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Intensive Archeological Survey for the Proposed City of Pflugerville Carmel-Sorento Interceptor Line and Force Main Relocation, Travis County, Texas

Haley Rush

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INTENSIVE ARCHEOLOGICAL SURVEY FOR THE PROPOSED CITY OF PFLUGERVILLE CARMEL-SORENTO INTERCEPTOR LINE AND FORCE MAIN RELOCATION, TRAVIS COUNTY, TEXAS

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For
The City of Pflugerville
100 East Main Street
Pflugerville, TX 78691

Under
Texas Antiquities Permit 7397

Cox|McLain Environmental Consulting, Inc. Archeological Report 107
(CMEC-AR-107)

COX | McLAIN
Environmental Consulting

December 15, 2015

Management Summary

In August and September 2015, an intensive archeological survey was completed in order to inventory and evaluate archeological resources within the footprint of proposed wastewater improvements east of Pflugerville in northern Travis County, Texas. The proposed improvements would occur along segments of two separate lines: an interceptor line and a re-routed segment of a previously analyzed force main line. The archeological area of potential effects (APE) includes the footprints of both segments, which cover a total area of approximately 6.2 hectares (ha) or 15.4 acres (ac). The interceptor line is approximately 2 miles or 3.2 kilometers (km) long and the re-routed segment of the force main line is approximately 0.5 miles or 0.8 km long. The typical width of the APE is 15 meters (m) or 50 feet (ft); this includes the force main and the interceptor location, maintenance roadways, and temporary easements. The work was carried out for the City of Pflugerville under Texas Antiquities Permit 7397 by Haley Rush and David Sandrock of Cox|McLain Environmental Consulting, Inc. (CMEC), a subcontractor to K. Friese and Associates.

Ground surface visibility within the APE was mixed; it was between 0 and 50 percent across approximately one-third of the project area near Wilbarger Creek, and at or near 100 percent for the remainder, which is located on active agricultural fields. Twenty shovel tests were excavated along the APE, concentrated above Wilbarger Creek and areas where ground surface visibility fell below 50 percent. None of the shovel tests were positive for cultural material. A few lithics and historic glass and ceramic artifacts were noted near the western terminus of the APE. Previously recorded site 41TV2453 is located approximately 80 m or 262 ft north of the area where the lithics, glass, and ceramics were noted. This sparse artifact scatter was recorded as a revisit to site 41TV2453 and the boundaries were extended. Two shovel tests were excavated near the artifacts to test for any subsurface deposits, but both were negative. There is a historic-age house located between the previously recorded boundary for 41TV2453 and the boundary recorded for this study. The Pfluger Cemetery is located 50 m north of the APE near its eastern terminus; the cemetery is well marked and the burials are well documented. The current APE has very low probability for burials associated with this cemetery.

In addition to the historic-age residence near 41TV2453, there were numerous other historic-age buildings noted from the APE. No materials from those buildings were present in the APE. No further work is recommended within the APE prior to construction.

As the artifacts recovered from site 41TV2453 within the project boundary were from poor context, it was determined that the site's characteristics would not contribute to National Register of Historic Places (NRHP) or State Antiquities Landmark (SAL) eligibility for that portion of the site contained within the APE. Statements about NRHP/SAL eligibility for prehistoric or historic components outside the APE cannot be made at this time, so the overall eligibility of the site remains unknown. None of the other historic-age buildings visible from the APE will be directly impacted by the construction of the pipeline and no materials from those buildings were noted in the APE.

If any unanticipated discoveries of burials or archeological materials, deposits, or features are made during construction, work should halt immediately and the Archeology Division of the Texas Historical Commission should be contacted.

No materials were collected; therefore, this project generated no archeological materials to be curated. Notes, forms, and other project data will be made permanently available to future researchers at the Center for Archaeological Studies (CAS) at Texas State per TAC 26.16 and 26.17. The Texas Historical

Commission (THC) concurred with the findings and recommendations of this report on November 18, 2015 (see Appendix A).

INTENSIVE ARCHEOLOGICAL SURVEY FOR THE PROPOSED CITY OF PFLUGERVILLE CARMEL-SORENTO INTERCEPTOR LINE AND FORCE MAIN RELOCATION, TRAVIS COUNTY, TEXAS

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1.0 Introduction

Overview of the Project

The City of Pflugerville proposes wastewater improvements from just east of Weiss Lane toward the confluence of two branches of Wilbarger Creek in Travis County, Texas (**Figure 1**). The proposed project includes two separate and non-contiguous project areas. One area is for the installation of an interceptor line that runs roughly east-west, generally paralleling Wilbarger Creek east of Weiss Lane that will convey wastewater to the new Carmel-Sorento Lift Station (to be located above Wilbarger Creek); the second area is for a re-routed segment of the Carmel-Sorento Force Main (**Figure 1**).

The archeological area of potential effects (APE) will include the footprints of both segments, which covers an area of approximately 6.2 hectares (ha) or 15.4 acres (ac). The interceptor line is approximately 2 miles or 3.2 kilometers (km) long and the re-routed segment of the force main line is approximately 0.5 miles or 0.8 km long. The typical width of the APE is 15 meters (m) or 50 feet (ft); this includes the force main and the interceptor location, maintenance roadways, and temporary easements.

The project is being undertaken and funded by the City of Pflugerville, a political subdivision of the State of Texas, rendering the project subject to the Antiquities Code of Texas (9 TNRC 191). No federal nexus is currently known.

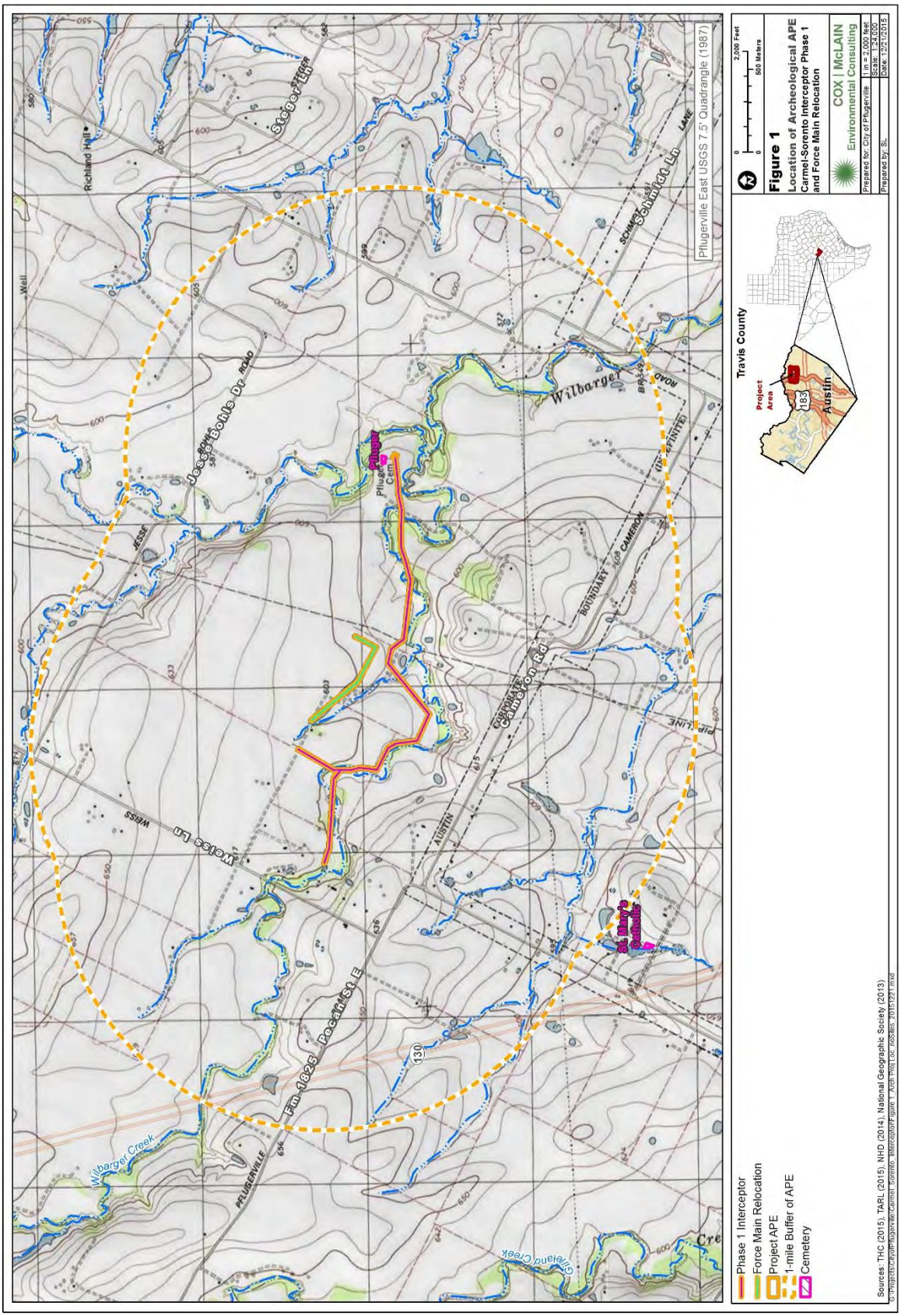
Methodological and Logistical Considerations

