A PHASE I ARCHAEOLOGICAL SURVEY OF LAKE MADISON PARK IN CENTRAL MADISON COUNTY, TEXAS

Texas Antiquities Permit Number 1898

by

William E. Moore, *SOPA*

Brazos Valley Research Associates

Contract Report Number 53

1997

A PHASE I ARCHAEOLOGICAL SURVEY OF LAKE MADISON PARK IN CENTRAL MADISON COUNTY, TEXAS

Brazos Valley Research Associates

Project Number 97-08

Principal Investigator

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Prepared for

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210 West Cottonwood Street
Madisonville, Texas 77864

by

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ABSTRACT

A Phase I archaeological survey of a 247 acre park in the city limits of Madisonville, Texas (Madison County) was conducted in October 1997 by Brazos Valley Research Associates (BVRA) of Bryan, Texas under Texas Antiquities permit number 1898. William E. Moore was the Principal Investigator and supervised the project. The area was investigated using the pedestrian survey method supported by shovel testing. No evidence of prehistoric or historic sites was found in the project area. A previous survey of the area prior to construction of Lake Madison by the Soil Conservation Service in 1975 observed flakes and possible burned clay in what is the current project area; however, this area was not relocated. Overall, the project area consists of shallow soils and is very disturbed through construction of park improvements. Should a site be present within the boundaries of the park its integrity is most likely to be affected by one of the various forms of disturbance present in this area. The final report is on file at the Division of Antiquities Protection, Texas Historical Commission (THC), the Texas Archeological Research Laboratory (TARL), and BVRA.

ACKNOWLEDGMENTS

BVRA is grateful to the following individuals for their cooperation during this project. City Manager, Jim White, provided maps depicting the existing park and improvements and planned construction as well as making available the services of one of his employees, Bobby Webber. Mr. Webber, City Mechanic, helped with the shovel testing. His hard work is appreciated. Other city employees who provided information regarding the park are Robert Yandell, Supervisor of Public Works, and David Evans, Assistant Supervisor of Public Works. William J. Weaver of Antiquities Planning and Consulting in Austin, Texas assisted with the field survey and acted as Project Archaeologist in the absence of the Principal Investigator. A special thanks to Donald Barnes of Madisonville, Texas who, despite an illness, visited the survey crew to show us where artifacts had been found in the park area. Lili Lyddon of Lyddon Illustrations in Wellborn, Texas prepared the figures that appear in this report. BVRA is also grateful to Deborah Beene of the THC for her input during the review process and to Carolyn Spock, Head of Records, and her assistant, Jean Hughes, at Tarl for assisting with the background check.

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INTRODUCTION

BVRA was retained by the City of Madisonville to conduct a cultural resources survey of Lake Madison Park in central Madison County, Texas (Figure 1). The park is 247 acres in size. Lake Madison, constructed in the 1960s, was created from a dam across Town Branch and is 80 acres in size; therefore, there are 167 acres of dry land in the park boundaries. At the time of the current survey the park was being used by local citizens and contained numerous improvements such as baseball fields, soccer field, picnic areas, restrooms, and roads (improved and unimproved). The park area as it existed during this survey is depicted in Figure 2. The project area is depicted on the United States Geological Survey (USGS) topographical map, Madisonville (N3052.5-W9552.5/7.5) dated 1963 (Figure 3).

The nearest water source is Town Branch. The main channel of this drainage bisects the approximate center of the park and flows in a north-south direction with its origin about 1500 meters to the north. This creek flows into the Navasota River to the south. The close proximity of the project area to this creek makes it a likely location for prehistoric or historic sites. In fact, flakes and possible burned rock had been found by James E. Warren, archaeologist for the Soil Conservation Service (SCS), in a survey of the proposed park area in 1975 (see Appendix I -Letter from the SCS to the SHPO). His report has not been located at the SCS office or any of the state repositories where these reports are often filed, and Mr. Warren does not have a copy. In an Lake Madison Park Recreation Development and Erosion Control RC&D Measure Plan prepared by the United States Department of Agriculture, Soil Conservation Service (1976:10) on file at the City of Madisonville, under the heading *Historical and Archeological Resources*, the following statement is made regarding the results of Warren's investigation:

The park area involved was surveyed by the SCS archeologist in March, 1975 for evidence of historical and archeological resources. As a result of this survey, nothing of historical significance was located, and only one area containing evidence of archeological interest was found. A few flint chippings and some burnt clay were discovered in the loose soil resulting from construction of a new baseball field in the eastern corner of the park. This artifact-bearing area is not considered to be significant or eligible for nomination to the National Register of Historic Places. A search of the National Register failed to reveal any sites to be affected by the project. Due to the dense cover of grass, trees, and litter it was impossible to assess the total potential for cultural resources present.

Because of the presence of cultural materials in an area that was not examined by shovel testing and the possibility of additional sites in the park area, it was determined that a 100% Phase I pedestrian survey would be required before the City of Madisonville would be able to construct additional improvements in the park. Therefore, the City contracted with BVRA to perform this service

