RESULTS OF AN ARCHAEOLOGICAL CULTURAL RESOURCE EVALUATION (Phase I) FOR THE KOKOLAND ROAD EXTENSION OF THE FAGA'TMA ROAD REHABILITATION AND DRAINAGE IMPROVEMENT PROJECT, TUALAUTA COUNTY, TUTUILA ISLAND, AMERICAN SAMOA

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Results of an Archaeological Cultural Resource Evaluation (Phase I) for the Kokoland Road Extension of the Faga'ima Road Rehabilitation and Drainage Improvement Project, Tualauta County, Tutuila Island, American Samoa
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Abstract

Archaeological investigations have been conducted within a roadway corridor in which construction activities are planned for the Federal Highway Administration's Kokoland Road Extension of the Faga'ima Road Rehabilitation and Drainage Improvements Project. The purpose of the investigations was to determine if significant historic properties exist within the project limits.

During the current investigations, a 100% surface survey of the project corridor was undertaken. Two previously undocumented sites were identified. The two sites consist of a low stacked stone wall and a modified outcrop. These sites were described and their locations plotted from known points based upon plans provided by the contractor. The identification of these sites increases the number of known sites on the Tafuna Plain and adds to our knowledge of settlement pattern distributions.

Proposed construction activities associated with the Kokoland Road Extension of the Faga'ima Road Rehabilitation and Drainage Improvement Project could potentially have an "adverse effect" on the sites identified during the current survey. It is recommended that a Phase II Cultural Resource Evaluation be undertaken in which detailed mapping, subsurface testing and the collection of informant testimony be conducted in order to determine the probable age and function of the sites as well as to evaluate their potential significance as defined by the National Register of Historic Places criteria.
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Section 1: Introduction

At the request of Mr. Murray Mannion of McConnell Dowell American Samoa, Ltd. (MACDOW; also referred to as "the contractor"), Archaeological Consultants of the Pacific, Inc. (ACP) has conducted archaeological investigations for the Federal Highway Administration’s Kokoland Road Extension of the Faga’ima Road Rehabilitation and Drainage Improvement Project, Federal Aided Project No. AS-NH-019 (001), located on the Tafuna Plains of Tualauta County on the Island of Tutuila, American Samoa (see Figures 1 & 2). The current archaeological project consisted of a Phase I (identification phase) Cultural Resource Evaluation. The purpose of this archaeological evaluation was to perform the tasks and meet the requirements specified by the Advisory Council on Historic Preservation (ACHP) and the American Samoa Historic Preservation Office (ASHPO). Because the Kokoland Road Extension is a Federal Highway Administration undertaking, the project is subject to NHPA requirements. Specifically, the investigations had the purpose of assisting the contractor in maintaining compliance with Section 106 of the Historic Preservation Act of 1966.

For the purposes of the current investigations, the "subject property" will be defined as the corridor in which improvements to Kokoland Road (a portion of Territorial Highway System, Route 019) will take place. The project area is located within Tualauta County on the Island of Tutuila, American Samoa. Kokoland Road is located between geographical grid coordinates 170 43'51"W to 170 44'05"W by 14 19'49"S to 14 19'57"S, and UTM (Universal Transverse Mercator) coordinates 528410mE to 529000mE by 8415480mN to 8415810mN (see Figure 2).

The project area is located inland of Pago Pago International Airport, approximately 2.65km from the island’s southern coastline. The parcel ranges in elevation between 80 and 120ft AMSL (feet above mean sea level). The subject area measures a total of 1800 feet (548.6m) in length. The Area of Potential Effect (APE) is defined as the area on both sides of the centerline extending 30ft from the centerline for a total width of the corridor measuring 60ft (18.3m). Therefore, the total area of the corridor measures 10,039.4 square meters (2.48 acres). Based upon previous experience, it was determined by the Territorial Archaeologist and the ASHPO that the defined Area of Potential Effect was not inclusive of the area which would likely be effected by construction activities. Therefore, ACP was instructed to
Figure 1: Location of the Subject Property on a Map of Tutuila
Figure 2: Location of the Subject Property on a U.S.G.S. Map
document any potentially significant properties within and/or visible from within the defined APE (pers. comm. David J. Herdrich 1997).

Archaeological investigations were conducted by the Principal Investigator, Joseph Kennedy, M.A., on the 2nd and 3rd of October, 1997. The archaeological field work consisted of a reconnaissance survey of the subject corridor. All field notes are curated at ACP facilities located at 59-624 Pupukea Rd., Haleiwa, HI. 96712.

Section 2: Physical Setting

The subject property consists of a roadway corridor which is located on the Tafuna Plain of Tutuila Island. The Tafuna Plain is mostly utilized for modern habitation consisting of clusters of residential structures, small gardens and patches utilized for growing scattered fruit trees. Fruit trees encountered include banana (Musa sp.), coconut (Cocos nucifera), breadfruit (Artocarpus communis), papaya (Carica papaya) and mango (Mangifera indica). The scattered gardens consist mainly of banana patches, ta'amu (Alocasia sp.) patches and (returning after a blight that lasted several years) occasional taro (Colocasia esculenta) patches. Gardens and arboriculture are in constant competition with the dense growth of the unmanaged jungle flora. Larger trees are intermittently scattered throughout the plain. Banyan (Ficus benghalensis), ferns and vines are common. This area has a number of secondary roads (of which Kokolani Rd. is one) which weave across the residential sections of the plain.