Haley Rush (Principal Investigator) and David Sandrock of Cox|McLain Environmental Consulting, Inc. (CMEC) performed the fieldwork for this project in August and September 2015. The weather was hot and humid, but no major logistical difficulties were encountered. Shovel test units were placed judgmentally within the APE based on observed disturbance levels and guidelines established by the Council of Texas Archeologists (CTA) and approved by the Texas Historical Commission (THC). The methods employed during this study and relevant constraints are discussed further in Chapters Three and Four.

Per the approved scope of Texas Antiquities Permit 7397, a no-collection policy was in effect during the investigation, which took place on private land. Therefore, this project generated no archeological materials to be curated. All notes, photographs, and other pertinent records will be made permanently available to future researchers at the Center for Archaeological Studies (CAS) at Texas State per TAC 26.16 and 26.17.

Structure of the Report

Following this introduction, Chapter Two presents environmental parameters, a brief cultural context, and a summary of previous archeological research near the APE; Chapter Three discusses research goals, relevant methods, and the underlying regulatory considerations; Chapter Four presents the results of the survey and summarizes the implications of the investigations, and references are in Chapter Five.


Pflugerville East USGS 7.5' Quadrangle (1987)
Richland Hill
Seeger Rd
Schmidt Ln
Wilbarger
Jesse Bohls Dr
Pflugerville Cem
Cameron Rd
Weiss Ln
Fm 1825
Pecan St E
St. Mary's Catholic
Wilbarger Creek
Gilleland Creek
Travis County
Project Area
Austin
183
130
Phase 1 Interceptor
Force Main Relocation
Project APE
1-mile Buffer of APE
Cemetery
0 2,000 Feet
0 500 Meters
Figure 1
Location of Archeological APE
Carmel-Sorento Interceptor Phase 1
and Force Main Relocation
COX | McLAIN
Environmental Consulting
Prepared for: City of Pflugerville
1 in = 2,000 feet
Scale: 1:24,000
Prepared by: SL
Date: 12/21/2015
Sources: THC (2015), TARL (2015), NHD (2014), National Geographic Society (2013)
C:\Projects\Cityofpflugerville\Carmel_Sorento_Interceptor\figure1_Arch_Proj_Loc_mxdSec 20151221.mxd

2.0 Environmental and Cultural Context

Topography, Geology, Soils, and Land Use

The APE is located at approximate elevations of 174-182 m (572-600 ft) above mean sea level in Central Texas (**Figure 1**). The APE generally follows Wilbarger Creek and crosses it four times. The easternmost portion of the APE terminates above a confluence of Wilbarger Creek and one of its unnamed tributaries.

The APE is geologically underlain by Cretaceous-age Navarro and Taylor Groups undivided (USGS 2015). These formations are characterized as mostly silty, calcareous clay, with sandstone beds with some occurrences of limestone. According to Natural Resources Conservation Service (NRCS) data, the soils mapped in the project area include frequently flooded Tinn clay on 0 to 1 percent slopes, eroded Heiden clay on 3 to 5 percent slopes, and Houston Black clay on 1 to 3 percent slopes (NRCS 2015). The APE as a whole does not have high potential for deeply buried archeology despite the deep profiles of these soil map units. In this topographic and geomorphic setting, the zones of deeper soils such as Houston Black are generally on stable uplands, and this portion of Wilbarger Creek is incised into limestone bedrock, with little to no Holocene alluvial terrace and floodplain development.

Archeological Chronology for Central Texas

The APE lies within the Central Texas archeological region, which is based—like most spatial constructs used to classify past cultural groups—on a combination of archeological patterns and geologic, geographic, climatic, pedologic, and other environmental factors (Perttula 2004). Here the region is understood to include the eastern half of the Edwards Plateau, the Llano Uplift, and the portion of the Blackland Prairie that borders the Balcones Escarpment (Black 1989; Collins 2004; Prewitt 1981). As with all archeological regions, which are interpretive devices, the applicability of these boundaries may vary across periods.

Central Texas is generally considered to have a high probability for prehistoric archeological sites and materials, due in large part to the suitability of native Edwards Plateau chert—typically found as large cobbles within limestone beds—for toolmaking. The region contains thousands of chert quarrying and tool-production sites, some hundreds of acres in size (THC 2015). In addition to a rich expression of chipped stone toolmaking, the region is characterized by the near ubiquity of burned rock middens (Black 1989; Collins 2004).

Creating a chronology for Central Texas has long been the primary focus of archeology in the region and has been based largely on linking projectile point types to dated materials, with considerable variability in the quality of the absolute dates used. Examples of chronologies, revisions to chronologies, and critiques of chronologies include Carpenter and Houk 2012; Collins 2004; Johnson 1987; Prewitt 1981; Prewitt 1985; and Suhm 1960.

Following the development of chronologies based on projectile points and their associations with often unreliably dated materials, contemporary studies (from the 1990s to the present) have attempted to gather more controlled and suitable samples for precise and accurate radiocarbon dating (Collins 2004; Lohse et al. 2014). Precise chronologies are of particular importance when attempting to document periods of rapid change or punctuated cultural adaptations.

Despite the distinctiveness of Central Texas burned rock middens and lithic technology, the archeological chronology typically used in the region is broadly similar to that used in the rest of Texas, and indeed throughout North America, with the first well-established human occupations occurring in the Paleoindian Period approximately 11,500 radiocarbon years before present (BP), or approximately 13,000 calendar years ago (see **Table 1**).

