

**ARCHAEOLOGICAL INVESTIGATIONS  
AT MISSION DOLORES DE LOS AIS (41SA25)  
1995-96  
SAN AUGUSTINE COUNTY, TEXAS**

by:

Shawn Bonath Carlson

and

Kendra L. Quinn

With Contributions by:

J. Philip Dering  
Frederic Pearl  
Anna Lee Presley

Antiquities Permit No. 1602

Technical Report No. 1  
Historic Sites Research  
College Station, Texas

1996



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## ABSTRACT

Archaeological investigations at the site of Mission Dolores de los Ais (41SA25) in San Augustine, Texas, were partially funded by the Intermodal Surface Transportation Enhancement Act (ISTEA) and carried out by Historic Sites Research of College Station, Texas, from October 23 - November 3, 1995, and again from June 11-18, 1996. In total, 360 shovel tests and seven 1-x-1 m test units were excavated on the periphery of the site, yielding 3,340 artifacts. These mitigations were done in compliance with Section 106 of the National Historic Preservation Act (NHPA) under Antiquities Permit Number 1602 issued by the Texas Historical Commission's Department of Antiquities Protection. These regulatory measures insure that the proposed construction of a museum complex, access road, recreational vehicle park, utility line, interpretive trail, and electrical power line right-of-way will not disturb any significant remains of the mission site.

The entire project area was characterized by a low artifact density, with the exception of the proposed interpretative trail. A large number of bone fragments as well as aboriginal ceramics were recovered in shovel tests excavated on the southern loop of the trail near excavations previously conducted by James E. Corbin (1980). However, other locations within the project area yielded artifacts primarily from the early to late twentieth century. A single glass bead represented the Spanish presence and was the most significant artifact recovered during the project period.

The investigations, in combination with oral history and documentary evidence, showed that the project area had been seriously disturbed in the past by the construction of State Highway 147, logging, and other sawmill related activities. These results suggested to us that no undisturbed remains related to the activities of Mission Dolores de los Ais would be found in the area of the museum complex, recreational vehicle park, access road, utility line, or power line right-of-way. Only portions of the interpretative trail could possibly impact the remains of the mission site. However, since the trail will be constructed on top of the present ground surface, the impact will be minimal.

## ACKNOWLEDGMENTS

Many people contributed to the successful completion of the archaeological investigations conducted at Mission Dolores de los Ais during the fall of 1995 and summer of 1996. The City of San Augustine, represented by Mr. Alton Shaw, City Manager, sponsored the project. Mr. Shaw assisted Historic Sites Research throughout the field phase and generously loaned us equipment that was unavailable in San Augustine. Ms. Tina Walker, Texas Department of Transportation (TxDOT), provided overall direction for the project. The Mathes Group of Houston, prime contractor for the development project, graciously included Historic Sites Research as part of their team. Mr. Barry Moore and Ms. Karol Kreymer, principals for The Mathes Group, were especially helpful in supplying information. The expertise of Dr. Nancy Kenmotsu, formerly of the Texas Historical Commission, was greatly appreciated throughout all phases of the project.

Crew members included Christopher Cook, Florence Drew, John Faucher, Jeffrey Lee Johnson, Colin O'Bannon, Frederic Pearl, Zane Warton, and Erika Washburn. Kendra Quinn served as crew chief during the summer of 1996. With the exception of Warton, all crew members were students or former students of Anthropology at Texas A&M University (TAMU). Their patience and cooperation in completing the fieldwork on schedule were of great help. In addition, Jeffrey Lee Johnson processed and cataloged the artifacts from the first phase of excavation while Kendra Quinn did those from the second session. Frederic Pearl described the geology of the site and drew the soil profiles (Appendix I, Figures 8-22). Helen D. Dockall, a doctoral student in Physical Anthropology at TAMU, examined bone recovered from the first phase of excavations while Anna Lee Presley examined those recovered during the second phase (Appendix IV). Helen C. DeWolf drafted the site plan (Figure 3).

The citizens of San Augustine were very friendly and of immense help during our stay in their town. In particular, Julia Wade allowed us complete access to the Wade House Bed and Breakfast which made it less difficult to be away from our own homes. Mr. and Mrs. John Oglesbee befriended us by providing an evening of entertainment. Jim Nance, San Augustine Public Library, was especially helpful in our search for information at the library. The late Irion Bate, Jr., former owner of Mission Hill, and Arlan Hays, editor of the *San Augustine Tribune*, both agreed to be interviewed. James Lewis of the local TxDOT office acknowledged our concerns about the physical condition of the site. Christine Sanders, of nearby Woodville, volunteered to spend a day of her time helping with our excavations.

Finally, Dr. James E. Corbin, Stephen F. Austin University, provided invaluable assistance throughout the project. From information, to opinions, to delivering extra equipment, Dr. Corbin was available and accessible always. We gratefully acknowledge his contributions.

## MANAGEMENT SUMMARY

Archaeological investigations were conducted by Historic Sites Research of College Station, Texas, at the site of Mission Dolores de los Ais (41SA25) in San Augustine, Texas, from October 23 - November 3, 1995, and June 11-18, 1996. With a crew of four to five people, seven 1-x-1 m units and 360 shovel tests, each 30-x-30 cm in plan, were excavated primarily on the periphery of the site. These were distributed across the project area at the proposed locations of: (1) a museum and parking lot complex, (2) a recreational vehicle park, (3) an access road, (4) an interpretative trail, and (5) a power line right-of-way.

All total, 3,340 artifacts were recovered from 8.86 cubic meters of dirt, yielding a density of 377 artifacts per cubic meter. A single shovel test, Unit 346, accounted for 2,149 artifacts recovered from 0.136 cubic meters of dirt with a density of 15,801 artifacts per cubic meter. By removing this one shovel test, the artifact density for the remaining artifacts is reduced to 136.5 artifacts per cubic meter which more accurately reflects the density of the project area. During the field phase of the project, 744 person hours were expended with another 120 person hours spent processing artifacts in the laboratory.

Most of the productive shovel tests and all of the test units revealed mainly twentieth century artifacts such as wire nails, whitepaste earthenwares and clear, amber, and amethyst glass. However, a number proved rich in bone fragments and aboriginal ceramics; a single glass trade bead was also recovered. These shovel tests (including Unit 346) were located on the southern loop of the proposed interpretative trail near the location of Corbin's (1980, 1990) previous excavations. The only feature identified during the testing was a midden located near Unit 346. Corbin identified 10 features in his previous excavations, therefore this feature was given the number 11. The investigations revealed that the areas of proposed development, which lay on the periphery of the mission compound, had been extensively disturbed by logging, grading, and other destructive activities.

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## INTRODUCTION

### *Project Overview*

Mission Dolores de los Ais was formally established by Father Antonio Margil de Jesús in 1717. Threats of French aggression forced its abandonment in 1719 but it was reoccupied in 1722. The mission remained in operation until 1773 when it was closed by the governor, Baron de Ripperdá, as a result of recommendations made by the Marquis de Rubí during an inspection of the missions in 1767. The site lay neglected for nearly 200 years until archaeologists became interested in it during the early 1960s. In 1971, the San Augustine Historical Foundation took the first step towards purchase of the mission site by acquiring a tract commonly known as "Mission Hill." Since that time, additional tracts have been purchased and numerous archaeological investigations have been conducted. The site is now listed on the National Register of Historic Places and long range plans for development of the former mission complex have been made.

The present development of Mission Dolores de los Ais is based upon a Master Plan written by Joe C. Freeman, AIA, Architect, and Nancy Kenmotsu, formerly Staff Archaeologist with the Texas Historical Commission (1993). This document was funded in part by both the City of San Augustine and the Texas Historical Foundation. It represents a vision of site development and public education that the citizens of San Augustine have diligently pursued over a period of years.

Development of the site, partially funded through the Intermodal Surface Transportation Enhancement Act (ISTEA), will include construction of a museum complex which will house archaeological material recovered from the site of Mission Dolores and archival records related to the East Texas missions. A recreational vehicle park will adjoin this complex and provide overnight accommodations for both researchers and tourists who use the museum facilities. To further enhance the Mission Dolores complex, a self-guided, interpretative trail will meander through the site proper, cross over a possible route of El Camino Real, and circle around the top of "Mission Hill" which was believed to be the location of Mission Dolores for many years. Also, an access road to the recreational vehicle park and a power line will provide service to the museum complex.

The Mathes Group, an architectural firm from Houston, Texas, was selected in April of 1995 to design the proposed complex. Because construction of these facilities must be in compliance with Section 106 of the National Historic Preservation Act, Historic Sites Research of College Station, Texas, served as an archaeological consultant to the Mathes Group. Historic Sites Research conducted investigations at the proposed construction sites in October and November of 1995 and June of 1996. The results of these investigations showed that the integrity of the project area had been severely compromised by past logging activities as well as highway construction. In the areas that will undergo the heaviest construction (the museum complex and the recreational vehicle park), no significant archaeological remains are anticipated.

While the proposed interpretative trail does cross over intact portions of the site, the trail will be placed on the surface, thus causing little or no impact.

## NATURAL AND CULTURAL SETTING

### *Environmental Background*

The environmental setting for the site of Mission Dolores de los Ais has been previously described and is summarized here from Corbin (1980:6-8). The mission site is centrally located upon an upland outlier overlooking Ayish Bayou to the west (Figure 1). The soils in the vicinity are of the Trawick-Bub complex derived from the local Weches bedrock formation (see Appendix I for discussion of present project area geology). Consisting of glauconite, glauconitic marls, sands, and clays, petroferric zones were nearly impenetrable during dry weather. Two springs on Mission Hill and one to the northeast of Mission Hill probably provided both hand-carried and diversion-type irrigation to the mission fields.

Located in the Austroriparian biotic province, the vicinity surrounding Mission Dolores is dominated by pine-oak forest although the site itself has only a stand of Eastern red cedar surrounding the eastern spring. Faunal populations include a variety of mammals such as deer, opossum, eastern mole, bats, squirrels, gophers, rabbits, mice, and rats. Most of these species can be found in the adjacent woods and floodplain below

### *Archaeological Background*

Although many people have attempted to find the remains of Mission Dolores de los Ais in the past, the first professional archaeologists to do so were Dr. Dee Ann Story, Dr. Edward B. Jelks, and Lathel Duffield of the Balcones Research Center, University of Texas, Austin, in 1962 (Gilmore 1980:244). Failing to find anything of interest during a monitoring project on Mission Hill, no further investigations took place until 1972 and 1973 when Dr. Kathleen Gilmore tried her hand at locating the elusive mission (Gilmore 1980:242-276). Gilmore dug eight "utility-sized" trenches and one backhoe trench, exposing 23 subsurface features. Although many artifacts dating to the Spanish colonial period were found, none of the features found could be identified or definitely associated with the use of the mission. In 1976, 1977, and 1978, James E. Corbin (1980) of Stephen F. Austin State University conducted archaeological field schools immediately south of Mission Hill. He proved that the mission could partially extend onto the hill but most of it lay to the south, across State Highway 147. Corbin's (1980:iii) excavations identified "the southeastern perimeter wall of the mission complex, three structures, four trash pits, and possibly the position of part of the eighteenth-century El Camino Real." In 1984, Corbin returned to the site to excavate on the south side of State Highway 147. He recovered "further evidence of structures, or internal walls, and more of the perimeter wall, and ... two large pits..." (Corbin 1990:iii). Corbin's excavations also resulted in the recovery of thousands of Spanish colonial, French, and aboriginal artifacts.

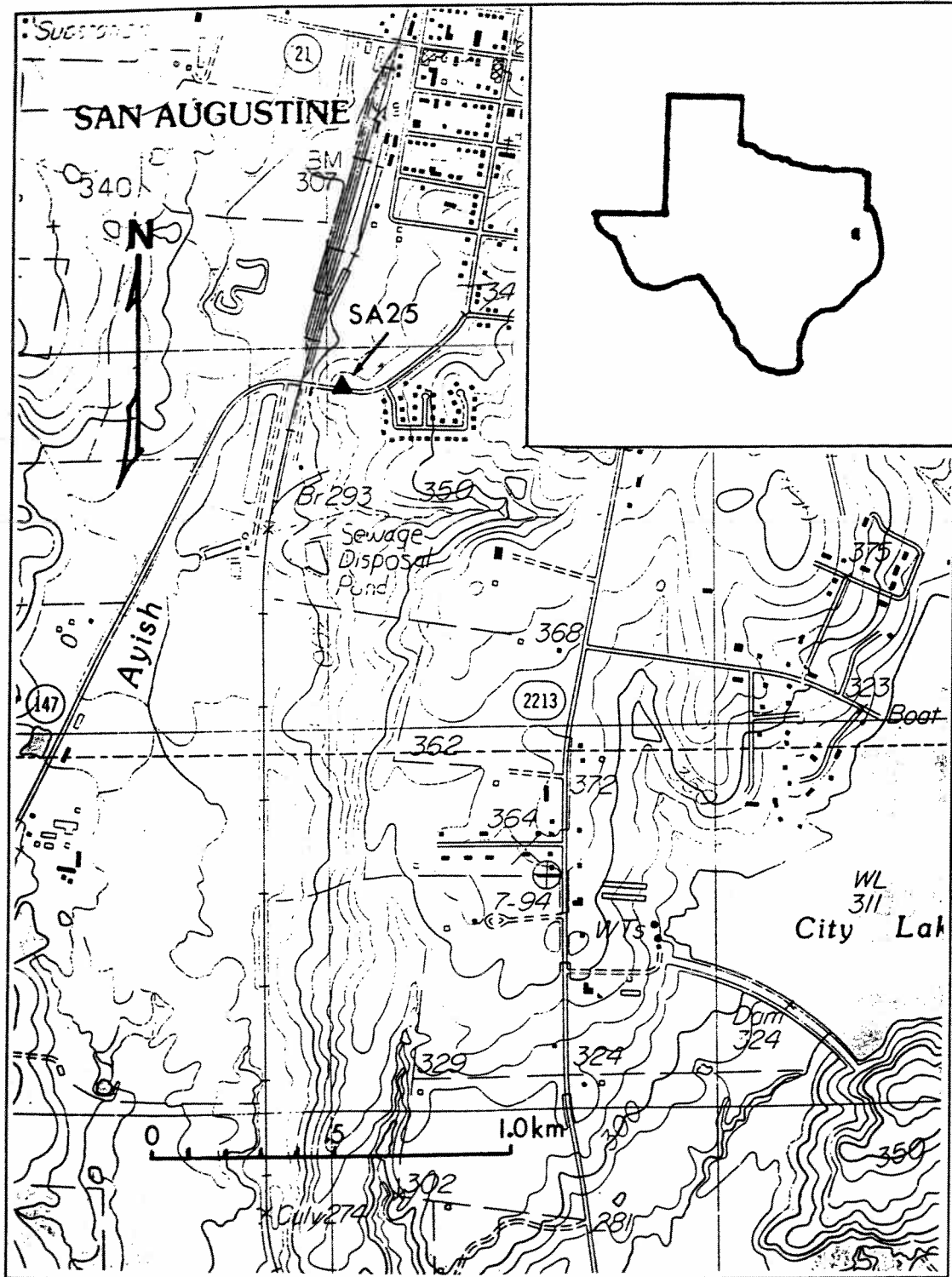


Figure 1. Location of Mission Dolores de los Ais (41SA25) in San Augustine County, Texas (from Corbin 1990:4).

## HISTORICAL SETTING

### *General Background*

The original location of Mission Dolores de los Ais was selected in 1716 when Louis Juchereau de St. Denis accompanied Captain Domingo Ramón to East Texas as an Indian guide. It was not until the following year, however, that the mission was formally established by Father Antonio Margil de Jesús. The first few years at the mission were meager with little support from the government of Mexico. Abandonment was inevitable when France and Spain went to war in 1719, exposing the eastern border of Texas to French aggression (Chipman 1992:111-119). By 1722, the Marquis de San Miguel de Aguayo, a wealthy Spaniard vying for a governorship, pressed to reoccupy the East Texas missions at his own expense. No visible remains of Mission Dolores de los Ais were found and a new mission was built about one-quarter of a league from the original location (Gilmore 1980:226)

Mission Dolores was never particularly successful. In 1749, Father Antonio Ziprian said 70 Ais families--numbering 300 individuals--occupied an area of about two leagues around the mission. They refused to congregate at the mission and at one point the mission was nearly transferred to another location (Gilmore 1980:228-230). In 1767, when the Marquis de Rubí and Nicolás de la Fora visited Mission Dolores, la Fora described it as "...useless as the preceding one [Guadalupe de Nacogdoches]..." (Gilmore 1980:232). Father Gaspar de Solís speculated that the Indians would never be "reduced," or, congregated in a permanent village.

Based upon Rubí's inspection in 1767, he recommended that the East Texas missions be abandoned and in 1773 they were closed. The settlers from Los Ais and Los Adaes abandoned their homes and moved to San Antonio. They eventually returned first to Bucareli in 1774 and then to Nacogdoches in 1779 (Gilmore 1980:237).

