AN ARCHAEOLOGICAL SURVEY FOR THE NAVIDAD RESOURCES, LLC FERGUSON STATE PRISON FARM UNIT PROJECT IN MADISON COUNTY, TEXAS

Antiquities Permit 5714

By

William E. Moore

Brazos Valley Research Associates
Contract Report Number 243

2010

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BVRA Project Number 10-20

Principal Investigator

William E. Moore

Prepared for

Navidad Resources, LLC
218 North College Avenue
Tyler, Texas 75702

Prepared by

Brazos Valley Research Associates
813 Beck Street
Bryan, Texas 77803

2010

ABSTRACT

An archaeological survey of three proposed well pad sites, two proposed access roads, and two frac pit sites at the Ferguson Unit of the Texas Department of Criminal Justice in Madison County, Texas was performed by Brazos Valley Research Associates (BVRA) on July 27 and 29 and August 6 and 18, 2010. The project was conducted under Antiquities Permit 5714. The client is Navidad Resources, LLC. The total area investigated consisted of 19.2 acres. Evidence of prehistoric activity in the area was revealed by the presence of three flakes at well location 1-1, one flake at well location 2-1, and three flakes at Frac Pit 1. The flakes are small interior flakes, and it is believed that they are the result of tool refurbishing activities and not indicative of an actual site worthy of a state trinomial. Historic artifacts were found at well location 2-1 and consist of three fragments of whiteware, two fragments of clear glass, and a metal bolt. In addition a fragment of mammal bone was found. According to prison personnel, the area where the historic artifacts were found had been used in the past as a place for dumping trash. Due to the sparse amount of materials recovered, this area was not considered to be worthy of an official site number. The artifacts from both areas have been discarded, as they are not considered significant and worthy of curation Copies of the report are on file at the Texas Historical Commission, Texas Archeological Research Laboratory, the Texas State Library, Navidad Resources, LLC, the Ferguson Unit, and BVRA.

CONTENTS

FIGURES

DEFINITION OF STUDY AREA

Navidad Resources, LLC plans to construct three well pads for gas and oil extraction. Adjacent to one of these well pads will be a frac pit. In addition, there are two areas where access roads are proposed. The area investigated is on the Ferguson Unit in eastern Madison County (Figure 1). When constructed, the well pads will be 250 feet by 250 feet in size. The pads will be enclosed by a fence that will increase the size of the footprint to 375 feet by 375 feet. Each pad will have a reserve pit that will be located within the pad area, and these pits will be eight feet deep. The frac pit will occupy of approximately three acres and will be located adjacent to the proposed 1-1 well pad site. According to the client, the two access roads will be constructed by placing rock on the surface, and the subsurface will not be disturbed. The approximate width of each road will be sixteen feet. The road to well location 1-1 will be 1350 feet long, and the other access road will be 1970 feet long. The project area is depicted on the USGS 7.5' topographic quadrangle Baker Lake (3095-343) (Figure 2).