Table 1: Archeological Chronology for Central Texas*

Period	Years Before Present (BP)**
Paleoindian	11,500 – 8,800
Early	11,500 – 10,000
Late	10,000 – 8,800
Archaic	8,800 – 1,200
Early	8,800 – 6,000
Middle	6,000 – 4,000
Late	4,000 – 1,200
Late Prehistoric	1,200 – 400
Early (Austin Phase)	1,200 – 800
Late (Toyah Phase)	800 – 400
Historic	400 – 50

* After Collins 2004: 113, Figure 3.9a.
** Based on uncalibrated radiocarbon dates, typically used in earlier archeological chronology building in Texas (see Perttula 2004:14, Note 1).

Paleoindian artifacts and sites are common in Central Texas. The association of Paleoindian artifacts (i.e., Folsom and Clovis points) with mammoth remains led to the characterization of these people as big game hunters (Collins 2004). However, that notion is rapidly changing to a more nuanced view that Paleoindian people were more generalized hunter-gatherers with specialized technology at their disposal to allow for the hunting of big game.

The bulk of the prehistoric record is contained within a long Archaic Period, with recently proposed Archaic sub-periods given in **Table 2**. The Archaic is differentiated from the Paleoindian Period by increased hunting and gathering of locally available resources, diversity of material culture, and the widespread use of heated rocks for cooking, creating the classic Central Texas burned rock midden (Black 1989; Black 1998; Collins 2004; Prewitt 1981).

Recently, Lohse et al. (2014) have assessed and reinterpreted radiocarbon assays from numerous Central Texas sites in order to refine the Archaic. Lohse and colleagues used 85 radiocarbon dates associated with 16 selected point types from 28 sites, 27 of which are located along the Balcones Escarpment. The most represented of the 16 point types included are Calf Creek, Early Triangular, Pedernales, Ensor, Darl, and Scallorn. Broadly, portions of the revised chronology agree with the chronology presented in **Table 1** (albeit with slightly more precision). There are a few notable

exceptions apparent in **Table 2**, which shows Lohse and colleagues' proposed revision of sub-periods within the Archaic, and discussed in the text below.

Table 2: Revised Archaic Chronology for Central Texas*

Archaic Sub-Period	Years Before Present (BP)**
Calf Creek (Terminal Early Archaic)	5955 – 5815
Middle Archaic	5800 – 4200/4100
Late Archaic 1	4200/4100 – 3100
Late Archaic 2	3100 – 2150
Late Archaic 3	2150 – 1270
Late Archaic 4 (Terminal Late Archaic or Austin Phase)	1270 – 650

* After Lohse, Black, and Cholak 2014
** Based on calibrated radiocarbon dates from wood charcoal and treated bison remains; only assays that are reliably associated with projectile point were used

The most notable difference is the division of the Late Archaic Phase into four parts, the latter of which corresponds roughly to the earliest part of the Late Prehistoric Period (i.e., the Austin Phase). Lohse et al. (2014) propose this new term because the cultural expressions of this period are more similar to earlier expressions than later ones.

During the Late Prehistoric Period (or Terminal Late Archaic to Lohse et al. 2014), hunting and gathering continue, but during the latter portion of the Late Prehistoric, a distinct shift in material culture occurs. The new assemblage has been dubbed Toyah (Arnn 2012; Kenmostu and Boyd 2012b). Documented changes in material culture include Perdiz arrow points, beveled bifacial knives, unifacial scrapers, pottery (the first time ceramics appear in Central Texas), and bison remains. The change in lithic technology at this time and the presence of bison remains at many archeological sites suggest that the material culture change was brought about by the appearance (or increased presence, or perhaps merely increased utilization) of bison, possibly indicating a focus on this one particularly high-ranked resource. However, this notion of Toyah as specialized bison hunters and the change in material culture being tied to the presence of bison in Central Texas has been called into question. There is much archeological evidence demonstrating that although bison remains are present at numerous Toyah sites, there is still use of other technologies (i.e., hot-rock cooking) and other resources (i.e., deer, small mammal, plants, and seeds). This suggests Toyah people continued to exploit the rich environment of Central Texas, while adapting their technology to take advantage of a resource available in greater density that the preceding Early Late Prehistoric Period (Arnn 2012: Black 1989; Dering 2008: Kenmotsu and Boyd 2012b; Rush 2013).

Regardless of the specific chronological divisions used, it is interesting to note that Central Texas is one of the few regions in North America where a large-scale shift from hunting and gathering to horticulture or agriculture never occurred (Collins 1998). It is thought that this is due to the availability of sufficient

resources to support a substantial population. Central and South Texas form the southernmost extent of the Great Plains, which at times supported large herds of bison (Foster 2012; Kenmotsu and Boyd 2012a; Mauldin 2012). In addition, the Blackland Prairie supported many other large mammals, including deer and antelope. Reconstructing bison presence/absence has been a popular area of archeofaunal research in Central Texas (see Baugh 1986; Dillehay 1974: and Lynott 1979 for examples). However, Mauldin et al. (2012) and Prewitt (2012) have hypothesized more recently that bison were nearly always present in Central Texas and simply had periods of greater and lesser density in localized environments. In any case, the environment in Central Texas would have supported numerous high-ranked animal resources in addition to small animals and edible plants.

Previous Investigations, Previously Identified Resources, and Historical Background

A data search of the *Texas Archeological Sites Atlas* (Atlas) maintained by the THC and the Texas Archeological Research Laboratory (TARL) was conducted in order to identify previously recorded cemeteries, historical markers, National Register of Historic Places (NRHP) properties or districts, State Antiquities Landmarks (SALs), archeological sites, and other cultural resources in or near the project area.

According to archeological survey coverage data available on the Atlas, only one small portion of the APE appears to have been surveyed in the past. A survey for a Lower Colorado River Authority (LCRA) transmission line extending from Clear Springs to Hutto crosses the APE near its center (Prikryl et al. 21010; THC 2015). Only some portions of the transmission line in the project area are shown to have been covered; however, based on the report by Prikryl et al. (2010), it is presumed the entire corridor was covered in the 2010 LCRA investigation.

There are numerous other surveys within the one-mile study area surrounding the APE:

- A 2015 survey for the widening of East Pecan Street west of the project area by CMEC
- A 2015 survey of the footprint for a new school planned for Pflugerville by Horizon Environmental Services just north of the APE (this survey is not depicted on the Atlas, information obtained from site form for 41TV2478, discussed further below)
- A 2014 survey for the Carmel-Sorento Force Main and Lift Station by CMEC just north of the APE (a portion of that force main has been re-routed, proposed to be surveyed under this permit)
- A 2014 survey for the Sorento Wastewater Interceptor by ACI Consulting (ACI) north of the APE
- A 2011 survey for a renewable energy park for the City of Pflugerville and the U.S. Army Corps of Engineers (USACE) just west of SH 130 by TRC Environmental Corporation (TRC)
- A 2003 survey for the City of Pflugerville by Blanton and Associates, Inc. (Blanton) west of the APE with one terminus at Lake Pflugerville
- A 2006 survey for an LCRA substation south of the APE with a nearby associated linear area also surveyed by LCRA and presumed to be a transmission line
- A 2001 survey of the State Highway (SH) 130 corridor by PBS&J (now Atkins)

There are no previously recorded resources within the APE. There are, however, four archeological sites (41TV1971, 41TV2338, 41TV2453, and 41TV2478), one cemetery (Pfluger Cemetery), and one historical marker (marker location not included in available Atlas data) located within the study area.