By the early 19th century, settlement in Texas had been opened to Anglo Americans. One popular route to East Texas was by steamboat from Natchez, Mississippi, to Alexandria, Louisiana (Henson & Parmelee 1993:1-24). Depending upon the water levels, the steamboats would continue on the Red River to Natchitoches or, when the water was too low, the colonists would depart the boats and continue their journey along the river road. At Natchitoches, travelers would turn southwest to Fort Jesup, continuing past the fort to Gaine's ferry at the main crossing of the Sabine River. From there they followed the Old San Antonio Road to Ayish Bayou and Nacogdoches.

By 1820, the native tribes around Ayish Bayou had virtually disappeared and been replaced by displaced Cherokees, Delawares, and Shawnees looking to obtain Mexican land grants (Henson & Parmelee 1993:27-48). Most settlers, however, were Anglo-American farmers who were cultivating cotton and ginning it as early as 1824. These large numbers of Anglo-Americans alarmed Mexican officials and in 1830 they tried to reverse the trend by banning emigration from the United States; however, the ban could not be applied to established colonies.

In late 1832, the settlers of Ayish Bayou joined together to select a site for their town (Henson & Parmelee 1993:59-67). It was platted at the northern crossing of Ayish Bayou on land purchased in 1801 from the Spanish government by Edmund Quirk. Despite rigid Mexican regulations regarding town layouts, the Ayish Bayou colonists platted a typical American town with 48 blocks containing 356 lots measuring 80 feet wide by 160 feet deep (Figure 2). The population had increased so significantly by 1834--to 350 in town and 2,500 in San Agustín de los Aises--that a separate *ayuntamiento* had been created by the state for San Augustine.

Throughout the remainder of the 19th century, San Augustine was an active participant in political affairs--supporting the move for independence from Mexico, the vote for statehood, and supplying soldiers for the Civil War (Crocket 1970). The period of reconstruction was devastating for East Texas. San Augustine began a slow decline that did not end until the turn of the century when the Santa Fe Railroad extended its line through the town (Crocket 1962[1932]:350-353). Although agriculture continued to be an important part of the economy, the increased commercial activity brought by the railroad and the beginning of the logging industry were the stimulus needed to renew San Augustine's economy.

### *Historical Research*

*Mission Hill Tract.* Acquisition of property associated with the site of Mission Dolores de los Ais has been ongoing. On June 21, 1971, The San Augustine Historical Foundation purchased the Irion Bate, Sr. property on Mission Hill (San Augustine County, Deed Records, Volume 165, Page 617). This tract was conveyed to the City of San Augustine, by the San Augustine Historical Foundation, on September 16, 1993 for \$1.00 (San Augustine County, Deed Records, Volume 284, Page 155).

Around 1941, Irion Bate purchased approximately three-quarters of an acre on top of Mission Hill in the Edmund Quirk Survey (Figure 2) (Irion Bate, Jr., personal communication, 1995). Two dilapidated houses were present on the property at the time it was purchased. At least one of these is visible on the 1940 (Soil Conservation Service) aerial photograph of the tract. When the structures were razed, hand-hewn timbers were salvaged and used in construction of the new Bate house. The Bate house was not standing in 1973 when Kathleen Gilmore interviewed Irion Bate, Sr. (1980:243-244).

Two other houses were subsequently built within close proximity to the Bate house on the adjacent property (Irion Bate, Jr., personal communication, 1995). Both houses were built to accommodate employees of the Stone Lumber Company which owned the sawmill immediately north of the Bate property. One house was directly behind, or, to the north of the current historical marker turnout on State Highway 147. The other house was just to the east at the curve in the highway. Both were removed during the 1950s after the sawmill failed.

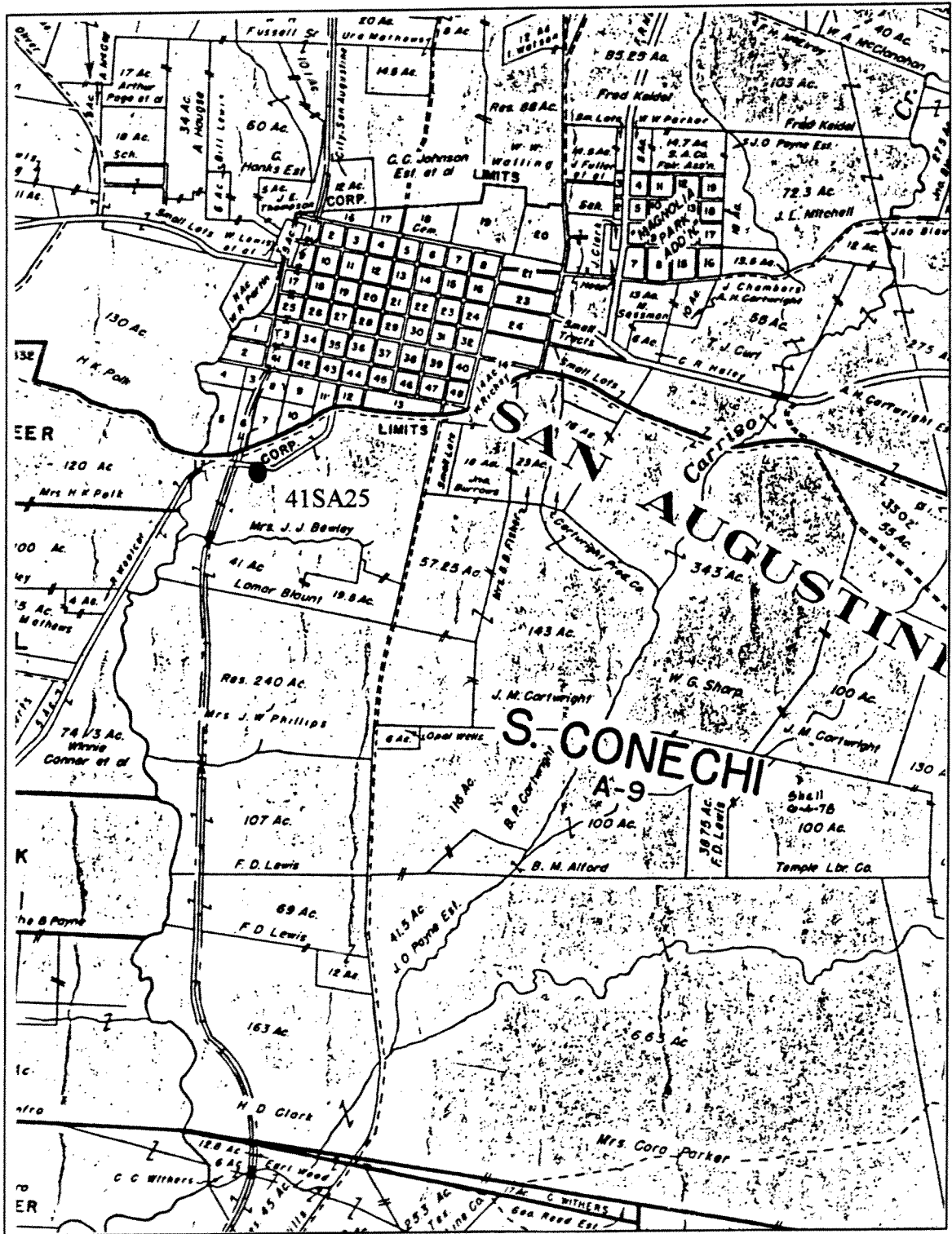


Figure 2. Plat map of project area.



Irion Bate, Jr., (personal communication, 1995) recalled that burials were found during the grading for construction of the house situated behind the historical marker turnout. He did not remember any other burials being found during the period in which he lived on Mission Hill. Mr. Bate did say that as a youth he found "lots" of pottery, arrowheads, red and blue trade beads, and shells--including the columellae of shells. His cousin, Billy Etheridge, found spurs, daggers, and a sword in the cut for the houses. Mr. Etheridge briefly visited our excavations in the fall of 1995 and indicated, in a general way, where he had seen burials exposed during construction of State Highway 147.

*Museum and Parking Lot Complex Tract.* The 10.94 acre tract of land next to Mission Hill, where the museum and parking lot complex will be constructed, was conveyed to the City of San Augustine by the San Augustine Chamber of Commerce on June 18, 1993, also for \$1.00 (San Augustine County, Deed Records, Volume 283, Page 618). This tract was the same parcel sold by John H. Polk and Henry Polk to J.E. Stone and Clyde Stone on November 1, 1945 (San Augustine County, Deed Records, Volume 93, Page 347) and corrected in June of 1947 (San Augustine County, Deed Records, Volume 101, Page 116). At the time of the Stone's purchase in 1945, the San Augustine Manufacturing Company already had a sawmill situated on the property and had been leasing the property from John H. Polk. An aerial photograph of the property in 1940 (Soil Conservation Service) shows structures in the northwest corner of the tract near the railroad tracks that may be buildings associated with the San Augustine Manufacturing Company. The remainder of the tract is cleared with the exception of fence lines.

Mr. Bate (personal communication, 1995) described this property as a logging yard owned by Stone Lumber Company of Nacogdoches during the 1940s. The sawmill commissary, run by Jesse Morris, was at the far east end of the property and beyond an old driveway which was, in later years, the entrance to a ballpark. This drive is still visible today.

Mr. Arlan Hays, editor of the *San Augustine Tribune*, remembered that it was 1939 when the J.E. Stone Lumber Company of Nacogdoches built the sawmill in San Augustine (personal communication, 1995). He confirmed that burials were found during the early 1940s when the area was graded for construction of the houses described by Irion Bate, Jr. However, he recalled five or six "shotgun" houses along the road just east of the historical marker turnout and culvert. Mr. Hays also noted that the area was graded when the houses were later removed. Inspection of the woods to the north of the museum and parking lot complex revealed a line of bulldozed trees and foundation remains inside the treeline. The foundation stones were most likely related to other sawmill structures rather than the shotgun houses described by Mr. Hays. He also stated that during World War II the logging industry was quite active in San Augustine, noting that five or six other sawmills were built during that period. It was after World War II that State Highway 147 was paved.

*Access Road and Recreational Vehicle Tract.* The last tract, containing 25 acres and being the site of the proposed recreational vehicle park and access road, was conveyed to the City of San Augustine by the First National Bank of Center, Texas, in January 1992 for a total of

\$10.00 (San Augustine County, Deed Records, Volume 276, Page 392). This tract, which shows evidence of logging activities, is adjacent to the Boise Cascade Corporation, a sawmill. Planted trees are visible on the 1940 (Soil Conservation Service) aerial photograph of this tract suggesting that trees were being both cultivated and harvested.

## METHODS

### *Field Methods*

Field methods used during this project were defined by the research design presented in the Master Plan (1993). All total, 360 shovel tests and seven 1-x-1 m units were excavated. These were distributed as follows: (1) 100 shovel tests in the museum and parking lot complex with a single 1-x-1 m unit dug between the historical marker turnout and the drainage culvert next to State Highway 147, (2) 50 shovel tests in the recreational vehicle park and an adjacent utility line, (3) 35 shovel tests in the first proposed access road, plus three 1-x-1 m units situated near State Highway 147 (4) 28 shovel tests in the second proposed location for the access road, plus three 1-x-1 m units situated near State Highway 147, (5) 100 shovel tests along the interpretative trail on the south side of State Highway 147, (6) 40 shovel tests along the interpretative trail north of State Highway 147, i.e., Mission Hill, and (7) seven shovel tests along the proposed power line to the museum complex (Figure 3).

The locations of these investigations were tied into previous excavations done by Corbin (1980, 1990). Four datums, which had been set during the 1970's with rebar and concrete, were relocated at N90/W135, N90/W115, N90/W105, and N90/W85. N90/W135 had not been disturbed, N90/W115 had been recently pulled up and the hole from the piece of rebar was still visible in the dirt, N90/W105 had been clipped and bent out of position, and N90/W85 was not disturbed. We extended this line to N90/W20 which was immediately east of the chain-link fence which bounds the western edge of the San Augustine housing project.

*Museum and Parking Lot Complex.* From N90/W20, we established a north-south baseline which extended north across State Highway 147 to the area designated for the museum and parking lot complex. Using this baseline as our starting point, we established a grid at 20 m intervals over the entire area. A transit was used at each grid point along the baseline and the east-west points were located by pulling a tape and marking each grid point with a pin flag.

In the area designated for the museum structure, grid points were marked at five meter intervals (Figure 4). The total number of grid points established was 100 and these were distributed as evenly as possible over the area to be disturbed by both the museum and its adjoining parking lot. Shovel tests were excavated at each of these points using a 30-cm plywood template to mark the size of the shovel test. The grid coordinates marked the southwest corner of each shovel test although the tests were also numbered 1-100. Each test was excavated in 10 cm levels and the soil screened through 1/4 inch mesh. All artifacts older than 50 years were

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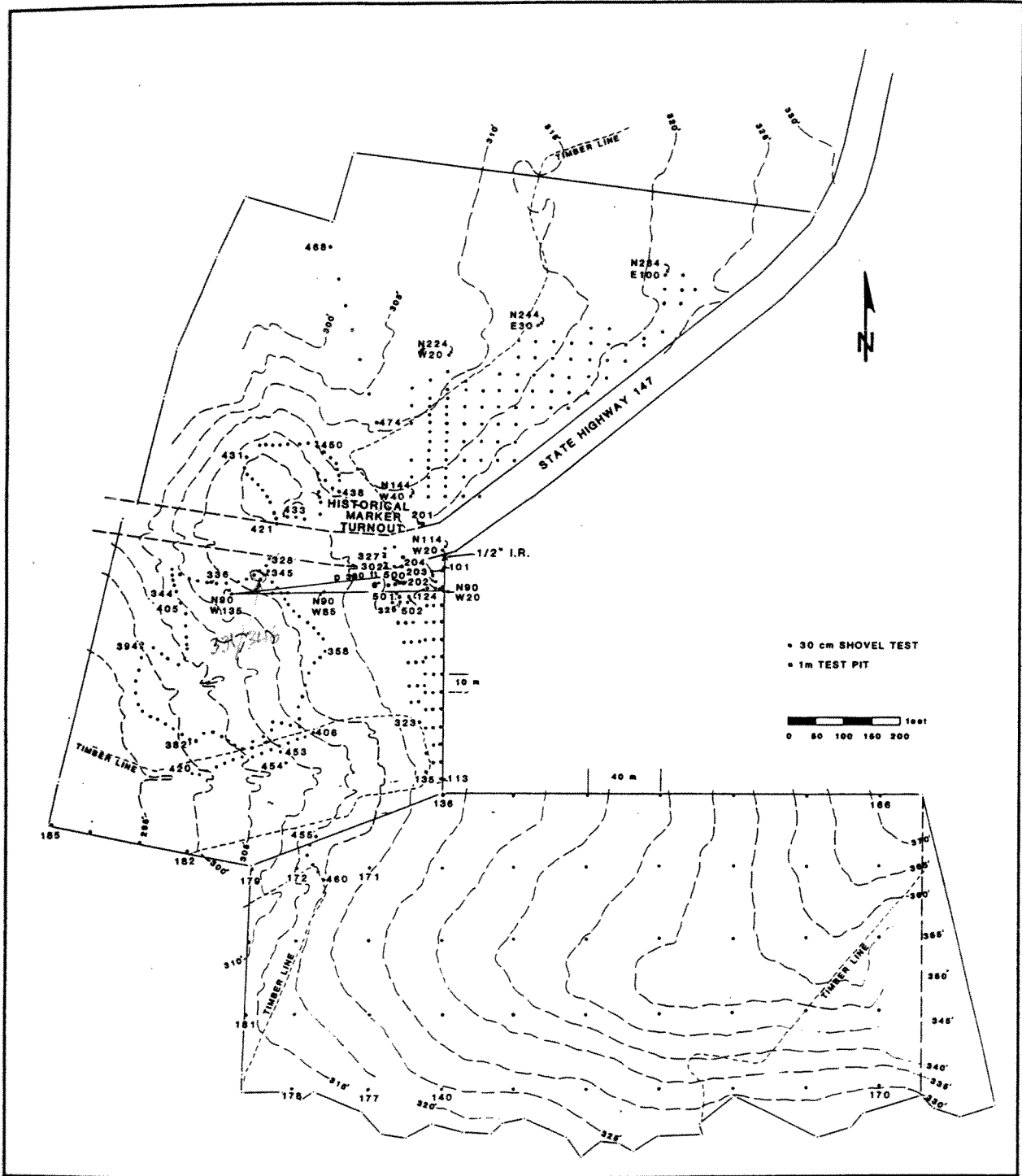


Figure 3. Locations of excavations.



Figure 4. View of proposed museum and parking lot area.



Figure 5. View of proposed access road.

collected in addition to a representative sample of those less than 50 years. All artifacts collected were placed in paper bags.

*Access Road to Recreational Vehicle Park.* The access road to the first proposed location of the recreational vehicle park, on the south side of State Highway 147, ran adjacent to a chain-link fence bounding the west side of the San Augustine Housing Project (Figure 5). It was 30 feet (9.14 m) in width. Testing of the access road included 25 shovel tests for the two rows of vegetation lining the edges of the road and 10 shovel tests for the center of the road, or, a total of 35 tests. Because the access road was not aligned directly north and south, the shovel tests, placed at 20 m intervals, were aligned with the chain-link fence and numbered 101-135. One row of shovel tests was aligned one meter west of the fence. A second row, which was supposed to be aligned at 4.57 m (15 feet) from the fence, i.e., the center of the access road, was actually placed at 5.57 m from the fence. The third row was aligned 9.14 m (30 feet) west of the fence, or, the maximum width of the road.

