

**AN ARCHAEOLOGICAL SURVEY
AT THE YATES DRILLING COMPANY
SOUTH MORTON UNIT "12" NUMBER 1 WELL SITE
AND ACCESS ROAD IN THE BIENVILLE NATIONAL FOREST
SMITH COUNTY MISSISSIPPI**



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**Brazos Valley Research Associates
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BVRA Project Number 05-04

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ABSTRACT

An archaeological survey of a well pad (3.67 acres) and .5 miles of access road in the Bienville National Forest, Smith County, Mississippi, was conducted by Brazos Valley Research Associates (BVRA) in September 2005 under an ARPA Permit dated September 6, 2005 for the Yates Drilling Company of Artesia, New Mexico. A check of the site records at the Mississippi Department of Archives and History (MDAH) in Jackson, Mississippi and reports on file at the Bienville National Forest (Ranger District office) revealed no previously recorded sites have been recorded within the project area. No archaeological sites were found as a result of this investigation. It is, therefore, recommended that construction be allowed to proceed as planned. Copies of this report are on file at the Bienville National Forest in Forest, Mississippi, MDAH, and BVRA.

ACKNOWLEDGMENTS

The authors are grateful to those individuals who participated in this project. Terry L. McClung, archaeologist at the Bienville National Forest (Ranger District office) discussed the project with the Project Archaeologist and provided advice regarding preparation of the report. At the Yates Drilling Company, maps and other information was provided by the Land Manager, Tony Krakauskas. Additional maps were provided by Tanya Matherne and Gary Kowalski at Dixie Environmental Services Co. (DESCO). They also served as our liason between BVRA and the client. Technical support was provided by Jennifer McMillan and Lili G. Lyddon.

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INTRODUCTION

The Yates Drilling Company plans to construct a well pad and access road within the Bienville National Forest (Section 12, Township 4 North, Range 6 East) Smith County, Mississippi (Figure 1). The project area is approximately four miles southeast of Polkville, Mississippi. Topographic coverage of the project area is provided by the Polkville 7.5' quadrangle dated 1980. The project area is located in Compartment 258 of the Bienville Ranger District.

The horizontal extent of the well pad is 400 x 400 feet. The access road follows an old trail. It is .5 mile in length and 12 feet in width. The road begins at Bienville National Forest road number 538-J and ends at the site of the proposed well pad. The route of the road is visible. It will be bladed with drainage on one side to control runoff and soil erosion.

The drill hole will be located in the approximate center of the well pad, and the proposed depth of the drilling is 15,400 feet.

The need for an archaeological survey was discussed in the field during a visit to the site by Dave Eason (representative of the Yates Drilling Company) and Hunter Howell and Chris Locke (representatives of the Bienville National Forest). DESCO was hired by Yates Drilling Company as a subcontractor for this project to provide biologists and archaeologists to evaluate the project area for endangered plants and animals as well as the presence of archaeological sites. DESCO retained BVRA as the firm responsible for evaluating the archaeology of the project area.