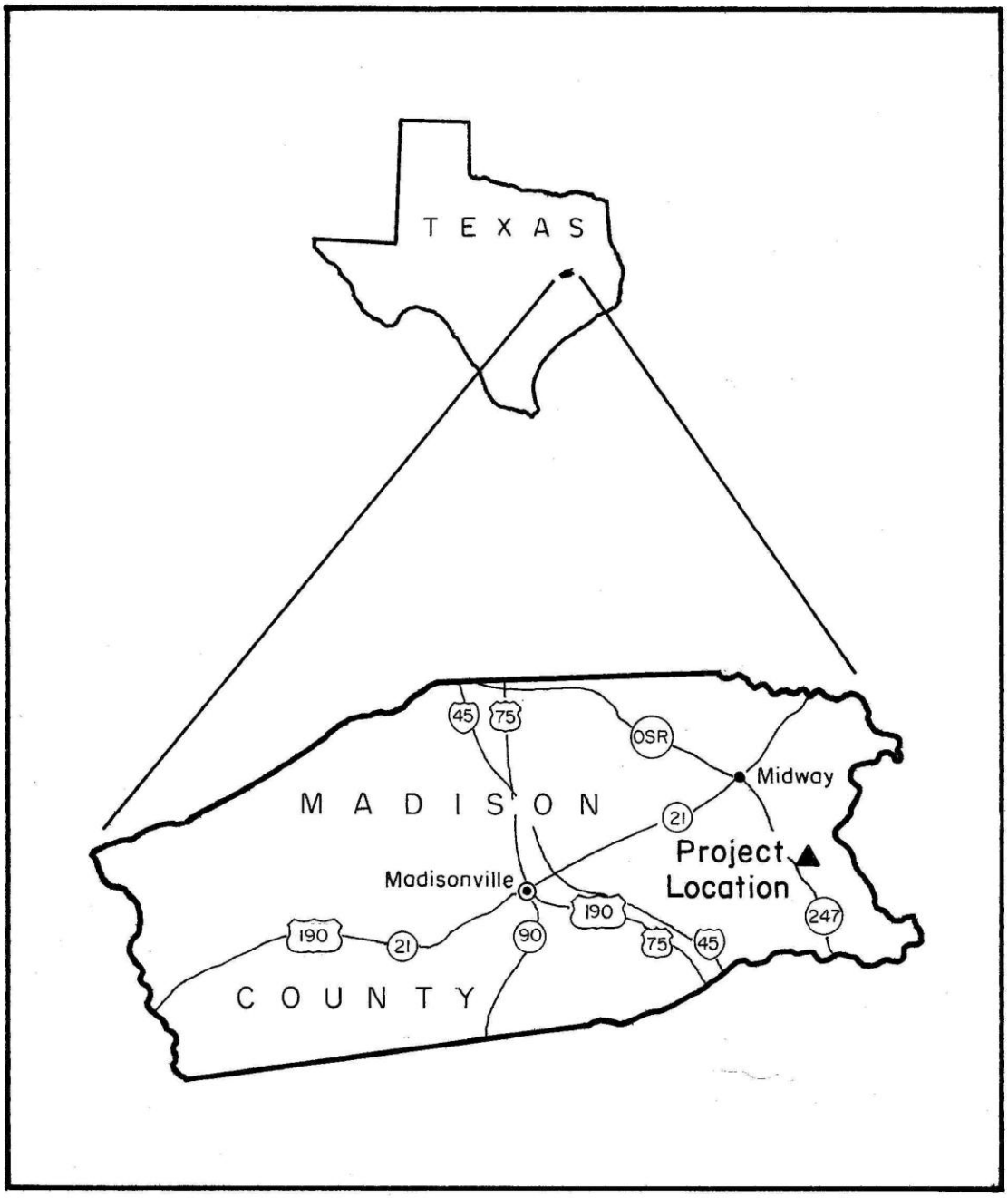


Figure 1.General Location

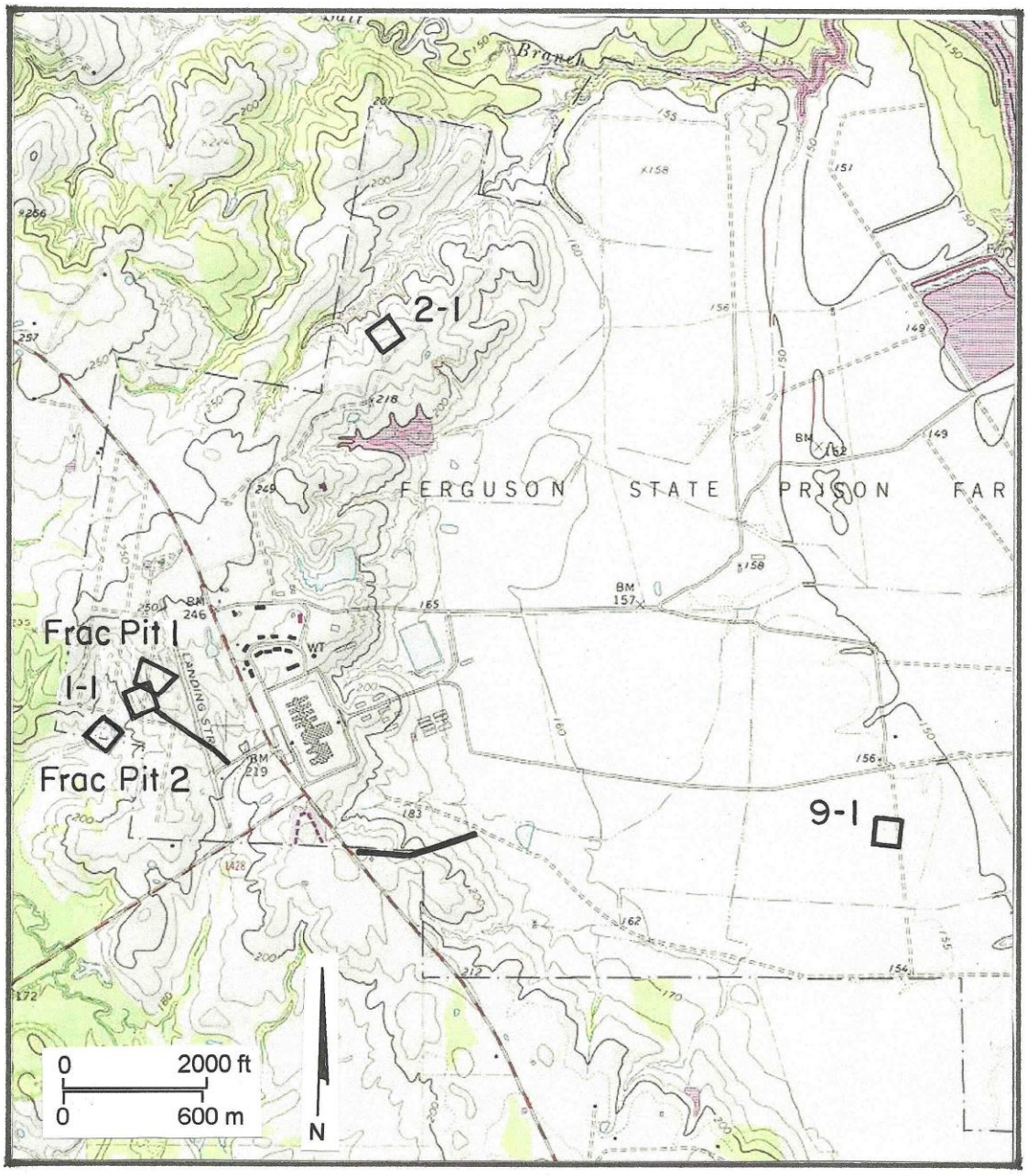


Figure 2. Project Area on Topographic Quadrangle Baker Lake

MANAGEMENT SUMMARY

This project was performed in order to identify any cultural resources that might be present within the project area. The client is Navidad Resources, LLC. The Principal Investigator was William E. Moore. Field supervision was divided between Mr. Moore and J. Randy Ferguson. The survey involved sixty person hours and was performed on July 27 and 29, 2010 and August 6, and August 18, 2010. The field crew consisted of J. Randy Ferguson, Rachel Goings, Abidemi Babatunde Babaloa (AKA Tunde), and Christal McMillion. The reviewing agency is the Texas Historical Commission, Archeology Division.

METHODS

Prior to entering the field, the site records at the Texas Archeological Research Laboratory and the Texas Archeological Sites Atlas were checked for the presence of previously recorded sites and other archaeological surveys in the project area and vicinity. The soil survey for Madison County (Neitsch 1994) was checked for the types of soils at the location of each well pad and access road. Relevant archaeological reports documenting work in Madison County were reviewed in order to become familiar with the types of prehistoric and historic sites found in the area. The most relevant source for this project is a report by the contract firm Antiquities Planning & Consulting (Godwin et al. 1998) that documents a prehistoric site (41MA25) that was recorded in the vicinity of well location 2-1. The findings of this project are discussed in the *Results* section below.

The Principal Investigator, Project Archaeologist, and the survey crew were taken to the site of the well pads, frac pits, and access roads by Jimmy Estridge and Tim Estridge of Navidad Resources in order to assess the level of work needed at each location. Each area was covered with grass used by the prison as pasture for livestock. Therefore, a surface inspection was not possible. The well pads, frac pits, and access roads had been staked and the coordinates identified by surveyors who used control points for accuracy. The well pads, frac pits, and one of the access roads were investigated by shovel tests. Backhoe trenches were excavated at the frac pits. The soil removed as a result of shovel tests was screened using ¼" hardware cloth. The results of the shovel tests were documented by a shovel test log (Appendix I), shovel test forms, and field notes. In all, 57 shovel tests were dug in the various areas. The backhoe trenches were excavated in areas where deep sandy soil was present in an attempt to identify buried features in the deep sandy soil. Selected screening was performed in the back dirt and from a column of Backhoe Trench 1. The walls were cleaned, and profiles were drawn in the field. Profiles of the backhoe trenches are presented in Appendix I, and photos of the backhoe trenches are presented in Appendix II. All artifacts or suspected artifacts were collected for analysis in the laboratory. The project was documented by a hand-held GPS, project notes, and digital photography. Details regarding the various areas investigated appear below.