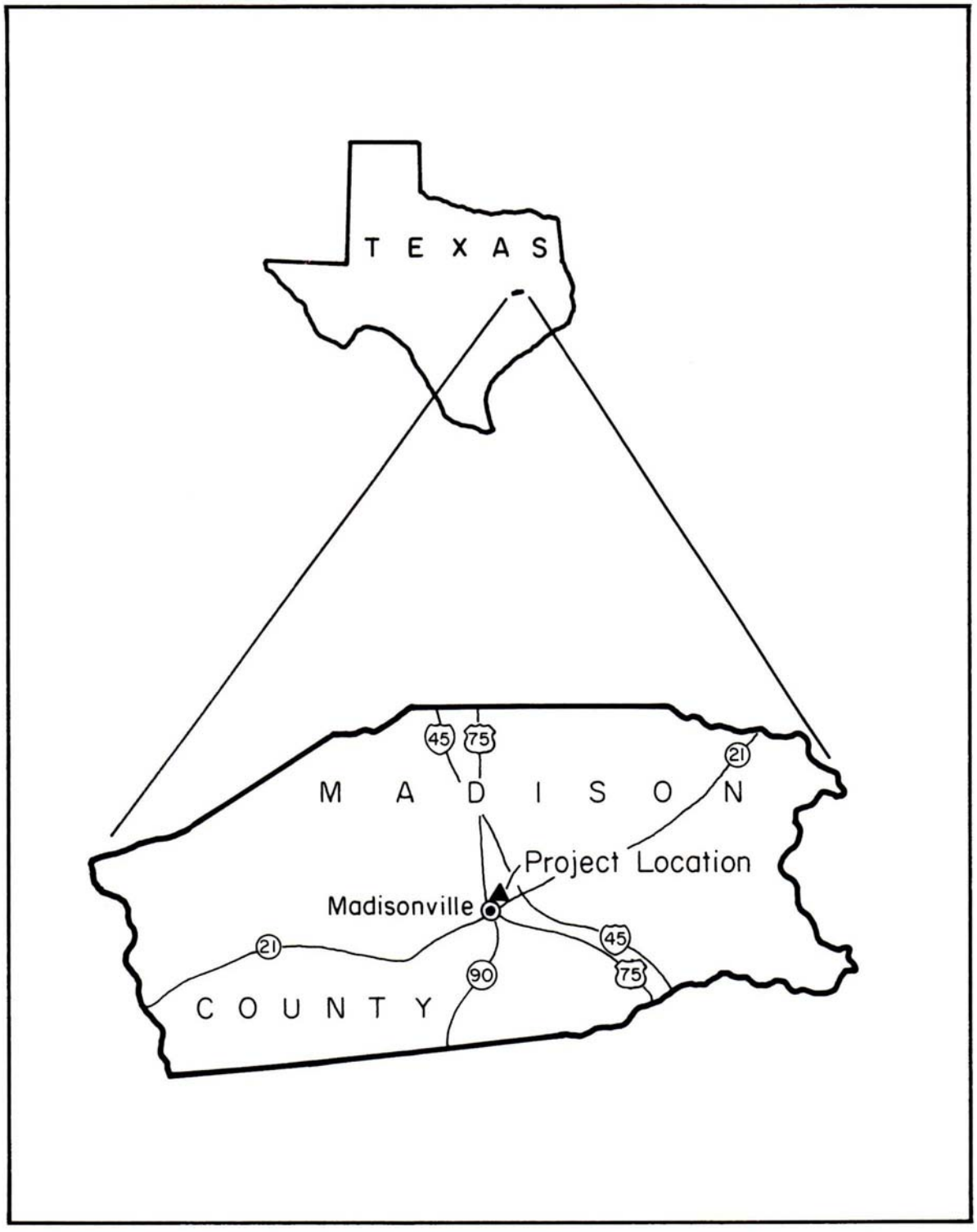

Figure 1. General Location Map

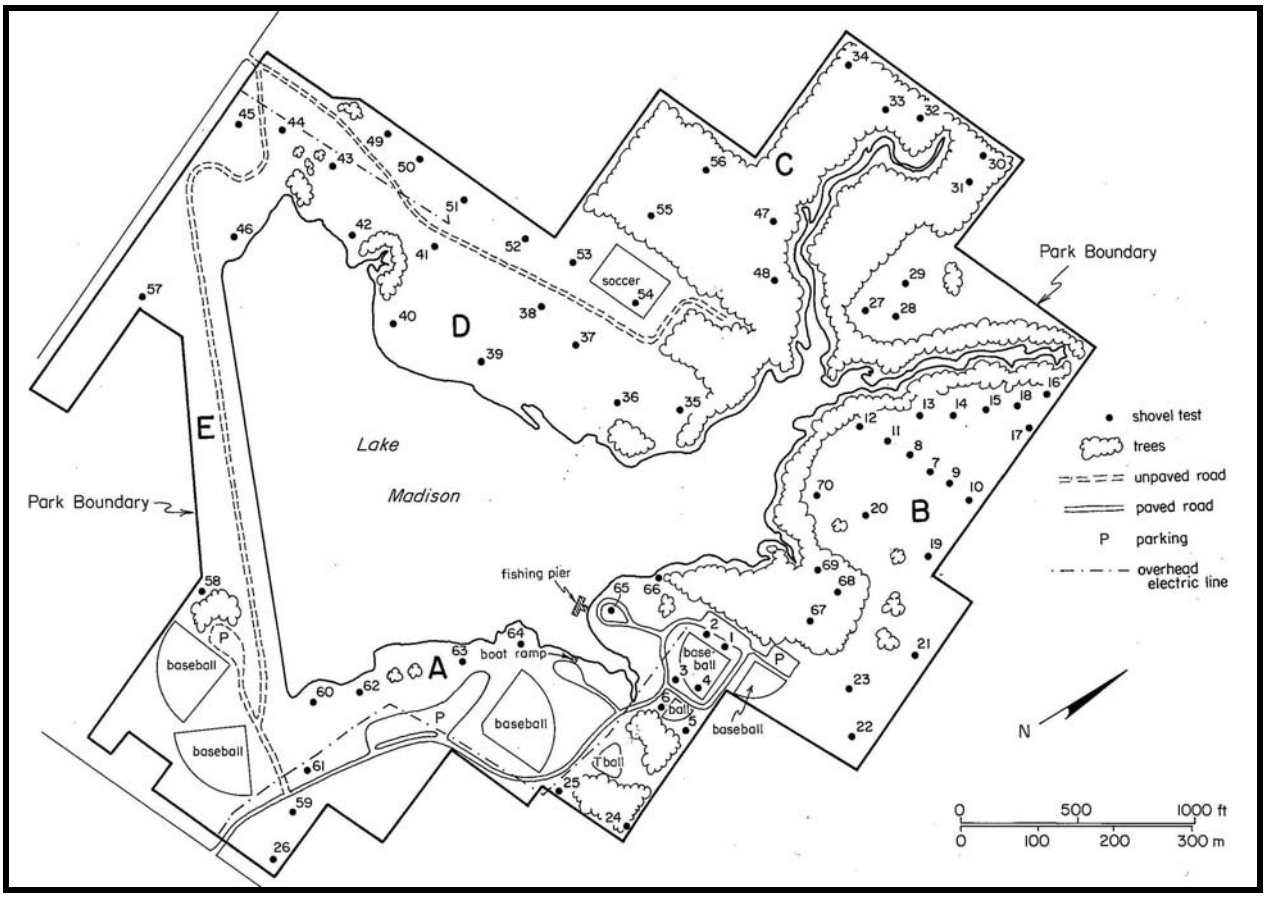

Figure 2. Project Area Map

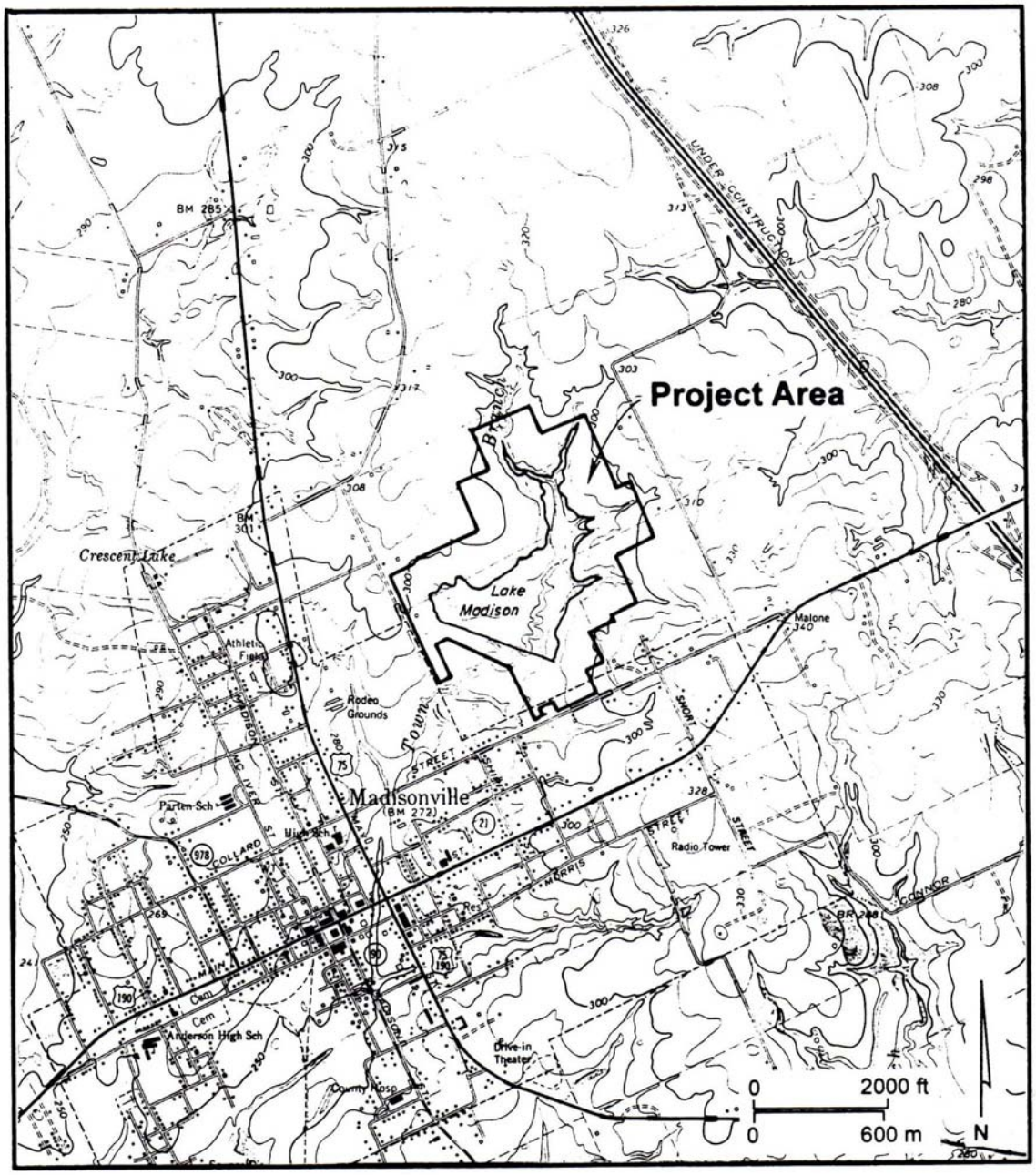

Figure 3. Project Area Depicted on Topographic Map

ARCHAEOLOGICAL BACKGROUND

Madison County is poorly represented in the archaeological record in terms of numbers of site recorded. The project area is located in the Prairie Savanna Archeological Study Region of the Eastern Planning Region as defined by the Department (now Division) of Antiquities Protection in *Archeology in the Eastern Planning Region, Texas: A Planning Document* (Kenmotsu and Perttula 1993:6). As of October 17, 1997, there were 24 recorded prehistoric and historic sites in Madison County (TARL site records). These sites are categorized as prehistoric (10), historic (5), multi-component (1), and isolated prehistoric finds (6). According to Kenmotsu and Perttula (1993:11), Madison County contained 0.001 - 0.1 site per square mile and is one of the counties with the lowest density of recorded sites in Texas.