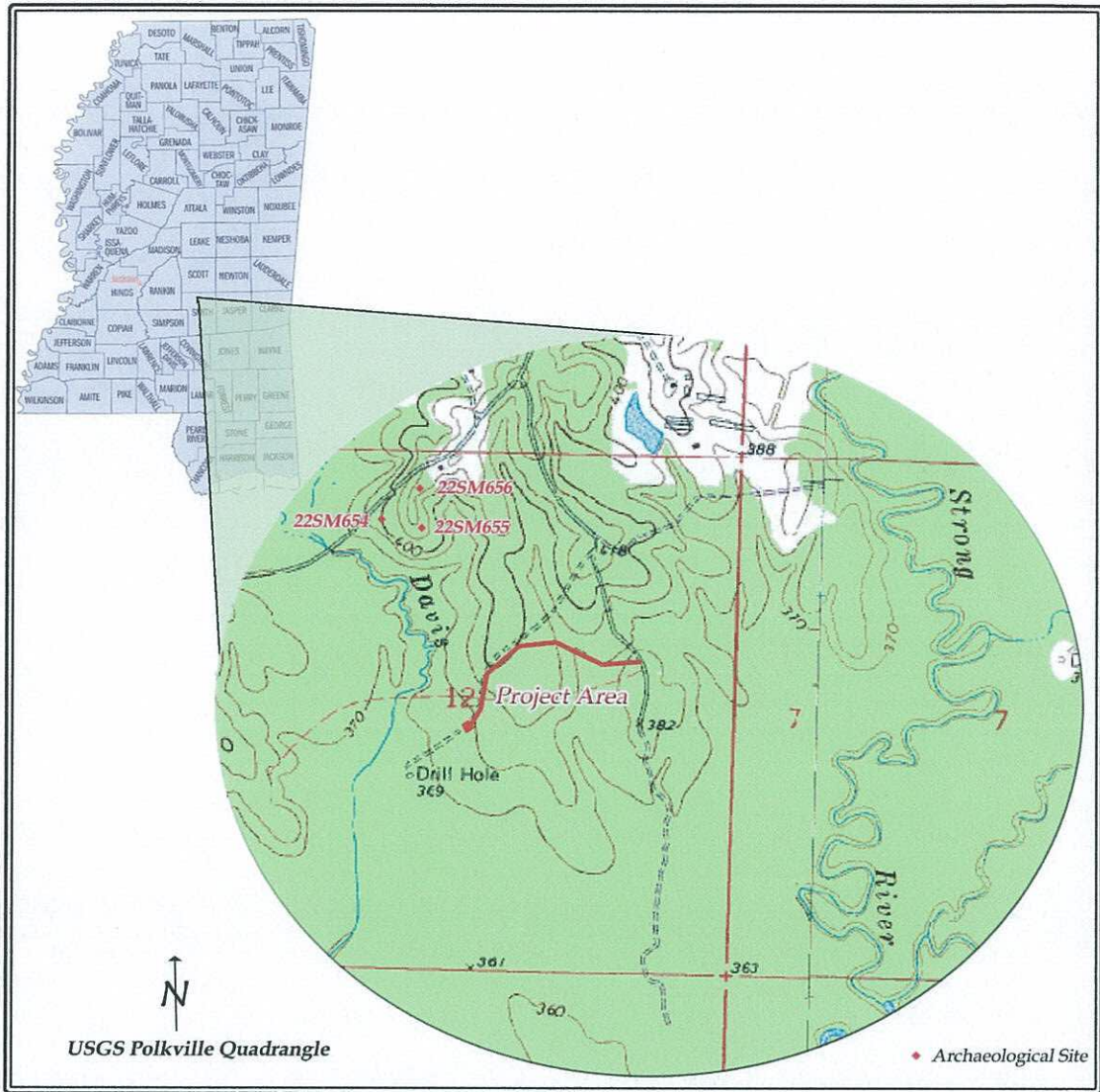


Figure 1. General Location

ENVIRONMENTAL SETTING

Smith County, Mississippi is located within the East Gulf subregion of the Coastal Plain physiographic province as described by Fenneman (1938). This area is characterized by a series of belts, with each belt distinguished by a specific topography relating to various geologic structures. According to an early 19th century report by Goodspeed (1891:242), the physiography of Smith County is characterized as "partly rich bottom lands, partly hill lands, free and productive..."

The area containing the well pad and access road is drained by the Strong River and its tributaries. The river flows from north to south and is east of the project area (Figure 1). Davis Creek also flows from north to south, and it is west of the project area (Figure 1). The well pad is located on a small rise just above the floodplain created by Davis Creek and the Strong River. The access road traverses an upland ridge at about the 400-foot contour.

Luper et al. (1972) published a geological survey of Smith County. The impetus for this study was the presence of economically valuable geologic resources such as oil and gas, bentonite, limestone and marl, clays, and sand and gravels. The generalized stratigraphic column for Smith County is presented in Luper et al. (1972:25). The oldest stratum within the local column is the Eocene Yazoo Formation which crops out in the northeastern part of the county. The two most recent formations that may contain cultural materials are the terrace deposits and Alluvium. The terrace deposits are recent or Holocene and contain sand with gravel, chert, and quartz. Alluvium consists of sand (fine-grained to coarse-grained), silt, clay, some organic material, and gravel.