Site 41TV1971 is a historic-age home with associated trash dumps; this site was determined to be ineligible within the right-of-way for which it was surveyed (THC 2015). Site 41TV2338 is recorded as a sparse lithic scatter on an eroded upland terrace of Wilbarger Creek and has been determined ineligible for the NRHP (Prikryl et al, 2010; THC 2015). Site 41TV2453 is a multi-component site that consisted of a lithic scatter and historic artifact scatter (Rush 2014; THC 2015). This site was determined ineligible within the right-of-way for which it was surveyed. Located approximately 30 meters south of the recorded site boundary is a historic-age home; the home was not investigated or included in the site boundary as it was outside the project area at that time. The current APE was designed to avoid the home site area. Site 41TV2478 is a historic-age farmhouse with an associated artifact scatter; there is no eligibility determination known (THC 2015).

The Pfluger Cemetery is located approximately 217 ft or 67 m north of the eastern terminus of the APE (THC 2015). Although not depicted on the Atlas, there is a historical marker known to be at the site based on CMEC observation of the Pfluger Cemetery in the past (Rush 2014). Little information is available on the Atlas about the cemetery, but according to the physical historical marker present at the cemetery, the cemetery contains the graves of many members of the Pfluger family. The first burial was in 1867 and the last was either in 1917 (THC 1975) or in 1920 (Tipton 2015). The cemetery is well marked with a white iron fence and appears to have vegetation intermittently mowed or trimmed, based on a visit to the cemetery during the 2014 survey of the Carmel-Sorento Force Main and Lift Station.

Europeans first crossed the region that is now Travis County in the late seventeenth century, but did not begin to settle the area until the 1830s (Smyrl 2013). Though Henry Pfluger, Pflugerville's namesake, brought his family to the area from Germany in 1849, he did not settle in the Pflugerville area until 1853 when he moved five miles east of town (City of Pflugerville 2014). The town of Pflugerville was officially founded in 1860; the town was named by William Bohls, who was also a German immigrant, in honor of Henry Pfluger. By the mid-1890s, the town had a population of 250. In 1904 the arrival of the Missouri-Kansas-Texas railroad spurred rapid growth and the population more than doubled.

3.0 Research Goals and Methods

Purpose of the Research

The present study was carried out to accomplish three major goals:

1. To identify all historic and prehistoric archeological resources located within the APE defined in Chapter One;

2. To perform a preliminary evaluation of the identified resources' potential for inclusion in the NRHP and/or for designation as a SAL (typically performed concurrently); and

3. To make recommendations about the need for further research concerning the identified resources based on the preliminary NRHP/SAL evaluation and with guidance on methodology and ethics from the THC and CTA.

The Antiquities Code of Texas

Because the project is currently owned and funded by the City of Pflugerville , a political subdivision of the State of Texas, the project is subject to the Antiquities Code of Texas (9 TNRC 191), which requires consideration of effects on properties designated as—or eligible to be designated as—SALs, which are defined as:

> ...sites, objects, buildings, structures and historic shipwrecks, and locations of historical, archeological, educational, or scientific interest including, but not limited to, prehistoric American Indian or aboriginal campsites, dwellings, and habitation sites, aboriginal paintings, petroglyphs, and other marks or carvings on rock or elsewhere which pertain to early American Indian or other archeological sites of every character, treasure imbedded in the earth, sunken or abandoned ships and wrecks of the sea or any part of their contents, maps, records, documents, books, artifacts, and implements of culture in any way related to the inhabitants, prehistory, history, government, or culture in, on, or under any of the lands of the State of Texas, including the tidelands, submerged land, and the bed of the sea within the jurisdiction of the State of Texas. (13 TAC 26.2)

Guidelines for the evaluation of cultural resources as SALs and/or for listing on the NRHP, which is also explicitly referenced at the state level, are detailed in 13 TAC 26. An archeological site identified on lands owned or controlled by the State of Texas may be of sufficient significance to allow designation as a SAL if at least one of the following criteria applies:

1. the site has the potential to contribute to a better understanding of the prehistory and/or history of Texas by the addition of new and important information;

2. the site's archeological deposits and the artifacts within the site are preserved and intact, thereby supporting the research potential or preservation interests of the site;

3. the site possesses unique or rare attributes concerning Texas prehistory and/or history;

4. the study of the site offers the opportunity to test theories and methods of preservation, thereby contributing to new scientific knowledge;

5. the high likelihood that vandalism and relic collecting has occurred or could occur, and official landmark designation is needed to insure [sic] maximum legal protection, or alternatively further investigations are needed to mitigate the effects of vandalism and relic collecting when the site cannot be protected (13 TAC 26.10).

For archeological resources, the state-level process requires securing and maintaining a valid Texas Antiquities Permit from the THC, the lead state agency for Antiquities Code compliance, throughout all stages of investigation, analysis, and reporting.

Survey Methods and Protocols

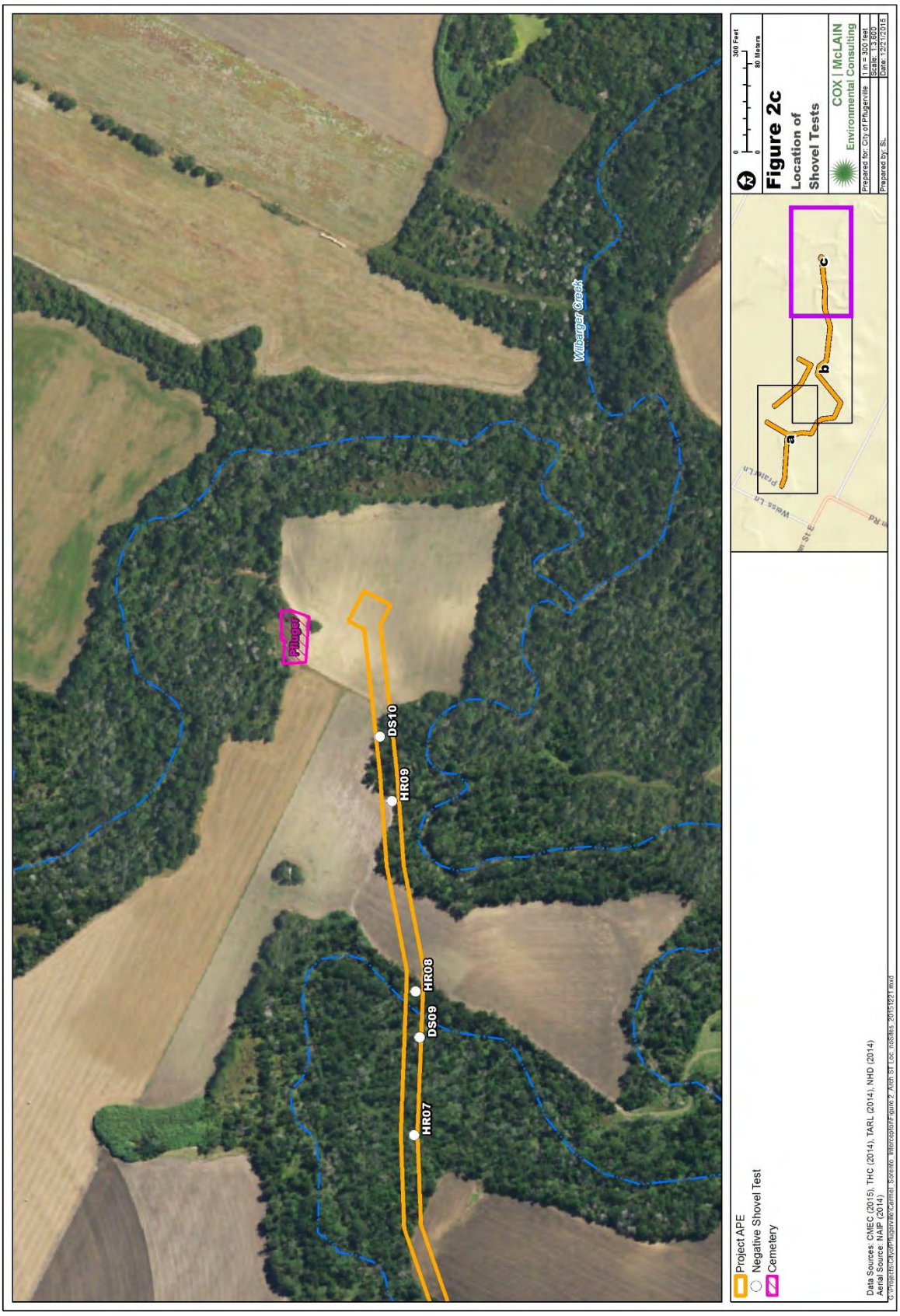
With the goals and guidelines above in mind, CMEC personnel conducted an intensive survey in August and September 2015, per category 6 under 13 TAC 26.15 and using the definitions in 13 TAC 26.3, searching for previously identified and unidentified archeological sites. Field methods complied with the coverage requirements of 13 TAC 26.15, as elaborated by the THC and CTA.