It should be noted that although Madison County is located in the Prairie-Savanna study region, as defined by Kenmotsu and Perttula (1993), it is immediately adjacent to the Southeast Texas planning region to the south and the Northeast Texas planning region to the east (Kenmotsu and Perttula 1993:6). Therefore, Madison County probably shares cultural traits with these nearby regions.

Only one major survey involving Madison County has been conducted. In 1981, Prewitt and Associates, Inc. (Kotter 1982) conducted a cultural resources survey of the Millican Project. The purpose of this investigation was to survey transects in order to sample the cultural resources of the Navasota River Valley in Brazos, Grimes, Leon, Madison, and Robertson counties. The data collected were used to assess the adverse affects of four proposed reservoir alternatives prior to selection of the final reservoir site. This project recorded sixteen cultural resource sites. Of this number, 6 are prehistoric, 3 are historic, 1 contained both prehistoric and historic components, and 6 consisted of isolated prehistoric finds.

A check of the *Abstracts in Texas Contract Archeology* series published by the Department of Archeological Planning and Review, Texas Historical Commission, revealed that only one survey was conducted in Madison County from 1987 through 1992. This study (Kotter 1988) found only one site; however, it was in San Jacinto County. No major surveys have been performed in the county since that time (TARL site files). The eight sites not recorded by the Millican project were recorded as a result of professional surveys and individuals.

Prehistoric occupations in the region cover all time periods from Paleoindian through Historic Caddoan, circa 9500 B.C. - A.D. 1860 (Kenmotsu and Perttula 1993:44). There is no evidence, however, of historic Caddo sites in Madison County. Previously recorded sites tend to be predominantly Late Prehistoric with several isolated finds. The reader is referred to this comprehensive and well organized document for additional information regarding the archaeological background for Madison County and vicinity. Historic sites dating from the 19th century through the present are common in the county and region.

ENVIRONMENTAL SETTING

The project area is located within the West Gulf Coastal Plain section of the Coastal Plain physiographic province as defined by Fenneman (1938:100-120). This physiographic section is subdivided according to the age of the geological formations (Gulf series) that roughly parallel the Texas coastline. The area is hilly and situated within the East Texas timber belt. Gould (1969) describes it as an area characterized by gently rolling to hilly topography with light colored soils that are acid sandy loams or sands.

The climate is subhumid to humid and the weather is considered to be predominately warm. Annual rainfall for the county is 41.50 inches. A January minimum temperature of 40 degrees and a July maximum temperature of 94 degrees combine to produce a growing season of 272 days (Kingston and Harris 1983:246). The altitude varies from 200-370 feet. The project area is located on a tract of land that is bisected Town Branch. Elevations vary from 290 feet along the lower creek terraces to 300 feet on the higher terraces away from this drainage.

According to the soil survey for Madison County published in 1994 (Neitsch 1994:Sheet 14), five soil types are found within the project area. They are Boonville fine sandy loam (BoB), 1 to 3 percent slopes, Nahatche loam (Na), frequently flooded, Robco loamy fine sand (RcB), 1 to 3 percent slopes, Tabor fine sandy loam (TaB), 1 to 3 percent slopes, and Zack fine sandy loam (ZaB), 1 to 5 percent slopes. Descriptions of these soils as they are discussed in the soil survey follow, and they are illustrated in Figure 4.

Booneville fine sandy loam, 1 to 3 percent slopes: This is a very deep, very gently sloping soil on uplands. It is usually found on the lower, slightly concave side slopes or in broad, low, smooth areas. Individual areas are irregularly shaped or oval and range from 30 to 200 acres in size. The surface layer of this soil is typically a slightly acid, very dark grayish-brown fine sandy loam about 15 inches thick. The upper part of the subsoil, from a depth of 15 to 24 inches, is medium acid, dark gray clay. This soil is somewhat poorly drained and runoff is medium. Permeability is very slow, and the available water capacity is moderate (Neitsch 1994:21).

Nahatche loam, frequently flooded: This is a very deep, nearly level soil found mostly on flood plains along the smaller streams. A few areas are on flood plains along rivers. This soil is flooded more often than once every two years for a few days. Individual areas are mainly long and narrow and range from about 10 to 400 acres in size. The surface layer of this soil is typically a slightly acid, very dark grayish-brown fine sandy loam about 15 inches thick. The upper part of the subsoil, from a depth of 15 to 24 inches, is medium acid, dark gray clay. This soil is somewhat poorly drained, and runoff is medium. Permeability is very slow, and the available water capacity is moderate (Neitsch 1994:37-38).

Robco loamy fine sand, 1 to 3 percent slopes: This is a very deep, very gently sloping soil on concave side slopes, on small knolls, or near the head of drainageways on uplands. Individual areas are generally irregular in shape and range from 5 to 250 acres in size. The surface layer of this soil is typically a strongly acid, brown loamy fine sand about 8 inches thick. The upper part of the subsoil, from a depth of 24 to 28 inches, is a medium acid, brownish-yellow loam that has streaks and pockets of very pale brown loamy fine sand. This soil is moderately poorly drained and runoff is slow or medium. Permeability is slow, and the available water capacity is moderate (Neitsch 1994:40).