There is no published soil survey for Smith County, Mississippi. Therefore, the following information was taken from files at the Bienville National Forest and contract reports written for the general area. According to an in-house soil map prepared by John K. Lee of the Bienville National Forest, Ranger District office, the soils in the project area consist of Savannah fine sandy loam, an upland soil. These soils have 0% chance of flooding, and they are located on a 2% slope. No information regarding the subsurface of this soil type was available.

ACHAEOLOGICAL BACKGROUND

Most of the archaeological investigations conducted in the Bienville National Forest have been performed by staff archaeologists employed by the Bienville National Forest. These studies are typically conducted in areas where the forest will be disturbed through such activities as logging and timber sales. Copies of reports describing these surveys are on file at the Bienville National Forest (Ranger District office) and the Mississippi Department of Archives and History.

According to the site records at the Bienville National Forest, the project area may have been investigated in the past by archaeologists from that office. There is, however, no report on file documenting work in this compartment (personal communication from Terry L. McClung to William E. Moore, September 19, 2005).

There have been several archaeological surveys carried out in the vicinity of the current project area. The nearest investigation was a survey of timber stands selected for the 95 FY mechanical site preparation work (Bryan 1995). This investigation was centered on two tracts (compartments 255 and 258). As a result of this survey, five prehistoric sites (22-Sm-652 – 22-Sm-656) and one historic site (95-264-SR-1-H) were recorded in Smith County. The three nearest sites to the project area are 22-Sm-654 – 22-Sm-656. They are located in an upland setting approximately 1 km north of the current project area. These sites are discussed below.

Prehistoric site 22-Sm-654 is located on a ridge bluff at an elevation of 390 feet above mean sea level and overlooks Davis Creek to the south. At the time of this survey, the vegetation consisted of logging debris and light underbrush. The soils were identified as Savannah fine sandy loam. Shovel tests (n=5) revealed a very thin mantle of sandy soil (10 cm) over orange silty clay subsoil. Artifact density was light and consisted of primary and secondary decortication flakes (n=5), 1 interior flake, and 1 biface thinning flake. The size of this site, based on artifact distribution and topography, was measured to be 10 m north-south x 10 m east-west (.02 acres). This site is described on the site form as Unknown Aboriginal, and it is ineligible for listing in the National Register of Historic Places. The artifacts are curated at Mississippi State University in Mississippi State, Mississippi. The prehistoric artifacts recovered are not sufficient to make any chronological or functional assessment of this site at this time. Disturbance to this site has been caused by timber removal, a tram line, and modern power line.

Prehistoric site 22-Sm-655 is located on an upland ridge at an elevation of 410 feet above mean sea level and overlooks a tributary of Davis Creek to the south. At the time of this survey, the vegetation consisted of scattered medium growth hardwoods, logging debris, and light underbrush. The soils were identified as Savannah fine sandy loam. Five Shovel tests revealed a very thin mantle of sandy silt loam (6 cm) over a red silty clay subsoil. Artifact density was light and consisted of primary and secondary decortication flakes (n=7) and interior flakes (n=3). The size of this site, based on artifact distribution and topography, was measured to be 15 m north-south x 15 m east-west (.06 acre). This site is described on the site form as Unknown Aboriginal, and it is ineligible for listing in the National Register of Historic Places. The artifacts are curated at Mississippi State University in Mississippi State, Mississippi. The prehistoric artifacts recovered are not sufficient to make any chronological or functional assessment of this site at this time. Disturbance to this site has been caused by timber removal and a logging road.