Well Pad 1-1

The size of this well as proposed by the client is 250 feet by 250 feet. With the fenced enclosure, the size of the area will be increased to 375 feet by 375 feet. The surface was in pasture, and this made a surface inspection impossible except for the possibility of observing ground historic features that might be present. This area is on a grassy hillside (Figure 3), and the soils have been identified by the soil survey as Cazos loamy fine sand, 1 to 5 percent slopes (ChB). This is a deep, gently sloping soil on high stream terraces. According to the soil survey, clay is often found at around 14 inches. However, sandy soil was encountered to a depth of 100 cm in some areas of this well pad. It is also in the area where Gredge fine sandy loam, 1 to 5 percent slopes (GrC) soils are known to occur. This is also a deep, gently sloping soil on high stream terraces. These soils are reported to have red clay at seven inches. Thirteen shovel tests were excavated at this location, and three flakes were found in two of these tests (Figure 4).

Well Pad 2-1 (previous location)

The size of this well pad as proposed by the client is 250 feet by 250 feet. With the fenced enclosure, the size of the area will be increased to 375 feet by 375 feet. The surface was in pasture, and this made a surface inspection impossible except for the possibility of observing historic features such water troughs, dip tanks, and other aboveground features that might be present. The soils have been identified by the soil survey as Zack fine sandy loam, 5 to 8 percent slopes (ZaD) with clay at five inches. Nine shovel tests were excavated in this area, and three were positive (Figure 5). At Shovel Test 7, one thinning flake was found in Level 2. At Shovel Test 9, three whiteware fragments and one metal wire nail were found in the northwest corner of the proposed well pad between 0 and 20 centimeters below the existing ground surface. At Shovel Test 31, two fragments of clear glass and a piece of bone from a large mammal were found between 10 and 30 centimeters below the existing ground surface.

Well Pad 2-1 (current location)

The client decided to move the location of this well pad to a new area that overlaps the original site. When the shovel tests excavated at the original site are included, the number of tests at the final location is eleven, and three were positive (Figure 5). Two of the positive tests are discussed above. The only new shovel test that yielded artifacts is Shovel Test 33. A metal bolt of unknown age was found in this test.

Figure 3. View of Well Pad 1-1

Frac Pit 1

The size of this frac pit as proposed by the client is approximately 3.4 acres. The surface was in pasture, and this made a surface inspection impossible except for the possibility of observing above-ground historic features that might be present. This area is on a grassy hillside, and the soils have been identified by the soil survey as as Cazos loamy fine sand, 1 to 5 percent slopes (ChB). This is a deep, gently sloping soil on high stream terraces. According to the soil survey, clay is often found at around 14 inches. However, sandy soil was encountered to a depth of 105 cm in some areas of this well pad. It is also in the area where Gredge fine sandy loam, 1 to 5 percent slopes (GrC) soils are known to occur. This is also a deep, gently sloping soil on high stream terraces. These soils are reported to have red clay at seven inches. Ten shovel tests were excavated at this location, and one was positive (Figure 6). A thinning flake was found in Shovel Test 48 at 40-50 cm. In addition, two backhoe trenches were excavated at this location, and two flakes were found in the back dirt of Backhoe Trench 1. Shovel Test 14 was dug at the site of proposed well pad 1-1. The footprint of the new frac pit overlaps the northeast corner of the site of the proposed well pad 1-1, and this places Shovel Test 14 within the footprint of the fract pit as well as at the well site.

