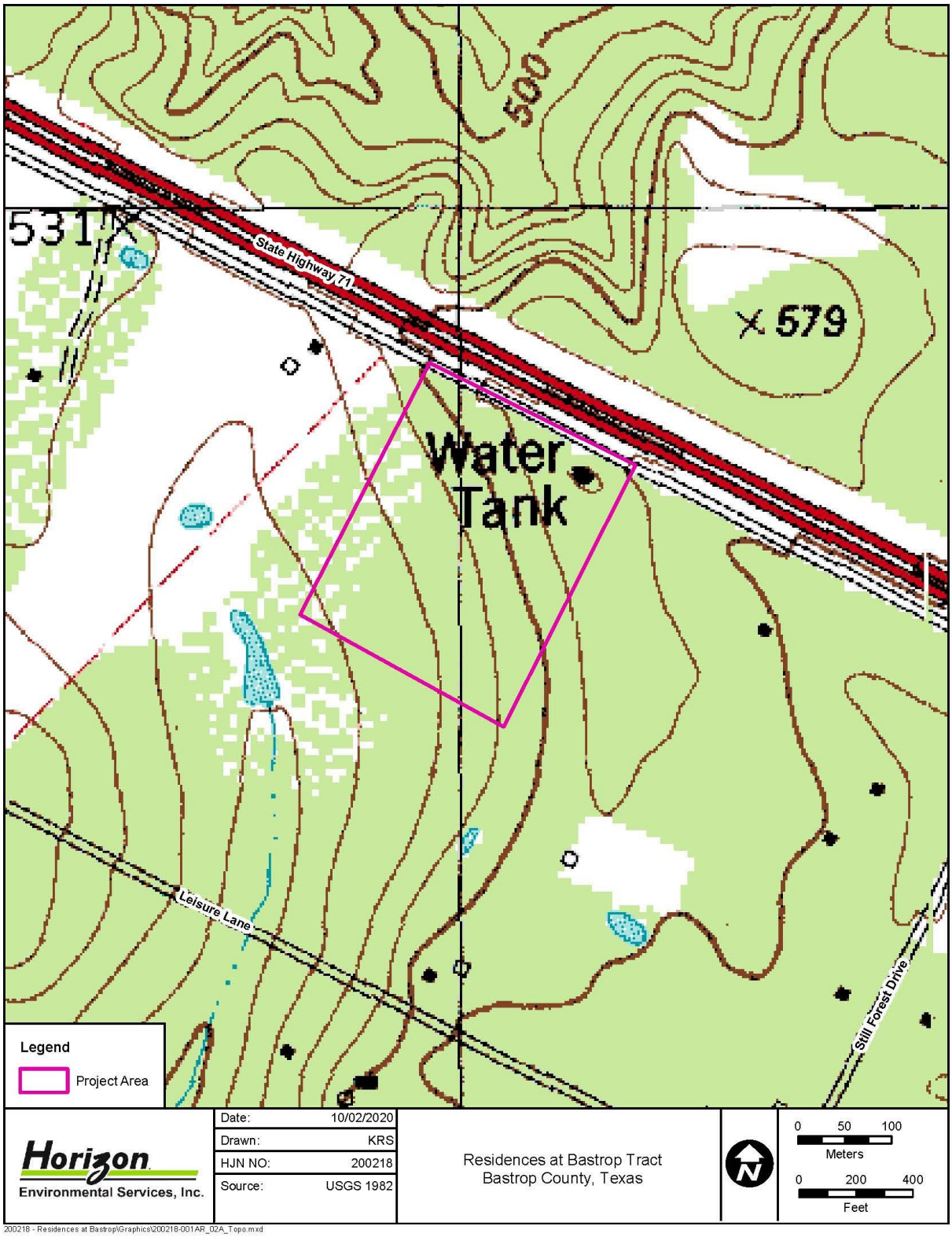

Figure 2. Location of Project Area on USGS Topographic Quadrangle

Figure 3. Location of Project Area on Aerial Photograph

Following this introductory chapter, Chapters 2.0 and 3.0 present the environmental and cultural backgrounds, respectively, of the project area. Chapter 4.0 describes the results of background archival research, and Chapter 5.0 discusses cultural resources survey methods. Chapter 6.0 presents the results of the cultural resources survey, and Chapter 7.0 presents cultural resources management recommendations for the project. Chapter 8.0 lists the references cited in the report. Appendix A summarizes shovel test data.

2.0 ENVIRONMENTAL SETTING

2.1 PHYSIOGRAPHY AND HYDROLOGY

The project area is located in western Bastrop County, Texas, near the boundary of three significant physiographic provinces—the Blackland Prairie, the Edwards Plateau, and the Gulf Coastal Plain. The Blackland Prairie, within which the project area is situated, is a narrow physiographic zone between the Edwards Plateau to the west and the Gulf Coastal Plain to the east. It is a low, rolling land that extends in a narrow band along the eastern edge of the Balcones fault zone from the Red River Valley in northeastern Texas to the southern edge of the Edwards Plateau. This is an area of low topographic relief and poor drainage in which water often ponds after rainstorms and streams flow at very gentle gradients. The Edwards Plateau and Balcones Escarpment are associated with a great fault system that arcs across Texas to form a distinct boundary between uplands composed primarily of limestone bedrock and lower plains composed mostly of softer rocks. In places, this boundary is marked by an abrupt scarp (the Balcones Escarpment) and in others by a more gradational ramp, but the entire length of this transition zone is a major ecotone in terms of topography, bedrock, hydrology, soil, vegetation, and animal life.

Physiographically, the project area is situated on the western slopes of a gently rolling upland ridge. No natural waterways are present within the project area, though unnamed tributaries of Greens Creek and Cottonwood Creek arise to the west and east of the project area, respectively. Elevations within the project area range from approximately 158.5 to 170.7 meters (520.0 to 560.0 feet) above mean sea level (amsl). Drainage is to the southwest, primarily via overland sheet flow, toward an unnamed tributary of Greens Creek.

Hydrologically, the project area is situated within the Colorado River Basin. No natural waterways are present within the project area, though the project area is situated on an upland ridge between the channels of Greens and Cottonwood creeks. These two streams flow generally southward or southeastward, discharging into Cedar Creek. Cedar Creek, in turn, flows eastward, discharging into the Colorado River near Upton south of Bastrop. The Colorado River flows southeastward across the Blackland Prairie and the Gulf Coastal Plain, ultimately discharging into the Gulf of Mexico a short distance northeast of Matagorda Bay.

2.2 GEOLOGY AND GEOMORPHOLOGY

The project area is underlain by a thick sequence of Cretaceous-age, sedimentary rock strata. In Bastrop County, soils formed primarily over sedimentary deposits of Upper Cretaceous age, and soil parent material consists of chalk, marl, limestone, and marly limestone (Fisher 1974). Specifically, the project area is underlain by the Eocene-age Hooper geological formation (Eh), which consists mostly of mudstone with various amounts of sandstone, lignite, or ironstone concretions (USGS 2020). Geomorphologically, the project area is situated on roughly equal proportions of loamy and clayey residuum weathered from underlying Eocene—age sandstone, mudstone, and shale bedrock in the eastern portion of the project area and Pleistocene-age loamy and/or clayey alluvium derived from mudstone in the western portion of the project area (Table 1; Figure 4) (NRCS 2020). No Holocene-age sediments are mapped within the project area.