Prehistoric site 22-Sm-656 is located on an upland ridge at an elevation of 420 feet above mean sea level and overlooks a tributary of Davis Creek to the south. At the time of this survey, the vegetation consisted of scattered young hardwoods, logging debris, and light underbrush. The soils were identified as Savannah fine sandy loam. Five Shovel tests revealed only red silty clay subsoil. Artifact density was light and consisted of primary and secondary decortication flakes (n=7), 1 interior flake, 1 biface thinning fragment, 1 biface thinning flake, and 1 reworked projectile point (untyped). All artifacts were found on the surface. The size of this site, based on artifact distribution and topography, was measured to be 15 m north-south x 15 m east-west (.06 acre). This site is ineligible for listing in the National Register of Historic Places. The artifacts are curated at Mississippi State University in Mississippi State, Mississippi. The prehistoric artifacts recovered are not sufficient to make any chronological or functional assessment of this site at this time. Disturbance to this site has been caused by timber removal and a logging road.

METHODS

Prior to the field survey, the Principal Investigator discussed the proposed methods with Terry L. McClung, Forest Service Archeologist at the Bienville National Forest (Ranger District office). The Project Archaeologist visited MDAH in Jackson, Mississippi, where he checked the site records for previously recorded sites in the project area and vicinity.

Field Survey

The proposed well pad and access road were visually examined by the Project Archaeologist. The perimeter of the well pad and four parallel transects across the pad were walked. All exposed surface areas were closely inspected for surface indications of an archaeological site. The project area was documented by digital photography, and field notes were taken. At the time of this survey the well pad and access road were marked by surveyor's stakes, which were given station numbers.

The subsurface was investigated through shovel testing. In all, 39 tests were dug. Twenty-four tests were dug in the well pad area (Figure 2) and 15 were dug along the access road (Figure 3). Most of the tests (n=36) were dug through a fine sandy loam and into the underlying clay. Three tests were dug in an area where clay was at the surface. The depth of the 39 tests varied from less than 10 cm to 40 cm. Each test was dug in arbitrary 10 cm levels.

Those tests dug within the pad area were placed around the boundary of the pad, which was marked by numbered stakes at each corner and along a midpoint section of each line. The tests were placed at each corner stake and at the midpoint stake and between the midpoint and corner stakes. A shovel test was dug at the center stake, and eight additional tests were dug on a grid pattern within the interior of the pad. The stake numbers were recorded on the shovel test form (Appendix I). Shovel tests were placed close to these stakes and between them in areas where sites were believed to be likely.

The access road follows an older road that had eroded the sand in many places. In these areas, shovel tests were moved to undisturbed areas away from the road disturbance. All material was screened through ¼" hardware cloth. Control was achieved by the use of a handheld Global Positioning System (GPS).