The second location for the proposed access road to the recreational vehicle park was slightly west of the original proposed location. At its entrance from State Highway 147, the second location was approximately 30 m west of the chain-link fence. As it approached the tract designated for the recreational park, it converged with the original location approximately 65 m south of State Highway 147 near the chain-link fence. To ensure that the shovel tests and units to be placed along this new route were on the same grid as the previous testing, the grid point designated N90 W20 was again used. Eleven pin flags were placed at 5 m intervals along the N90 grid line which roughly followed the chain-link fence. Using a map provided by the project landscape architects that depicted both the chain-link fence and the new placement of the access road, the center line of the road was established and marked with pin flags. Pin flags were also placed 4 m to either side of the center line. Shovel tests were then excavated at 28 of these locations and varied slightly from north to south due to the presence of disturbances, drainages, etc. (Figure 3). The shovel tests were numbered 300-327 to distinguish them from the earlier testing at the first proposed location (Units 1-185). Each shovel test measured 30 cm square and was excavated in 10 cm levels. The soil was screened through 1/4 inch mesh and all artifacts were collected-- with the exception of those 50 years old or less which were recorded and then discarded.

Three 1-x-1 m units were also placed in the northern portion of the newly proposed access road. Each was within the already existing grid system, i.e., N95/W45, N85/W45, and N85/W39 and were designated as units 500, 501 and 502, respectively, to distinguish them from the units associated with the first proposed location of the access road (Units 201-204). All were excavated in 10 cm levels and the soil was screened through 1/4 inch mesh. No modern artifacts were kept. After excavation was completed, two adjoining walls were profiled to show the stratigraphy of the area (Figures 16 -21).

*Recreational Vehicle Park.* The recreational vehicle park, situated directly behind and to the south of the housing project, required 50 shovel tests which were numbered 136-185 (Figure

6). Because of the large area of this tract, the shovel tests were placed at 40 m intervals. The first rows of shovel tests, parallel to the chain-link fence behind the housing project, and one perpendicular row of tests, were chained and flagged. The remaining shovel tests were located by pacing and using a compass. Of the 50 shovel tests, 45 were placed in the tract for the park and five were placed along a utility line bordering the Boise Cascade Corporation.

*Interpretative Trail (South of Highway 147).* Shovel tests were also excavated along the proposed interpretative trail. Consisting of two loops, one on either side of State Highway 147, the northern part of the trail was smaller and encircled the top of "Mission Hill" while the southern part extended south from the highway to the current tree line. Encompassing portions of Corbin's previous excavations (1980, 1990) as well as part of El Camino Real, the southern loop also included a short section connecting the recreational vehicle park with the interpretative trail (Figure 3).

Shovel test locations were flagged along the interpretative trail by establishing a second baseline at 60W. This baseline, used by the project landscape architects to plot the location of the interpretative trail, crossed State Highway 147 and then jogged 30 m to the west because of heavy vegetation. All shovel test locations corresponded with points designated on the project



Figure 6. View of proposed recreational vehicle park.

landscape architect's map of the trail. These points were mapped at 6.1m (20 ft) intervals and were established on the ground by measuring their distance from the 60W baseline. Once these points were marked with pin flags, additional shovel test locations were placed approximately halfway between the already mapped points. As a result, the shovel tests along the length of the interpretative trail were spaced at approximately 5-6 m intervals.

One hundred shovel tests were excavated on the southern loop of the trail. Units 328 to 405 (78 shovel tests) were placed along the major portion of the trail, Units 406-420 (15 shovel tests; no artifacts recovered) were placed along a part of the possible El Camino Real, and Units 454-460 (7 shovel tests; no artifacts recovered) were placed along the short connecting trail to the recreational vehicle park. In two units, 331 and 346, all of the matrix from the 30-x-10 cm levels was collected in plastic zip-lock bags for later flotation since it appeared that these units were located within probable middens.

Unit 346 (Feature 11) was excavated in a slightly different manner than the other shovel tests. Yielding a higher concentration of artifacts than the other shovel tests, it was expanded to 50-x-50 cm in Level 2 to preserve a large piece of bone jutting out of the wall but also to determine if the bone was from a midden or a burial. Levels 1 to 4 were excavated as a 50 cm unit. When the concentration of large bone fragments dropped off, Levels 5-8 were resumed as 30 cm square levels. All eight flotation samples taken from the feature had dimensions of 30-x-10 cm so that their volume could be appropriately compared. The largest pieces of bone were treated with a solution of Elmer's Glue and water (10% glue and 90% water) to ensure the preservation of the pieces. While the Elmer's brand name is not usually recommended for bone treatment, another consolidant was not available in the field. Because ongoing investigations are proposed as part of the development of this site, no attempts were made to define the limits of the feature.

*Interpretative Trail (North of Highway 147).* On the north loop of the trail, 40 shovel tests were excavated. Units 421-442, 444-451, 461-467, and 475, totaling 38 shovel tests, were placed along the trail. Two others, Units 452 and 453 (no artifacts recovered), were placed on the slope to the north to ensure that no artifacts were present there. Each shovel test measured 30 cm square and was excavated in 10 cm levels. All artifacts were saved with the exception of modern artifacts which were recorded then discarded in the field.

*Power Line Right-of-Way.* Lastly, shovel tests were excavated along a power line lying northwest of the proposed museum complex. This line initiated at a man hole near an old lumber-weighing house north of the complex and extended southward to the culvert under State Highway 147 where it will be connected to other power lines (Figure 3). Since a large portion of this area was previously tested, it was only necessary to test within the existing tree line. Furthermore, because the proposed location for the power line was cross-cut by a number of drainages, only seven shovel tests were necessary (Units 468-474).

### *Laboratory Methods*

All artifacts were returned to Historic Sites Research for processing. Those that were heavily soiled were gently rinsed in clear water and then air dried on screens. However, most of the artifacts were cleaned with a dry brush to remove the soil without disturbing the artifact more than necessary. A basic data analysis was conducted and provided the basic counts used in the following section on material culture. After the basic counts were done, artifacts that were younger than 50 years old were culled from the collection and catalog numbers assigned to the remaining artifacts. A layer of Krylon was applied to each artifact in the area the catalog number would be applied, then the catalog number was written with black rapidograph ink, and another layer of Krylon applied over the number. The catalog number consisted of the site number (41SA25) and a unique artifact number. Because previous investigations have been done at 41SA25, the catalog number for this collection begins with number 1028 and ends with 1303. The artifacts were re-bagged in plastic zip-lock bags with acid free tags identifying each provenience. The samples taken from Units 331 and 346 were floated and the remains were analyzed by J. Philip Dering (Appendix V). The larger pieces of bone were also separated and analyzed by Anna Lee Presley (Appendix IV). The artifacts, field notes, records, photographs, and maps will be temporarily curated with the City Manager's Office in San Augustine, Texas.

### **MATERIAL CULTURE**

The strategy used during excavation was to collect all artifacts 50 years and older and a sample of artifacts younger than 50 years to document disturbances. Because some artifacts span a period of more than 50 years and could fall into either category, diagnostic attributes were used to determine whether or not to keep certain artifacts. A total of 3,340 artifacts were recovered: 3,258 were found in shovel tests (of which 438 were found to be younger than 50 years old) and 82 were discovered in the seven 1 m-x-1 m units (of which 14 were younger than 50 years) (Tables 3, 4; Appendices II, III).

The horizontal distribution yielded 473 artifacts from the museum and parking lot complex on the north side of the highway, 81 artifacts from the first proposed access road, 87 artifacts from the second proposed access road, three artifacts from the recreational vehicle park, 66 artifacts from the northern loop of the interpretative trail, 2,629 artifacts from the southern loop of the interpretative trail, and one artifact from the power line. Because of the low density of artifacts throughout most of the project area and, in most cases, the absence of diagnostic attributes, the following discussion focuses upon the vertical distribution of the artifacts and the probability that all contexts were disturbed--the one exception being the southern loop of the interpretative trail.

#### *Artifacts Recovered from Shovel Tests*

All shovel tests were excavated one level beyond the last level from which artifacts were recovered. Across the entire project area, 1,005 artifacts were discovered from 1-10 cm below



the surface, 612 from 10-20 cm, and 410 from 20-30 cm (Table 1) Only one shovel test had more than 3 levels with artifacts (Unit 346; see discussion below).

*Museum and Parking Lot Complex.* The vertical distribution of the 374 artifacts found throughout the first 10 cm of the museum and parking lot complex was characterized by a large quantity of bottle glass fragments, mostly colorless and amber. Other glassware included blue-green glass, green glass, white milk glass, recent bottle finishes, necks, and bases, flat (window) glass, and pressed tableware. None of these was believed to be older than 50 years and were culled (Table 1; Appendix II).

A single blue glass bead (Catalogue #1031) was also recovered. Its irregular shape and many air bubbles suggest that it is probably a trade bead rather than a modern bead. Measuring 8.33 mm in diameter, it may be a drawn tubular bead rounded through reheating and tumbling. Kidd and Kidd (1970:45-89) call this size bead "large" and the opaque blue color is "Robin's Egg Blue." The bead is most similar to example Ila40 (Kidd and Kidd 1970:56).

A handful of ceramics smaller than a thumbnail in size was also recovered from the first 10 cm. These included a fragment of undecorated semi-porcelain, some Albany slipped and/or Bristol glazed stoneware sherds, and a yellow lead glazed earthenware basal fragment, probably from a bowl. These wares can date from the turn of the century to the second quarter of the twentieth century and so none were culled.

Much of the metal recovered from the first level of excavation could not be precisely identified but probably represents the remainder of tin cans. Other materials recovered included modern materials such as aluminum foil, mortar, "Naugahyde" (imitation leather), and plastic. Organic remains included anthracite, burned wood, and charcoal. Natural ferrous concretions were found throughout the museum and parking lot complex area.

Far fewer artifacts were recovered from the shovel tests between 10-20 cm, totaling only 58. A single undecorated, bone-tempered, aboriginal sherd was recovered. The Anglo American ceramics included two fragments of a soft white paste earthenware which could predate the harder whitewares. Also, two fragments of a gray paste stoneware were recovered. Glass was much less frequent in the second level of excavation, although amber and colorless still predominated, along with some flat glass. Metal artifacts were minimal with the recovery of a single cupreous bolt and nut, an iron chain link, and three wire nails. Other artifacts included a possible soft shell turtle bone, burned wood, charcoal, terra cotta brick, and a shotgun shell. The shotgun shell was identified as a Remington shell that was first used in 1913 (Muller and Olson 1968).

Lastly, five wire nails were the only artifacts recovered from 20-30 cm below ground surface. These nails were found in a cluster and most likely were deposited during earth moving activities in the vicinity.

Table 1. Vertical Distribution of Artifacts Recovered from Shovel Tests.

ARTIFACTS	LEVEL 1 (0-10 cm)	LEVEL 2 (10-20 cm)	LEVEL 3 (20-30 cm)	TOTAL
<b>CERAMICS</b>				
Aboriginal - Plain Greyware	43	57	57	157
Aboriginal - Decorated Greyware	12	5	3	20
Undecorated Soft White Paste Earthenware		2		2
Undecorated White Paste Earthenware	7	6		13
Decorated White Paste Earthenware	6			6
Undecorated Semi-porcelain	1			1
Undecorated Tan Paste Stoneware	7			7
Undecorated Gray Paste Stoneware		2		2
Albany Slipped/Bristol Glazed Stoneware	3			3
Yellow Lead Glazed Earthenware	1			1
Sewer Pipe Fragments	4			4
Ceramic Totals	84	72	60	216
<b>GLASS</b>				
Amber	177	4		181
Amethyst		8		8
Blue-green	1			1
Colorless	159	32		191
Green	11	3		14
White	3			3
Bead (blue trade)	1			1
Bottle Finish	9			9
Bottle Neck	7			7
Bottle Base	2			2
Flat	11	13		24

<b>ARTIFACTS</b>	<b>LEVEL 1 (0-10 cm)</b>	<b>LEVEL 2 (10-20 cm)</b>	<b>LEVEL 3 (20-30 cm)</b>	<b>TOTAL</b>
Molded Letters	5	1		6
Pressed	3			3
Glass Marble		1		1
Glass Totals	389	62	0.00	451
<b>METAL</b>				
Indeterminate	9			9
Cupreous Bolt and Nut		1		1
Wire Nail	7	6	20	33
Double-headed Wire Nail	1			1
Cut Nail	6	3	3	12
Iron Chain Link		1		1
Machine Bolt and Nut	1			1
Wire Staple/U-shaped	2		1	3
Wire	1			1
Barbed Wire	4			4
Harness Piece	1			1
Tin Cup Rim	1			1
Tin Sheet Fragment	1			1
Lead Shot	1			1
Small Brass Tube	1			1
Metal Totals	36	11	24	71
<b>BONE</b>				
Bone Fragments	321	367	290	978
Burned Bone Fragments	56	84	30	170
Tooth Fragments	5	11	3	19
Bone Totals	382	462	323	1167

ARTIFACTS	LEVEL 1 (0-10 cm)	LEVEL 2 (10-20 cm)	LEVEL 3 (20-30 cm)	TOTAL
<b>LITHICS</b>				
Chert Pieces	2	3	1	6
Debitage	4			4
Cores	1		1	2
Tools	1			1
Lithic Totals	8	3	2	13
<b>OTHER</b>				
Aluminum foil	1			1
Anthracite	2			2
"Isinglass"	52			52
Marine Shell	1		1	2
Mortar	24			24
"Naugahyde"	1			1
Plastic	14			14
Roofing Material	6			6
Shotgun shell		1		1
Terra cotta brick	5	1		6
Other Totals	106	2	1	109
<b>TOTAL</b>	<b>1005</b>	<b>612</b>	<b>410</b>	<b>2027*</b>

\*See Appendix II. Of the 2,027 artifacts listed above, 424 were culled during analysis since they were less than 50 years of age. Total does not include 1,231 artifacts recovered from Levels 4-8 of Unit 346, nor 82 artifacts recovered from 1-x-1 m units.

*Access Road to Recreational Vehicle Park.* Few artifacts were recovered from the 40 shovel tests dug at the first proposed location of the access road. Of the 82 artifacts found, a double-headed wire nail, several single-headed wire nails, and a specialized machine bolt and nut were some of the more diagnostic. Of greater interest were 52 fragments of "Isinglass." These thin sheets of cut mica were used during the late nineteenth century as windshields in buggies

(Barry Moore, personal communication, 1995), and later in wood burning heaters (Mirken 1970:938). Finally, terra cotta brick fragments, a small animal femur, and some unidentified faunal remains were found. A vertebra (*Bos*), which may have been butchered, was found in the proposed access road (Helen Dockall, personal communication, 1995).

The 28 shovel tests along the second proposed access road yielded only 87 artifacts (Appendix II, Units 300-327). All of the artifacts from this location were recovered from an area 5 m to 50 m south of the highway. Beyond 50 m, the artifact density dropped to zero. From 0-10 cm below the present ground surface large amounts of modern artifacts were recovered including a tin sheet fragment, flat glass, brown bottle glass, clear bottle glass, plastic, wire nails and barbed wire. Also found in this level were six lithics, all chert. Three of the lithics appeared to be simply chert pieces and their relation to core reduction is indeterminable. Since cherts do not appear to be native to the area it is interesting that they appear here. There were, however, one core fragment and two flakes also recovered from this level, suggesting that some core reduction was taking place. From 10-20 cm the modern artifacts dropped off considerably and more historic artifacts were found--including eight pieces of an amethyst glass jar, a piece of dark green glass (possibly modern) and a single piece of undecorated white earthenware.

*Recreational Vehicle Park.* The proposed area for the recreational vehicle park had been, literally, bladed clean. Only three artifacts, an undecorated white paste earthenware, a molded and lead glazed white paste earthenware bowl rim, and some brick were found.

*Interpretative Trail (South of Highway 147).* The southern loop of the interpretative trail proved to be the most productive in terms of artifact density (Appendix II, Units 328-420, 454-460). Furthermore, excavation of 100 shovel tests made it possible to determine the limits of the mission site. State Highway 147 formed the northern boundary of the site, i.e., investigations on Mission Hill did not demonstrate that the mission extended across the road. The southern limit varied. The westernmost shovel tests along the interpretative trail yielded artifacts 28 m south from the center of the highway. Artifacts were recovered from the easternmost shovel tests as far south as 58.5 m from the center of the highway. All shovel tests units south of these limits displayed minimal to no artifact density, including the 15 shovel tests along the possible El Camino Real and the seven shovel tests on the connecting trail to the recreational vehicle park.

The limits east and west were not as readily definable. Artifacts were found 63.4 m west of the 60W baseline. This measurement marks the westernmost shovel test from which artifacts were recovered. While there may be artifacts further west of the interpretative trail, the topography drops into a drainage area and it is likely that the site does not extend much further.