2.3 CLIMATE

Evidence for climatic change from the Pleistocene to the present is most often obtained through studies of pollen and faunal sequences (Bryant and Holloway 1985; Collins 1995). Bryant and Holloway (1985) present a sequence of climatic change for nearby east-central Texas from

Table 1. Summary of Mapped Soils within Project Area

NRCS Soil Code	Soil Name	Parent Material	Typical Profile (inches)
AfC	Edge fine sandy loam, 1 to 5% slopes	Loamy and clayey residuum weathered from Eocene-age sandstone and mudstone on ridges	0-12: Fine sandy loam (A) 12-34: Clay (Bt1) 34-46: Clay loam (Bt2) 46-50: Clay loam (BCt) 50-74: Loam (C/B) 74-80: Silt loam (C)
AtD	Edge gravelly fine sandy loam, 3 to 8% slopes	Loamy and clayey residuum weathered from Eocene-age shale and siltstone of the Wilcox Formation on ridges	0-5: Gravelly fine sandy loam 5-16: Sandy clay 16-32: Sandy clay 32-48: Sandy clay loam 48-75: Loam 75-80: Silt loam
VeD	Vernia very gravelly loamy sand, 1 to 8% slopes	Sandy and gravelly alluvium of Pleistocene age on stream terraces	0-48: Very gravelly loamy sand 48-62: Very gravelly sandy clay loam 62-80: Very gravelly sandy clay loam
WsB	Wilson clay loam, 1 to 3% slopes	Loamy and/or clayey alluvium derived from mudstone on stream terraces	0-7: Clay loam (Ap) 7-31: Clay (Btss) 31-36: Clay (Btkss) 36-42: Clay (Btkssyg) 42-80: Clay loam (Btkyg)

Source: NRCS (2020)

NRCS = Natural Resources Conservation Service

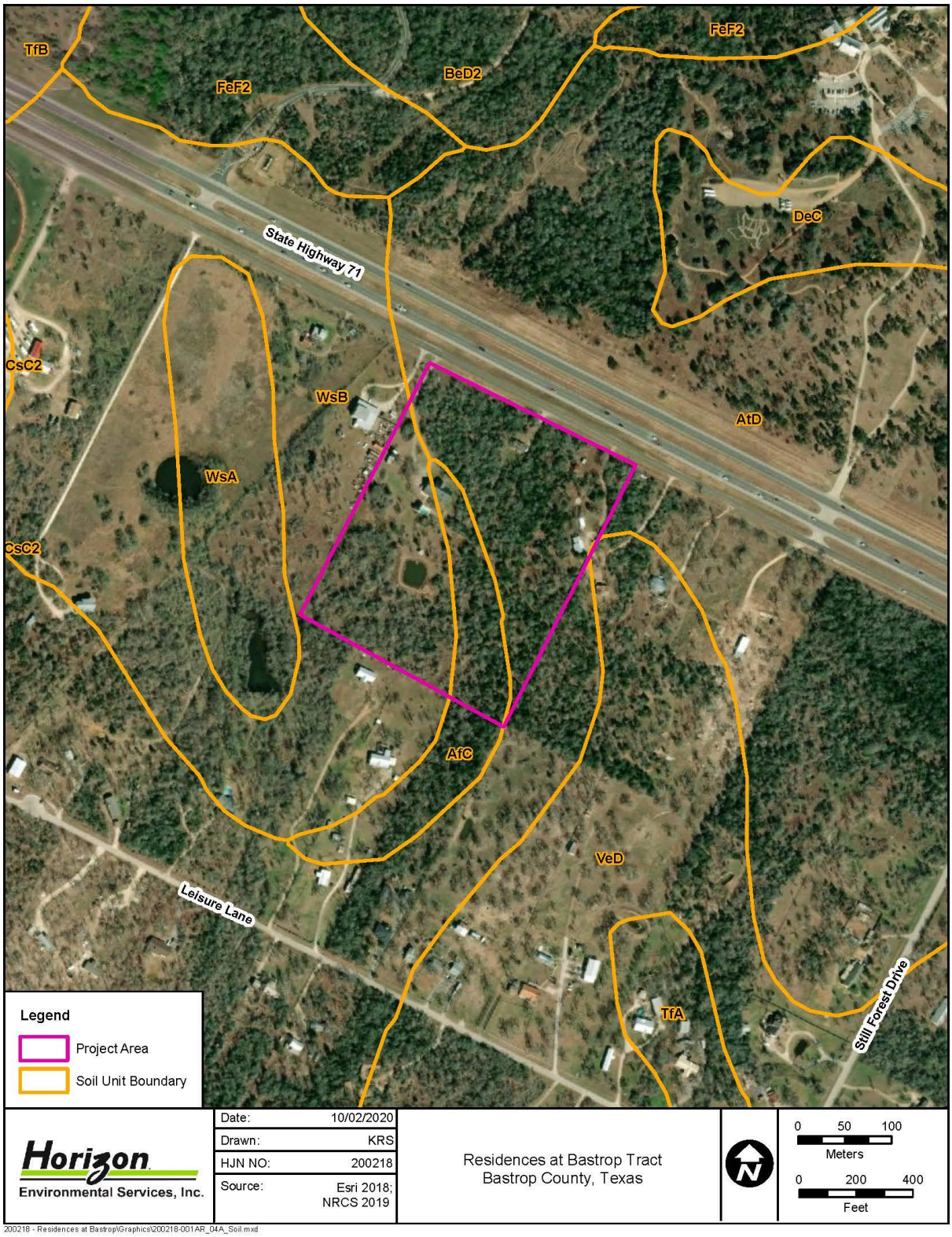

Figure 4. Soil Map of Project Area

the Wisconsin Full Glacial period (22,500 to 14,000 B.P.) through the Late Glacial period (14,000 to 10,000 B.P.) to the Post-Glacial period (10,000 B.P. to present). Evidence from the Wisconsin Full Glacial period suggests that the climate in east-central Texas was considerably cooler and more humid than at present. Pollen data indicate that the region was more heavily forested in deciduous woodlands than during later periods (Bryant and Holloway 1985). The Late Glacial period was characterized by slow climatic deterioration and a slow warming and/or drying trend (Collins 1995). In east-central Texas, the deciduous woodlands were gradually replaced by grasslands and post oak savannas (Bryant and Holloway 1985). During the Post-Glacial period, the east-central Texas environment appears to have been more stable. The deciduous forests had long since been replaced by prairies and post oak savannas. The drying and/or warming trend that began in the Late Glacial period continued into the mid-Holocene, at which point there appears to have been a brief amelioration to more mesic conditions lasting from roughly 6000 to 5000 B.P. Recent studies by Bryant and Holloway (1985) indicate that modern environmental conditions in east-central Texas were probably achieved by 1,500 years ago.

Travis County is located within the south-central climatic division. The modern climate is typically dry to subhumid with long, hot summers and short, mild winters. The climate is influenced primarily by tropical maritime air masses from the Gulf of Mexico, but it is modified by polar air masses. Tropical maritime air masses predominate throughout spring, summer, and fall. Modified polar air masses are dominant in winter and provide a continental climate characterized by considerable variations in temperature.

On average throughout the past century, precipitation and temperature in Texas manifest regional clines with mean annual precipitation totals declining fairly regularly from east to west and mean annual temperature declining equally evenly from northwest to southeast (Larkin and Bomar 1983). In Central Texas, climate has fluctuated from subtropical humid to subtropical subhumid. Average annual precipitation totals 81.3 centimeters (32.0 inches) and temperature averages 19°C (67°F) annually, ranging from 36°C (96°F) in August (the warmest month) to 15°C (59°F) in January (the coldest month). During this time, however, drier periods lasting from three to seven years, when total annual rainfall ranged from 30.5 to 63.5 centimeters (12.0 to 25.0 inches), were followed by abnormally wet years with 114.3 to 127.0 centimeters (45.0 to 50.0 inches) of rainfall.