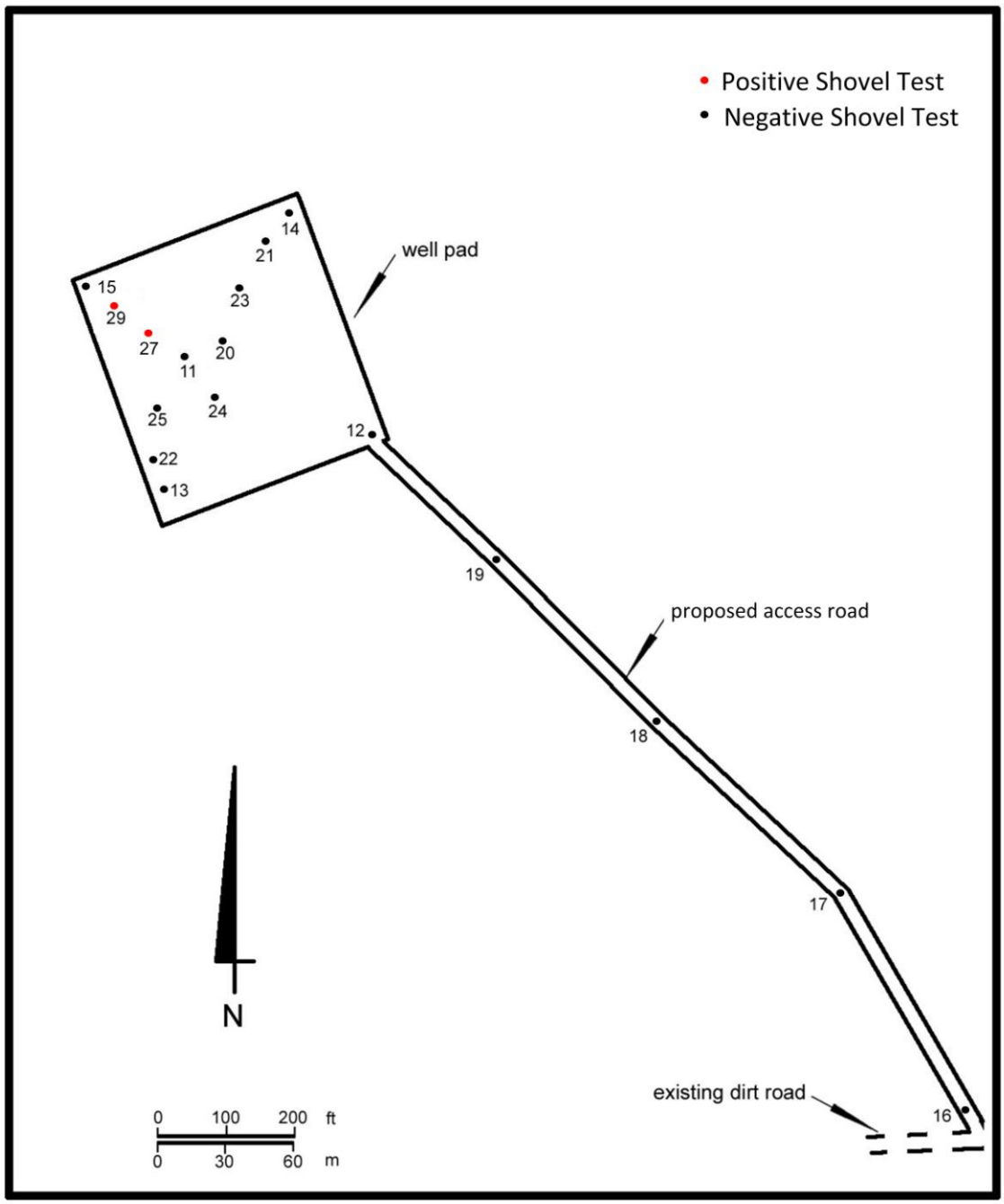


Figure 4. Shovel Tests at Well Pad 1-1 and Access Road

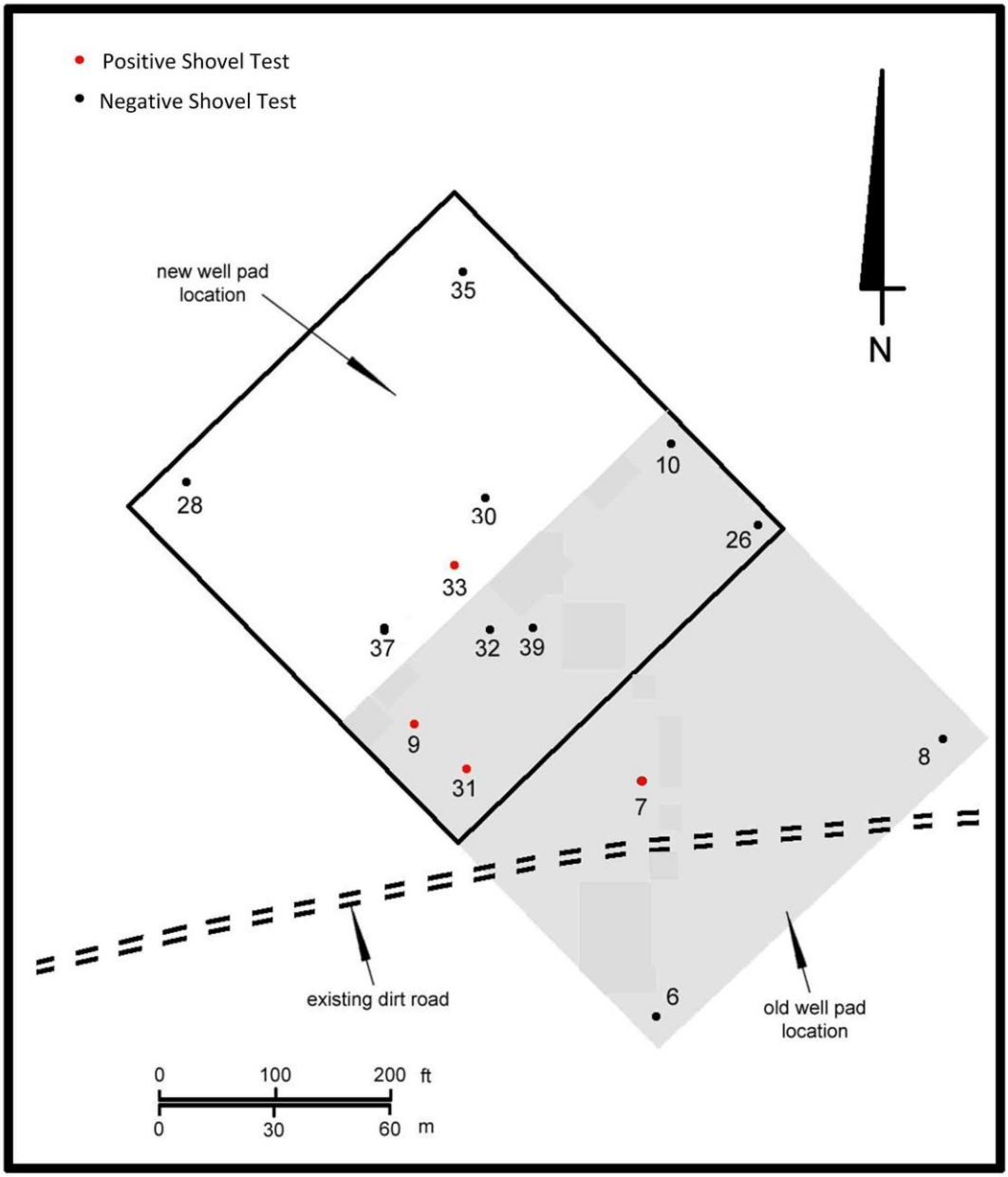


Figure 5. Shovel Tests at Well Pad 2-1

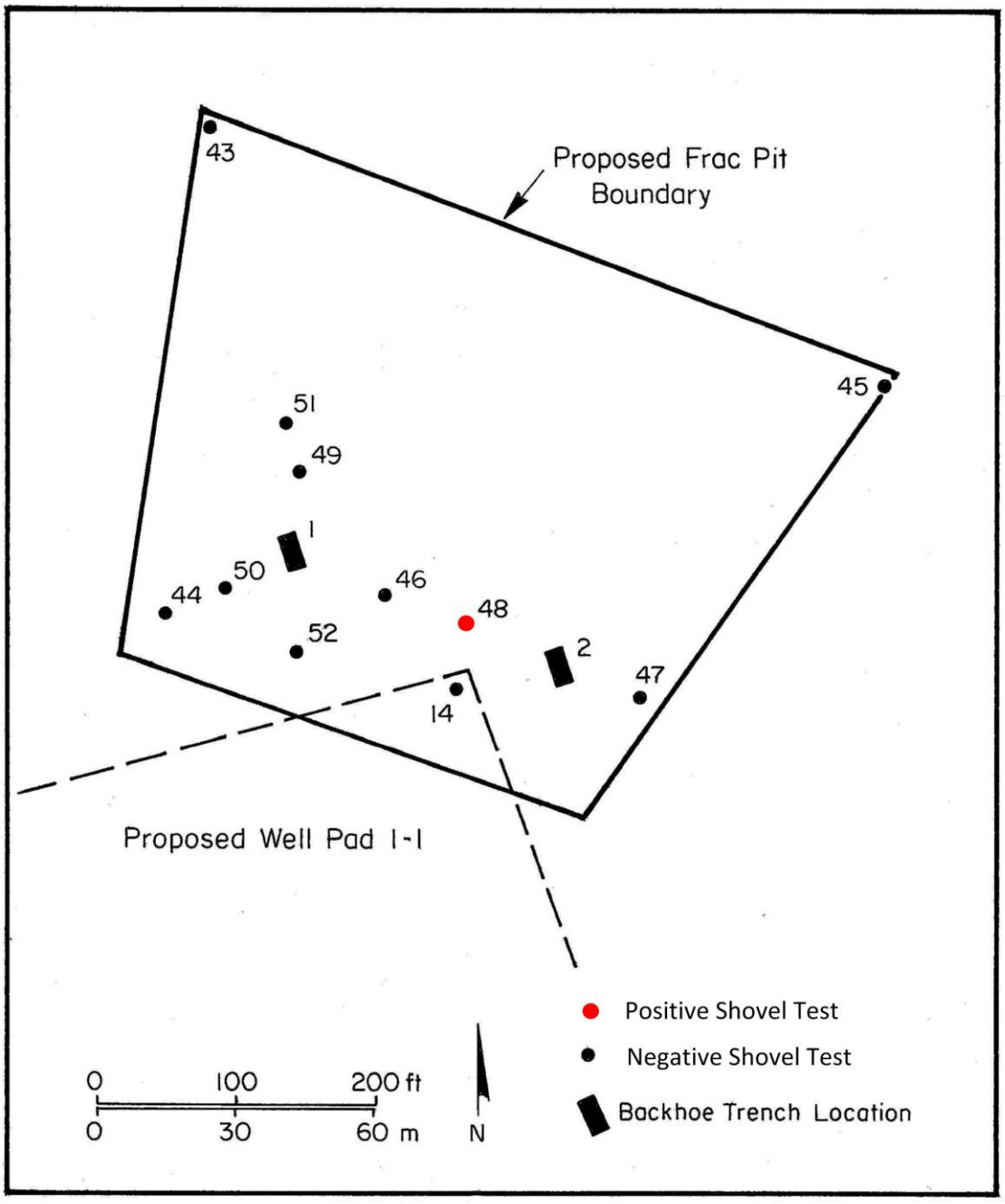


Figure 6. Shovel Tests and Backhoe Trenches at Frac Pit 1

Frac Pit 2

The size of this frac pit is approximately 2.9 acres, and it is approximately 250 feet west-southwest of well site 1-1. This new frac pit area is on the opposite side of a barbed wire fence from pad 1-1 and is in a bottom or low-lying area that was waist-high in weeds that made it difficult for the crew to conduct a surface inspection unless above-ground historic features were present. This lowest part of the frac pit is in the center, and the landform rises slightly towards the east and west. At the time of this survey, the pasture was void of trees and appeared to have been farmed fairly recently in the past. The soils at this site have been identified by the soil survey as Cazos loamy fine sand, 1 to 5 percent slopes (ChB). This is a deep, gently sloping soil on high stream terraces. According to the soil survey, clay is often found at around 14 inches. However, sandy soil was encountered to a depth of 110 cm in some areas of this well pad. It is also in the area where Gredge fine sandy loam, 1 to 5 percent slopes (GrC) soils are known to occur. This is also a deep, gently sloping soil on high stream terraces. These soils are reported to have red clay at seven inches. Five shovel tests were excavated at this location, and no artifacts were found (Figure 7). One backhoe trench was excavated at this location, and no artifacts were found.

Well Pad 9-1

The size of this well pad as proposed by the client is 250 feet by 250 feet. With the fenced enclosure, the size of the area will be increased to 375 feet by 375 feet. The surface was in pasture, and this made a surface inspection impossible except for the possibility of observing historic features such water troughs, dip tanks, and other aboveground features that might be present. The soils have been identified by the soil survey as Burleson clay, 0 to 1 percent slopes (BuA). The soil survey states that black clay is present at the surface. Five shovel tests were excavated, and all were negative (Figure 8). According to prison officials, part of this area is under water during rainy weather.

Access Road to Well Pad 1-1

The size of this road is 1350 feet long, and its proposed width is sixteen feet. The road will be constructed by adding gravel to the surface. There will be no subsurface disturbance. The field survey crew dug shovel tests at intervals of 100 meters. In all four shovel tests were excavated.

Additional Access Road

The size of this road is 1970 feet long, and its proposed width is sixteen feet. The road will be constructed by adding gravel to the surface. There will be no subsurface disturbance. The field survey crew dug shovel tests at intervals of 100 meters. In all seven shovel tests were excavated.