The easternmost shovel test to yield artifacts was 7.3 m west of the 60W baseline. Since the shovel tests in this area displayed distinctly different artifacts than the access road area, we can assume that there is a boundary somewhere between the proposed interpretative trail and the access road. That boundary is yet undefined since the area in question has not been tested.

The artifacts recovered from the southern loop of the interpretative trail were also quite distinct from other areas mainly due to the amount of aboriginal ceramics (non-diagnostic) and bone fragments found. The largest number of artifacts was recovered from Unit 346 or, Feature 11. This midden accounted for 2,149 of the 2,629 artifacts recovered south of the highway and included 1,880 fragments of bone, 237 aboriginal ceramics, 6 marine shell fragments, 1 large tooth and 18 tooth fragments, and 7 historic artifacts.

The remainder of shovel tests along the southern loop of the trail also reflected a trend towards aboriginal ceramics and bone, but in smaller quantities. From 99 shovel tests, only 480 artifacts were recovered. The first level, from 0-10 cm below the surface, produced 180 fragments of bone, 41 aboriginal ceramics, 2 tooth fragments, one marine shell, and 2 pieces of debitage. A number of historic artifacts were also found including 13 fragments of an amber glass jar, 1 tin cup rim, 4 undecorated tan paste stoneware sherds, 1 white paste earthenware fragment, 4 cut nails, and a metal piece probably from a harness. Modern artifacts such as a brick, 2 u-shaped wire staples, and flat glass were also present in the first level. The second level, from 10-20 cm, contained a similar but smaller distribution, i.e., 133 bone fragments, 29 aboriginal ceramics, 1 debitage, and 2 tooth fragments with 1 undecorated white paste earthenware and 3 cut nails. In the third level, 20-30 cm, the artifact density dropped off considerably with only 14 bone fragments and three aboriginal ceramics recovered.

In contrast, Unit 346 was the only shovel test to yield artifacts below 30 cm. The high density of artifacts recovered is attributed to midden debris. From Levels 4-8, 1,231 additional artifacts were recovered and are described as follows (see all Appendix II):

Level 4: 1 chert piece, 1 large tooth, 365 bone fragments, 127 burned bone fragments, 2 marine shell fragments, 47 plain aboriginal ceramics, 11 decorated aboriginal ceramics, and 1 indeterminate metal item.

Level 5: 37 plain aboriginal ceramics, 9 incised aboriginal ceramics, 238 bone fragments and 29 burned bone fragments.

Level 6: 21 aboriginal ceramics, 3 marine shell fragments, 180 bone fragments, 17 burned bone fragments, and 1 indeterminate metal fragment.

Level 7: 6 aboriginal ceramics, 1 tooth fragment, 98 bone fragments, and 10 burned bone fragments.

Level 8: 6 aboriginal ceramics, 2 tooth fragments, 15 bone fragments, 1 burned bone fragment, 2 indeterminate metal fragments.

*Interpretative Trail (North of Highway 147).* The northern loop of the interpretative trail (Appendix II, Units 421-442, 444-451, 461-467, and 475) encompassed the top of Mission Hill north of State Highway 147. The 66 artifacts recovered from this area were primarily from the early to mid-twentieth century and were probably associated with the Bate House. Although the

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area is largely disturbed due to the Bate house construction and destruction, an assessment of the dispersement of the artifacts is useful. There was a light concentration of artifacts in the shovel tests on the western side of the trail. However, where the trail dips towards a drainage on the north (48.75 m west of the baseline and 41.45 m north of the center of the highway) the artifact density dropped to zero. No artifacts were recovered from the northern part of the trail. However, the northeastern quadrant of the interpretative trail (from the center of the baseline and 40.25 m north of the center of the highway) had the highest artifact density.

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Most of the artifacts from the northern loop were recovered within the first 10 cm below ground surface. Historic artifacts included 10 fragments of glass, 4 fragments of sewer pipe, 12 pieces of white paste earthenware (5 decorated and 7 undecorated), 1 tan paste undecorated stoneware, 1 cut nail, 1 small brass tube, and 1 small sized shot. Modern artifacts from this level consisted of 1 glass marble, roofing material, and flat glass fragments. Artifacts from 10-20 cm were less numerous with only 3 cut nails, 1 u-shaped staple, and 15 wire nails. No artifacts utilizing prehistoric technology were recovered from this area.

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*Power Line Right-of-Way.* Seven shovel tests were completed for a proposed power line right-of-way (Appendix II, Units 468-474). Although a large amount of modern trash was on the surface in the area tested (such as modern bricks, bottles, roofing material, etc.) only one artifact was found in any of the shovel tests. Surprisingly, it was an incised aboriginal ceramic. This shovel test was located just north of the clearing where the museum complex will be constructed and where the logging company was located in the 1940's. Since the area has been extensively disturbed it was not possible to determine the significance, if any, of this artifact.

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*Artifacts Recovered from 1-x-1 m Units*

Seven 1-x-1 m units were established and excavated during the project (Units 201-204; Units 500-502). All of these were located in a roughly 20-x-30 m area just south of the highway and west of the chain-link fence of the San Augustine housing project. This area was carefully tested due to rumors that it was the location of a number of burials, yet evidence to support the claim was not found. Instead, an assemblage of largely twentieth century manufacture was recovered from the test units. Of the total 82 artifacts recovered, 14 were discarded as modern in the laboratory. The vertical distribution of the artifacts is shown in Table 2.

*Access Road to Recreational Vehicle Park (First Proposed Location).* Four 1-x-1 m units (Units 201, 202, 203, and 204) were excavated to approximately 60 cm below ground surface and yielded a total of 36 artifacts (Appendix III). It should be noted that while some samples of recent artifacts were collected to document the disturbance in these units, the large quantities of asphalt and gravel that occurred were discarded in the field.

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Of the 36 artifacts collected, 18 occurred in the first level from 0-10 cm below ground surface. No ceramics were found. A variety of recent glass, including a colorless bead, was recovered. The round bead measured 9.9 mm in diameter and was regularly shaped with a very

Table 2. Vertical Distribution of Artifacts Recovered from 1-x-1 m Units.

ARTIFACTS	LEVEL 1 (0-10 CM)	LEVEL 2 (10-20 CM)	LEVEL 3 (20-30 CM)	LEVEL 4 (30-40 CM)	LEVEL 5 (40-50 CM)	TOTAL
<b>GLASS</b>						
Amber	2					2
Blue	2					2
Green		1				1
Colorless	7	3				10
Bead (colorless)	1					1
Bottle base	1					1
Glass Total	13	4	0.00	0.00	0.00	17
<b>METAL</b>						
Cut Nail				1	1	2
Wire Nail	3					3
Lead Bullet				1		1
Lead Shot					1	1
Wire	2	3				5
Barbed Wire	2					2
Wire Staple	1					1
Aluminum Can Pull Tab		1				1
Metal Total	8	4	0.00	2	2	16
<b>LITHICS</b>						
Chert Pieces	14	5				19
Quartzite Pieces	2					2
Debitage	3	2	1			6
Cores	1	4				5
Modified Flakes	1	1	1			3
Lithic Total	21	12	2	0.00	0.00	35



ARTIFACTS	LEVEL 1 (0-10 CM)	LEVEL 2 (10-20 CM)	LEVEL 3 (20-30 CM)	LEVEL 4 (30-40 CM)	LEVEL 5 (40-50 CM)	TOTAL
<b>CERAMICS</b>						
Undecorated White Paste		2				2
Ceramic Total	0.00	2	0.00	0.00	0.00	2
<b>OTHER</b>						
Bone		3	6	1		10
Plastic	2					2
Other Total	2	3	6	1	0.00	12
<b>TOTAL</b>	<b>44</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>2</b>	<b>82*</b>

\*See Appendix III. Of the 82 artifacts listed above, 14 were discarded after being determined modern in manufacture.

small hole suggesting that it is a modern bead, probably of twentieth century origin. Also, wire, a wire staple, plastic, a core, debitage, and a modified thin flake were collected.

From 10-20 cm below ground surface, only five artifacts were recovered. These included three bone fragments that were unidentifiable, a core, and a piece of debitage.

In the third level, between 20-30 cm below ground surface, eight artifacts were recovered. These included six bone fragments that were unidentifiable, a piece of debitage, and a modified thin flake.

Level 4, 30-40 cm below ground surface, yielded three artifacts including a cut nail, a lead bullet, and a medium-sized bone that had deteriorated from heavy compaction and could not be identified. The lead bullet was non-jacketed and weighed 154.3 grams--most likely being a 158-gram bullet that lost 7.7 grams when fired (Johnson, personal communication, 1995). These bullets are used in cartridges made for, (1) .357 Magnum handguns for varmint, self-protection, small game, and police, and (2) .38 special handguns for police and self-protection. The .38 special rounds have been the most popular handgun cartridge in the past (Matunas 1979:82-84).

In the last level, from 40-50 cm below ground surface, a single cut nail and a piece of lead shot were found. The lead shot measured 0.16 inches in diameter.

*Access Road to Recreational Vehicle Park (Second Proposed Location).* All three test units (Units 500-501) were excavated to 30 cm below ground surface. No artifacts were found in the third level in any of the units. A total of 46 artifacts were recovered, mostly of twentieth

century manufacture. The first level, from 0-10 cm below the surface, contained modern artifacts such as 1 clear flat glass, 1 amber bottle glass, 2 pieces of barbed wire, 1 piece of round wire, and 3 wire nails. The only artifacts which might be older than 50 years were 14 pieces of chert, 2 pieces of quartzite, and 1 piece of chert debitage. While the one chert flake indicates core reduction was taking place, which could have been used in the manufacture of lithic tools as well as during the use of gun-flints, it is not possible to determine if the chert and quartzite pieces were part of that process. Yet, since these materials are not native to this area, their appearance here might be important to note.

The second level of these units, from 10-20 cm, also produced a large number of cherts. There were 5 indeterminate chert pieces, 3 debitage, 3 cores, and 1 utilized flake. The existence of the flakes and cores indicates that at least some core reduction had been taking place in the area. There were also a few historic artifacts in this level including 2 undecorated white paste earthenwares, 1 dark green glass fragment, and three clear glass fragments.

## RESULTS

Considerable disturbance was noted throughout the project area. Four of the areas investigated, i.e., the museum and parking lot complex, the two access road locations, the recreational vehicle park, and Mission Hill (northern loop of the interpretative trail) had histories of earth moving activities. Consequently, all levels of excavation from these areas showed signs of disturbance, either through the presence of modern bottle glass and wire nails, or obvious disturbances to the natural strata.

### *Museum and Parking Lot Complex*

In the museum and parking lot area, a noticeable absence of either artifacts or features associated with company houses owned by the Stone Lumber Company during the 1940's was observed. Local informants reported that the area had been bladed and bulldozed. Uprooted trees, foundation stones, and other debris found behind the present timberline verified these stories.

### *Access Road to Recreational Vehicle Park*

Investigations in the first proposed access road location exposed quantities of gravel. The depth and compaction of the gravel suggest that it may be an old roadbed. In all likelihood, it represents a previous location of State Highway 147 before it was paved during the 1940's. However, the proximity of the access road area to both State Highway 147 and the San Augustine Housing Project suggest that construction activities from either of these two features may be responsible for the gravel. The second proposed access road location was so near to the first location that similar disturbances were noted, although there was no gravel present and a wide variety of cherts were found.

### *Recreational Vehicle Park*

The recreational vehicle park tract was literally without any artifacts or significant stratigraphy. Obvious erosion and logging activities on an adjacent tract suggest that this tract, too, had been logged in the past (Figure 7).

### *Interpretative Trail*

With the exception of the interpretative trail, the proposed development of the site of Mission Dolores de los Ais targeted the periphery of the already known site remains so that significant deposits associated with the mission could be avoided. Since the trail will be constructed on top of the present ground surface, the impact to the site should be minimal. The only significant remains uncovered were from a single shovel test (Unit 346) in the southern loop of the interpretative trail. Of the 3,340 artifacts recovered during the project, 2,149 came from Unit 346. This high density was attributed to midden deposits. No structural components were apparent nor were there pit boundaries observed, obviously due to the small size of the excavation unit. The Mission Hill area, i.e., northern loop of the interpretative trail, had likely been bladed when the Bate house was built and/or demolished and when company houses associated with the Stone Lumber Company were demolished.

Despite these serious disturbances, which in most cases removed artifacts from their original place of deposition, artifacts were recovered. A total of 3,340 artifacts were recovered from the seven 1-x-1 m units and 360 shovel tests. There were 355 ceramics (41 historic and 314 aboriginal), 2,261 bone and tooth fragments, 7 marine shell fragments, 49 lithics, 468 glass fragments, 91 metal items, and 109 other items recovered. Of those artifacts, 438 were discarded due to their modern nature.

### *Summary*

Across the project area, the horizontal distribution yielded 473 artifacts from the museum and parking lot complex on the north side of the highway, 81 artifacts from the first proposed access road, three artifacts from the recreational vehicle park, 87 artifacts from the second proposed access road, 66 artifacts from the northern loop of the interpretative trail, 2,629 artifacts from the southern loop of the interpretative trail, and one artifact from the power line. The total volume of dirt excavated was 8.859 cubic meters. Given 3,340 artifacts, the density of artifacts per cubic meter was 377. However, after removing the volume (0.136 cubic m) and artifact count (2,149) from Unit 346, a resulting density of 137 artifacts per cubic meters was calculated which is more indicative of the site as a whole.

Only a single blue glass bead could be definitely associated with the mission period. A few cores, modified flakes, and debitage as well as 314 aboriginal ceramics and 2,261 bone fragments may also be associated with the mission period, but this is less certain because of the absence of diagnostic characteristics. The remainder of the historic artifacts primarily dated to the late 19th century or early 20th century.

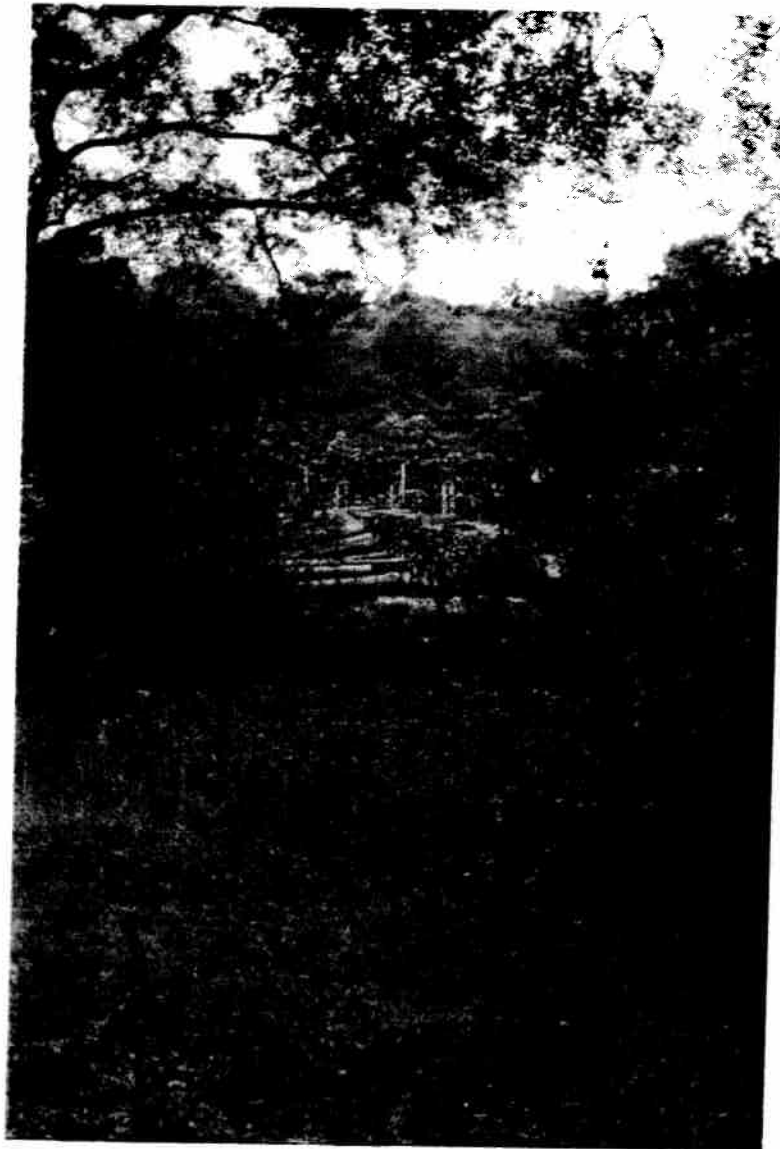


Figure 7. View of logging operations southwest of recreational vehicle park.

Interestingly, the aboriginal ceramics greatly outnumbered the historic ceramics. A total of 355 ceramics was recovered; 314, or 88.45%, were aboriginal while only 41, or 11.55%, were historic. Of the 314 aboriginal wares, only 40, or 12.74%, were incised or otherwise decorated. Despite the presence of decoration, none were diagnostic.