Two annual precipitation peaks, which typically occur in May and September, are associated with frontal storms that form when southward-moving cool air masses collide with warm, moist air masses moving inland from the Gulf of Mexico (Bomar 1983; Carr 1967). The topographic discontinuity along the Balcones Escarpment lies directly in the path of the Gulf storm trace and increases the lift in convective storms to produce extreme amounts of rainfall. Two extreme examples are the excess of 91.4 centimeters (36.0 inches) of rain that fell within an 18-hour period in the vicinity of Thrall, Texas, in September 1921, and the 55.9-centimeters (22.0-inch) deluge that fell in less than three hours near O'Harris, Texas, in May 1935. Lower rainfall amounts are characteristic of winter and late summer. In winter, frontal storms pass so frequently that there is little time for moisture to increase, and prevailing upper-level winds from west to east often dominate over meridional flow, meaning that much of the available moisture is derived from

the Pacific rather than from the Gulf of Mexico. In summer, cool fronts rarely penetrate into the region, and rainfall occurs primarily as localized, thermal convective storms.

2.4 BIOTA

The project area is situated in the southwestern portion of the Texan biotic province (Blair 1950), an intermediate zone between the forests of the Austroriparian and Carolinian provinces and the grasslands of the Kansan, Balconian, and Tamaulipan provinces (Dice 1943). Some species reach the limits of their ecological range within the Texan province. The boundary, characterized as "approximate," between Blair's (1950) Texan and Balconian provinces passes through western Williamson County, northwest of the project area. Rainfall in the Texan province is barely in excess of water need, and the region is classified by Thornwaite (1948) as a C_2 (moist subhumid) climate with a moisture surplus index of from 0 to 20%.

Edaphic controls on vegetation types are important in the Texan biotic province, which is located near the border between moisture surplus and moisture deficiency. Sandy soils support oak-hickory forests dominated by post oak (*Quercus stellata*), blackjack oak (*Q. marilandica*), and hickory (*Carya buckleyi*). Clay soils originally supported a tall-grass prairie, but much of this soil type has been placed under cultivation. Dominant tall-grass prairie species include western wheatgrass (*Agrophyron smithii*), silver beardgrass (*Andropogon saccharoides*), little bluestem (*Andropogon scoparius*), and Texas wintergrass (*Stipa leucotricha*). Major areas of oak-hickory forest include the Eastern and Western Cross Timbers, and major tall-grass prairie areas include the Blackland, Grand, and Coastal prairies. Some characteristic associations of the Austroriparian province occur locally in the Texan province, such as a mixed stand of loblolly pine (*Pinus taeda*) and blackjack and post oak in Bastrop County and a series of peat and bog marshes distributed in a line extending from Leon to Gonzales counties.

The fauna associated with this region are represented by a mixture of species from the Austroriparian, Tamaulipan, Chihuahuan, Kansan, Balconian, and Texan biotic provinces. At least 49 species of mammals occur in the Texan province, including Virginia opossum (*Didelphis virginiana*), eastern mole (*Scalopus aquaticus*), fox squirrel (*Sciurus niger*), desert pocket gopher (*Geomys breviceps*), fulvous harvest mouse (*Reithrodontomys fulvescens*), white-footed mouse (*Peromyscus leucopus*), hispid cotton rat (*Sigmodon hispidus*), eastern cottontail rabbit (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), white-footed mouse (*Peromyscus leucopus*), black-tailed jackrabbit (*Sylvilagus californicus*), ground squirrel (*Citellus tridecemlineatus*), white-tailed deer (*Odocoileus virginiana*), hispid pocket mouse (*Perognathus hispidus*), deer mouse (*Peromyscus maniculatus*), pygmy mouse (*Baiomys taylori*), 9-banded armadillo (*Dasypus novemcinctus*), and jaguar (*Felis onca*).

Both species of *Terrapene* known from the Austroriparian province—eastern box turtle (*T. Carolina*) and desert box turtle (*T. ornata*)—occur in the Texan. Sixteen species of lizards, including seven grassland and nine forest species, are also found, including green anole (*Anolis carolinensis*), eastern fence lizard (*Sceloporus undulates*), common ground skink (*Leiolopisma laterale*), glass snake (*Ophiosaurus ventralis* [grassland species]), collared lizard (*Crotaphytus collaris*), Texas spiny lizard (*Sceloporus olivaceous*), Texas horned lizard (*Phrynosoma cornutum*), and Great Plains skink (*Eumeces obsoletus* [forest species]). Only five species of

urodele fauna are known from this area, including small-mouthed salamander (*Ambystoma texanum*), tiger salamander (*Ambystoma tigrinum*), and eastern lesser siren (*Siren intermedia*), and the Texan province acts as a barrier to urodele distribution between the endemic Balconian province fauna to the west and the Austroriparian fauna to the east.

Anuran fauna is composed primarily of Austroriparian or otherwise widely distributed species, including eastern spadefoot toad (*Scaphiopus holbrookii*), Gulf Coast toad (*Bufo valliceps*), Woodhouse's toad (*Bufo woodhousii*), southern cricket frog (*Acris gryllus*), southern chorus frog (*Pseudacris nigrita*), gray treefrog (*Hyla versicolor*), green treefrog (*Hyla cinerea*), North American bullfrog (*Rana catesbeiana*), northern leopard frog (*Rana pipiens*), and narrow-mouthed toad (*Microhyla carolinensis*). Additional anuran species that fail to cross from the Texan into the Austroriparian province include pacific tree frog (*Pseudacris clarkia*), Strecker's chorus frog (*Pseudacris streckeri*), and striped whipsnake (*Microhyla olivacea*).

Other reptile and amphibian species common to this biotic zone include 6-lined racerunner (*Aspidoscelis sexlineata*), rat snake (*Ptyas mucosus*), eastern hognose snake (*Heterodon platirhinos*), rough green snake (*Opheodrys aestivus*), copperhead (*Agkistrodon contortrix*), western diamondback rattlesnake (*Crotalus atrox*), Blanchard's cricket frog (*Acris crepitans*), diamondback water snake (*Nerodia rhombifer rhombifer*), and Houston toad (*Bufo houstonensis*). Common bird species include northern bobwhite (*Colinus virginianus*), eastern meadowlark (*Sturnella magna*), mourning dove (*Zenaida macroura*), killdeer (*Charadrius vociferus*), field sparrow (*Spizella pusilla*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), belted kingfisher (*Ceyrle alcyon*), and mockingbird (*Mimus polyglottos*). Small herds of bison and antelope were common during the late prehistoric and early historic periods, but these species are no longer native to this region (Jurney et al. 1989:13-14).

3.0 CULTURAL BACKGROUND

The project area is located within Prewitt's (1981, 1985) Central Texas Archeological Region. Prewitt (1981, 1985) demarcated the southeastern boundary of the Central Texas Archeological Region at the town of Bastrop in Bastrop County, which borders Travis County on the southeast. The indigenous human inhabitants of Central Texas practiced a generally nomadic hunting and gathering lifestyle throughout all of prehistory, and, in contrast to much of the rest of North America, mobility and settlement patterns do not appear to have changed markedly through time in this region.