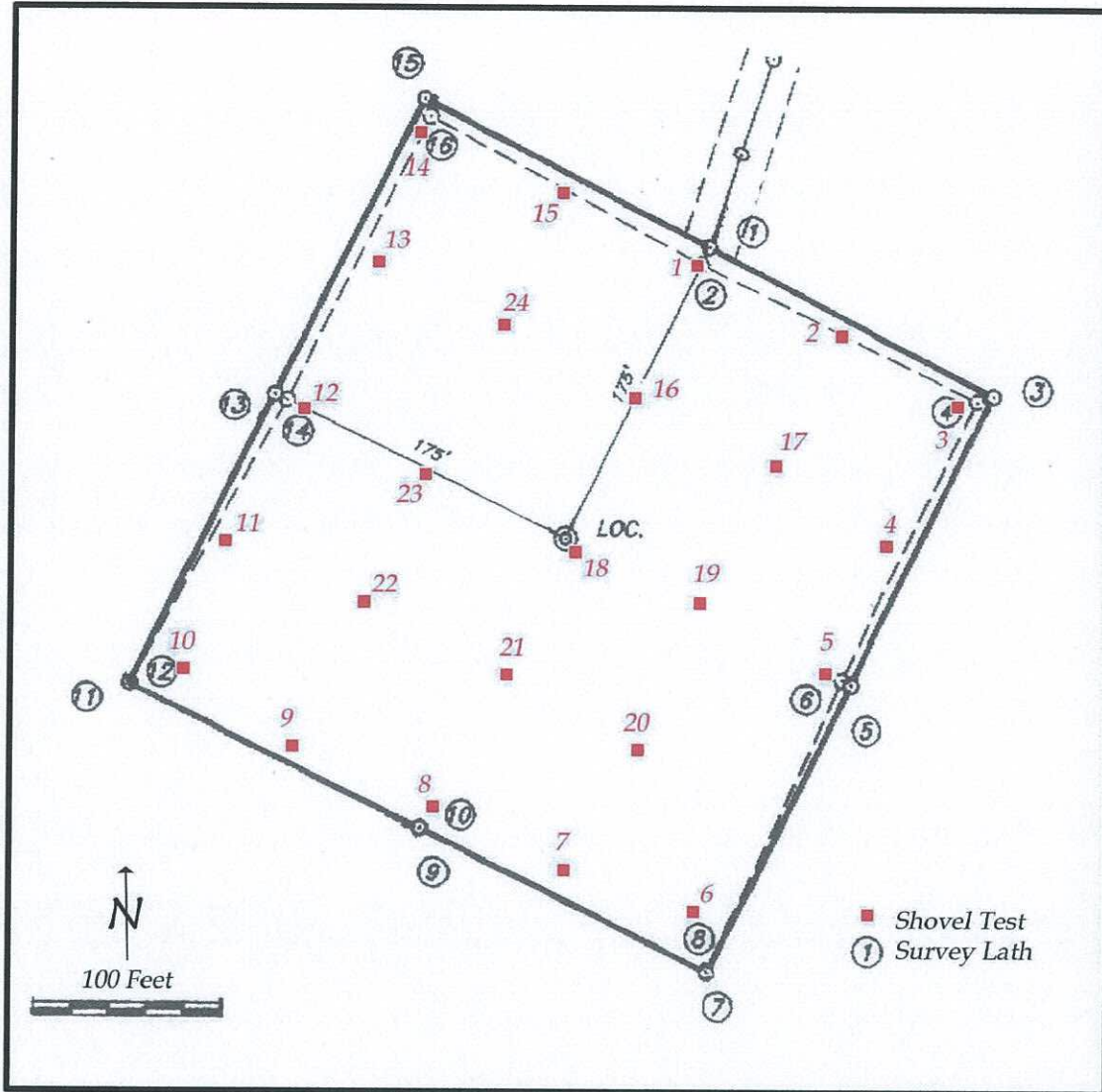


Figure 2. Well Pad Shovel Test Locations

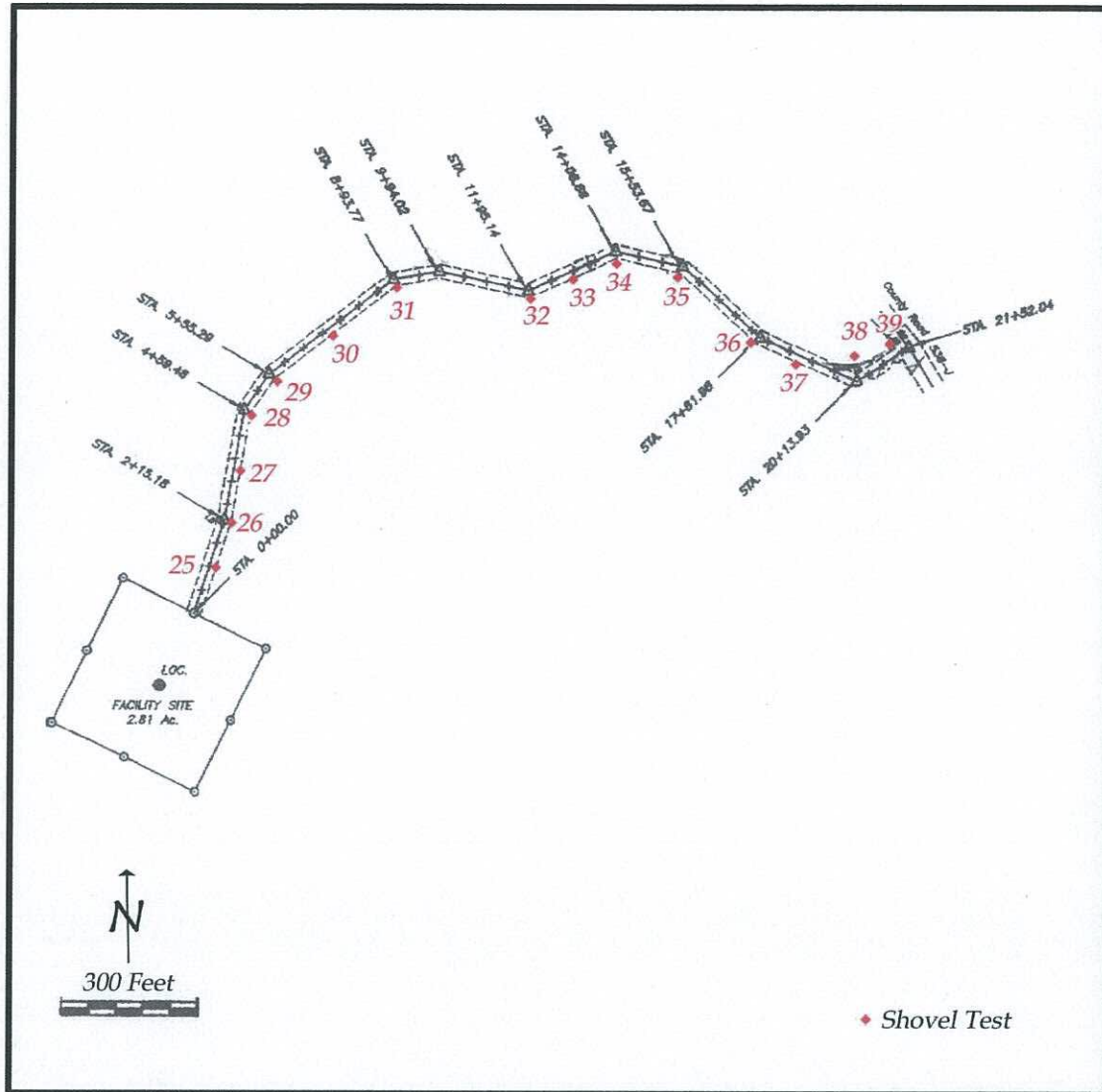


Figure 3. Access Road Shovel Test Locations

RESULTS AND CONCLUSIONS

A search of the site records at MDAH revealed that no archaeological sites have been recorded in the project area. A discussion with Terry L. McClung, staff archaeologist at the Bienville National Forest (Ranger District office), revealed that portions of the project area may have been investigated in the past. However, no formal report is on file.

At the time of this survey, the vegetation of the project area consisted of pine trees and mixed hardwoods and a thin understory of brush and young trees. The well pad area is on a small rise above the Strong River floodplain to the south and east. Davis Creek is to the west. The access road traverses along an old road and runs along an upland ridge where it crosses an intermittent creek. Then it traverses another elevated landform and runs down to the proposed well pad. The road and well pad were marked by surveyor's stakes, which were given station numbers. The soils in the project area consisted of a light tan fine sandy loam. This is the "B" horizon over orange and gray mottled clay (the "E" horizon). A portion of the upland ridge contained hard reddish-orange clay near the surface. The "A" horizon was absent in this area. Figures 5 and 6 illustrate the field conditions at the well pad and access road at the time of this survey.

This survey did not discover evidence of prehistoric utilization or occupation of the project area, and no historic sites were found. It is known, however, that the area has been subjected to logging activities, and evidence of this may be present in nearby areas in the form of logging roads and trams. Although the site of the proposed well pad and access road are on elevated landforms overlooking the floodplain of the Strong River, the project area does not appear to have been utilized in prehistoric times as a campsite. The soil in the area surveyed was a shallow fine sandy loam over clay. Sites have been found in similar settings throughout the Bienville National Forest; therefore, the probability of one being present in the project area was considered to be good. No gravels or raw materials that could have been used to make stone tools were present. This survey was done in accordance with the guidelines as outlined by the State Historic Preservation Office and the National Forest Service.