The large amount of bone recovered was found mainly in the vicinity of Corbin's (1980,1990) previous excavations immediately south of State Highway 147. Unit 346, which yielded the most artifacts, was located along the 98.19W line between 90N and 100N. This location is immediately south of Corbin's (1980, 1990) previous excavations and the findings are consistent with his. A total of 2,261 bone and tooth pieces or fragments were recovered during the present project. Of these, 1,951 (from the second field session) were examined in detail by Anna Lee Presley (Appendix IV). She concluded that only 66 specimens could be identified beyond the class level and these included examples of water and box turtles, rabbits, carnivores, even-toed ungulates, and cattle. The taxa Mammalia was most represented. Some cut marks were noted, either from butchering or skinning. Also, spiral fractures were present, presumably from the extraction of bone marrow. Lastly, 17.3% of the bones were burned and 6% calcined. This evidence suggests that subsistence activities were taking place on site.

Also, from Unit 346, large quantities of charred wood were recovered and these were analyzed by J. Philip Dering (Appendix V). Dering noted that no charred seeds were present but that wood charcoal was abundant. This indicates that the plant material found in this location was being used for fuel rather than as food. Five woody taxa were represented and may be discarded fuel wood.

In summary, the investigations conducted around the periphery of Mission Dolores de Los Ais show severe disturbances that have destroyed evidence of activities associated with the mission. It is apparent from previous excavations (Corbin et al. 1980; Corbin 1990) and the shovel tests conducted on the southern loop of the interpretative trail that significant deposits with evidence of subsistence activities present remain on the south side of State Highway 147. Although severe disturbances have clearly also taken place on the north side of State Highway 147, there was no evidence that the mission complex continued in that direction.

## RECOMMENDATIONS

Disturbance in most areas of proposed construction for the Mission Dolores de los Ais development project suggests that logging activity, housing construction, and highway construction has obliterated most evidence of mission activity. Logging activities, and accounts of bulldozing or grading, have removed or displaced most archaeological remains that might have occurred within the first 15-30 cm of soil. The only significant remains were discovered along the meandering southern loop of the interpretative trail, immediately south of State Highway 147, in an area where previous excavations have already demonstrated that significant remains are present. Because the trail will be constructed on top of the present ground surface, adverse impacts to the site are not anticipated. Consequently, it is recommended that the project proceed as planned. However, if archaeological remains are exposed during construction, the

Texas Historical Commission should be contacted. An archaeologist must be present to monitor further construction activities and properly assess any artifacts or features found for their significance.

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- 1945 John H. Polk & Henry Polk to J.E. Stone & Clyde Stone, Outlots 7 and 11, Volume 93, Page 347, November 1, 1945.
- 1947 John H. Polk & Henry Polk to J.E. Stone & Clyde Stone, Outlots 7 and 11, Volume 101, Page 116 (corrections), June 1947.
- 1971 Irion Bate, Sr., to San Augustine Historical Foundation, 0.75 acres, Volume 165, Page 617, June 21, 1971.
- 1992 First National Bank of Center to City of San Augustine, 25 acres, Volume 276, Page 392, January 1992.



1993 San Augustine Chamber of Commerce to City of San Augustine, 10.94 acres,  
Volume 283, Page 618, June 18, 1993.

1993 San Augustine Historical Foundation to City of San Augustine, 0.75 acres,  
Volume 284, Page 155.

Soil Conservation Service

1940 Aerial photograph of project area, Negative No. CKX-7-9, dated 5-2-40. On file,  
Historic Sites Research, College Station, Texas.

**APPENDIX I**

**GEOLOGY OF MISSION DOLORES DE LOS AIS**

Frederic Pearl  
Department of Anthropology  
Texas A&M University

## GEOLOGY OF MISSION DOLORES DE LOS AIS

Frederic Pearl  
Department of Anthropology  
Texas A&M University

During Corbin's (1980:333) excavations within the current project vicinity, he stated that the soils at Mission Dolores de los Ais fall into the Trawick-Bub soil complex. The soils encountered during the present testing project confirm that the predominant upland soil type in the vicinity is the Trawick-Bub series.

Trawick series soils, found only in well-drained upland settings, formed in glauconitic sandstone residuum (Dolezel 1980). Glauconite is a green potassium iron silicate which weathers to a dull yellow hue. An outcrop of this iron-rich sandstone appears on a ridge top about 200 m east of the site of Mission Dolores. At the site, the dominant character of the soil has been inherited from the parent material. That is, pedogenic alteration of the residuum has resulted in a soil type dominated by iron oxidation, plinthite, and ironstone fragments (see horizon Bt descriptions with the soil profiles). Unit 202 (Figures 10 and 11), on the south side of State Highway 147, best shows the character of the soil. Notice that the horizon color and texture descriptions closely resemble the type-description for the Trawick series. It is likely that, given laboratory analysis, the differences between these two profile descriptions would diminish. Unfortunately, none of the excavations units placed south of State Highway 147 show an unmodified A horizon. However, shovel tests further to the south showed the A horizon to be a dusky red (2.5YR 4/4) sandy clay loam, about 15 cm thick.

Corbin (1980:334) several times describes an Ap2 horizon from his excavations which are notably absent in the 1995 profiles. He attributes the Ap2 horizon to the Spanish occupation. If so, then there is no soil/geomorphic evidence for this historical surface in the 1995 project area. Although a horizon was not found that could be directly correlated to the previous Ap2, many horizons designated Ap1 through Ap4 were found that were created by more recent human action. These horizons are more thoroughly described below with each profile. Horizon Ap2 in Unit 202 corresponds to the Ap2 in Unit 203, but does not, however, correspond to Corbin's Ap2 (Figures 12 and 13).

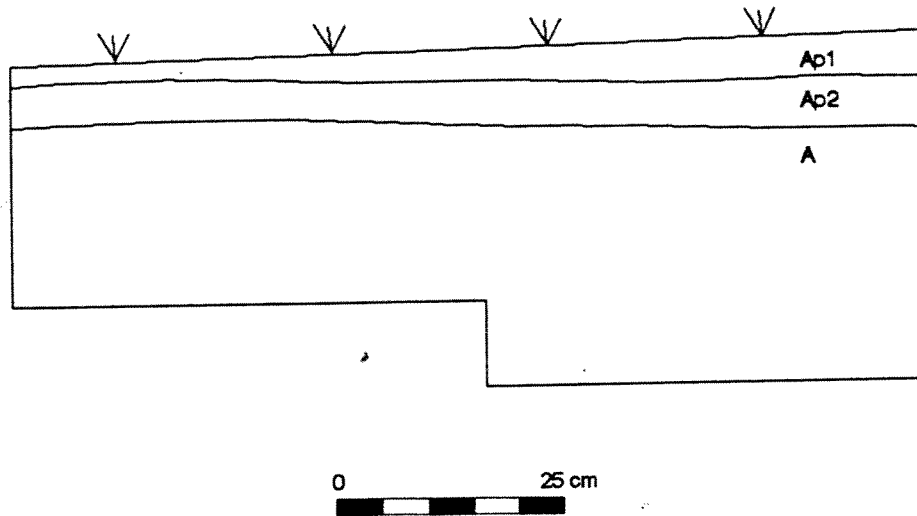
The particular areas which were excavated during this project apparently have a history of disturbance. Unit 201 is immediately next to State Highway 147 and much of the unit is disturbed although there is some undisturbed A horizon present in the northwest corner (Figures 8 and 9). Units 202, 203, and 204 show evidence of human activity in a thick gravel lens blanketing the area. This gravel lens has been thoroughly mixed into the surface horizons represented by Ap3 and Ap4. The main difference between these two horizons is the degree of natural sediments present, which causes Ap3 to become more red than Ap4. Unit 204 shows the nature of the disturbance, which is seen in profile (Figures 14 and 15). A level, paved surface is clearly present in the west wall profile. This may have been part of a paved gravel road. It is

likely that the gravel is associated with the construction of State Highway 147 to the north or the housing project construction to the east, both being about 15 meters away. The open lot where these units were situated is a logical staging ground for construction activities.

Units 500, 501, and 502 also showed evidence of long-term accumulation of iron oxides into soft iron concretions (Figures 16-21). Also, they exhibited an increase in clay content with depth. In addition to numerous krotavina and root disturbances, Unit 501 contained intrusive pockets of sand. Feature 11 is shown in the profile of Unit 346 (Figure 22). This unit shows irregular stratigraphic shifts with depth associated with the presence of the feature. Strata were not assigned soil horizons, although strata 1, 2, and 3 probably fit into an A1/A2 sequence, and stratum 7 is a C or B/C horizon. Charcoal was found in strata 3 through 6.

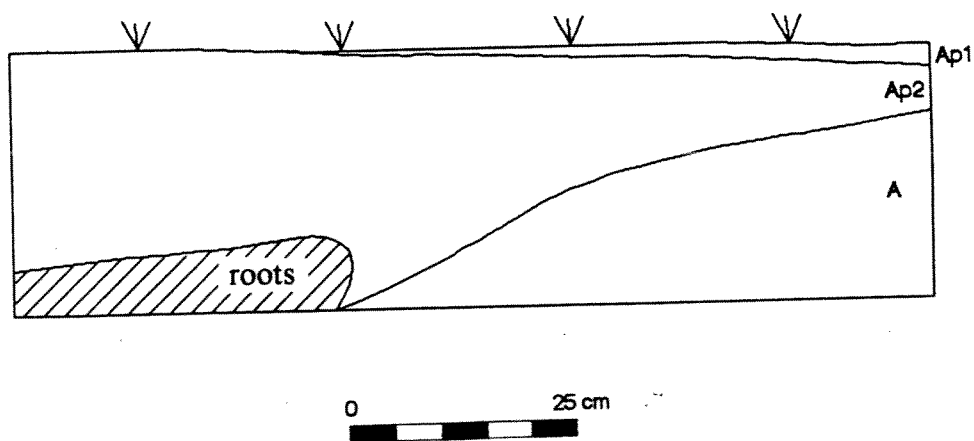
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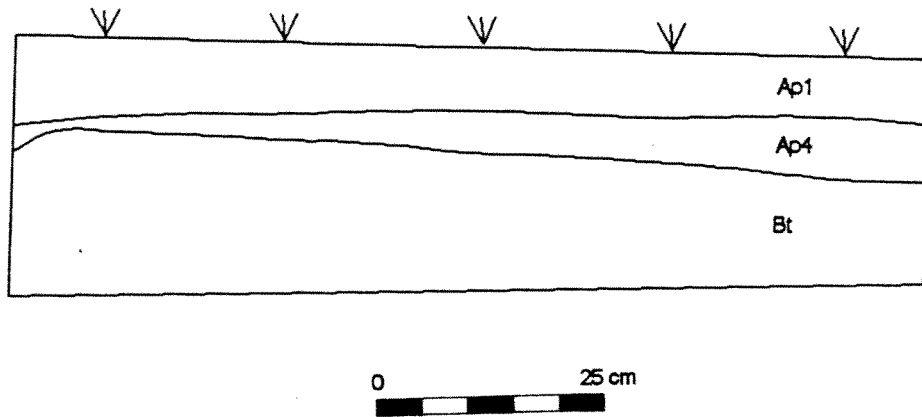
- Ap1: Dark reddish brown (5YR 2.5/2) sandy clay loam, granular structure; rootlets throughout; 5-10% pebbles; clear boundary.
- Ap2: Dark reddish brown (5YR 3/3) sandy clay loam; sub-angular blocky structure; rootlets throughout; 5-10% pebbles and cobbles (up to 5 cm); clear boundary.
- A: Dark reddish brown (5YR 3/2) sandy clay loam; sub-angular blocky structure; rootlets throughout.

Figure 8. West profile of Unit 201.



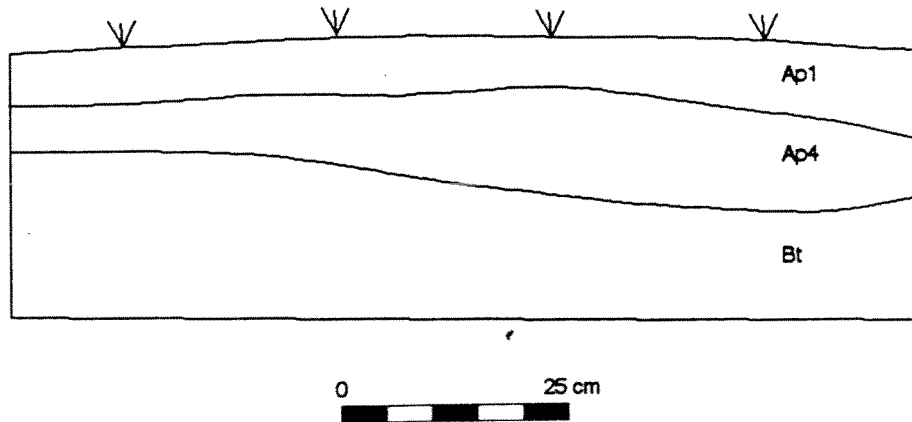
- Ap1: Dark reddish brown (5YR 2.5/2) sandy clay loam, granular structure; rootlets throughout; 5-10% pebbles; clear boundary.
- Ap2: Dark reddish brown (5YR 3/3) sandy clay loam; sub-angular blocky structure; rootlets throughout; 5-10% pebbles and cobbles (up to 5 cm); clear boundary.
- A: Dark reddish brown (5YR 3/2) sandy clay loam; sub-angular blocky structure; rootlets throughout.

Figure 9. South profile of Unit 201.



- Ap1: Dark reddish brown (5YR 3/3), sandy loam, granular structure; clear boundary.
- Ap4: Very pale brown (10YR 7/4), gravelly, sandy clay loam, granular structure; up to 80% limestone and chert nodules throughout (having been through a gravel crusher); abrupt boundary.
- Bt: Dark reddish brown (2.5YR 3/4) sandy clay loam; angular blocky structure; clay films; few plinthite nodules; common olive yellow (2.5Y 6/8) soft iron concretions (up to 1 cm diameter).

Figure 10. West profile of Unit 202



- Ap1: Dark reddish brown (5YR 3/3), sandy loam, granular structure; clear boundary.
- Ap4: Very pale brown (10YR 7/4), gravelly, sandy clay loam, granular structure; up to 80% limestone and chert nodules throughout (having been through a gravel crusher); abrupt boundary.
- Bt: Dark reddish brown (2.5HR 3/4) sandy clay loam; angular blocky structure; clay films; few plinthite nodules; common olive yellow (2.5Y 6/8) soft iron concretions (up to 1 cm diameter).

Figure 11. South profile of Unit 202

Figure 13. South profile of Unit 203.

Ap3: Reddish brown (5YR 4/4) gravelly sandy clay loam, massive; up to 80% crushed gravels of limestone and chert; clear boundary.  
Ap4: Light gray (10YR 7/2) sandy loam grading to gravelly sandy loam; up to 80% limestone and chert gravels.  
Bt: Dark reddish brown (2.5YR 3/4) sandy clay loam; angular blocky structure; clay films; few plimthite nodules; common olive yellow (2.5Y 6/8) soft iron concretions (up to 1 cm diameter).