Tabor fine sandy loam, 1 to 3 percent slopes: This is a very deep, very gently sloping soil on uplands. Individual areas are generally irregular in shape and range from 15 to 200 acres in size. The surface layer of this soil is typically a medium acid, brown fine sandy loam about 7 inches thick. The upper part of the subsoil, from a depth of 14 to 43 inches, is strongly acid, yellowish-brown clay that has reddish and grayish mottles. This soil is moderately well drained and runoff is slow or medium. Permeability is very slow, and the available water capacity is high (Neitsch 1994:43).

Zack fine sandy loam, 1 to 5 percent slopes: This is a gently sloping soil on, moderately deep to shale and located on broad and narrowly dissected uplands. Individual areas are irregular in shape and range from 15 to 150 acres in size. The surface layer of this soil is typically a medium acid, yellowish-brown fine sandy loam about 7 inches thick. The upper part of the subsoil, from a depth of 7 to 24 inches, is strongly acid. This soil is moderately well drained, and runoff is slow to rapid. Permeability is very slow, and the available water capacity is moderate (Neitsch 1994:45).

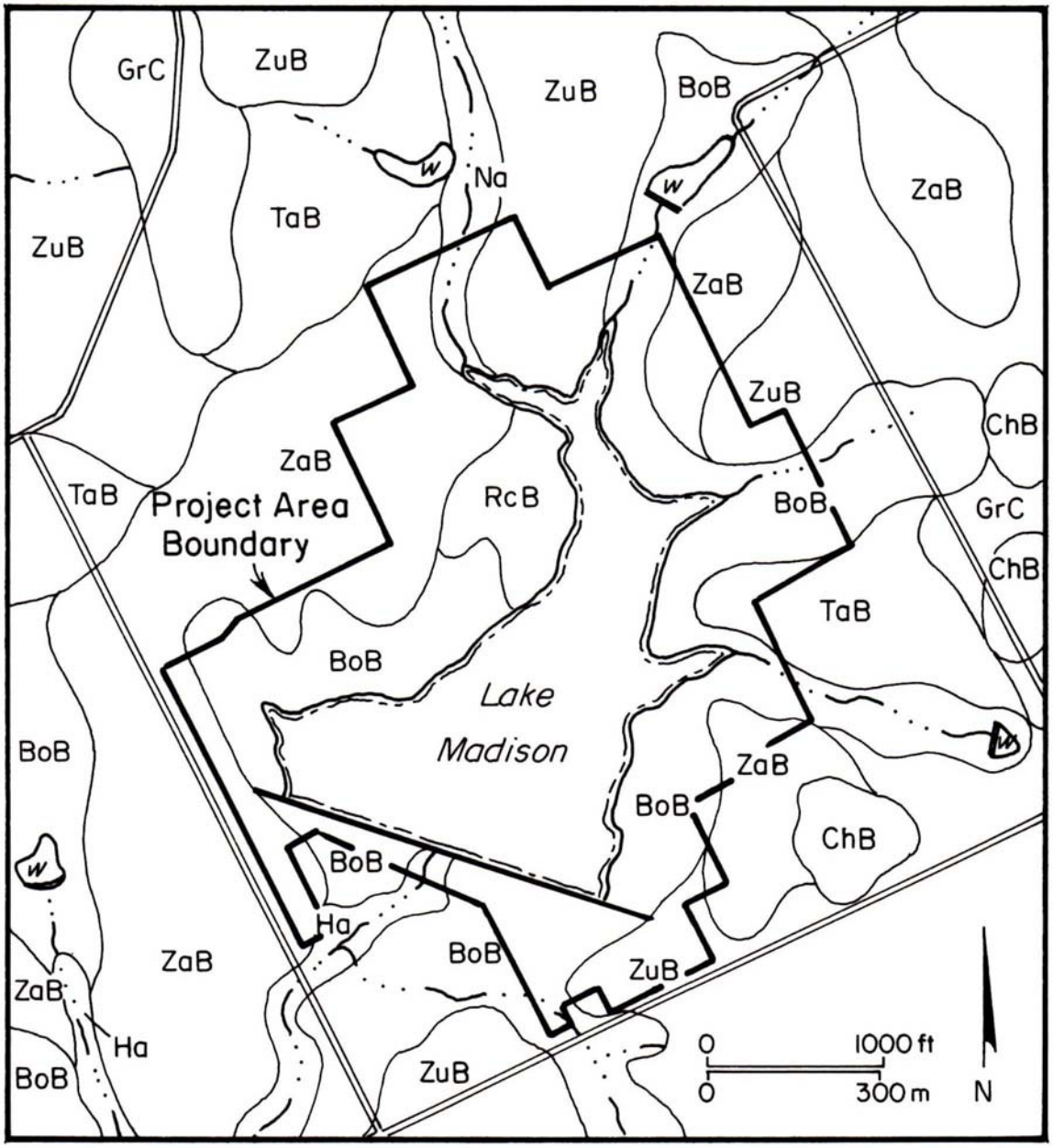

Figure 4. Soils in the Project Area

METHODS

The field survey was supplemented by a check of records housed at TARL and an examination of archaeological site reports and other manuscripts. The records at TARL were checked for a listing of known sites in the project area and vicinity. In addition, all previous investigations in Madison County were identified. The Principal Investigator did all background research.

The area was examined in the field by means of a Phase I 100% Pedestrian Survey with William E. Moore acting as Principal Investigator. The field crew and Principal Investigator walked the entire tract. Surface visibility was estimated to be between 0-100%. In terms of prehistoric site location, the sandy terraces along both banks of Town Branch are the areas of highest probability. Therefore, shovel tests were concentrated along this drainage and the small tributaries or gullies of this drainage, randomly across the project area, and in the area where prehistoric cultural materials were reported during an earlier survey. The project area was divided into five general areas (A-E), and these are discussed in the *Results and Conclusions* section below. Local collector, Donald Barnes, reported finding artifacts in three areas of the park. These were assigned the field designations Localities 1-3 and were shovel tested in an effort to confirm the presence of a prehistoric site.