3.1 PALEOINDIAN PERIOD (CA. 12,000 TO 8500 B.P.)

The initial human occupations in the New World can now be confidently extended back before 12,000 B.P. (Dincauze 1984; Haynes et al. 1984; Kelly and Todd 1988; Lynch 1990; Meltzer 1989). Evidence from Meadowcroft Rockshelter in Pennsylvania suggests that humans were present in Eastern North America as early as 14,000 to 16,000 years ago (Adovasio et al. 1990), while more recent discoveries at Monte Verde in Chile provide unequivocal evidence for human occupation in South America by at least 12,500 years ago (Dillehay 1989, 1997; Meltzer et al. 1997). Most archeologists have historically discounted claims of much earlier human occupation during the Pleistocene glacial period. However, recent investigations of the Buttermilk Creek Complex in Bell County, Texas, have raised the possibility that a pre-Clovis culture may have been present in North America as early as 15,500 years ago (Waters et al. 2011).

The earliest generalized evidence for human activities in Central Texas is represented by the PaleoIndian period (12,000 to 8500 B.P.) (Collins 1995). This stage coincided with ameliorating climatic conditions following the close of the Pleistocene epoch that witnessed the extinction of herds of mammoth, horse, camel, and bison. Cultures representing various periods within this stage are characterized by series of distinctive, relatively large, often fluted, lanceolate projectile points. These points are frequently associated with spurred end scrapers, gravers, and bone foreshafts. PaleoIndian groups are often inferred to have been organized into egalitarian bands consisting of a few dozen individuals that practiced a fully nomadic subsistence and settlement pattern. Due to poor preservation of floral materials, subsistence patterns in Central Texas are known primarily through the study of faunal remains. Subsistence focused on the exploitation of plants, small animals, fish, and shellfish, even during the PaleoIndian period. There is little evidence in this region for hunting of extinct megafauna, as has been documented elsewhere in North America. Rather, a broad-based subsistence pattern appears to have been

practiced throughout all prehistoric time periods. In Central Texas, the PaleoIndian stage is divided into 2 periods based on recognizable differences in projectile point styles. These include the Early PaleoIndian period, which is recognized based on large, fluted projectile points (i.e., Clovis, Folsom, Dalton, San Patrice, and Big Sandy), and the Late PaleoIndian period, which is characterized by unfluted lanceolate points (i.e., Plainview, Scottsbluff, Meserve, and Angostura).

3.2 ARCHAIC PERIOD (CA. 8500 TO 1200 B.P.)

The onset of the Hypsithermal drying trend marks the beginning of the Archaic period (8500 to 1200 B.P.) (Collins 1995). This climatic trend marked the beginning of a significant reorientation of lifestyle throughout most of North America, but this change was far less pronounced in Central Texas. Elsewhere, the changing climatic conditions and corresponding decrease in the big game populations forced people to rely more heavily upon a diversified resource base composed of smaller game and wild plants. In Central Texas, however, this hunting and gathering pattern is characteristic of most of prehistory. The appearance of a more diversified tool kit, the development of an expanded groundstone assemblage, and a general decrease in the size of projectile points are hallmarks of this cultural stage. Material culture shows greater diversity during this broad cultural period, especially in the application of groundstone technology.

Traditionally, the Archaic period is subdivided into Early, Middle, and Late subperiods. Changes in projectile point morphology are often used as markers differentiating these three subperiods, though other changes in material culture occurred as well. Perhaps most markedly, burned rock middens appear during the Middle Archaic subperiod, continuing into the Late Archaic subperiod, and large cemeteries appear during the Late Archaic subperiod. In addition, the increasing density of prehistoric sites through time is often considered to constitute evidence of population growth, though differential preservation probably at least partially accounts for the lower numbers of older sites.

3.3 LATE PREHISTORIC PERIOD (CA. 1200 TO 350 B.P.)

The onset of the Late Prehistoric period (1200 to 350 B.P.) (Collins 1995) is defined by the appearance of the bow and arrow. In Central Texas, pottery also appears during the Late Prehistoric period (though ceramics appear earlier in Southeast Texas). Use of the atlatl (i.e., spearthrower) and spear was generally discontinued during the Late Prehistoric period, though they continued to be used in the inland subregion of Southeast Texas along with the bow and arrow through the Late Prehistoric period (Patterson 1980, 1995; Wheat 1953). In Texas, unifacial arrow points appear to be associated with a small prismatic blade technology. The Late Prehistoric period is generally divided into two phases, the Austin and Toyah phases. Austin phase sites occur earliest to the north, which has led some researchers (e.g., Prewitt 1985) to suggest that the Austin-phase populations of Central Texas were migrants from the north and lack the ceramic industry of the later Toyah phase.

3.4 HISTORIC PERIOD (CA. 350 B.P. TO PRESENT)

The first European incursion into what is now known as Texas was in 1519, when Alonso Álvarez de Pineda explored the northern shores of the Gulf of Mexico. In 1528, Álvar Núñez Cabeza de Vaca crossed South Texas after being shipwrecked along the Texas Coast near Galveston Bay. However, the impact of European settlement did not seriously disrupt native ways of life until after 1700. The first half of the 18th century was the period in which the fur trade and mission system, as well as the first effects of epidemic diseases, began to negatively affect the native culture and social systems. This process is clearly discernable at the Mitchell Ridge site, where burial data suggest population declines and group mergers (Ricklis 1994) as well as increased participation on the part of the Native American population in the fur trade. By the time that heavy settlement of Texas began in the early 1800s by Anglo-Americans, the indigenous Indian population was greatly diminished.

Before the first Spanish explorations of the area, several Native American groups occupied the Edwards Plateau, including the distinct archeological manifestation known as the Toyah Phase and the descendants of the Tonkawa and Jumano (which included sub-groups Cibolo, Gediondo, Machome, and "Those Who Make Bows") (Wade 2003). Post European-contact tribes included the Lipan Apache, Kiowa-Apache, Wichita, and Comanche (Newcomb 1961; Wade 2003). Lesser-known groups and "micro social coalitions" included the Ape, Arame, Bagname, Bobole, Ervipiame, Geniocane, Gueiquesale, Jumee, Mabibit, Manos Priestas, Ocane, Pataguache, Pinanaca, Siano, Teaname, Teroodan, Xaesar, and the Xoman, which all appear in the Spanish records beginning in the mid-18th century (Wade 2003).

El Camino Real, also known as *El Camino Real de los Tejas* and later as the Old San Antonio Road, linked together the mission systems of northeastern Texas and western Louisiana with the Spanish frontier in northern Mexico and Mexico City. This dendritic system of roads was the most important channel of immigration, commerce, communication, and supplies for the Spanish presidio-mission complexes and provincial government centers in Texas. Officially established by the Teran de los Rios entrada in 1691, it is likely that the Spanish used preexisting indigenous trade routes that linked Caddo people to Coahuiltecans and Jumanos (Chipman 1992; Foster 2008; Wade 2003). Under Spanish rule in 1804, a fort was established by Provincial Governor Manuel Antonio Cordero y Bustamante on the King's Road on the Colorado River near the present-day town of Bastrop (Marks 2020).

Anglo-American colonization in the area was first attempted by the legislation efforts of Dutch nobleman Baron de Bastrop as early as the 1820s. However, it was not until 1827 that settlement began with *empresario* Stephen F. Austin's "Little Colony" (Marks 2020). Despite ongoing attacks from the Apache and Comanche, by 1830 the early Anglo pioneers in the region had established the township of Bastrop and began cultivating farms in the southern portion of the present-day county (Marks 2020). By 1831, Austin had secured two land grants collectively known as the Mina Municipality in honor of Spanish General Francisco Xavier Mina, which covered all of present-day Bastrop County as well as 16 other nearby counties (Marks 2020). Under the territorial rule of the Departments of Coahuila and Texas, the town of Mina, later renamed Bastrop after the Texas Revolution, was chosen as the county seat. By the late 1830s,

the slave and cotton economies of the Antebellum South became the basis for the cotton industry. The abundance of pine trees provided a natural resource for exploitation, and such corporations as the Bastrop Steam Mill Company provided timber to neighboring communities in Austin and San Antonio. By 1850, the county's population had reached 2,180, with almost half composed of African American slaves. In 1853, a county courthouse was constructed, and more than 23 school districts were operating within the rural communities. German immigrants and other eastern Europeans began forming ethnic enclaves throughout the county. A large portion of the county's residents were Germans who were vehemently anti-slavery, and the county was divided on the Referendum for the Ordinance on Secession of February 1861 (Timmons 1973). Although no battles were fought within the county, the effects of the Civil War wreaked havoc on the post-war economy, and racial tensions abounded.