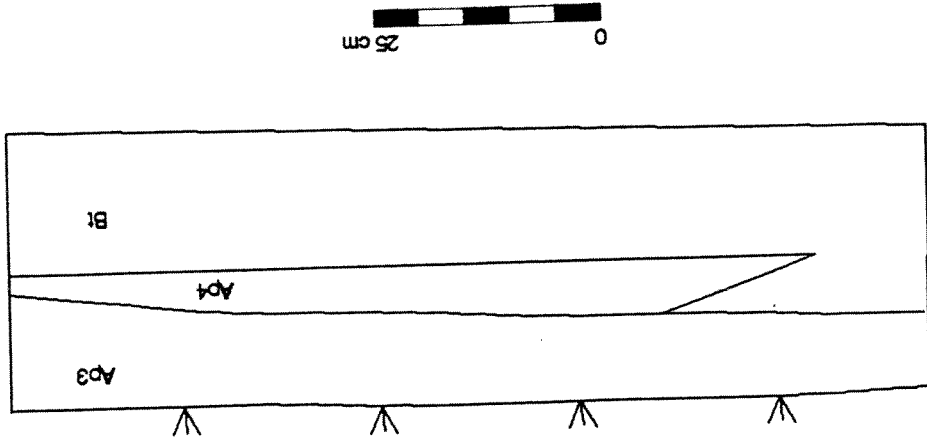
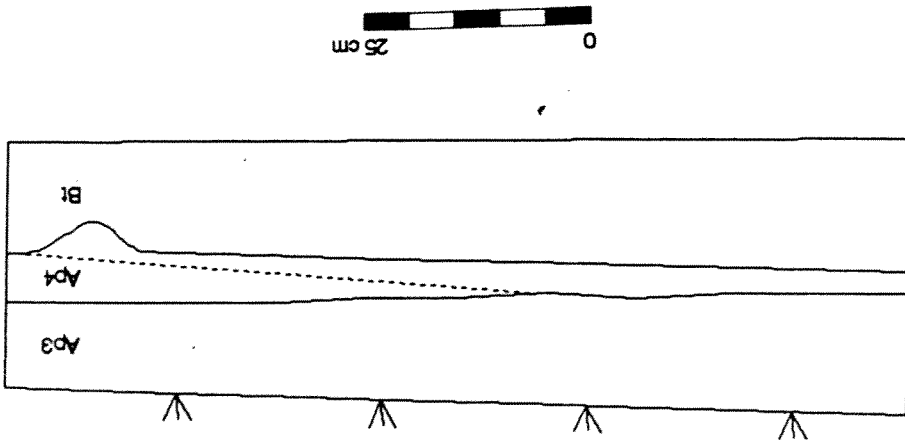
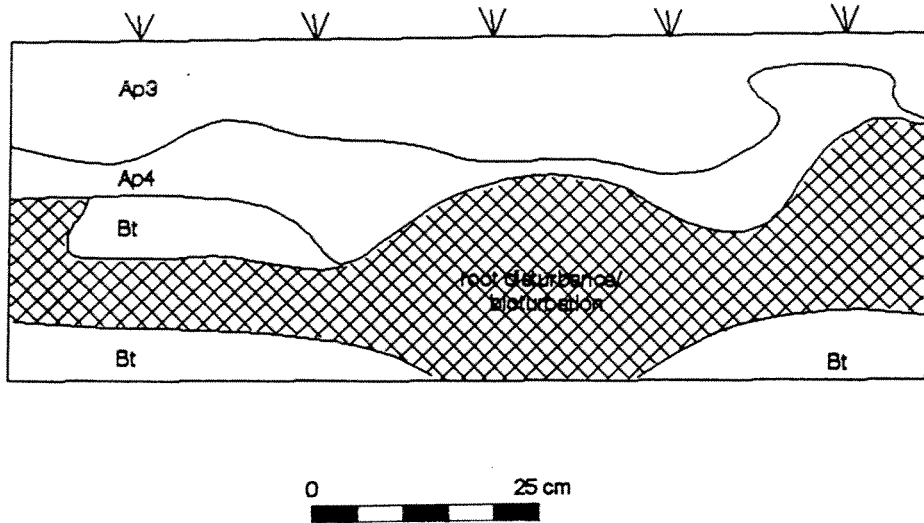


Figure 12. West profile of Unit 203.

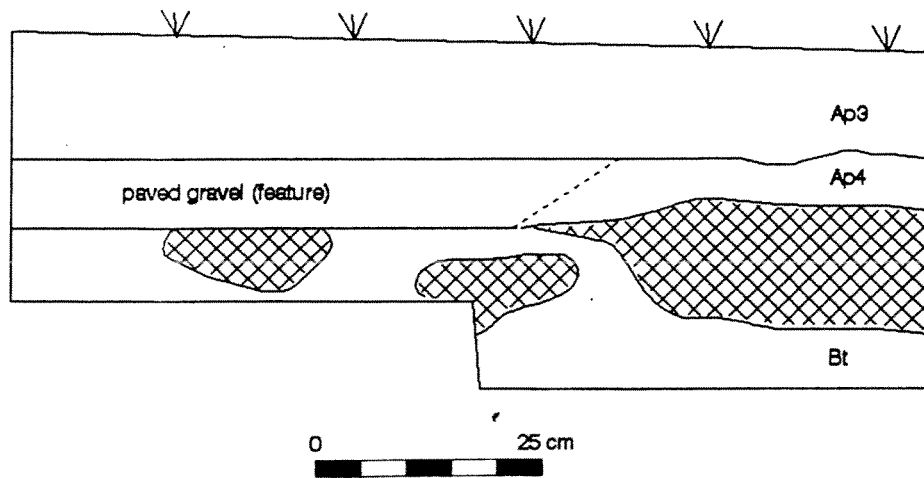
Ap3: Reddish brown (5YR 4/4) gravelly, sandy clay loam, massive; up to 80% crushed gravels of limestone and chert; clear boundary.  
Ap4: Light gray (10YR 7/2) sandy loam grading to gravelly sandy loam; up to 80% limestone and chert gravels.  
Bt: Dark reddish brown (2.5YR 3/4) sandy clay loam; angular blocky structure; clay films; few plimthite nodules; common olive yellow (2.5Y 6/8) soft iron concretions (up to 1 cm diameter).





- Ap3: Reddish brown (5YR 4/4) gravelly sandy clay loam; massive; up to 80% crushed gravels of limestone and chert, clear boundary.
- Ap4: Light gray (10YR 7/2) sandy loam grading to gravelly sandy loam; up to 80% limestone and chert gravels.
- Bt: Dark reddish brown (2.5YR 3/4) sandy clay loam; angular blocky structure; clay films; few plinthite nodules; common olive yellow (2.5Y 6/8) soft iron concretions (up to 1 cm diameter).

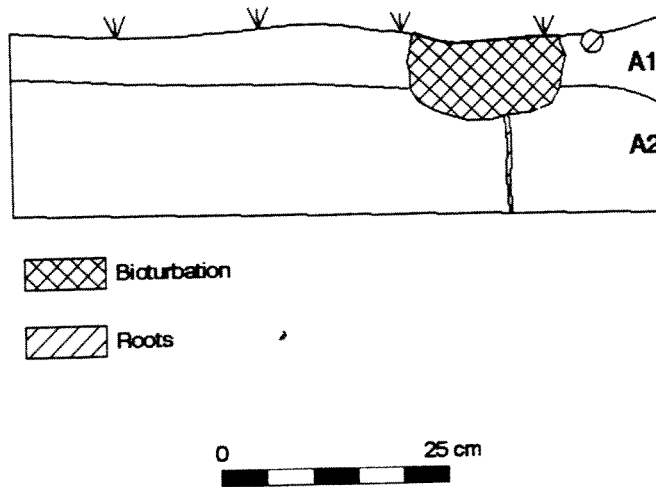
Figure 14. North profile of Unit 204.



- Ap3: Reddish brown (5YR 4/4) gravelly sandy clay loam; massive; up to 80% crushed gravels of limestone and chert, clear boundary.
- Ap4: Light gray (10YR 7/2) sandy loam grading to gravelly sandy loam; up to 80% limestone and chert gravels.
- Bt: Dark reddish brown (2.5YR 3/4) sandy clay loam; angular blocky structure; clay films; few plinthite nodules; common olive yellow (2.5Y 6/8) soft iron concretions (up to 1 cm diameter).

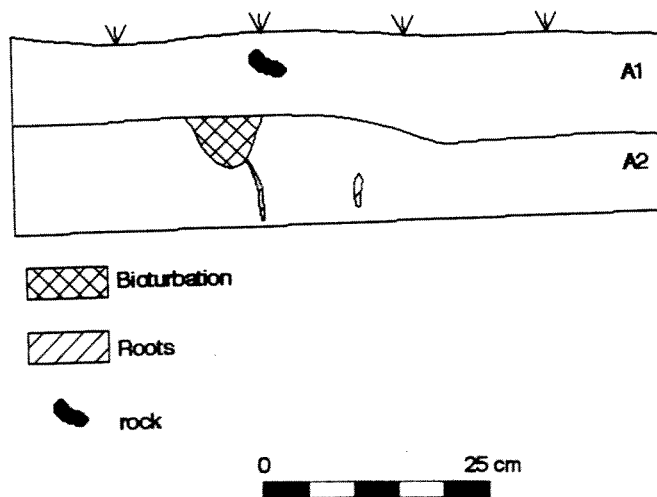
Figure 15. West profile of Unit 204.





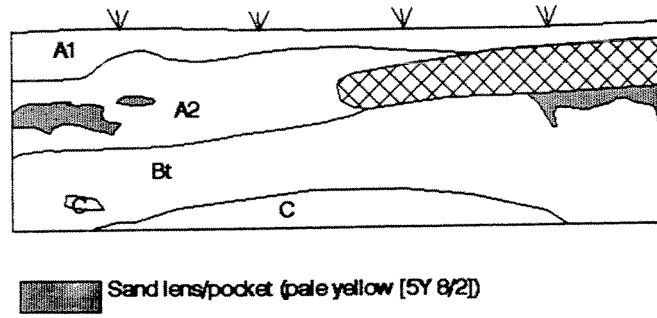
- A1: Dusky red (2.5YR 3/4), sandy clay loam, blocky structure; rootlets throughout; gravels 0-10% (especially along lower boundary); clear boundary.
- A2: Dusky red (2.5YR 3/4), clay loam, blocky structure; common strong brown (7.5YR 5/8) mottles.

Figure 16. South profile of Unit 500.



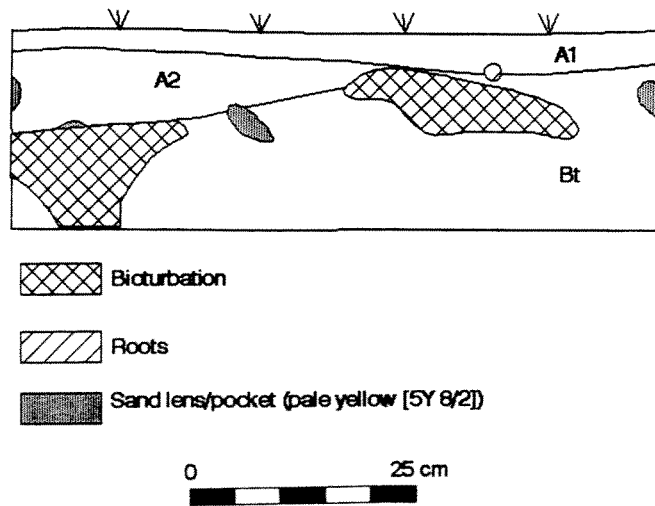
- A1: Dusky red (2.5YR 3/4), sandy clay loam, blocky structure; rootlets throughout; gravels 0-10% (especially along lower boundary); clear boundary.
- A2: Dusky red (2.5YR 3/4), clay loam, blocky structure; common strong brown (7.5YR 5/8) mottles.

Figure 17. West profile of Unit 500.



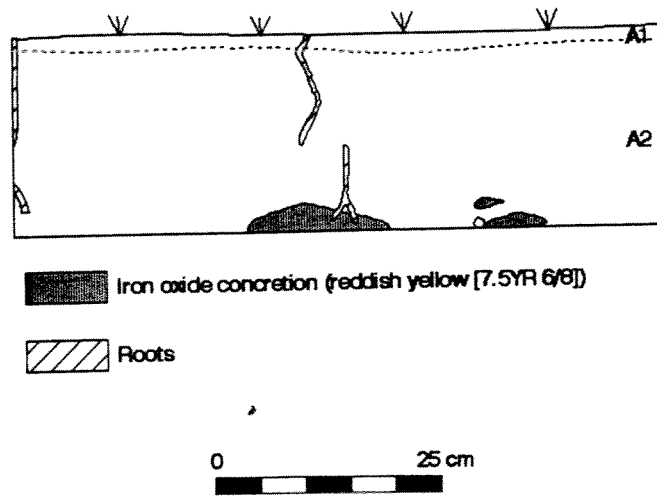
- A1: Very dusky red (2.5YR 2.5/4), sandy clay loam, rootlets throughout, gradual boundary.
- A2: Very dusky red (2.5YR 2.5/4), sandy loam; many pale yellow (5Y 8/2) mottles; clear boundary.
- Bt: Very dusky red (2.5YR 2.5/4), sandy clay loam; many olive yellow (2.5Y 6/8) iron concretions; abrupt irregular boundary.
- C: Olive yellow (2.5Y 6/8), silty clay loam; indurated.

Figure 18. East profile of Unit 501.



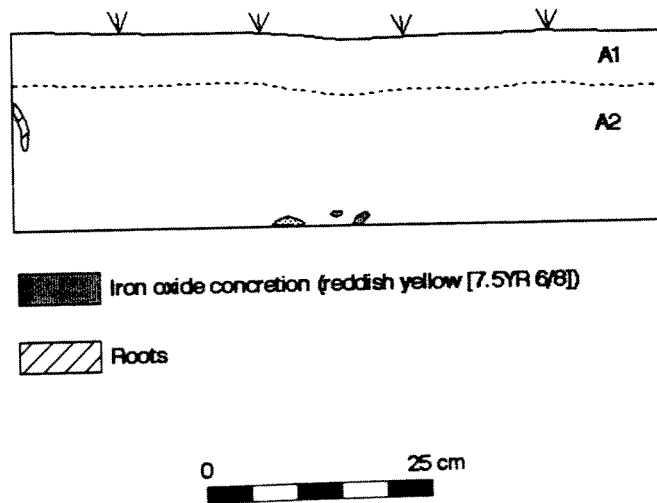
- A1: Very dusky red (2.5YR 2.5/4), sandy clay loam, rootlets throughout, gradual boundary.
- A2: Very dusky red (2.5YR 2.5/4), sandy loam; many pale yellow (5Y 8/2) mottles; clear boundary.
- Bt: Very dusky red (2.5YR 2.5/4), sandy clay loam; many olive yellow (2.5Y 6/8) iron concretions; abrupt irregular boundary.
- C: Olive yellow (2.5Y 6/8), silty clay loam; indurated.

Figure 19. North profile of Unit 501.



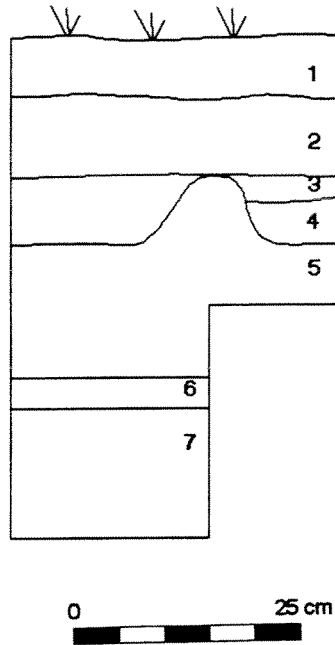
- A1: Very dusky red (2.5YR 2.5/4), sandy clay loam, rootlets throughout, gradual boundary.  
 A2: Very dusky red (2.5YR 2.5/4), sandy loam; few pale yellow (5Y 8/2) mottles; clear boundary.

Figure 20. South profile of Unit 502.



- A1: Very dusky red (2.5YR 2.5/4), sandy clay loam, rootlets throughout, gradual boundary.  
 A2: Very dusky red (2.5YR 2.5/4), sandy loam; few pale yellow (5Y 8/2) mottles; clear boundary.

Figure 21. West profile of Unit 502.



- 1: Dark brown (7.5YR 3/2), coarse gravelly loam.
- 2: Dark reddish brown (5YR 3/3), few soft iron oxide concretions.
- 3: Dark reddish brown (5YR 3/4), clay loam; few charcoal flecks; blocky structure.
- 4: Very dusky red (2.5YR 2.5/4).
- 5: Yellowish red (5YR 5/6), sandy loam; ash and charcoal fragments throughout.
- 6: Dusky red (2.5YR 3/4), loamy sand; charcoal flecks throughout.
- 7: Strong brown (7.5YR 5/8), clay, blocky structure.

Figure 22. West profile of Unit 346 (Feature 11).

## APPENDIX II

Table 3. Summary of Artifacts Recovered from Shovel Tests.\*

SHOVEL TEST	CATALOG #	DESCRIPTION
1	1047	Level 1: 1 pressed glass tableware.
2		Level 1: 12 amber glass (discarded); 21 colorless glass (discarded); 1 green glass (discarded); 2 plastic (discarded).
3	1089, 1092	Level 1: 1 perforator fragment; 5 bottle necks (discarded); 1 bottle base (discarded); 7 amber glass (discarded); 9 colorless glass (discarded); 1 glass w/molded letters.
5		Level 1: 4 concretions (discarded).
6	1044	Level 1: 1 amber glass (discarded); 1 aluminum foil (discarded); 2 plastic (discarded); 1 white milk glass.
7		Level 1: 6 concretions (discarded).
8		Level 1: 7 concretions (discarded).
9		Level 1: 2 amber glass (discarded). Level 2: 2 charcoal (discarded); 3 burned wood (discarded); 2 colorless glass (discarded); 1 wire nail (discarded).
10		Level 1: 8 amber glass (discarded); 10 colorless glass (discarded); 1 plastic (discarded).
11		Level 1: 1 amber glass (discarded); 1 colorless glass (discarded).
13		Level 2: 2 colorless glass (discarded).
15	1084	Level 1: 1 bottle finish (discarded); 4 amber glass (discarded); 8 mortar fragments. Level 2: 3 wood (discarded).
16		Level 1: 1 flat glass (discarded).
17	1032, 1033	Level 1: 1 undecorated semi-porcelain; 1 glass w/molded letters; 1 amber glass (discarded); 4 colorless glass (discarded); 1 flat glass (discarded); 2 wire nails (discarded); Level 2: 1 amber glass (discarded); 6 colorless glass (discarded).
20	1067, 1068	Level 2: 1 undecorated gray paste stoneware; 1 cupreous nut and bolt.
22	1037, 1093	Level 1: 1 bottle finish; 1 colorless glass.
23	1058	Level 1: 1 pressed glass; 1 white milk glass (discarded).