All excavated fill was screened through 1/4 inch hardware cloth and data obtained from shovel testing were recorded on a shovel test log (Appendix II). In all 70 shovel tests were dug, and each test was backfilled. Shovel tests were dug to clay. Each test was 30 centimeters in diameter and varied in depth from 10 to 80 centimeters below the existing ground surface. When exposure was favorable, the exposed surface was examined in addition to shovel testing. Excellent exposure was present along the unimproved roads that cross most of the park and an area of numerous erosional gullies (Area C). These exposed areas were very carefully inspected for displaced or buried cultural materials.

Soil descriptions were taken from Soil Conservation Service (SCS) soil survey published for the area (Neitsch 1994). This office is now referred to as the United States Department of Agriculture, Natural Resources Conservation Service. Field notes were taken by the Principal Investigator. The project was aided by an engineering map depicting the current and planned improvements, aerial photography of the area prior to and after construction of Lake Madison, and the 7.5' USGS topographic quadrangle, Madisonville. Color photography (35 mm prints) was taken at various locations across the project area. No artifacts were observed or collected, and all notes and photographs are on file at Brazos Valley Research Associates in Bryan, Texas. Copies of the final report are housed at the Division of Antiquities Protection, Texas Historical Commission and the Texas Archeological Research Laboratory in Austin, Texas.

RESULTS AND CONCLUSIONS

Examination of the files at TARL in Austin, Texas revealed the presence of lithic debitage and possible burned rock near an existing ball field in 1975 in Area A. Although this area was not considered significant by the Soil Conservation Service archaeologist in a letter to the State Historic Preservation Officer (Appendix I), the relocation of this possible prehistoric site was first priority of the current investigation. Six shovel tests were excavated in the area where the cultural materials were found; however, not one test produced artifacts. It is believed that this site is either very ephemeral or has been destroyed through construction of the ball field. According to David Evans, Assistant Supervisor for Public Works, this area had been greatly disturbed through construction of the ball field. Topsoil had been pushed and some of it was taken to other locations. The current ballpark was, in their words, a clay hill.

Three areas in the park were identified by former City employee, Donald Barnes, as localities where prehistoric artifacts had been found. These were assigned the field designation Locality 1, Locality 2, and Locality 3, and the Principal Investigator visited each one with Mr. Barnes. Shovel tests were excavated in these localities in an attempt to confirm the presence of prehistoric sites in these areas.

Locality 1 was described by Donald Barnes as an area along a tributary that flows into Town Branch from the east where artifacts were found in the creek bank. This area, located in Area A, was shovel tested, and no cultural materials were found. It is believed that this tributary is in reality an erosional gully that carries runoff from the uplands to the east. Small gravels and pieces of silicified wood were observed in the creek bank. Locality 1 is believed to be a low probability area in terms of site occurrence. Across the fence, out of the project area is an upland terrace. It is possible that the artifacts reported by Mr. Barnes were transported from this landform during heavy rains.

Locality 2 was described by Donald Barnes as an area (Area A) near the park entrance in Area A where an isolated find, large dart point or biface, was found. This area and the slope below were shovel tested with negative results. The soil was compact and contained numerous small gravels. It is believed that the artifact found by Mr. Barnes is an isolated find. If a site is present, it would be located on the top of the landform to the east out of the project area.

Locality 3 was described by Donald Barnes as an area where several artifacts were found on the surface (Area C). According to Mr. Barnes, he only found arrow points (except for Locality 2) and no pottery. This area is very eroded and contains several sizable gullies and an unimproved road. Shovel tests and an intensive surface inspection failed to locate evidence of a prehistoric site. Considering the excellent surface exposure it is believed that the artifacts reported by Mr. Barnes were isolated finds.

Overall, the project area is viewed as sterile in terms of cultural resource sites. Seventy shovel tests were excavated and not one test produced cultural materials. Overall the project area is very disturbed through park construction, and it is unlikely that *in situ* cultural materials are present in this area. In addition, most of the areas tested contained relatively shallow soils overlying sterile clay, and much earth has been pushed or removed due to construction. All areas were tested by shovel testing, and all exposed areas were carefully examined by surface inspection. It is believed that the 70 shovel tests more than adequately covered the project area. Prior to the field survey the terraces closest to the main channel of Town Branch were believed to be high probability for prehistoric site occurrence. However, the survey revealed a highly disturbed area with shallow soils common throughout the project area. It is now believed that the entire project area should be defined as medium or low probability areas. Therefore, the ratio of one shovel test to every 2.38 acres is considered more than adequate coverage.

The amount of disturbance was documented through field investigation (shovel testing and surface exposure), aerial photographs, and personal interview with Bobby Webber, a City employee who remembers the park terrain prior to construction of Lake Madison and the existing park improvements. Mr. Webber accompanied the Principal Investigator on a tour of the park and pointed out the various means of disturbance such as tree removal, earth pushing, and agricultural practices. Aerial photography revealed a series of terraces in the area that were created for agriculture.

The five areas (A-E) have been disturbed in different ways and are described below. Area A is the main part of the park in terms of improvements. This area contains several ball fields, boat ramp, picnic area, parking lots, electrical lines, water and sewer lines, public restrooms, storage sheds, and roads (improved and unimproved). According to Mr. Webber, this area was more wooded in the past and had been cleared prior to park construction that included pushing and scraping of the existing ground surface. Only those areas near the park boundaries are likely to contain undisturbed landforms.