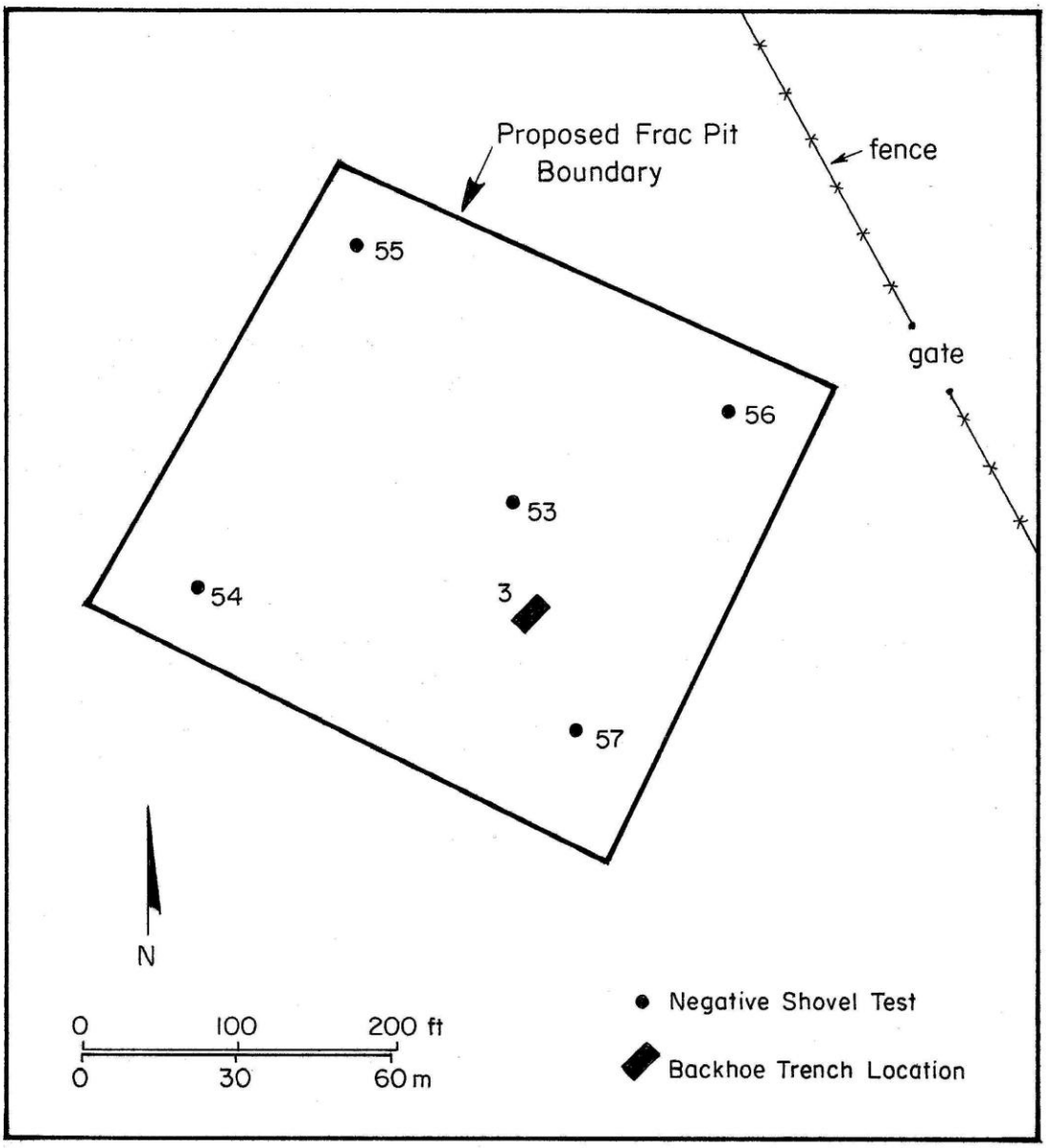


Figure 7. Shovel Tests and Backhoe Trench at Frac Pit 2

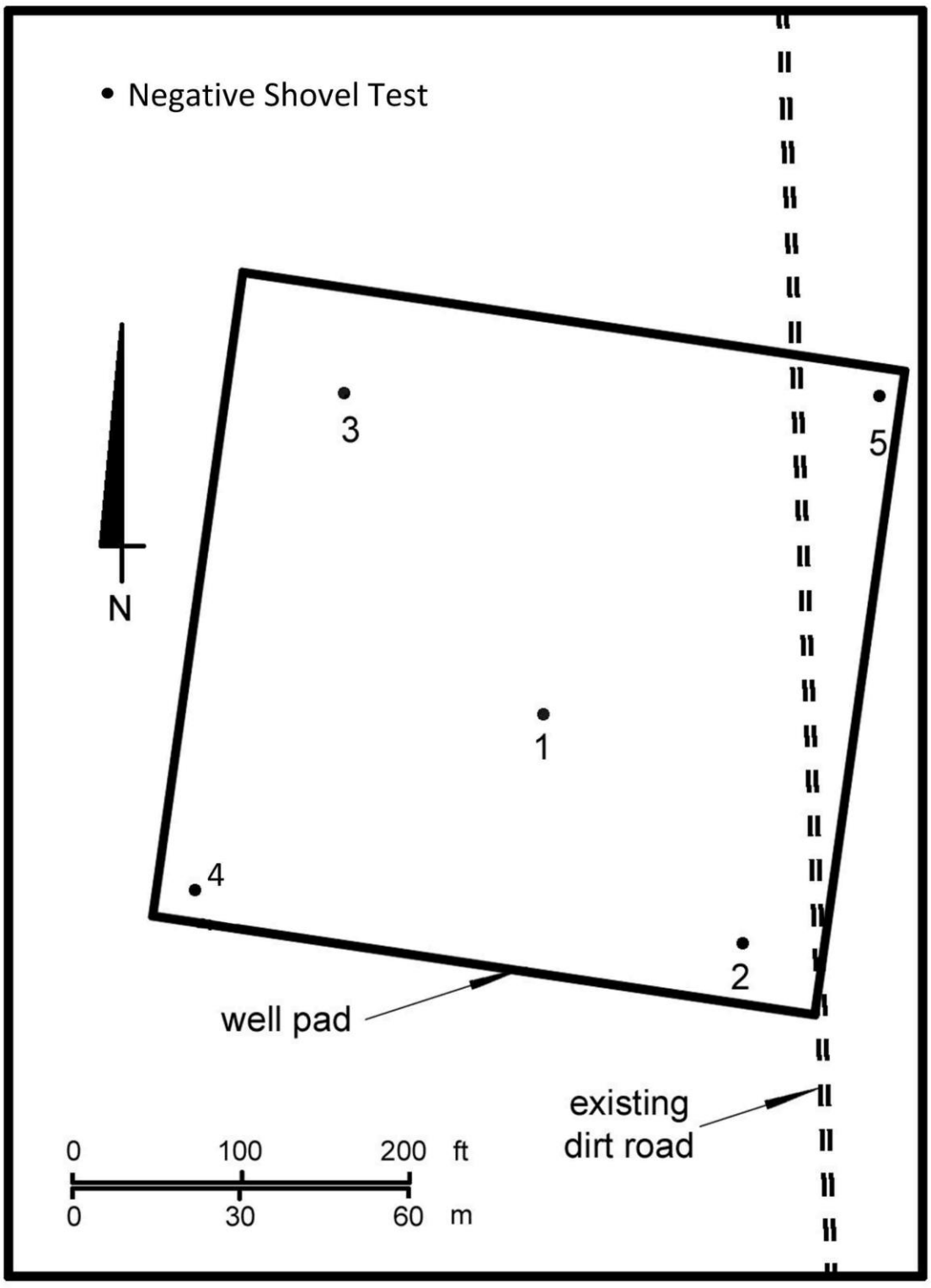


Figure 8. Shovel Tests at Well Pad 9-1

RESULTS AND CONCLUSIONS

Examination of the files at the Texas Archeological Laboratory in Austin, Texas and the Atlas revealed one previously recorded prehistoric site (41MA25) had been recorded in close proximity to the project area. This site is described on the site form as an upland lithic scatter that yielded chert and jasper debitage, a fragment of burned bone from a small mammal, fire-cracked rock, and one possible pebble tool. The artifacts were found at eight centimeters below the surface that had been plowed and deflated through erosion. The site form does not make a recommendation in terms of its significance and and/or future work. Site 41MA25 is in the vicinity of well site 2-1.

The only evidence of prehistoric utilization of the current project area was the seven small flakes found at well pad location 1-1 and the adjacent frac pit. They were identified by William A. Dickens as thinning flakes made from chert and possibly jasper. Dickens views these specimens as evidence of single events in which tools were modified by tasks such as thinning or reworking. It is the opinion of the author that there is not enough evidence to warrant assigning a site number to this area.