Shovel tests (**Figures 2a-2c**) were excavated in natural levels to major color/texture changes or restrictive features, as allowed by compaction and hardness of the deposits. Excavated matrix was screened through 0.635-cm (0.25-in) hardware cloth as allowed by moisture and clay content, which often required that the removed sediment be crumbled/sorted by hand, trowel, and/or shovel point. Deposits were described using conventional texture classifications and Munsell color designations, and all observations were recorded on standard CMEC shovel test forms. The testing protocol detailed in the approved scope for Texas Antiquities Permit 7397 called for radial shovel tests to be placed at 5-m (16-ft) intervals around each shovel test positive for cultural material until two negative units were established in each cardinal direction. None of the excavated shovel tests were positive.

No artifacts were collected, as artifacts were only observed on private land; therefore, only project records will need to be curated per 13 TAC 26.16 and 26.17. Project records will be curated at the CAS at Texas State University-San Marcos.


HR05
DS06
HR03
HR04
DS04
Wilbarger Creek
DS03
HR02
DS02
HR01
DS01
Figure 2a
Location of Shovel Tests
COX | McLAIN Environmental Consulting
Prepared for: City of Pflugerville
1 in = 300 feet
Scale: 1:3,600
Prepared by: SL
Date: 12/21/2015
300 Feet
80 Meters
a
b
c
Project APE
Negative Shovel Test
Data Sources: CMEC (2015), THC (2014), TARL (2014), NHD (2014)
Aerial Source: NAIP (2014)


DS08
HR06
DS07
DS11
DS06
HR05
Willanger Creek
Figure 2b
Location of Shovel Tests
COX | McLAIN Environmental Consulting
Project APE
Negative Shovel Test
Data Sources: CMEC (2015), THC (2014), TARL (2014), NHD (2014)
Aerial Source: NAIP (2014)


Wilbarger Creek
Pflugerville
DS10
HR09
HR08
DS09
HR07
Figure 2c
Location of Shovel Tests
COX | McLAIN Environmental Consulting
Prepared for: City of Pflugerville
Prepared by: SL
1 in = 300 feet
Scale: 1:3,600
Date: 12/21/2015
300 Feet
80 Meters
a
b
c
Project APE
Negative Shovel Test
Cemetery
Data Sources: CMEC (2015), THC (2014), TARL (2014), NHD (2014)
Aerial Source: NAIP (2014)

4.0 Results and Recommendations

Field Observations

In August and September 2015, CMEC personnel conducted an intensive survey of the 6.2-hectare (15.4-acre) APE (see **Figures 2a-2c).** Approximately one third of the APE consists of wooded or pastured areas above Wilbarger Creek (**Figures 3** and **4**); the remainder, and thus the majority of the APE, lies within active agricultural fields (**Figures 5** and **6**). Generally the areas near Wilbarger Creek that were not agricultural fields had ground visibility between 0 and 50 percent (**Figure 7**). The agricultural fields had ground surface visibility of 100 percent (**Figure 8**). Across the entire APE, clay-rich vertisolic soils were present (**Figures 9** and **10**).

Figure 3. View of tributary to Wilbarger Creek, with open cattle pastures on both sides of the drainage. Drainage was dry at the time of the survey.

Figure 4. View of Wilbarger Creek from creek bed. Note evidence of recent flooding.

Figure 5. View east of APE crossing a plowed field. Tree line in background marks Wilbarger Creek.

Figure 6. View south at proposed location of spur of interceptor line.

Figure 7. View of ground surface in wooded area above Wilbarger Creek. Recent flooding has likely cleared off typical understory vegetation and leaf litter.

Figure 8. View of plowed surface above Wilbarger Creek, with common limestone cobbles (unmodified).

Figure 9. View of deep crack in soil in fallow agricultural field. Deep cracks and large peds were noted across the APE.

Figure 10. Closeup view of typical cracks noted in the APE.

Although the ground surface within the APE was characterized by high visibility, 20 shovel tests were excavated. Shovel tests were focused around Wilbarger Creek, areas with low ground surface visibility, and near previously recorded site 41TV2453 and the standing historic-age residence near site 41TV2453 (see **Figures 2a-2c**). Shovel tests near the site and the historic-age residence will be discussed below. All shovel tests revealed clay-rich soils that were extremely hard, compact, and would break into large, blocky peds (**Figure 11**). Soil was dark and varied from black (7.5YR2.5/1) to dark gray (10YR3/1). Fourteen shovel tests were terminated between 25 or 40 centimeters below surface (cmbs) when the soil became too compact to continue or staff observed marked increases in calcium carbonate filament density/frequency. Six shovel tests were excavated to 50 cmbs or more.

Figure 11. View of shovel test HR01. Shovels tests were often terminated at a shallow depth due to compactness of soil and increased density of calcium carbonate.

Numerous historic-age structures were noted around the APE. Excluding the house near 41TV2453, which will be discussed below, no features or artifacts associated with the other structures and buildings noted in the APE were observed.

SITE 41TV2453

Site 41TV2453 is a sparse surface scatter of prehistoric and historic artifacts (**Figure 12**). The site was originally recorded in 2014 during a survey for a force main line (Rush 2014; THC 2015). The present APE is approximately 80 m or 262 ft south of the original boundary for 41TV2453. In between the originally recorded boundary of 41TV2453 and the boundary is a historic-age house. The historic materials found in the plowed field surrounding the house are likely associated with this house. Unfortunately, the project limits have not allowed proper investigation of the area immediately surrounding the house.

The site is located above Wilbarger Creek, which is located approximately 250 m east of the portion of the site that was recorded during this study. The site is located approximately 100 m south of the Pfluger Cemetery (**Figure 13**) and 100 m southeast of a historic-age building (**Figure 14**). The historic-age structure is presumed to be a residence based on the presence of a chimney. Although access to the parcel upon which the building is located was available, the structure was not part of the APE for this state-nexus project, which focused only on the narrow interceptor corridor.