By 1870, the county's population reached more than 11,000, and townships sprouted along the newly laid railroads constructed by the Houston and Texas Central Railway, which connected Austin and Brenham. The original courthouse burned down in 1883 and was replaced by the present-day courthouse. Other rail lines began to crisscross the county in the late 1890s, such as the Taylor, Bastrop and Houston Railway and the Missouri, Kansas and Texas Railroad. By 1900, the county's population soared to 26,845 citizens, and agriculture and manufacturing dominated the economy. Oil was discovered in 1913, and coal belts were mined for lignite and clay for brickmaking later in the 1920s (Marks 2020). The Great Depression was followed by a cotton slump, which eventually led to a diversification of crops and an acceleration of livestock production. Farm values plummeted and the number of farms dwindled by almost one-third; together, these economic devastations resulted in a negative population growth rate by 1940.

World War II temporarily bolstered the county's economy, and Camp Swift, a US Army training facility located in the northern portion of the county, provided incomes and infrastructure for the region. As the war ended and lignite and timber resources were exhausted, the economy suffered another negative trend throughout the late 1940s. However, the diversification of crops proved successful, as sorghum, watermelons, peanuts and pecans yielded profitable harvests along with beef-cattle production. The brick and tile manufacturing centers in the town of Elgin provided jobs during the 1950s. The county again suffered a decline during the 1960s with a population of 16,925; however, afterwards, this trend would reverse itself and continue to the current day. During the 1970s and 1980s, the rich natural resources in the area created a tourism industry with the formation of Bastrop and Buescher state parks as well as Lake Bastrop. Today, notable towns include Bastrop, Elgin, and Smithville. US Highway (US) 290 and SHs 21 and 71 extend through the county. Along with biotechnology and computer-related industries, agriculture and livestock ranching continue to characterize the county's economy. Principal crops include pecans, cotton, and sorghum. During 2011, the state's largest natural wildfire destroyed more than 1,600 homes in Bastrop County. In 2018, the population was more than 80,000 citizens.

4.0 ARCHIVAL RESEARCH

Prior to initiating fieldwork, Horizon personnel reviewed the THC's online *Texas Archeological Sites Atlas* (TASA) and *Texas Historic Sites Atlas* (THSA) for information on previously recorded archeological sites and previous archeological investigations conducted within a 1.6-kilometer (1.0-mile) radius of the project area. Based on this archival research, 23 previously recorded archeological sites are located within a 1.6-kilometer (1.0-mile) radius of the project area (Figure 5; Table 2) (THC 2020). All of the previously recorded cultural resources are located well beyond the boundaries of the current project area and would not be disturbed as a result of the proposed undertaking. According to the THC's TASA, no prior cultural resources surveys have been conducted within the project area.

Examination of historical US Geological Survey (USGS) maps dating from 1950 to present and aerial photographs dating from 1967 to present indicate that no structures of historic age have been present within the project area. Prior to 1975, the project area remained an undeveloped woodland.

While aboriginal cultural resources are commonly encountered in deep alluvial sediments adjacent to major streams in Central Texas, the relative antiquity of the pre-Holocene-age uplands and soils that characterize the project area suggests that any cultural resources would be constrained to the modern ground surface or in shallowly buried, disturbed contexts that lack integrity. Intact, buried aboriginal archeological deposits may occur within alluvial sediments near major streams, though no Holocene-age alluvial sediments are mapped within the project area. Historic-age cultural resources may be encountered in virtually any physiographic setting but are most common in urban settings and in rural environments suitable for agriculture. The absence of historic-age structures within the project area on historical imagery suggests that the project area has low potential to contain historic-age architectural or archeological resources.

SENSITIVE ARCHEOLOGICAL SITE LOCATION INFORMATION OMITTED

Figure 5. Locations of Known Cultural Resources within 1.0 Mile of Project Area

Table 2. Summary of Known Cultural Resources within 1.0 Mile of Project Area

Site No./Name	Site Type	NRHP/SAL Eligibility Status[1]	Distance/Direction from Project Area	Potential to be Impacted by Project?
Archeological Sites				
41BP47	Historic-age homestead (Roger Coleman House) (early to mid-19th century)	Undetermined	0.7 mile northeast	No
41BP88	Aboriginal campsite (Middle to Late Archaic)	Designated as SAL	260.0 feet northeast	No
41BP286	Aboriginal lithic scatter (undetermined prehistoric)	Determined ineligible	0.9 mile north-northeast	No
41BP444	Aboriginal lithic scatter (undetermined prehistoric)	Designated as SAL	0.8 mile northeast	No
41BP450	Aboriginal campsite (undetermined prehistoric)	Undetermined	1.0 mile north	No
41BP451	Historic-age homestead (early 20th century)	Undetermined	0.6 mile northeast	No
41BP452	Aboriginal lithic artifact (undetermined prehistoric); Historic-age log structure (mid- to late 19th century)	Determined ineligible	0.5 mile northeast	No
41BP455	Aboriginal campsite (undetermined prehistoric)	Designated as SAL	0.4 mile north	No
41BP456	Aboriginal lithic scatter (undetermined prehistoric)	Undetermined	0.4 mile east	No
41BP457	Aboriginal lithic scatter (undetermined prehistoric)	Determined ineligible	0.1 mile east	No
41BP459	Aboriginal lithic scatter (undetermined prehistoric)	Determined ineligible	0.3 mile east	No
41BP460	Aboriginal lithic scatter (undetermined prehistoric)	Determined ineligible	0.7 mile northeast	No
41BP461	Aboriginal lithic scatter (undetermined prehistoric)	Determined ineligible	0.7 mile northeast	No
41BP462	Aboriginal lithic scatter (undetermined prehistoric)	Undetermined (determined eligible and ineligible at different times)	0.6 mile northeast	No
41BP463	Aboriginal campsite (undetermined prehistoric)	Designated as SAL	0.6 mile northeast	No
41BP464	Aboriginal lithic scatter (undetermined prehistoric)	Undetermined (determined eligible and ineligible at different times)	0.7 mile northeast	No

Table 2. Summary of Known Cultural Resources within 1.0 Mile of Project Area (cont.)