The only evidence of historic utilization of the current project area was the presence of a few historic artifacts. These artifacts consisted of a few fragments of three whiteware sherds, two pieces of clear glass, one large wire nail, and one metal bolt found at well pad location 2-1. One bone from a large mammal was also found in the same area. These artifacts are likely part of a past dumping episode by the prison. No site number was assigned. At the time of this investigation, much of the area was being used as pasture for livestock.

RECOMMENDATIONS

No evidence of a prehistoric or historic site was found as a result of this survey. It is recommended that the client be allowed to proceed with construction as planned. Should evidence of an archaeological site be encountered during the construction of the road, all work must stop until the Texas Historical Commission can evaluate the situation. This survey was conducted in accordance with the Minimum Survey Standards as outlined by the Texas Historical Commission.

REFERENCES CITED

Godwin, Molly F., Jerry Henderson, and William J. Weaver
1998 *An Archeological Survey of Three Five-Acre Borrow Pit Locations for Ellis, Ferguson, and Wynne Units Dormitory Construction in Huntsville and Midway, Walker and Madison Counties, Texas*. Antiquities Planning and Consulting, Survey Report Number 5.

Neitsch, Conrad L.
1994 *Soil Survey of Madison County, Texas*. United States Department of Agriculture, Soil Conservation Service in cooperation with Texas Agricultural Experiment Station.

APPENDIX I

SHOVEL TEST LOG

Test	Depth	Comments
		Well Location 1-1
11	110 cm	sandy loam over clay
12	28 cm	sandy loam over clay
13	100 cm	sandy loam over sandy clay
14	98 cm	sandy loam
15	70 cm	sandy loam over sandy clay
20	33 cm	sandy loam over clay
21	30 cm	sandy loam over sandy clay
22	98 cm	sandy loam
23	35 cm	sandy loam over sandy clay
24	75 cm	sandy loam over clay
25	50 cm	sandy loam over sandy clay
27	100 cm	sandy loam over sandy clay (2 flakes)
29	75 cm	sandy loam over sandy clay (1 flake)

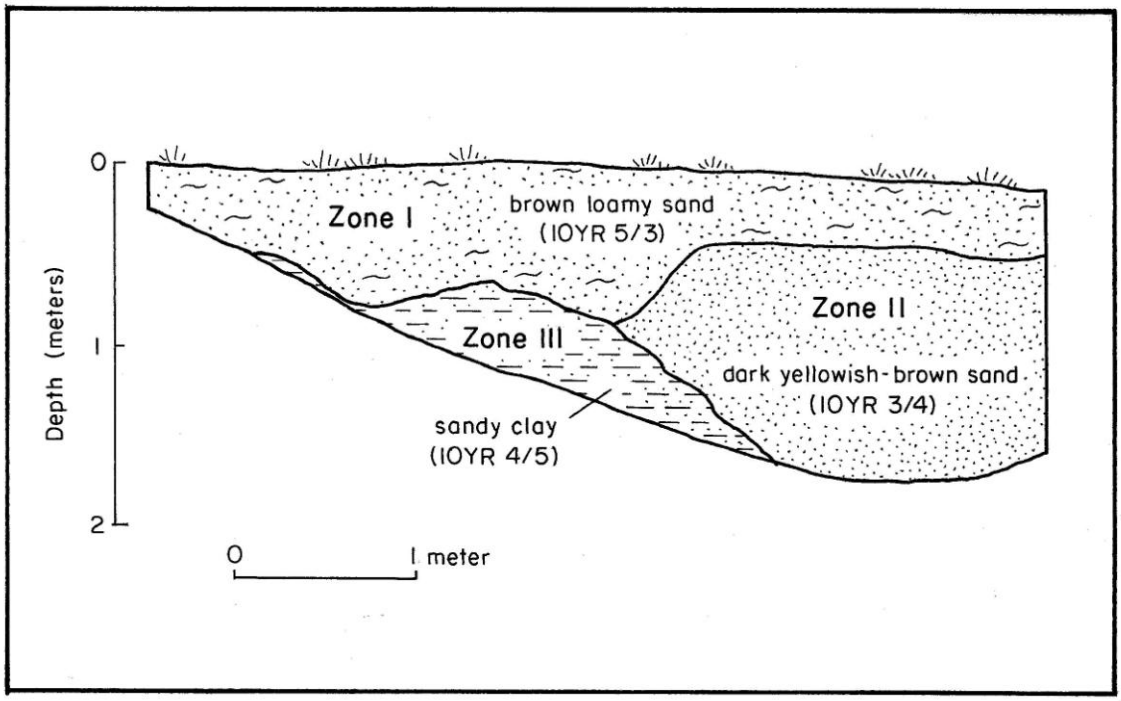
Test	Depth	Comments
		Well Location 2-1 (previous location)
06	30 cm	sandy clay over clay
07	50 cm	sandy loam over clay with gravels (1 flake)
08	43 cm	sandy loam over clay with gravels
09	40 cm	clay with gravels at surface (whiteware and wire nail)
10	34 cm	loamy clay at surface
26	28 cm	clay at surface
31	38 cm	sandy loam over sandy clay (clear glass and bone)
32	30 cm	loamy clay
39	30 cm	sandy clay over clay
		Well Location 2-1 (current location)
28	30 cm	loamy clay
30	25 cm	loamy clay
33	38 cm	clay at surface (metal bolt)
35	30 cm	clay at surface
37	30 cm	clay at surface

Test	Depth	Comments
		Well Location 9-1
01	28 cm	clay at surface
02	30 cm	clay at surface
03	27 cm	clay at surface
04	36 cm	clay at surface
05	30 cm	clay at surface
		Access Road to Well Location 1-1
16	26 cm	loamy soil with large rocks
17	32 cm	sandy loam over clay
18	50 cm	sandy loam over clay
19	30 cm	sandy loam over clay
		Other Access Road
34	30 cm	loamy soil over clay
36	28 cm	sandy clay over clay
38	34 cm	loamy soil over clay
39	30 cm	sandy loam over clay
40	34 cm	sandy loam over clay
41	30 cm	clay at surface with gravels
42	32 cm	silty loam over clay

Test	Depth	Comments
		Frac Pit 1
43	50 cm	loamy soil over clay
44	120 cm	sandy fill with bricks and mortar over sand
45	25 cm	sand with clay lumps
46	40 cm	sandy fill with modern debris over clay
47	124 cm	deep sandy loam
48	100 cm	deep sandy loam (1 flake)
49	95 cm	deep sandy loam
50	105 cm	deep sandy loam
51	93 cm	deep sandy loam
52	100 cm	modern fill over deep sandy loam
		Frac Pit 2
53	110 cm	loamy sand over sandy clay saturated with water
54	82 cm	loamy sand over sandy clay with gravels
55	40 cm	sand over clay (modern brick and mortar)
56	86 cm	sandy loam (no gravels)
57	98 cm	sandy loam (no gravels)