Area B is a partially wooded terrace overlooking the lake to the west. This area was originally more wooded, but has been used for agricultural practices (probably corn) in recent times. The 1960 aerial photograph shows terraces in this area and more woods than are currently present. Soils in Area B are shallow (15-60 cm). If any cultural resources are present they would surely be disturbed by the clearing of trees and cultivation methods. Since this area was initially regarded as the highest probability area for containing cultural resources it received the most attention, and more shovel tests were dug per acre in Area B than in any of the other areas in the park.

Area C is a relatively undisturbed area at the north end of the park. This section of the park is heavily wooded but is disturbed through natural causes, mainly erosion. Several large erosional gullies were observed throughout Area C, many of which are not depicted on the project area map prepared by the City. Some of these are believed to be very recent.

Area D is on the west side of the park and contains little in the way of park improvements. However, a soccer field, storage shed, unimproved road, electrical line, and water and sewer lines are present. According to Mr. Webber, this area used to be wooded but was cleared for park construction. At the southern end of Area D near the dam are artificially contoured slopes. The slopes were reworked so that rain runoff will flow into the lake. There is very little chance of undisturbed materials in this area.

Area E is the extreme southern edge of the project area that includes the dam. This area is totally disturbed through construction of the dam. Parts of this area have also been reworked so that water runoff can flow back into the lake.

Regarding the availability of water in Town Branch, the consensus of local informants is this stream contains water primarily following rains. Although it is spring-fed and pools of water may have been present in prehistoric times, it seems that Town Branch can't be defined as a regularly dependable source of water except during the rainy season.

It was originally believed that the T-1 terraces along Town Branch should be considered high probability areas for prehistoric site occurrence. However, those areas closest to the main channel are soils that are frequently flooded. It seems probable that the only prehistoric sites on these terraces would be temporary. Also, there are no deep sandy soils in the park area. Although sites in the area have been found in shallow soils, permanent sites are typically found on sandy ridges containing deeper soils. It is hypothesized that several factors combine to make the current project area an unlikely area to contain undisturbed, significant cultural resource sites. These factors are the large amount of disturbance (natural and artificial) throughout the park, shallow soils, and intermittent nature of Town Branch.

RECOMMENDATIONS

No previously unrecorded cultural resource sites (prehistoric or historic) were found in the project area. The locality where archaeologist James E. Warren reported cultural materials was not found during this study. The three localities that, according to Donald Barnes, produced prehistoric artifacts were also negative in terms of locating cultural resource sites. It is the opinion of Brazos Valley Research Associates that there are no significant cultural resource sites present in the 247 acre project area. Overall, the tract is very disturbed, and any site present would probably lack *in situ* deposits.

As a result of this investigation, it is recommended that the City of Madisonville be allowed to proceed with construction as planned. It is always possible that cultural materials are missed during any cultural resources survey. Should additional areas containing prehistoric or historic artifacts not discussed in this report be discovered during construction, the Division of Antiquities Protection must be notified immediately and work stopped until the situation can be evaluated.

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APPENDIX I

LETTER FROM SOIL CONSERVATION SERVICE TO

STATE HISTORIC PRESERVATION OFFICER

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Madison County
no sites

P. O. Box 648
Temple, Texas 76501

February 2, 1978

Mr. Truett Latimer
State Historic Preservation Officer
Texas Historical Commission
Box 12276, Capitol Station
Austin, Texas 78711

Dear Mr. Latimer:

In order to comply with applicable laws and regulations, Jim Warren, archeologist for the Soil Conservation Service, has completed an archeological and historical survey and testing program in the area to be involved in Lake Madison Park, Madison County, Texas (Big 8 RC&D Area).

This survey revealed nothing of historical or archeological significance which will be affected by the project. Also a search of the latest listing of the National Register of Historic Places failed to identify any sites which would be affected.

We are taking this opportunity to notify you of our findings, and to advise that the SCS is planning to proceed with the above mentioned project in compliance with all pertinent laws and regulations.

Sincerely,

George C. Marks

George C. Marks
State Conservationist

Encl.

cc:
James M. McGuire, SCS, Bryan
Carolyn Spock, TARL, Austin w/attachment.

APPENDIX II: SHOVEL TEST LOG*

Shovel Test	Depth	Munsell Number	Results
1	0-25 cm	none	sandy loam
	@ 30 cm	none	clay
2	0-25 cm	none	sandy loam
	@ 28 cm	none	clay
3	0-15 cm	none	sandy loam
	@ 20 cm	none	clay
4	0-22 cm	none	sandy loam
	@ 22 cm	none	clay
5	0-15 cm	none	sandy loam
	@ 15 cm	none	clay
6	0-60 cm	none	sandy loam
	@ 60 cm	none	clay
7	0-40 cm	10YR4/4	brown sandy loam
	@ 40 cm	10YR4/3	brown clay
8	0-20 cm	10YR4/4	brown sandy loam
	@ 20 cm	10YR4/3	clay
9	0-25 cm	10YR4/4	brown sandy loam
	@ 30 cm	5YR3/2	brown clay
10	0-40 cm	10YR5/6	light brown sand
	@ 40 cm	10YR4/6	yellowish-brown clay
11	0-10 cm	10YR4/4	light tan sand
	@ 20 cm	10YR5/4	clay
12	0-15 cm	10YR4/6	light brown sand
	@ 20 cm	5YR4/3	clay
13	0-20 cm	10YR4/6	brown sand
	@ 20 cm	10YR5/4	clay