SHOVEL TEST	CATALOG #	DESCRIPTION
24	1069, 1070, 1078	Level 1: 3 bone fragments; 1 undecorated yellow lead glazed earthenware; 1 undecorated white paste earthenware; 1 bottle finish (discarded); 1 bottle base (discarded); 1 glass w/ molded letters (discarded); 5 colorless glass (discarded); 1 plastic (discarded).
26		Level 1: 3 amber glass (discarded).
27		Level 1: 2 flat glass (discarded). Level 2: 1 colorless glass (discarded).
30	1051	Level 1: 5 concretions (discarded). Level 2: 1 undecorated white paste earthenware; 1 colorless glass (discarded); 9 flat glass (discarded).
31	1057	Level 2: 1 aboriginal ceramic.
33		Level 1: 1 bottle neck (discarded); 2 colorless glass (discarded).
34	1052-1054, 1060, 1094	Level 1: 1 colorless glass (discarded); 1 anthracite. Level 2: 2 charcoal fragments (discarded); 2 undecorated Albany slipped/Bristol glazed stoneware; 1 glass w/molded letters; 3 colorless glass (discarded); 1 flat glass (discarded); 1 IGGA paper shot shell "REM-UMC" "NITRO..." (First use 7-28-1913).
35	1045	Level 2: 1 undecorated gray paste stoneware; 1 colorless glass (discarded).
40	1065, 1066	Level 1: 1 undecorated Bristol glazed stoneware; 3 amber glass (discarded); 1 indeterminate metal; 1 red plastic (discarded).
42		Level 1: 1 bottle finish (discarded); 1 amber glass (discarded); 4 colorless glass (discarded); 2 flat glass (discarded).
43	1071	Level 1: 1 bottle neck (discarded); 2 colorless glass (discarded); 1 indeterminate metal. Level 2: 2 colorless glass (discarded).
44		Level 1: 1 colorless glass (discarded). Level 2: 2 colorless glass (discarded); 3 flat glass (discarded).
45		Level 1: 2 colorless glass (discarded).
46	1062, 1063, 1077	Level 1: 1 charcoal (discarded); 1 bone; 8 amber glass (discarded); 10 colorless glass (discarded); 4 green glass (discarded); 1 white milk glass canning jar lid; 1 indeterminate metal. Level 2: 1 wire nail (discarded).
47		Level 1: 2 colorless glass (discarded); 1 green glass (discarded); 1 flat glass (discarded).
49		Level 1: 2 flat glass (discarded).
51	1072	Level 1: 81 amber glass (discarded); 15 colorless glass (discarded); 2 green glass (discarded); 5 indeterminate metal.
52	1035	Level 1: 1 glass w/molded letters (discarded); 23 amber glass (discarded); 8 colorless glass (discarded); 1 amber glass. Level 2: 2 amber glass (discarded); 1 colorless glass (discarded).

SHOVEL TEST	CATALOG #	DESCRIPTION
53	1048, 1061, 1083	Level 1: 1 anthracite; 2 mortar. Level 2: 1 undecorated soft white paste earthenware; 1 pressed glass (discarded).
56		Level 1: 1 wire nail (discarded).
57		Level 1: 1 wire nail (discarded).
58	1091	Level 1: 1 blue-green glass (discarded); 1 colorless glass (discarded); 1 green glass; 1 "Naugahyde" (discarded).
59	1031, 1085	Level 1: 14 mortar; 1 blue glass trade bead.
64		Level 1: 1 bottle finish (discarded).
65		Level 1: 4 colorless glass (discarded).
67		Level 2: 1 colorless glass (discarded).
68		Level 2: 1 colorless glass (discarded).
73		Level 1: 1 plastic wheel (discarded).
76		Level 1: 3 amber glass (discarded).
83		Level 2: 1 amber glass (discarded).
84		Level 2: 1 wire nail (discarded). Level 3: 5 wire nails (discarded).
85	1034, 1036	Level 1: 4 bottle finishes (discarded); 2 bottle bases (discarded); 1 glass w/molded letters (discarded); 19 colorless glass (discarded); 1 lantern globe fragment. Level 2: 1 iron chain link fragment.
106	1073, 1079	Level 1: 1 bone fragment; 1 terra cotta brick fragment.
108	1049, 1050	Level 1: 3 plastic (discarded); 52 thin sheets of mica (Isinglass?); 1 wire nail.
118	1055, 1081	Level 1: 1 double headed wire nail. Level 2: 1 terra cotta brick fragment.
122	1046	Level 1: 1 specialized machine bolt and nut.
125	1076	Level 2: 5 bone fragments.
126	1088	Level 1: 1 iron wire fragment.
127	1080	Level 1: 1 terra cotta brick.
128	1059	Level 1: 1 terra cotta brick.
141	1082	Level 1: 1 terra cotta brick.
156	1030	Level 1: 1 decorated white paste earthenware bowl rim with honey-colored glaze.

SHOVEL TEST	CATALOG #	DESCRIPTION
174	1064	Level 2: 1 undecorated soft white paste earthenware.
300	1097	Level 1: 1 chert piece.
301	1098	Level 1: 1 chert piece.
302	1096	Level 1: 1 piece of wood (discarded), 1 charcoal chunk (discarded), 1 tin sheet fragment.
305		Level 1: 1 modern clear glass (discarded).
306		Level 1: 1 clear bottle class (discarded), 1 wire nail (discarded), 1 piece of plastic (discarded).
307	1099	Level 1: flat glass (discarded), 2 wire nails.
308		Level 1: 2 modern clear glass fragments (discarded).
309	1104	Level 2: 8 amethyst glass jar fragments.
310	1103	Level 1: 1 small amber glass fragment.
311		Level 1: 1 fragment of amber glass (discarded).
312	1112	Level 2: 1 white paste ceramic sherd.
313		Level 1: 5 modern flat glass (discarded), modern green bottle glass (discarded).
315		Level 1: modern green bottle glass (discarded).
324	1128	Level 1: 4 pieces of barbed wire.
326	1130	Level 1: 1 chert tertiary flake, 1 chert exhausted core.
327	1133-1135	Level 1: plastic (discarded), 1 chert piece, 1 chert flake frag. Level 2: green bottle glass, 1 chert piece.
328	1136-1138	<b>NOTE:</b> The matrix from this is shovel test was determined to be backfill from a previous excavation.  Artifacts: 2 aboriginal ceramics, 1 green tinted glass frag
329	1159- 1166, 1170	Level 1: 13 amber glass frags., 5 aboriginal ceramics, 1 incised aboriginal ceramic, 7 bone frags, 3 burned bone frags. Level 2: 1 modern glass (discarded), 13 bone frags., 2 burned bone frags., 10 aboriginal ceramics, 2 incised aboriginal ceramics.
330	1196-1200	Level 1: 34 bone frags., 3 burned bone frags., 1 tooth enamel frag., 7 aboriginal ceramics, 4 undecorated tan paste ceramics. Level 2: 17 bone frags., 3 burned bone frags.
331	1167-1169, 1171-1174	Level 1: floatation sample, charcoal sample from screen, wood fragments (discarded), 1 bone fragment, 1 incised aboriginal ceramic. Level 2: 42 bone frags., 4 burned bone frags., 3 aboriginal ceramics. Level 3: 4 bone frags., 1 piece of charcoal (discarded).



SHOVEL TEST	CATALOG #	DESCRIPTION
332	1175-1182	Level 1: charcoal sample from the screen, 1 bone frag., modern glass (discarded). Level 2: 2 tooth frags., 1 bone frag., 3 burned bone frag., 1 aboriginal ceramic. Level 3: 7 bone frags., 1 burned bone frag., 2 aboriginal ceramics.
333	1195	Level 1: 1 clear glass fragment
334	1203	Level 1: 2 aboriginal ceramics.
335	1204	Level 2: 1 white paste ceramic.
345	1183-1194	Level 1: 45 bone frags., 14 burned bone frags., 11 aboriginal ceramics, 4 incised aboriginal ceramics, 1 cut nail, 1 u-shaped staple. Level 2: 22 bone frags., 9 burned bone frags., 6 aboriginal ceramics, 2 incised aboriginal ceramics. Level 3: 2 bone frags., 1 aboriginal ceramic.
346	1217-1255, 1287, 1289, 1292-1296, 1298-1301	<b>NOTE:</b> This shovel test came down in what appears to be a midden. A large bone was discovered in Level 3 and the unit was expanded to a 50 X 50 cm unit for levels 1-4 to be certain nothing important was missed. Levels 5-8 were then excavated as a 30 X 30.  Level 1: charcoal sample collected from soil, charcoal sample collected from screen, flotation sample, 3 tooth frags., 163 bone frags., 20 burned bone, 1 flake frag., 10 aboriginal ceramics, 4 incised aboriginal ceramics, 1 cut nail shaft, 1 indeterminate metal. Level 2: flotation sample, 1 large tooth, 256 bone frags., 56 burned bone frags., 8 tooth frags., 31 aboriginal ceramics, 1 incised aboriginal ceramic, 1 undecorated white paste ceramic. Level 3: charcoal sample from screen, flotation sample, 3 tooth frags., 277 bone frags., 28 burned bone frags., 1 marine shell, 51 aboriginal ceramics, 3 incised aboriginal ceramics, 1 chert exhausted core. Level 4: flotation sample, 1 tooth, 365 bone frags., 127 burned bone frags., 2 marine shell frags., 1 chert piece, 47 aboriginal ceramics, 11 decorated aboriginal ceramics, 1 metal item. Level 5: flotation sample, 238 bone frags., 29 burned bone frags., 37 aboriginal ceramics, 9 incised ceramics. Level 6: flotation sample, 180 bone frags., 17 burned bone frags., 3 marine shell frags., 21 aboriginal ceramics, 1 indeterminate metal. Level 7: flotation sample, 1 tooth frag., 98 bone frags., 10 burned bone frags., 6 aboriginal ceramics. Level 8: 2 tooth frags., 15 bone frags., 1 burned bone frag., 6 aboriginal ceramics, 2 indeterminate metals.
347	1149-1154, 1156-1158	Level 1: 52 bone frags., 13 burned bone frags., 1 marine shell, 5 aboriginal ceramics, 1 white paste undecorated ceramic, 1 metal harness piece. Level 2: 5 bone frags., 2 burned bone frags., 2 aboriginal ceramics.
348	1139-1148, 1155	Level 1: 1 tooth frag., 4 bone frags., 3 burned bone frags., 3 aboriginal ceramics, 1 flake frag., 1 tin cup rim, 1 u-shaped staple. Level 2: 4 bone frags., 3 burned bone frags., 1 chert piece, 1 cut nail.
350	1205-1214	Level 1: 9 bone frags., 2 aboriginal ceramics. Level 2: 1 bone frag., 2 burned bone frag., 3 aboriginal ceramics, 2 cut nail shafts, 1 wire nail. Level 3: 1 burned bone frag., 2 aboriginal ceramics, 1 cut nail.
354		Level 1: 3 pieces of charred wood (discarded).

SHOVEL TEST	CATALOG #	DESCRIPTION
356		Level 1: charred wood (discarded).
357	1259, 1260	Level 1: 2 cut nails, 1 clear glass frag.
358	1262	Level 1: 1 incised aboriginal ceramic.
359		Level 1: 1 modern glass (discarded)
362		Level 1: charred wood frags. (discarded).
363		Level 1: modern brick (discarded).
392	1256	Level 1: 2 clear glass frags.
396	1263	Level 1: 1 chert piece.
421		Level 1: modern glass (discarded).
423	1258	Level 1: 1 cut nail.
424	1264	Level 1: 2 amber glass frags.
426		Level 1: modern glass (discarded).
428	1272, 1277	Level 1: 1 olive glass frag. Level 2: 1 cut nail.
429	1268-1271, 1279-1282	Level 1: modern glass (discarded). Level 2: 1 bone frag., 7 clear glass frags., 3 undecorated white paste ceramics, 1 glass marble. Level 3: 15 wire nails, 1 cut nail, 1 nail with plaster, 1 u-shaped staple.
431	1273-1275	Level 1: 4 modern glass (discarded), 2 undecorated white paste ceramics, 1 decorated tan paste ceramic, 1 roof material (?).
440	1265-1267	Level 1: 5 decorated white paste ceramics, 1 metal shell case, 1 small sized shot.
449		Level 1: modern glass (discarded).
451		Level 1: modern glass (discarded).
461	1276	Level 1: 4 sewer pipe frags.
462	1278	Level 1: 2 undecorated white paste ceramics.
466		Level 1: high concentrations of roof tiles (discarded) and shingles (discarded).
473	1261	Level 1: 1 incised aboriginal ceramic.

\*Skip in sequence indicates that no artifacts were recovered. Shovel Test number 443 was not used.

### APPENDIX III

Table 4. Summary of Artifacts Recovered from 1-x-1 m Units.

UNIT #	CATALOG #	DESCRIPTION
201	1038-1043, 1074,1075, 1086,1087	Level 1: 1 lithic debitage; 1 core; 1 modified thin flake; 1 amber glass (discarded); 4 colorless glass (discarded); 1 colorless bead; 2 plastic (discarded). Level 2: 1 lithic debitage; 1 core; 3 bone. Level 3: 1 lithic debitage; 1 modified thin flake; 6 bone.
202		Level 1: 1 bottle base (discarded); 2 blue glass (discarded); 2 colorless glass (discarded); 1 wire (discarded).
203		Level 1: 1 wire staple (discarded).
204	1028,1029, 1056,1090, 1095	Level 4: 1 lead bullet, non-jacketed, 154.3 grs., most likely a 158 grs. bullet that lost 7.7 grs. in the firing event and/or from shovel damages; these bullets are used in cartridges made for (1) .357 Magnum handguns for varmint, self-protection, small game, and police, (2) .38 special handguns for police and self-protection; the .38 special rounds were the most popular handgun cartridges, and may still be; 1 cut nail; 1 bone in matrix. Level 5: 1 cut nail; 1 #lead shot, 0.16 in.
500	1106-1111, 1113-1116, 1121-1125	Level 1: 9 chert pieces, 2 quartzite pieces, 1 round wire, 1 clear glass, 1 amber glass, 3 wire nails. Level 2: 5 chert pieces, 1 flake frag., 3 core frags., 1 utilized flake, 1 piece of lithic shatter, 3 pieces of round wire, 1 pull tab, 3 clear glass frags.
501	1117-1120, 1126, 1127	Level 1: 1 chert flake, 2 barbed wire frags., 5 chert pieces. Level 2: 1 flake frag., 1 dark green glass frag. Level 3: charcoal sample.
502	1129	Level 2: 2 undecorated white paste ceramic (possible cup base).

**APPENDIX IV**

**ANALYSIS OF FAUNAL MATERIAL FROM MISSION DOLORES**

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## ANALYSIS OF FAUNAL MATERIAL FROM MISSION DOLORES

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Department of Anthropology  
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Identifications of the faunal material recovered from Mission Dolores during the 1995 and 1996 field seasons were made by comparison to the Comparative Zooarchaeological Collection of the Department of Anthropology at Texas A&M University. Size categories follow Shaffer and Baker (1992), i.e., small mammals correspond roughly to rabbit-sized animals, medium mammals are canid-sized, large mammals are deer-sized, and extra-large mammals are cattle-sized.

Slightly less than 2,000 bone specimens were examined from the ten test units addressed in this report. Of the specimens, 66 (3.4 %) were identified beyond the class level. The higher taxonomic classifications noted in this assemblage include examples of the order Terrapene (water and box turtles), the family Leporidae (rabbits), the order Carnivora, the order Artiodactyla (even-toed ungulates), and the family Bovidae (cattle and relatives). The artiodactyls represented in this assemblage are likely either of the genera Odocoileus or Antilocapra. Individuals of this genera are difficult to distinguish skeletally. The bovids represented in this assemblage are either domestic cattle brought in by the Spanish inhabitants of Mission Dolores or possibly bison hunted by the indigenous people of the area. The fish and turtle remains found in this assemblage may be intrusive into the site or they may represent food remains.

In terms of the number of identified specimens (NISP) the taxa Mammalia (size indeterminate) and medium/large mammal are the most represented. This is indicative of the fragmentary nature of the specimens in this class. In terms of the minimum number of individuals (MNI), each taxa noted above class is represented by at least one individual. However, Bovidae is represented by at least three individuals. The sample contains two overlapping scapula fragments from mature individuals of differing sizes as well as several specimens of juvenile (unfused) skeletal age.

Cut marks are noted on six specimens. It is difficult to distinguish the type of implement that was used to make the cuts. It is also difficult to ascertain the intent behind the marks, i.e., whether butchery for meat or skins was involved.

Thirty-five (1.7%) specimens were spirally fractured. These specimens were classified as either bovid or extra large mammal (likely bovid). It is assumed that the bones were spirally fractured in order to get to the nutritious marrow contained within the medullary cavity.

Three hundred thirty-eight of the 1,951 specimens (17.3%) were burned to some degree and 118 of the specimens were calcined (6%).

Other than the possibly intrusive fish and turtle remains, the majority of this assemblage is likely the result of cultural activity, particularly subsistence activity.

#### REFERENCES CITED

Shaffer, B.S. and B.W. Baker

1992 *A Vertebrate Faunal Analysis Coding System: with North American Taxonomy and dBase Support Programs and Procedures (version 3.3)*. University of Michigan, Museum of Anthropology, Ann Arbor.