Figure 4. View of Well Pad Area



Figure 5. View of Access Road Area

RECOMMENDATIONS

No archaeological sites were found within the boundaries of the well pad site or access road. It is recommended that the Yates Drilling Company be allowed to proceed with construction as planned. Should evidence of a prehistoric or historic site be encountered during construction, it is recommended that all work cease in the area of the find until the situation can be evaluated by the United States Forest Service, Bienville National Forest and the State Historic Preservation Officer.

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Appendix I
Shovel Test Log*

Area	Shovel Test	Depth (cm)	Soils	Comments
Well Pad	1	40	Sand/Clay	Pine Forest, Pad Stake 1
Well Pad	2	50	Sand/Clay	Pine Forest, NE Boundry Line
Well Pad	3	40	Sand/Clay	Pine Forest, Pad Stake 4
Well Pad	4	30	Sand/Clay	Pine Forest, SE Boundry Line
Well Pad	5	40	Sand/Clay	Pine Forest, Pad Stake 6
Well Pad	6	30	Sand/Clay	Pine Forest, Pad Stake 8
Well Pad	7	30	Sand/Clay	Pine Forest, SW Boundry Line
Well Pad	8	30	Sand/Clay	Pine Forest, Pad Stake 10
Well Pad	9	30	Sand/Clay	Pine Forest, SW Boundry Line
Well Pad	10	40	Sand/Clay	Pine Forest, Pad Stake 12
Well Pad	11	10	Sand/Clay	Pine Forest, NW Boundry Line
Well Pad	12	30	Sand/Clay	Pine Forest, Pad Stake 14
Well Pad	13	40	Sand/Clay	Pine Forest, NW Boundry Line
Well Pad	14	30	Sand/Clay	Pine Forest, Pad Stake 16
Well Pad	15	40	Sand/Clay	Pine Forest, NE Boundry Line
Well Pad	16	20	Sand/Clay	Pine Forest, Pad Interior
Well Pad	17	30	Sand/Clay	Pine Forest, Pad Interior
Well Pad	18	40	Sand/Clay	Pine Forest, Center of Pad
Pad	19	30	Sand/Clay	Pine Forest, Pad Interior
Well Pad	20	40	Sand/Clay	Pine Forest, Pad Interior
Well Pad	21	20	Sand/Clay	Pine Forest, Pad Interior
Well Pad	22	30	Sand/Clay	Pine Forest, Pad Interior
Well Pad	23	20	Sand/Clay	Pine Forest, Pad Interior
Well Pad	24	30	Clay	Pine Forest, Pad Interior
Access Road	25	20	Clay	Pine Forest, Old Road
Access Road	26	20	Sand/Clay	Pine Forest, Old Road, Stake 2+15.18
Access Road	27	20	Sand/Clay	Pine Forest, Old Road
Access Road	28	10	Sand/Clay	Pine Forest, Old Road, Stake 4+59.48
Access Road	29	<10	Sand/Clay	Pine Forest, Old Road, Stake 5+55.29

* All Tests Negative

Shovel Test Log*

Area	Shovel Test	Depth (cm)	Soils	Comments
Access Road	30	10	Sand/Clay	Pine Forest, Old Road
Access Road	31	40	Sand/Clay	Pine Forest, Old Road, Stake 8+93.77
Access Road	32	20	Sand/Clay	Pine Forest, Old Road, Stake 11+05.14
Access Road	33	10	Sand/Clay	Pine Forest, Old Road
Access Road	34	10	Clay	Pine Forest, Creek, Stake 14+60.80
Access Road	35	30	Sand/Clay	Pine Forest, Old Road, Stake 15+53.67
Access Road	36	40	Sand/Clay	Pine Forest, Old Road, Stake 17+81.98
Access Road	37	20	Sand/Clay	Pine Forest, Old Road
Access Road	38	30	Sand/Clay	Pine Forest, Stake 20+13.93
Access Road	39	40	Sand/Clay	Pine Forest, Stake 21+39.12

* All Tests Negative