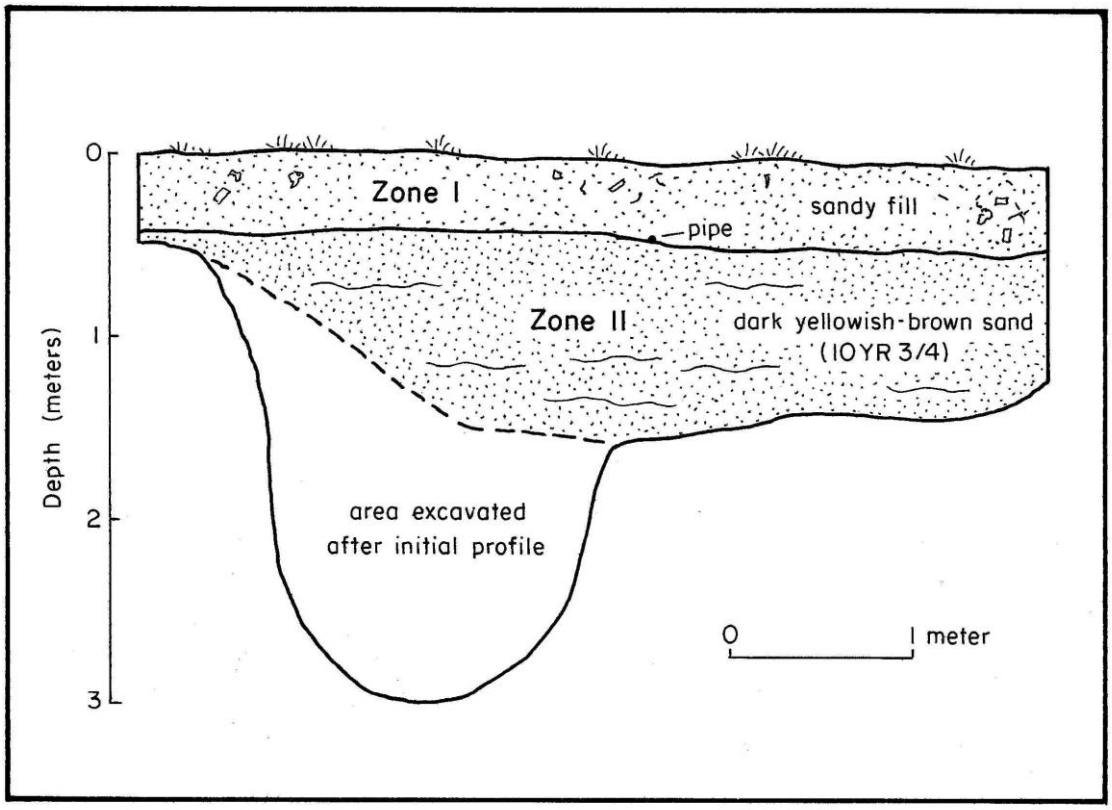
APPENDIX II

BACKHOE TRENCH PROFILES



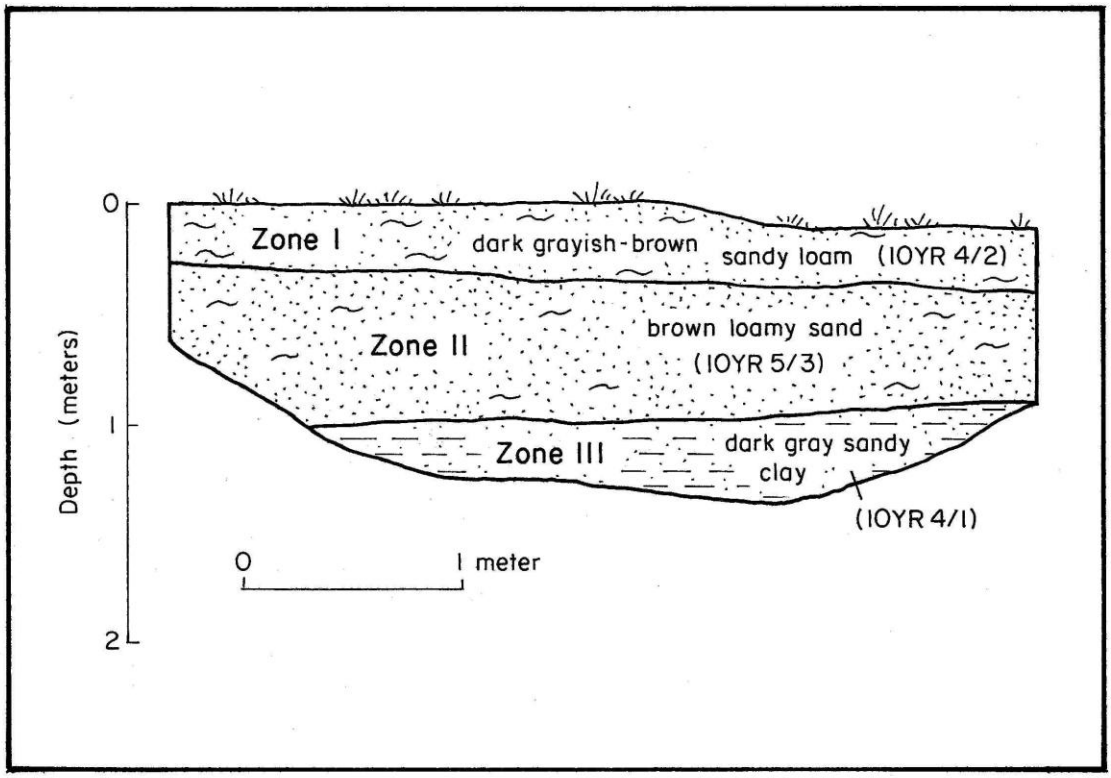
Backhoe Trench 1

(Frac Pit 1 at Well Pad 1-1)



Backhoe Trench 2

(Frac Pit 1 at Well Pad 1-1)



Backhoe Trench 3

(Frac Pit 2 at Well Pad 1-1)

APPENDIX III

BACKHOE TRENCH PHOTOGRAPHS

Backhoe Trench 1. East Wall Profile (north end)

Backhoe Trench 2. East Wall Profile (north end)

Backhoe Trench 3. Profile (facing southwest)