Site No./Name	Site Type	NRHP/SAL Eligibility Status[1]	Distance/Direction from Project Area	Potential to be Impacted by Project?
Archeological Sites (cont.)				
41BP634	Aboriginal lithic scatter (raw material quarry) (undetermined prehistoric)	Determined ineligible	0.9 mile northwest	No
41BP661	Aboriginal campsite (undetermined prehistoric)	Determined ineligible	1.0 mile east	No
41BP675	Aboriginal campsite (undetermined prehistoric)	Determined ineligible	0.7 mile east-southeast	No
41BP680	Aboriginal campsite (undetermined prehistoric)	Determined ineligible	0.5 mile northeast	No
41BP681	Aboriginal campsite (undetermined prehistoric)	Undetermined	0.8 mile east-southeast	No
41BP688	Aboriginal lithic scatter (undetermined prehistoric); Historic-age artifact scatter (late 19th to early 20th centuries)	Undetermined	1.0 mile northeast	No
41BP815	Aboriginal lithic scatter (raw material quarry) (undetermined prehistoric)	Determined ineligible	0.3 mile northwest	No

[1] *Determined eligible/ineligible* = Site determined eligible/ineligible by SHPO
Recommended eligible/eligible = Site recommended as eligible/ineligible by site recorder and/or sponsoring agency but eligibility has not been determined by SHPO
Undetermined = Eligibility not assessed or no information available

NRHP National Register of Historic Places

SAL State Antiquities Landmark

SHPO State Historic Preservation Office

5.0 SURVEY METHODOLOGY

On October 9, 2020, Horizon archeologists Mckinzie Froese and Jacob Lyons, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources survey of the project area to locate any cultural resources that potentially would be impacted by the proposed undertaking. Horizon's archeologists traversed the project area and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. The project area is moderately densely wooded with cedar and live oak trees with a moderately dense understory of various grasses, weeds, and brambles. Decomposing limestone bedrock gravels were observed on the modern ground surface in portions of the project area. Three modern residential complexes constructed between 1975 and 1995 are present in the northeastern half of the project area. Overstory vegetation surrounding the complexes has been largely cleared, an artificial stock pond has been created behind the westernmost of the residences, and a network of gravel driveways and two-track roads winds through the project area. Visibility of the modern ground surface was generally poor due to dense vegetative ground cover (<30%). Representative photographs of the project area are presented in Figures 6 to 9.

In addition to pedestrian walkover, the Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of two shovel tests per 0.4 hectare (1.0 acre) for project areas between 1.2 and 4.0 hectares (3.0 and 10.0 acres) in size; as such, a total of 37 shovel tests would be required within the 7.4-hectare (18.4-acre) project area. Horizon excavated 38 shovel tests during the survey, thereby meeting the TSMASS for a project area of this size. (Figure 10). Shovel tests generally measured 30.0 centimeters (11.8 inches) in diameter and were excavated to a target depth of 1.0 meter (3.3 feet) below surface, to the top of pre-Holocene deposits, or to the maximum depth practicable. All sediments were screened through 6.35-millimeter (mm) (0.25-inch) hardware cloth. Standard shovel test logs were completed for each shovel test describing the location, strata, soil texture and color, archeological materials (if present), and any unusual characteristics of the surrounding landscape. The Universal Transverse Mercator (UTM) coordinates of all shovel tests were determined using Collector for ArcGIS real-time data collection devices based on the North American Datum of 1983 (NAD 83). Shovel testing revealed that sediments in the project area typically consist of shallow, gravelly silty loam sediments overlying dense, very gravelly, generally mottled clay sediments at depths ranging from 5.0 to 45.0 centimeters (2.0 to 17.7 inches) below surface, though this transition typically occurred at depths of 20.0 to 30.0 centimeters (7.9 to 11.8 inches) below surface. Dense deposits of rolled stream gravels or bedrock were encountered in some shovel tests. It is

Figure 6. Overview of Northeastern Portion of Project Area (Facing North)

Figure 7. Overview of Eroded Central Portion of Project Area (Facing Northeast)

Figure 8. Partially Cleared Southwestern Portion of Project Area (Facing Southeast)

Figure 9. View of Two-Track Road in Southern Portion of Project Area (Facing North)

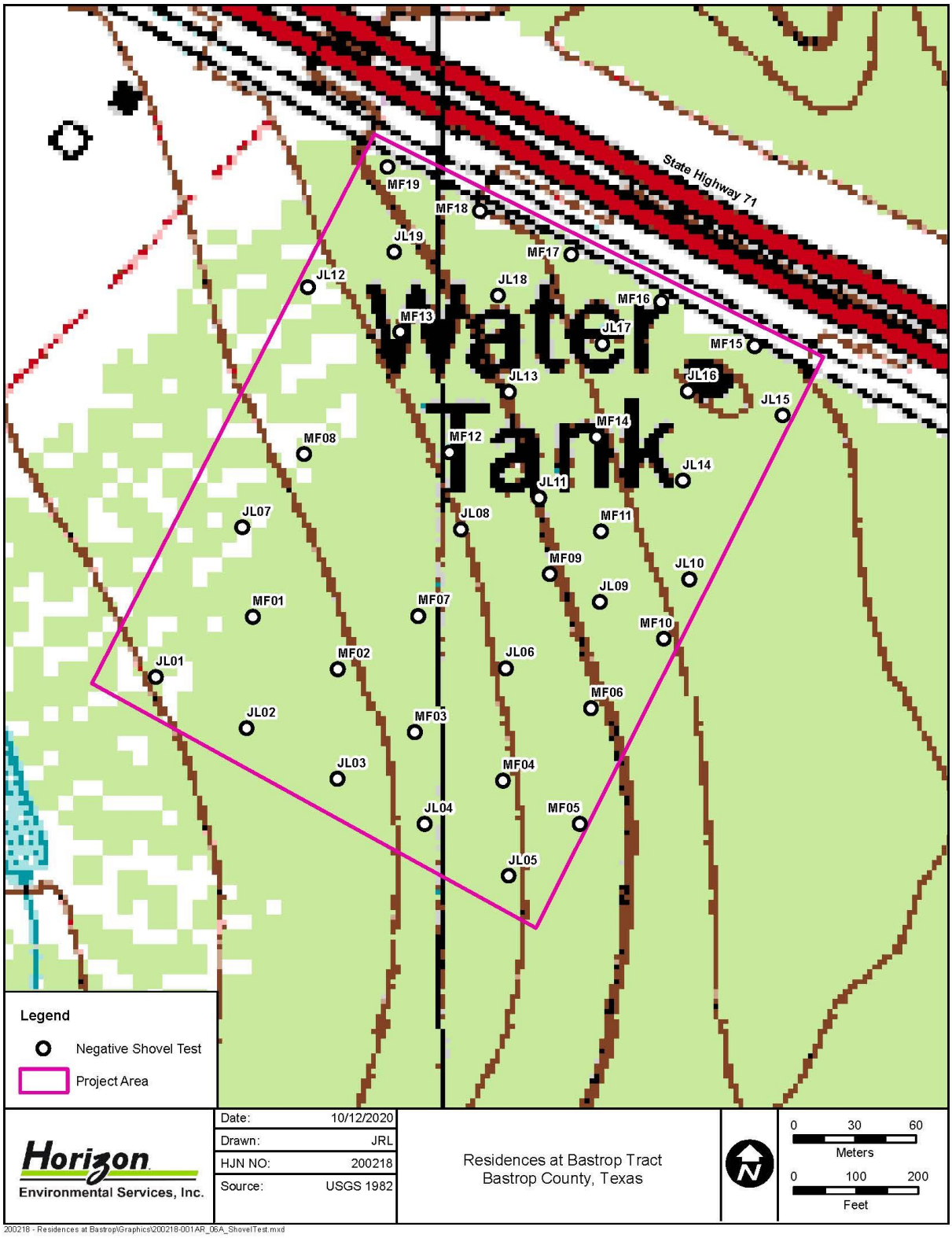

Figure 10. Locations of Shovel Tests Excavated in Project Area

Horizon's opinion that shovel testing was capable of fully penetrating sediments with the potential to contain archeological deposits. Specific shovel test data for all 38 shovel tests excavated during the survey are summarized in Appendix A.