Historic artifacts noted include amethyst (manganese decolorized/solarized) glass, aqua glass, and undecorated ironstone sherds; one salt glazed exterior/unglazed interior stoneware sherd was also noted (**Figure 15**). Prehistoric materials observed include a few large flakes, possible tested cobbles, and burned rocks (**Figures 16** and **17**).

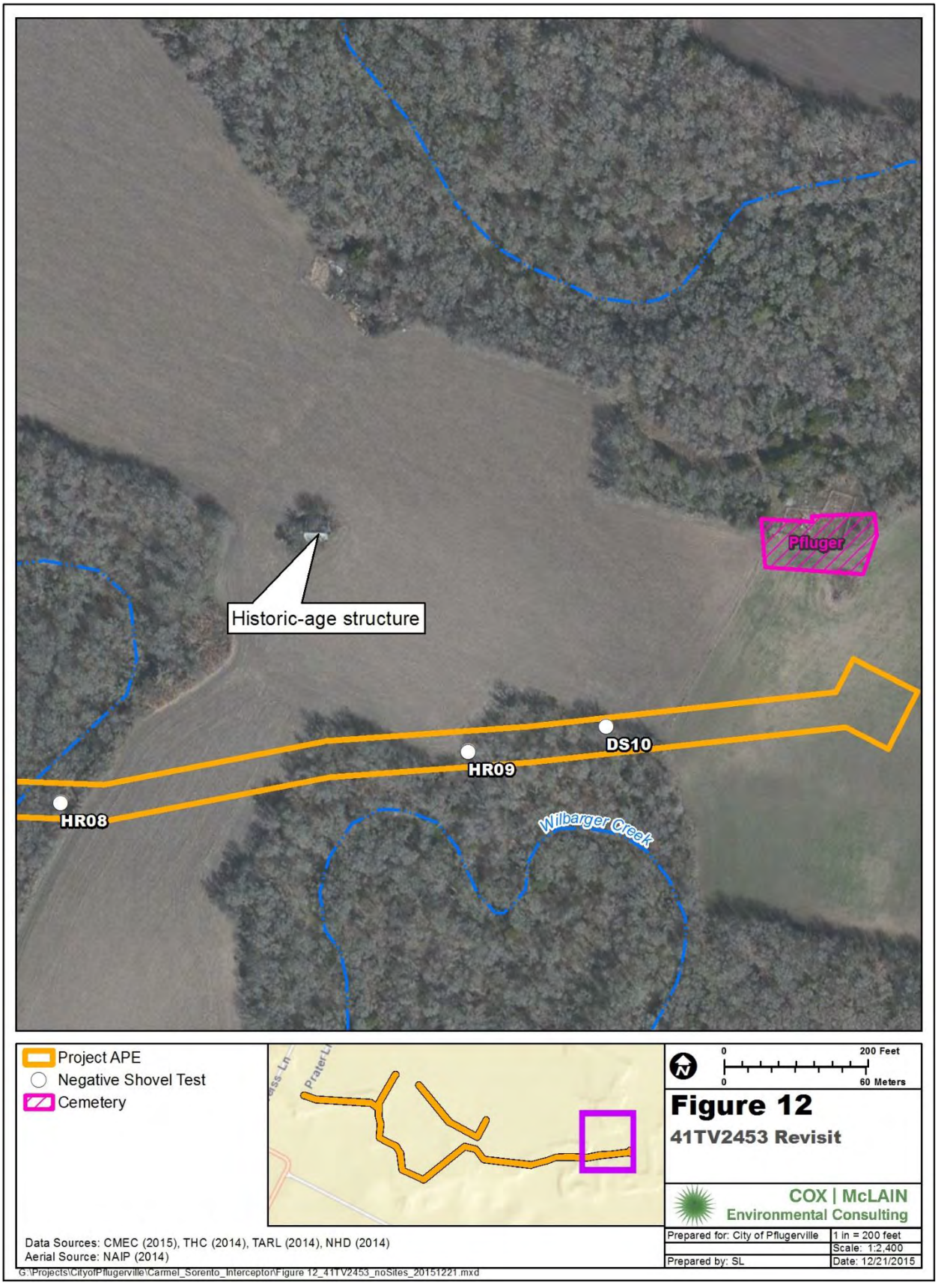

Historic-age structure
Pflugger
DS10
HR09
HR08
Wilbarger Creek
Project APE
Negative Shovel Test
Cemetery
Prater Ln
0
200 Feet
0
60 Meters
Figure 12
41TV2453 Revisit
COX | McLAIN
Environmental Consulting
Data Sources: CMEC (2015), THC (2014), TARL (2014), NHD (2014)
Aerial Source: NAIP (2014)
Prepared for: City of Pflugerville
1 in = 200 feet
Scale: 1:2,400
Prepared by: SL
Date: 12/21/2015
G:\Projects\CityofPflugerville\Carmel_Sorento_Interceptor\Figure 12_41TV2453_noSites_20151221.mxd

Figure 13. View north toward Pfluger Cemetery from APE. Sparse prehistoric and historic artifacts were noted just off screen at left.

Figure 14. View from APE toward historic-age building located in a cluster of trees in the center of a plowed field.

Figure 15. Plan view of historic artifacts recovered from surface including a bottle neck shard (amethyst), salt glazed exterior/unglazed interior stoneware sherd, and undecorated ironstone sherd.

Figure 16. View of large flake noted on surface, possibly a mechanical strike from plowing.

Figure 17. View of burned rock in plowed field at 41TV2453. As with the flake above, given the agricultural context it is difficult to know whether the rock was heated by prehistoric hot-rock cooking or later burning of fields.

Colorless glass turns amethyst (i.e., solarized) when manganese—used as an additive between 1870 and about 1920 to neutralize impurities that would hinder its colorless appearance—is exposed to ultraviolent rays in sunlight (Lockhart 2006 and Stelle 2014). The longer the exposure to sunlight, the deeper the color. Only two undecorated ironstone sherds were noted. Plain, undecorated ironstone wares began to be produced in England for American consumers early in the 1840s (Wetherbee 1996) with plain but embossed wares becoming extremely popular in the United States and Canada from the mid-1850s through the 1890s (Wetherbee 1996; Dieringer 1997). Ironstone was first patented by Charles James Mason in 1813 as an improved china, harder than earthenware and stronger than porcelain (Dieringer 1997) and can be distinguished from pearlware and whiteware by its hard white paste. Salt glazes on utilitarian wares began in the Germany in the fifteenth century and the process moved to England during the seventeenth century. Salt glazed stonewares were produced in the United States beginning about the mid-nineteenth century (Greer 1981), made in Texas before 1850 (Sweeny 1984), and continued to dominate the stoneware production until nearly the end of the century (Ketchum1991). A common description of salt glazed wares is that the exterior has the texture of an orange skin (see **Figure 15**).

Two shovel tests (DS10 and HR09) were excavated in wooded areas near the artifact scatter noted in the plowed field south of the historic home. Both were negative. Like the other shovel tests throughout the survey fieldwork, the soil was dry and compact with some inclusions of calcium carbonate and limestone gravels.