Shovel Test	Depth	Munsell Number	Results
14	0-40 cm @ 40 cm	10YR4/6 10YR5/4	sandy loam brown clay
15	0-10 cm @ 10 cm	10YR4/6 5YR4/3	light brown sand red clay
16	0-30 cm @ 35 cm	10YR4/6 5YR4/3	light brown sand red clay
17	0-25 cm @ 25 cm	10YR4/6 5YR4/3	light brown sand red clay
18	0-25 cm @ 25 cm	10YR4/6 5YR4/3	light brown sand red clay
19	0-65 cm @ 70 cm	10YR4/6 5YR4/3	light brown sand red clay
20	0-65 cm @ 70 cm	10YR8/6 5YR4/3	light brown sand red clay
21	0-80 cm @ 80 cm	10YR4/6 5YR4/3	light brown sand red clay
22	0-70 cm @ 70 cm	10YR4/6 5YR4/3	light brown sand red clay
23	0-40 cm @ 40 cm	10YR5/3 10YR3/3	brown sand brown clay
24	0-10 cm @ 30 cm @ 60 cm	10YR3/3 10YR6/4 10YR6/4	brown sandy loam light brown sand compact light yellowish-brown sand
25	0-50 cm @ 60 cm	10YR6/4 10YR6/4	light brown sand compact light yellowish-brown sand

Shovel Test	Depth	Munsell Number	Results
26	0-30 cm @ 40 cm	10YR3/3 10YR4/5	brown sandy loam compact brown sand
27	0-65 cm	none	brown sand mixed with gravels
28	0-80 cm	none	tan sand over brown clay at 80 cm
29	0-60 cm	none	tan sand over brown clay at 60 cm
30	0-40 cm	none	tan sand mixed with pebbles
31	0-50 cm	none	tan sand over brown clay at 50 cm
32	0-40 cm	none	tan sand mixed with pebbles
33	0-60 cm	none	tan sand over clay at 60 cm
34	0-50 cm	none	tan sand mixed with pebbles
35	0-80 cm @ 80 cm	10YR6/6 none	light brown sand yellowish-brown clay
36	0-40 cm @ 40 cm	10YR6/6 none	tan sand yellowish-brown clay mixed with rock layer
37	0-23 cm @ 25 cm	10YR6/6 10YR3/3	tan sand rocks mixed with dark reddish-brown clay
38	0-30 cm @ 30 cm	10YR6/6 5YR3/3	light brown sand red clay
39	0-20 cm @ 20 cm	10YR6/6 5YR3/3	light brown sand dark reddish-brown clay

Shovel Test	Depth	Munsell Number	Results
40	0-35 cm @ 35 cm	10YR6/6 5YR3/3	light brown sand dark reddish-brown clay
41	0-35 cm @ 35 cm	10YR6/6 5YR3/3	light brown sand dark reddish-brown clay
42	0-40 cm @ 40 cm	10YR6/6 5YR3/3	light brown sand red clay
43	0-40 cm @ 40 cm @ 50 cm	10YR6/6 10YR6/3 5YR5/3	light brown sand tan sand red clay
44	0-45 cm @ 45 cm	10YR6/6 5YR3/3	light brown sand red clay
45	0-15 cm @ 15 cm	10YR3/2 10YR3/2	dark brown sandy loam red clay
46	0-10 cm @ 10 cm	10YR3/2 5YR3/3	dark brown sandy loam red clay
47	0-50 cm	10YR6/4	light brown sand; stopped due to large root
48	0-65 cm @ 65 cm	10YR6/4 5YR3/3	light brown sand red clay
49	0-25 cm @ 25 cm @ 60 cm	10YR3/2 10YR6/4 5YR3/3	dark brown sandy loam light brown sand red clay
50	0-30 cm @ 30 cm @ 60 cm	10YR3/2 10YR6/4 5YR3/3	dark brown sandy loam light brown sand red clay
51	0-20 cm @ 20 cm	10YR3/2 5YR3/3	brown sandy loam red clay

Shovel Test	Depth	Munsell Number	Results
52	0-30 cm	10YR3/2	brown sandy loam
	@ 30 cm	5YR3/3	red clay
53	0-40 cm	10YR6/4	light brown sand
	@ 40 cm	10YR3/2	brown sand
	@ 60 cm	5YR3/3	red clay
54	0-30 cm	10YR6/4	light brown sand
	@ 30 cm	5YR3/3	red clay
55	0-40 cm	10YR6/4	light tan sand
	@ 40 cm	5YR3/5	red clay
56	0-45 cm	10YR6/4	light brown sand
	@ 45 cm	5YR3/3	red clay
57	0-10 cm	10YR3/2	brown sandy loam
	@ 10 cm	5YR3/3	red clay
58	0-40 cm	10YR6/4	light brown sand
	@ 40 cm	5YR3/3	red clay
59	0-10 cm	10YR4/4	dark brown sandy loam
	@ 10 cm	5YR3/3	red clay
60	0-20 cm	10YR4/4	dark brown sandy loam
	@ 20 cm	5YR5/3	red clay
61	0-30 cm	10YR4/4	dark brown sandy loam
	@ 30 cm	10YR6/3	red clay
62	0-40 cm	10YR44	brown sandy loam
	@ 40 cm	5YR53	red clay
63	0-35 cm	10YR4/4	brown sandy loam
	@ 35 cm	5YR5/3	red clay
64	0-40 cm	10YR4/4	brown sandy loam
	@ 40 cm	5YR5/3	red clay

Shovel Test	Depth	Munsell Number	Results
65	0-20 cm @ 20 cm	10YR4/4 5YR5/3	brown sandy loam red clay
66	0-40 cm @ 40 cm	10YR6/4 5YR5/3	light tan sand red clay
67	0-80 cm	10YR6/4	light brown sand
68	0-50 cm @ 50 cm	10YR6/4 5YR5/3	light brown sand red clay
69	0-45 cm @ 45 cm	10YR6/4 5YR5/3	light brown sand red clay
70	0-50 cm @ 50 cm	10YR6/4 5YR3/3	light brown sand red clay

* All tests were sterile.