During the survey, field notes were maintained on terrain, vegetation, soils, landforms, survey methods, and shovel test results. Digital photographs were taken, and a photographic log was maintained. Horizon employed a non-collection policy for cultural resources. Diagnostic artifacts (e.g., projectile points, ceramics, historic materials with maker's marks) and non-diagnostic artifacts (e.g., lithic debitage, burned rock, historic glass, and metal scrap) were to be described, sketched, and/or photo-documented in the field and replaced in the same location in which they were found. As no cultural resources were observed during the survey, the collection policy was not enacted.

The survey methods employed during the survey represented a "reasonable and good-faith effort" to locate significant archeological sites within the project area as defined in 36 Code of Federal Regulations (CFR) 800.3.

6.0 RESULTS OF INVESTIGATIONS

Three modern residential complexes are present within the northeastern half of the project area. The western complex consists of a house, a cabana adjacent to a swimming pool, a chicken coop and shed, and a large stock pond (Figures 11 to 15). The western complex of structures was constructed between 1985 and 1995 (NETR 2020). The central complex consists of a mobile home and an adjacent shed (Figure 16). Inspection of historical imagery indicates the mobile home was constructed between 1967 and 1981, and examination of construction materials further refines the date of construction to ca. 1980 (NETR 2020). The eastern residential complex consists of a house, an aluminum shed, a water tank, and a small, pentagonal basketball court (Figures 17 to 19). Inspection of historical imagery indicates the eastern complex was constructed between 1967 and 1981, and examination of construction materials and styles further refines the date of construction between 1975 and 1980 (NETR 2020).

Figure 11. View of Modern Western Residence and Asphalt Driveway (Facing Southeast)

Figure 12. View of Modern House on Western Residence (Facing North)

Figure 13. View of Modern Cabana and Pool on Western Residence (Facing Northwest)

Figure 14. View of Chicken Coop and Shed near Western Residence (Facing West)

Figure 15. View of Stock Pond Behind Western Residence (Facing Northeast)

Figure 16. View of Modern Mobile Home on Central Residence (Facing Northeast)

Figure 17. View of Modern House on Eastern Residence (Facing East-Northeast)

Figure 18. View of Modern Aluminum-Sided Garage on Eastern Residence (Facing North)

Figure 19. Concrete Basketball Court North of Eastern Residence (Facing Northeast)

No cultural resources of prehistoric or historic age were observed on the modern ground surface or within any of the shovel tests excavated during the survey within the project area. No standing structures of historic age are present within the project area or on adjacent parcels.

7.0 SUMMARY AND RECOMMENDATIONS

7.1 CONCEPTUAL FRAMEWORK

The archeological investigations documented in this report were undertaken with three primary management goals in mind:

- Locate all historic and prehistoric archeological resources that occur within the designated survey area.
- Evaluate the significance of these resources regarding their potential for inclusion in the NRHP.
- Formulate recommendations for the treatment of these resources based on their NRHP evaluations.

At the survey level of investigation, the principal research objective is to inventory the cultural resources within the project area and to make preliminary determinations of whether or not the resources meet one or more of the pre-defined eligibility criteria set forth in the state and/or federal codes, as appropriate. Usually, management decisions regarding archeological properties are a function of the potential importance of the sites in addressing defined research needs, though historic-age sites may also be evaluated in terms of their association with important historic events and/or personages. Under the NHPA, archeological resources are evaluated according to criteria established to determine the significance of archeological resources for inclusion in the NRHP.

Analyses of the limited data obtained at the survey level are rarely sufficient to contribute in a meaningful manner to defined research issues. The objective is rather to determine which archeological sites could be most profitably investigated further in pursuance of regional, methodological, or theoretical research questions. Therefore, adequate information on site function, context, and chronological placement from archeological and, if appropriate, historical perspectives is essential for archeological evaluations. Because research questions vary as a function of geography and temporal period, determination of the site context and chronological placement of cultural properties is a particularly important objective during the inventory process.

7.2 ELIGIBILITY CRITERIA FOR INCLUSION IN THE NATIONAL REGISTER OF HISTORIC PLACES

Determinations of eligibility for inclusion in the NRHP are based on the criteria presented in 36 CFR §60.4(a-d). The four criteria of eligibility are applied following the identification of relevant historical themes and related research questions:

> The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> a. [T]hat are associated with events that have made a significant contribution to the broad patterns of our history; or,
>
> b. [T]hat are associated with the lives of persons significant in our past; or,
>
> c. [T]hat embody the distinctive characteristics of a type, period, or method of construction, or that represent a significant and distinguishable entity whose components may lack individual distinction; or,
>
> d. [T]hat have yielded, or may be likely to yield, information important in prehistory or history.

The first step in the evaluation process is to define the significance of the property by identifying the particular aspect of history or prehistory to be addressed and the reasons why information on that topic is important. The second step is to define the kinds of evidence or the data requirements that the property must exhibit to provide significant information. These data requirements in turn indicate the kind of integrity that the site must possess to be significant. This concept of integrity relates both to the contextual integrity of such entities as structures, districts, or archeological deposits and to the applicability of the potential database to pertinent research questions. Without such integrity, the significance of a resource is very limited.

For an archeological resource to be eligible for inclusion in the NRHP, it must meet legal standards of eligibility that are determined by three requirements: (1) properties must possess significance, (2) the significance must satisfy at least one of the four criteria for eligibility listed above, and (3) significance should be derived from an understanding of historic context. As discussed here, historic context refers to the organization of information concerning prehistory and history according to various periods of development in various times and at various places. Thus, the significance of a property can best be understood through knowledge of historic development and the relationship of the resource to other, similar properties within a particular period of development. Most prehistoric sites are usually only eligible for inclusion in the NRHP under Criterion D, which considers their potential to contribute data important to an understanding of prehistory. All four criteria employed for determining NRHP eligibility potentially can be brought to bear for historic sites.

7.3 SUMMARY OF INVENTORY RESULTS

On October 9, 2020, Horizon archeologists Mckinzie Froese and Jacob Lyons, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural

resources survey of the project area to locate any cultural resources that potentially would be impacted by the proposed undertaking. Horizon's archeologists traversed the project area and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. The project area is moderately densely wooded with cedar and live oak trees with a moderately dense understory of various grasses, weeds, and brambles. Decomposing limestone bedrock gravels were observed on the modern ground surface in portions of the project area. Three modern residential complexes constructed between 1975 and 1995 are present in the northeastern half of the project area. Overstory vegetation surrounding the complexes has been largely cleared, an artificial stock pond has been created behind the westernmost of the residences, and a network of gravel driveways and two-track roads winds through the project area. Visibility of the modern ground surface was generally poor due to dense vegetative ground cover (<30%

In addition to pedestrian walkover, the TSMASS require a minimum of two shovel tests per 0.4 hectare (1.0 acre) for project areas between 1.2 and 4.0 hectares (3.0 and 10.0 acres) in size; as such, a total of 37 shovel tests would be required within the 7.4-hectare (18.4-acre) project area. Horizon excavated 38 shovel tests during the survey, thereby meeting the TSMASS for a project area of this size. The pedestrian survey and shovel testing revealed that sediments in the project area typically consist of shallow, gravelly silty loam sediments overlying dense, very gravelly, generally mottled clay sediments at depths ranging from 5.0 to 45.0 centimeters (2.0 to 17.7 inches) below surface, though this transition typically occurred at depths of 20.0 to 30.0 centimeters (7.9 to 11.8 inches) below surface. Dense deposits of rolled stream gravels or bedrock were encountered in some shovel tests. It is Horizon's opinion that shovel testing was capable of fully penetrating sediments with the potential to contain archeological deposits.