41TV2453 is a multi-component site that likely functioned as a temporary prehistoric campsite before being overlain by a later historic occupation. Both the prehistoric and historic artifacts are assumed to have poor context as soils within the Blackland Prairie are known to shrink and swell, which can move artifacts up and down through the deposits (Abbott 2001; Collins 2004). The movement of artifacts in clay-rich soils is further exacerbated by plowing and other mechanical disturbance. Plowing has undoubtedly mixed materials located within the top 20 cm. The poor context of the artifacts coupled with the lack of diagnostic prehistoric materials makes any meaningful conclusions about the prehistoric occupation of the site difficult. Recordation of the site and assignment of a trinomial has likely exhausted the data potential of the site within this project area. Within the current APE, the prehistoric component of the site would likely not contribute to eligibility for NRHP listing or SAL designation.

The historic artifacts point to a historic occupation of the late nineteenth century, possibly into the early twentieth century based on the diagnostic utility of two of the glass fragments, utilitarian stoneware, and the popularity of ironstone at the same time. However, any dating of the occupation at the site is problematic based on the paucity of historic artifacts.

Recommendations

Due to the confines of the current APE and the relatively limited diagnostic utility of the artifacts observed, it is difficult to attribute the few historic artifacts recovered to a specific historic occupation in the area, either in time or space. It is interesting to note that the project area is near the Pfluger Cemetery and is in the reported vicinity of Henry Pfluger's mid-nineteenth century farmstead. However, the historic component of 41TV2453 within the current APE was determined to not be particularly informative about historic settlements in the area and would likely not contribute to eligibility for NRHP listing or SAL designation. Therefore, no additional work is recommended at this site prior to construction of the wastewater line and lift station. A caveat that must be included is that statements about

NRHP/SAL eligibility for prehistoric or historic components outside the APE cannot be made at this time, so the overall eligibility of 41TV2453 remains unknown.

No evidence was found of preserved deposits with a high degree of integrity; associations with distinctive architectural and material culture styles; rare materials and assemblages; the potential to yield data important to the study of preservation techniques and the past in general; or potential attractiveness to relic hunters (3 TAC 26.10). As the project is subject to the Antiquities Code of Texas, the proposed alignment was assessed only for direct impacts to archeological resources. No further work within the APE is recommended under the Antiquities Code.

If any unanticipated discoveries of burials or archeological materials, deposits, or features are made during construction, work should halt immediately and the Archeology Division of the Texas Historical Commission should be contacted.

No artifacts were collected, as artifacts were only observed on private land; therefore, only project records will need to be curated per TAC 26.16 and 26.17. Project records will be curated at CAS at Texas State University-San Marcos.

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Appendix A – Field Forms and Regulatory Correspondence

Cox|McLain Environmental Consulting, Inc.

Date: 8.26.15
Excavator(s):
Project: Carmel-Sorento Force Main and Interceptor Reloc. 2015
Project No:
Client City of Pflugerville

Archaeological Survey Shovel Test Unit Log

Site No.	ST Number	Depth	Soil Description (Munsell and texture)	Contents	Location Description	Reason for Termination (Circle One)
1	HR01	0-25	7.5YR 2.5/1 black clay	$CaCo_3$ gravels, many roots no artifacts	east of DS01 in floodplain	Compact Soil / Root / Subsoil / Permit Depth / Other
	HR02	0-30	10YR3/1 dark gry clay	fosils – $CaCo_3$, gravels no artifacts	open cattle pasture east of creek bed	Compact Soil / Root / Subsoil / Permit Depth / Other
	HR 03	0-30	" "	" "	floodplain at bend in Creek	Compact Soil / Root / Subsoil / Permit Depth / Other
	HR 04	0-15	2.5YR 4/1 dark gry clay	gravels & $CaCo_3$ no artifacts	Cattle pasture above creek	Compact Soil / Root / Subsoil / Permit Depth / Other cattle disturbances
	HR05	0-30	black ~ 7.5YR 2.5/1 clay	old hay & corn cobs	plowed corn field	Compact Soil / Root / Subsoil / Permit Depth / Other disturbed
	HR 06	0-30	10YR3/1 dark gy clay	dijr veg. – push piles nearby	above Wilbarger Creek dense wooded area	Compact Soil / Root / Subsoil / Permit Depth / Other
	HR 07	0-30	" "	dense veg. GSV high	between branch of Wilbarger Creek	Compact Soil / Root / Subsoil / Permit Depth / Other
	HR 08	0-30	" "	" GSV mod	at edge of plowed field & Wilbarger Creek	Compact Soil / Root / Subsoil / Permit Depth / Other
9.17.15	HR 09	0-15	10YR3/1	GSV 100% (nearly)	adjacent to plowed field & house	Compact Soil / Root / Subsoil / Permit Depth / Other very compact –
						Compact Soil / Root / Subsoil / Permit Depth / Other
						Compact Soil / Root / Subsoil / Permit Depth / Other
						Compact Soil / Root / Subsoil / Permit Depth / Other
						Compact Soil / Root / Subsoil / Permit Depth / Other

Cox|McLain Environmental Consulting, Inc.

Date: 8-26-15
Excavator(s): D Sadowick, H. Rush
Project: Carmel-Sorento Force Main and Interceptor Reloc. 2015
Project No:
Client: City of Pflugerville

Archaeological Survey Shovel Test Unit Log

Site No.	ST Number	Depth	Soil Description (Munsell and texture)	Contents	Location Description	Reason for Termination (Circle One)
	DS-01	0-15	5YR2.5/1 - Clay Loam, blocky, friable, few gravels, roots	Culturally Negative	Sloping to S. toward small creek, surrounded by oaks,	Compact Soil / Root / Subsoil / Permit Depth / Other
	–	15-55+	5YR2.5/1 - Clay, very firm, few gravels, roots, more calcium	SAA	tall grasses, house 80m to N, GSV 70%	Compact Soil / Root / Subsoil / Permit Depth / Other
	DS-02	0-50+	5YR2.5/1 - Clay, friable - firm, very few gravels/roots/roots	Clay density increases w/ depth Culturally Negative	Pasture, flanked by drainages, GSV <10%	Compact Soil / Root / Subsoil / Permit Depth / Other
	DS-03	0-50+	5YR2.5/1 Clay, friable - firm, very few gravels/roots	Clay density increases w/ depth	Floodplain pasture, relic flat, drainages to W, N	Compact Soil / Root / Subsoil / Permit Depth / Other
	DS-04	0-45	Soil SAA, compact clay appears sooner than DS01-03	Culturally negative	Loc. SAA	Compact Soil / Root / Subsoil / Permit Depth / Other
	DS-05	0-25	Soil SAA	SAA	Open field, mixed hardwoods to S and irrigation ditch to E	Compact Soil / Root / Subsoil / Permit Depth / Other
	DS-06	0-40	Soil SAA	SAA	Open, plowed field, recent plow zone to S	Compact Soil / Root / Subsoil / Permit Depth / Other
	DS-07	0-15	5YR4/1 Clay, friable - firm, gravels/roots throughout	SAA	Mixed hardwoods, GSV 50%, lots of glass, food waste	Compact Soil / Root / Subsoil / Permit Depth / Other
		15-40	5YR2.5/1 - Very firm, SAB, few gravels/roots, clay	SAA		Compact Soil / Root / Subsoil / Permit Depth / Other
	DS-08	0-45+	5YR2.5/1, very firm clay, SAB few gravels/roots, shell	SAA	Loc SAA DS-07-1	Compact Soil / Root / Subsoil / Permit Depth / Other
	DS-09	0-40+	5YR2.5/1, very firm, clay, SAB very few gravels/roots	SAA	Mixed hardwood, overlooking creek to NE, ~50% GSV	Compact Soil / Root / Subsoil / Permit Depth / Other
9-17?5	DS-10	0-40	5YR2.5/1 firm, SAB, clay few gravels, shells, roots	SAA	Mixed hardwood, large plowed field 10m N	Compact Soil / Root / Subsoil / Permit Depth / Other
	DS-11	0-50+	5YR2.5/1, firm, SAB, clay, few gravels,	– few gravels, shells, roots	SAA, plowed field to S	Compact Soil / Root / Subsoil / Permit Depth / Other