Table 5. Mission Dolores Taxa List Including NISP and MNI (above class).

TAXA	NISP	MNI
Vertebrata	6	
Osteichthyes (bony fish)	5	
<i>Terrapene</i> sp.	7	1
Mammalia	852	
Small mammal	4	
Medium mammal	4	
Medium/large mammal	847	
Large mammal	49	
Large/extra large mammal	79	
Extra large mammal	39	
Medium carnivore	1	1
Artiodactyla	12	1
Deer/pronghorn	3	1
Leporidae	3	1
Bovidae	40	3
TOTAL	1,951	8

Table 6. Total Number of Specimens Per Unit.

UNIT NUMBER	NUMBER OF SPECIMENS
Unit 329	25
Unit 330	53
Unit 331	17
Unit 332	13
Unit 345	82
Unit 346	1,694
Unit 347	38
Unit 348	15
Unit 350	13
Unit 429	1
TOTAL	1,951

Table 7. Distribution of Faunal Remains in Unit 329.

LEVEL	FS#	CAT #	TOTAL	TAXON	ELEMENT	PORTION	SIDE	COMMENTS
1	135	1163	1	artiodactyl	tooth enamel	fragment		
			6	m/l mammal	cortical bone	fragment		angular brk.
		1164	3	lg mammal		fragment		angular brk., calcined
2	136	1159	3	m/l mammal	cancellous bone	fragment		
			10	m/l mammal	cortical bone	fragment		angular brk.
		1160	2	m/l mammal	cortical bone	fragment		angular brk., charred

Table 8. Distribution of Faunal Remains in Unit 330.

LEVEL	FS#	CAT#	TOTAL	TAXON	ELEMENT	PORTION	SIDE	COMMENTS
1	148	1196	1	fossil shell		fragment		
			1	vertebrata		fragment		calcined
			4	mammal	cancellous bone	fragment		
			18	mammal	cortical bone	fragment		angular brk.
			1	m/l mammal	cortical bone	fragment		charred
			4	m/l mammal	cortical bone	fragment		angular brk.
			1	artiodactyl	humerus	distal condyle		
		1197	2	vertebrata		fragment		charred
			1	vertebrata		fragment		calcined
		1198	1	m/l mammal	tooth	fragment		caniniform
2	149	1201	1	artiodactyl	metapodial	fragment		
			1	lg mammal	cortical bone	fragment		
			10	m/l mammal	cortical bone	fragment		angular brk.
			4	m/l mammal	cancellous bone	fragment		
		1202	3	mammal		fragment		calcined



Table 9. Distribution of Faunal Remains in Unit 331.

LEVE L	FS#	CAT#	TOTAL	TAXON	ELEMENT	PORTION	SIDE	COMMENTS
1	138	1168	1	m/l mammal	cortical bone	fragment		angular brk.
2	139	1171	1	mammal	cancellous bone	fragment		calcined
			2	mammal	cortical bone	fragment		angular brk., calcined
			3	m/l mammal	cancellous bone	fragment		
			3	m/l mammal	cortical bone	fragment		angular brk.
			3	lg mammal	cortical bone	fragment		angular brk.
		1172		not bone				
	140	1174	4	m/l mammal	cortical bone	fragment		angular brk.

Table 10. Distribution of Faunal Remains in Unit 332.

LEVE L	FS#	CAT#	TOTAL	TAXON	ELEMENT	PORTION	SIDE	COMMENTS
1	141	1175	1	m/l mammal	cortical bone	fragment		angular brk.
2	142	1178	1	m/l mammal	cortical bone	fragment		angular brk.
		1179	1	mammal		fragment		charred
		1303	2	artiodactyl	tooth enamel	fragment		
3	143	1180	7	m/l mammal	cortical bone	fragment		angular brk.
		1181	1	m/l mammal	cortical bone	fragment		angular brk., calcined

Table 11. Distribution of Faunal Remains in Unit 345.

LEVEL	FS#	CAT#	TOTAL	TAXON	ELEMENT	PORTION	SIDE	COMMENTS
1	144	1183	1	m/l mammal	cortical bone	fragment		angular brk., calcined
			4	lg mammal	cortical bone	fragment		angular brk.
			5	m/l mammal	cancellous bone	fragment		
			34	m/l mammal	cortical bone	fragment		angular brk.
			3	lg mammal				charred
			6	m/l mammal	cortical bone	fragment		charred
			6	m/l mammal	cortical bone	fragment		calcined
2	145	1191	3	m/l mammal	cancellous bone	fragment		
			18	m/l mammal	cortical bone	fragment		angular brk.
3	146	1190	2	m/l mammal	cortical bone	fragment		angular brk.

Table 12. Distribution of Faunal Remains in Unit 346.

LEVEL	FS#	CAT#	TOTAL	TAXON	ELEMEN T	PORTION	SIDE	COMMENTS
1			11	lg mammal	cortical bone	fragment		angular brk.
			1	lg mammal	cortical bone	fragment		spiral brk.
	156	1220	17	m/l mammal	cancellou s bone	fragment		
			5	m/l mammal	cortical bone	fragment		angular brk., calcined
			128	m/l mammal	cortical bone	fragment		angular brk.
		1222	18	m/l mammal	cortical bone	fragment		angular brk., charred
		1223	3	deer/pronghor n	tooth enamel	fragment		
2	157	1226	4	lg mammal	cortical bone	fragment		spiral brk.
			10	lg mammal	cortical bone	fragment		angular brk.
			14	m/lg mammal	cancellou s bone	fragment		
			6	m/lg mammal		fragment		calcined
			226	m/lg mammal	cortical bone	fragment		angular brk.
		1227	3	xlg mammal	cortical bone	fragment		spiral brk., charred
			1	artiodactyl	metapodi al	fragment		charred
			1	m/lg mammal	cancellou s bone	fragment		charred
			33	m/lg mammal	cortical bone	fragment		angular brk., charred
			18	m/lg mammal	cortical bone	fragment		angular brk., calcined
		1228	8	lg/xlg mammal	tooth enamel	fragment		
	156	1231	10	Bovidae	tooth	fragment		
3	158	1233	1	m/lg mammal	cortical bone	fragment		angular brk., calcined
	159	1240	3	small mammal	long bone	fragment		
			2	m/lg mammal		fragment		angular brk.

LEVEL	FS#	CAT#	TOTAL	TAXON	ELEMEN T	PORTION	SIDE	COMMENTS
			5	m/ig mammal		fragment		calcined
			10	lg/xlg mammal	cortical bone	fragment		spiral brk.
			2	lg/xlg mammal	cancellou s bone	fragment		
			8	lg/xlg mammal		fragment		angular brk.
			3	lg/xlg mammal	epiphysis	fragment		
			4	xlg mammal	vertebra	fragment		
			1	xlg mammal	vertebra	centrum		epiphysis fusing
			1	artiodactyl	rib	fragment		probable cut marks
			2	artiodactyl	rib	fragment		
			1	Bovidae	rib	fragment		possible cut marks
			1	Bovidae	vertebra	spinous process		
			2	Bovidae	rib	fragment		
			1	Bovidae	thoracic vertebra			epiphysis unfused
			1	Bovidae	thoracic vertebra	epiphysis		
			1	Bovidae	humerus	distal end	right	spiral brk.
			1	Bovidae	long bone	shaft frag		spiral brk.
			1	Leporidae	vertebra	incomplete		
4	190	1216	1	lg/xlg mammal	tooth enamel	fragment		
	160	1234	318	mammal		fragment		
			5	mammal		fragment		charred
			2	mammal		fragment		calcined
			8	lg/xlg mammal	rib	fragment		
			4	lg/xlg mammal	long bone	fragment		angular brk.
			2	lg/xlg mammal	vertebra	epiphyseal fragment		
			1	lg/xlg mammal	rib	fragment		2 cut marks
			4	xlg mammal	long bone	fragment		spiral brk.
			2	xlg mammal	flat bone	fragment		
			1	Bovidae	cervical vertebra			
			2	Bovidae	scapula	distal end		

LEVEL	FS#	CAT#	TOTAL	TAXON	ELEMENT	PORTION	SIDE	COMMENTS
			8	Bovidae	rib	fragment		
			1	Bovidae	radius	proximal end	left	
			2	osteichthyes	vertebra	centrum fragment		
			1	osteichthyes	spine			
			4	<i>Terrapene</i> sp.	carapace	fragment		
	160	1235	2	Bovidae	ribs	fragment		charred
			10	mammal	cancellous bone			burned
			25	mammal		fragment		calcined
			90	mammal	cortical bone	fragment		angular brk., burned
5	161	1286	19	m/lg mammal		fragment		burned
			8	m/lg mammal		fragment		calcined
			1	artiodactyl	carpal			calcined
			1	osteichthyes	vertebra			calcined
		1249	206	mammal		fragment		
			1	sm mammal	long bone	fragment		
			1	med mammal	vertebra	fragment		
			1	med mammal	vertebra	centrum fragment		
			1	m/lg mammal	rib	fragment		burned
			4	m/lg mammal	rib	fragment		
			10	lg/xlg mammal	rib	fragment		
			1	lg/xlg mammal	scapula	neck fragment		prominent cut marks
			5	xlg mammal	long bone	fragment		spiral brk.
			4	xlg mammal	long bone	fragment		angular brk.
			1	med carnivore	maxilla	fragment		
			2	<i>Terrapene</i> sp.	carapace	fragment		
			1	Leporidae	vertebra			
6	164	1292	2	Vertebrata		fragment		calcined
			150	mammal		fragment		
			1	sm mammal	long bone	end fragment		epiphysis unfused
			2	med mammal	rib	fragment		
			1	m/lg mammal	rib	fragment		

LEVEL	FS#	CAT#	TOTAL	TAXON	ELEMEN T	PORTION	SIDE	COMMENTS
			1	m/lg mammal	vertebra	fragment		
			4	lg/xlg mammal	long bone	fragment		spiral brk.
		1292-8	1	lg/xlg mammal	long bone	fragment		spiral brk., cut marks
			4	lg/xlg mammal	epiphyses	fragment		
			9	xlg mammal		fragment		angular brk.
			1	osteichthyes	vertebra	centrum		
			1	<i>Terrapene</i> sp.	carapace	fragment		
			1	Bovidae	tooth enamel	fragment		
			1	Bovidae	humerus	distal end		spiral brk.
			1	Leporidae	vertebra			
		1293	5	m/lg mammal		fragment		calcined
			11	lg/xlg mammal		fragment		burned
			1	Bovidae	proximal phalange	proximal end		calcined
7	168	1298	91	m/lg mammal		fragment		
			3	m/lg mammal	rib	fragment		
			1	xlg mammal	long bone	fragment		spiral brk., possible cut marks
			3	Bovidae	tooth enamel	fragment		
		1299	3	m/lg mammal		fragment		charred
			7	m/lg mammal		fragment		calcined
		1301	1	Bovidae	tooth enamel	fragment		
8		1251	13	m/lg mammal		fragment		angular brk.
			1	xlg mammal	long bone	fragment		spiral brk.
			1	Bovidae	rib	fragment		
		1252	1	lg/xlg mammal	incisor tooth			
			1	artiodactyl	tooth enamel	fragment		
		1254	1	m/lg mammal		fragment		charred

Table 13. Distribution of Faunal Remains in Unit 347.

LEVEL	FS #	CAT#	TOTAL	TAXON	ELEMENT	PORTION	SIDE	COMMENTS
1	123	1149	1	mammal	cortical bone	fragment		angular brk., calcined
			6	m/lg mammal	cancellous bone	fragment		
			3	m/lg mammal	cortical bone	fragment		angular brk.
			2	lg mammal	cortical bone	fragment		angular brk., burned
			1	lg mammal	cortical bone	fragment		angular brk., calcined
			5	lg mammal	cortical bone	fragment		angular brk.
		1150	3	mammal	cortical bone	fragment		angular brk., calcined
			2	m/lg mammal	cortical bone	fragment		angular brk., calcined
			8	m/lg mammal	cortical bone	fragment		angular brk., charred
2	124	1156	4	mammal	cortical bone	fragment		angular brk.
			1	m/lg mammal	cancellous bone	fragment		
		1157	2	m/lg mammal	cortical bone	fragment		angular brk., calcined

Table 14. Distribution of Faunal Remains in Unit 348.

LEVEL	FS#	CAT#	TOTAL	TAXON	ELEMENT	PORTION	SIDE	COMMENTS
1	121	1139	4	m/lg mammal	cortical bone	fragment		angular brk.
		1140	2	m/lg mammal	cortical bone	fragment		angular brk., calcined
			1	m/lg mammal	cortical bone	fragment		angular brk., burned
		1141	1	artiodactyl	tooth enamel	fragment		
2	122	1147	3	m/lg mammal	cortical bone	fragment		angular brk., charred
		1146	3	m/lg mammal	cortical bone	fragment		angular brk.
			1	m/lg mammal	cancellous bone	fragment		

Table 15. Distribution of Faunal Remains in Unit 360.

LEVEL	FS#	CAT#	TOTAL	TAXON	ELEMENT	PORTION	SIDE	COMMENTS
1	152	1205	9	mammal	cortical bone	fragment		angular brk.
2	153	1210	2	m/lg mammal	cortical bone	fragment		angular brk., calcined
		1211	1	m/lg mammal	cortical bone	fragment		angular brk., calcined
3	154	1212	1	m/lg mammal	cortical bone	fragment		angular brk., charred

Table 16. Distribution of Faunal Remains in Unit 429.

LEVEL	FS#	CAT#	TOTAL	TAXON	ELEMENT	PORTION	SIDE	COMMENTS
2	183	1282	1	m/lg mammal	cortical bone	fragment		angular brk.



**APPENDIX V**

**FLOTATION SAMPLES FROM MISSION DOLORES DE LOS AIS**

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## FLOTATION SAMPLES FROM MISSION DOLORES DE LOS AIS

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### METHODS

Light fractions of eight flotation samples from Mission Dolores de los Ais (41SA25) were submitted to J. Philip Dering for macrobotanical analysis.

Each light fraction was sorted through a series of four nested geological screens with mesh sizes ranging from 4 mm to 0.450 mm. Each size grade, including the pan, was scanned for plant propagules under a binocular dissecting microscope at 8 magnifications. Carbonized wood remains from the 2 mm and 4 mm mesh were separated for analysis.

All samples were scanned for charred seeds, fruits, wood and other plant parts. Identification of carbonized wood was accomplished by using the snap technique, examining it in cross-section at 8 to 45 magnifications with a hand lens or a binocular dissecting microscope, and comparing it to a reference collection in the author's possession. In cases where a large amount of carbonized wood was encountered, a sample of 25 pieces from the 4mm mesh sieve was examined. Only carbonized plant material was accepted as a potential part of the archaeological record.

### RESULTS AND CONCLUSIONS

Results of the analysis with proveniences and sample counts are presented below in Table 17.

The flotation samples yielded no charred seeds. Wood charcoal, however, was abundant. At least five woody taxa were identified from the samples. These were red oak, white oak, hickory, elm family, and juniper.

Determining the source of charred wood remains at archaeological sites can be difficult. Natural fires often leave the charred remains of tree trunks and roots. These remains, however, are monospecific. The material in Unit 346 is represented by five woody taxa and several different parts of trees, from heartwood to twigs with pith. The most common wood types were oak and hickory, both excellent fuel woods. Juniper wood type, probably western red cedar, also was recovered from Unit 346. The abundance and variety of wood charcoal in Unit 346 suggests that the fuel wood was either used or discarded in this area of the site.

Other plant remains commonly recovered from sites in the region, such as hickory nut fragments, maize kernels, and cupules, were notably lacking from the assemblage. Although the

charred wood remains were not accompanied by any other plant food source, burned bone and Indian ceramics were present in the fill.

Table 17. Plant Remains from the Mission Dolores flotation samples.

Sample Number	Unit	Level	Taxon	Common	Part	Count
1284	331	2	No identifiable carbonized plant remains			
1288	346	2	<i>Quercus</i> sp.	Red Oak Wood Type	Wood, Heartwood	25
1290	346	2	<i>Juniperus</i> sp.	Juniper, Red Cedar Wood Type	Wood	19
			Indeterminate Diffuse Porous		Wood	6
1297	346	3	No identifiable carbonized plant remains			
1283	346	4	<i>Quercus</i> sp.	Red Oak Wood Type	Wood, Heartwood	17
			<i>Carya</i> sp.	Hickory	Wood, branch	8
1285	346	5	<i>Carya</i> sp.	Hickory	Wood, branch	11
			<i>Quercus</i> sp.	Red Oak Wood Type	Wood, Heartwood	7
			Indeterminate diffuse porous		Wood	4
1289	346	6	<i>Carya</i> sp.	Hickory	Wood, branch	15
			<i>Quercus</i> sp.	White Oak Wood Type	Wood, Heartwood	6
			<i>Ulmus</i> sp.	Elm Family	Wood, Twig with pith	4
1291	346	7	<i>Carya</i> sp.	Hickory	Wood	15
			<i>Juniperus</i> sp.	Juniper, Red Cedar Wood Type	Wood	10