No cultural resources of prehistoric or historic age were observed on the modern ground surface or within any of the shovel tests excavated during the survey. Three modern residential complexes are present within the project area. These complexes were built between 1975 and 1995, and historical imagery indicates the project area was entirely undeveloped prior to 1970. No standing structures of historic age are present within the project area or on adjacent parcels.

7.4 MANAGEMENT RECOMMENDATIONS

Based on the results of the survey-level investigations documented in this report, no significant cultural resources would be affected by the proposed undertaking. In accordance with 36 CFR 800.4, Horizon has made a reasonable and good-faith effort to identify historic properties within the project area. No cultural resources were identified that meet the criteria for inclusion in the NRHP according to 36 CFR 60.4, and Horizon recommends a finding of "no historic properties affected" for the proposed undertaking. No further archeological or historical investigations are recommended in connection with the proposed undertaking. However, it should be noted that human burials are protected under the Texas Health and Safety Code. In the event that any human remains or burial objects are inadvertently discovered at any point during construction, use, or ongoing maintenance in the project area, even in previously surveyed areas, all work should cease immediately at the location of the inadvertent discovery until a qualified archeologist can assess the find, and the THC should be notified of the discovery.

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APPENDIX A:

Shovel Test Data

Table A-1. Shovel Test Summary Data

ST No.	UTM Coordinates[1]		Depth (cmbs)	Soils	Artifacts
	Easting	Northing			
JL01	647832	3334767	0-25	Dark brown silty loam	None
			25-45	Grayish-brown silty clay loam	None
			45-55+	Dense pale brown silty clay	None
JL02	647877	3334742	0-30	Dark brown silty loam	None
			30-40+	Dark gray clay with FeO_2 staining	None
JL03	647922	3334718	0-15	Rocky pale brown silty loam	None
			15-30+	Dense, rocky very dark gray clay with FeO_2 staining	None
JL04	647964	3334695	0-15	Rocky pale grayish-brown silty loam	None
			15-30+	Rocky, dense very dark gray clay with FeO_2 staining	None
JL05	648006	3334670	0-20	Rocky Pale brown silty loam	None
			20-30+	Dense, rocky very dark gray clay with FeO_2 staining	None
JL06	648004	3334772	0-30	Rocky pale reddish-brown silty loam	None
			30-40+	Stream cobbles and gravels	None
JL07	647875	3334841	0-10	Pale grayish-brown silty loam	None
			10-30+	Mottled dark gray and reddish-brown clay with FeO_2 staining	None
JL08	647982	3334840	0-5	Very gravelly reddish-brown silty loam	None
			5-10+	Stream cobbles/gravels	None
JL09	648051	3334804	0-10	Rocky pale reddish-brown silty loam	None
			10-20+	Stream cobbles and gravels	None
JL10	648094	3334815	0-5	Gravelly dark reddish-brown silty clay	None
			5-15+	Very dense very dark red clay	None
JL11	648021	3334855	0-10	Gravelly pale reddish-brown silty loam	None
			10-30+	Very dense very dark red clay	None
JL12	647907	3334959	0-15+	Very dense mottled yellowish-brown, dark gray, and red silty clay (disturbed)	None
JL13	648006	3334907	0-50	Gravelly very pale brown silty loam with yellowish-orange silty loam streaking	None
			50+	Bedrock	None
JL14	648091	3334864	0-5	Gravelly reddish-brown silty loam	None
			5+	Stream cobbles and gravels	None

Table A-1. Shovel Test Summary Data (cont.)

ST No.	UTM Coordinates[1]		Depth (cmbs)	Soils	Artifacts
	Easting	Northing			
JL15	648140	3334896	0-30	Rocky pale gray very silty loam	None
			30-40+	Stream cobbles and gravels	None
JL16	648094	3334908	0-10	Very rocky grayish-brown silty loam	None
			10-15+	Stream cobbles and gravels	None
JL17	648052	3334931	0-10	Rocky reddish-brown silty loam	None
			10-15+	Stream cobbles and gravels	None
JL18	648001	3334955	0-20	Rocky pale reddish-brown silty loam	None
			20-30+	Stream cobbles and gravels	None
JL19	647950	3334976	0-20	Rocky pale brown silty loam	None
			20-30+	Dense, rocky, mottled very dark gray and orange silty clay	None
MF01	647880	3334797	0-15	Dark grayish-brown silty loam	None
			15-30+	Very compact pale brownish-gray silty clay with ironstone gravels	None
MF02	647922	3334771	0-15	Dark grayish-brown silty loam	None
			15-30+	Very compact pale brown silty clay with ironstone gravels	None
MF03	647960	3334740	0-15	Brownish-gray silty loam with ironstone gravels	None
			15-25+	Very compact, mottled brown and pale brown silty clay with heavy ironstone gravels	None
MF04	648003	3334717	0-15	Brownish-gray silty loam with ironstone gravels	None
			15-30+	Very compact, mottled brown and pale brown silty clay with heavy ironstone gravels	None
MF05	648041	3334695	0-10	Brownish-gray silty loam with ironstone gravels	None
			10-30+	Very compact, mottled brown and pale brown silty clay with heavy ironstone gravels	None
MF06	648046	3334752	0-10	Reddish-brown fine silty loam	None
			10-20	Dark reddish-brown silty clay loam with heavy ironstone gravels	None
			20-30+	Pale brown fine silty clay with heavy ironstone gravels	None
MF07	647961	3334797	0-25	Light brown silty loam	None

Table A-1. Shovel Test Summary Data (cont.)

ST No.	UTM Coordinates[1]		Depth (cmbs)	Soils	Artifacts
	Easting	Northing			
			25+	Rocky, very dark gray clay with heavy FeO_2 staining	None
MF08	647905	3334877	0-20+	Very compact, mottled brown and yellowish-brown silty clay with heavy FeO_2 staining	None
MF09	648026	3334818	0-3+	Extremely compact, gravelly reddish-brown sandy clay	None
MF10	648082	3334786	0-10+	Extremely gravelly/cobbly reddish-brown silty loam	None
MF11	648051	3334839	0-10	Grayish-brown fine silty loam	None
			10-25	Yellowish-brown silty clay loam	None
			25+	Gravels and cobbles	None
MF12	647977	3334878	0-15	Light grayish-brown fine silty loam	None
			15-30	Pale brownish-gray fine silty loam with heavy gravels	None
			30+	Heavy gravels and cobbles	None
MF13	647952	3334937	0-15	Brown fine silty loam	None
			15-55	Pale grayish-brown fine silt with heavy gravels	None
			55+	Heavy gravels and cobbles	None
MF14	648049	3334885	0-10	Pale reddish-brown silty loam with heavy gravels	None
			10-25+	Reddish-brown clay with heavy gravels	None
MF15	648126	3334930	0-10+	Reddish-brown silty loam with heavy gravels and cobbles	None
MF16	648081	3334952	0-17	Pale brownish-gray silty loam with heavy gravels	None
			17+	Heavy gravels and cobbles	None
MF17	648036	3334975	0-20	Grayish-brown silty loam with heavy gravels	None
			20-30+	Dense, mottled very dark gray clay with FeO_2 staining	None
MF18	647992	3334996	0-20	Grayish-brown silty clay loam with heavy gravels	None
			20+	Dense, mottled very dark gray clay with FeO_2 staining	None
MF19	647946	3335018	0-5+	Brownish-gray silt with heavy gravels and cobbles	None

[1] All UTM coordinates are located in Zone 14 and utilize the North American Datum of 1983 (NAD 83).
cmbs = Centimeters below surface
FeO_2 = Iron oxide
ST = Shovel test
UTM = Universal Transverse Mercator