Carmel Sorento Interceptor Phase 1 and Force Main Relocation

Sheet 1 of 5

N

0 200 400 Feet

0 60 120 Meters

Project Location

Sheet Limits

Cemetery

Recorded Archeological Site

Aerial Source: ESRI (2011)

Carmel Sorento Interceptor Phase 1 and Force Main Relocation

Sheet 2 of 5

N

0 200 400 Feet

0 60 120 Meters

Project Location

Sheet Limits

Cemetery

Recorded Archeological Site

Aerial Source: ESRI (2011)

Carmel Sorento Interceptor Phase 1 and Force Main Relocation

Sheet 3 of 5

N

0 200 400 Feet

0 60 120 Meters

Project Location

Sheet Limits

Cemetery

Recorded Archeological Site

Aerial Source: ESRI (2011)

Carmel Sorento Interceptor Phase 1 and Force Main Relocation

Sheet 4 of 5

N

0 200 400 Feet

0 60 120 Meters

Project Location

Sheet Limits

Cemetery

Recorded Archeological Site

Aerial Source: ESRI (2011)

Carmel Sorento Interceptor Phase 1 and Force Main Relocation

Sheet 5 of 5

N

0 200 400 Feet

0 60 120 Meters

Project Location

Sheet Limits

Cemetery

Recorded Archeological Site

Aerial Source: ESRI (2011)

Cox|McLain Environmental Consulting, Inc.

Project No.

Project Name: Carmel-Sorento 2015 Camera Type: Digital Client: City of Pflugerville

Field Photo Log

Permanent Photo No.	County	Camera	Shot #	Description	Dir. Facing	Photographer	Date
			1	floodin[illegible] evidence on McDavid prop	E	H. Rush	
			2	toward DS01	W		
			3	GSV on McDavid property	plan		
			4	GSV near HR~~S~~01	plan		
			5	floodin[illegible] evidence	E		
			6	ST HR~~S~~01	plan		
			7	drainage for STHR02	E		
			8	from HR02 toward DS01	E		
			9	" " " DS02	W		
			10	from DS04 of creek	SSW		
			11	" " "	E		
			12	plan APE - terrace [illegible] creek	ESE		
			13	from STHR04 of cattle disturbance	NE		
			14	typical GSV of cattle [illegible]	plan		
			15	deep depression - typical in APE	SW		
			16	" " "	SW		
			17	fire ring & cattle disturbance	SW		
			18	" "	NNW		
			19	large crack in old corn field	S		
			20	GSV - corn cobs	Plan		
			21	toward edge of terrace	SE		
			22	toward creek & old barn	W		
			23	from HR05 toward shed (outside APE)	S		
			24	toward DS06 @ edge of complex	E		
			25	toward shed in wooded area from HR05	S		
			26	" " " from DS06	S		
			27	from DS06 toward complex - APE	E		
			28	zoom in of shed	E		
			29	" "	E		
			30	access road	S		
			31	a~~[illegible]~~ transmission line	S		
			32	deep gully - example in APE	W		
			33	GSV of crack	plan		
			34	Willbarger creek terrace	S		
			35	Wilbarger Creek	W		
			36	" "	E		

Cox|McLain Environmental Consulting, Inc.

Project No.

Project Name: Carmel-Sorento 2015 Camera Type: Digital Client: City of Pflugerville

Field Photo Log							
Permanent Photo No.	County	Camera	Shot #	Description	Dir. Facing	Photographer	Date
		GPS	37	from HRoe of vegetation/postpile	S	H. E Rush	8.26.15
			38	across corn field above Wilbarger	NE		
			39	across plowed field toward terminus	E		
			40	dense veg	W		
			41	GSV - high	plan		
			42	standing house	N		
			43	Pfluger cem	NE		
			44	example of plowed chipped cobble	plan		
			45	house @ 2453 from APE near end	N		
			46	Pfluger cem.	ENE		
			47	lift station staked	E		
			48	lift station area - newly	E		
			49	" " plowed	E		
			50	only unquestionable lithic in	plan		
			51	lift station area	plan		
			52	spur of Interceptor line	S		
			53	GSV	plan		
		GPS	1	artifacts on surface near DS10	"		9.17.15
			2	↓ ↓	"		
			3		"		
			4	burned rock near DS10	"		
			5	corn field	NW		

COX | McLAIN
Environmental Consulting

TRANSMITTAL MEMO	To: Tiffany Osubrn– THC
	CC: Larry Cox – Cox|McLain and Daniel Wilson – K. Friese & Associates, Inc.
Cox|McLain Environmental Consulting, Inc. 6010 Balcones Drive, Suite 210 Austin, TX 78731 www.coxmclain.com (512) 338-2223	From: Haley Rush– Cox|McLain
	Date: November 17, 2015
	RE: Draft Report Submittals: *Intensive Archeological Survey for the Proposed City of Pflugerville Carmel-Sorento Interceptor Line and Force Main Relocation, Travis County, Texas.* ***TAC Permit No. 7397***

Dear Ms. Osburn:

Please find enclosed one (1) unbound copy of the draft report *Intensive Archeological Survey for the Proposed City of Pflugerville Carmel-Sorento Interceptor Line and Force Main Relocation, Travis County, Texas* (CMEC-AR-107) The work was carried out under the Antiquities Permit Number 7397; no federal nexus is known for the project.

The project concerns proposed wastewater improvements east of Pflugerville in northern Travis County. The proposed improvements would occur along segments of two separate lines: an interceptor line and a re-routed segment of a previously analyzed force main line.

Ground surface visibility within the APE was mixed; it was between 0 and 50 percent near Wilbarger Creek, and at or near 100 percent across the remainder. Twenty shovel tests were excavated along the APE; none of the shovel tests were positive for cultural material. A few lithics and historic glass and ceramic artifacts were noted near the western terminus of the APE. Previously recorded site 41TV2453 is located approximately 80 m or 262 ft north of the area where the lithics, glass, and ceramics were noted. This sparse artifact scatter was recorded as a revisit to site 41TV2453 and the site boundaries were extended. Two shovel tests were excavated near the artifacts to test for any subsurface deposits; both were negative. There is a historic-age house located between the previously recorded boundary for 41TV2453 and the boundary recorded for this study.

In addition to the historic-age residence near 41TV2453, there were numerous other historic-age buildings noted from the APE. No materials from those buildings were present in the APE.

No further study is recommended prior to the construction of the proposed wastewater improvements.

Please do not hesitate to call or email if you have any questions or comments.

Sincerely,

CONCUR
by [signature]
for Mark Wolfe
State Historic Preservation Officer
Date 11/18/15
Track#

Haley E. Rush, MA, RPA
haleyr@coxmclain.com
(512) 338-2223