The Atlas of American Samoa depicts the expected soils within the subject corridor as being "Tafuna Extremely Stony Muck", a thin, organic deposit that is well drained, extremely stony, highly permeable with an extremely low water holding capacity (Atlas 1991). The colors range from black to dark brown or dark grayish brown. The soil supports mixed forest. It is underlain by fragmented a'a lava to about 110cmbs (centimeters below surface). Bedrock is encountered between approximately 60-155cmbs.

The Atlas characterizes other soils in the Tafuna area as silty clay loams, sandy clay loams and bouldery loams. The Tafuna Plain represents a lava delta formed by Holocene volcanic activity (Sterns 1944). It is composed of an R1 Olivine Pahoehoe Basalt Flow. There has been no historic volcanic activity recorded on Tutuila. The area is a mixture of undeveloped land, managed land for fruit and nut trees, disturbed patches of forest and disturbed patches of lowland vegetation. There are remnants of a mangrove swamp located in the neighboring coastal Nu'u'uli area. There are virtually no streams or water drainage ditches due to the
composition and slope of the soils. Heavy rains cause the area to flood in a sheeting action. There are a few low areas with standing water, however, rainfall is generally quickly absorbed by the stony porous soils.

Mean average rainfall ranges from 3000-4500mm. The mean annual temperature is 23 degrees Celsius (Nakamura 1984). The Tafuna Plain is relatively flat, never reaching an average slope of over eight degrees.

Section 3: Historic Background

The prehistory of Samoa is intimately linked with that of its neighboring islands and Polynesia as a whole. It has been suggested that a seafaring people, travelling from the islands of Southeast Asia, spread eastward throughout the islands of the South Pacific (Kirch & Green 1987; Jennings 1979). Western Polynesia is believed to have been rapidly explored and colonized from about 1000 to 500 B.C. (Kirch & Hunt 1993:1). These groups developed a unique material culture that has become archaeologically known as the Lapita Cultural Complex. This name derives from a site at which the distinctive pottery that was crafted by these groups was first categorized. This cultural complex has become well documented over the past several years and will not be reviewed further in this paper.

Thus, groups belonging to the Lapita Cultural Complex are believed to have been the first inhabitants of Samoa. It is believed that the early settlers produced or traded for pottery from the time of the earliest occupation until at least A.D. 200 (although recent work has indicated the use of ceramics up to one thousand years later (Clark 1993; Kirch and Hunt 1993). Over the millennia, these groups have evolved into a population with a culture and adaptations unique to Samoa with its own mythology and cosmology.

Section 3.1: Previous Archaeology

Thorough reviews of the previous archaeological work conducted in Samoa and on the Tafuna Plain of Tutuila have been presented in several recent papers produced by ACP (Herdrich, Moore, Kilzer & Kennedy 1996, and Latinis, Moore & Kennedy 1996). Therefore, the entire history of archaeological work in Samoa will not be cited in this document and only those studies which have been conducted in the immediate vicinity of the current subject property will be discussed.

Over the past few years, several cultural research management surveys have been conducted in the vicinity of the subject property. Simon Best conducted initial surface reconnaissance surveys of the proposed main line routes for
the Tafuna Plains Sewer System in 1992. Thirteen archaeological sites were identified (12 on the Tafuna Plain and one in Malae’imi Valley) and assigned Territorial Site Numbers AS-31-47 through 59 (Best 1992:15-24). These included nine stone mounds or terraces, two stone-faced earthen house-mounds, a rock wall, and a World War II-era coral road or taxiway.

Shapiro and Cleghorn conducted further investigations for the Tafuna Plains Sewer System (Phase 1) in 1994. Their study included both intensive surface and subsurface surveys. In addition, those features originally identified by Best in 1992 and summarized above were further assessed. Although Shapiro and Cleghorn list them as Sites AS-31-34 through 46 (1994:35-38), it is clear that the sites described are those identified by Best. For example, Best lists the section of taxiway identified along Procurement Rd. as Site AS-31-52 while Shapiro and Cleghorn list the same site as AS-31-39.

During Shapiro and Cleghorn’s investigations, eight previously unknown sites were identified, determined to be archaeological properties, and assigned temporary site designations (T-3, T-7/T-8, T-9, & T-11 through 15). As of this writing it is unknown whether these sites have been assigned permanent Territorial Site Numbers. The newly identified archaeological properties were described as habitation and tool manufacturing sites with T-15, a prehistoric complex representative of an abandoned village, holding the greatest archaeological potential for future research (Shapiro & Cleghorn 1994:43-45). Although this site was located on the Tafuna Plain, this complex occurred further inland in a more hospitable soil and vegetation zone than the property currently under investigation.

The first known occurrence of pottery at an inland site location on Tutuila was identified by Shapiro and Cleghorn on the Tafuna Plain. Shapiro and Cleghorn recognized that although the pottery may represent secondary deposition, its presence suggests that there may be nearby sites with pottery in direct association with early occupation deposits (1994:45).

In 1995, ACP conducted archaeological investigations associated with the Kokoland Extension of the Tafuna Plains Sewer System (Latinis et al. 1996). Those investigations identified and/or investigated five previously unknown sites including a star mound (tia ‘ave or tia seu lupe), a platform with walls and alignments associated with the star mound, a cluster of pathways and small platforms, and two individual platforms or mounds (Sites AS-31-41 through 45; numbers listed in Shapiro and Cleghorn [1994] as having been assigned to other sites by Best [1992] although Best uses other numbers). It was determined that these sites likely represented locations at which limited gardening, limited
habitation, and possible ritualistic activities occurred. This utilization likely began in the pre-contact period lasting into the early historic period and, in some cases, until present.

Based upon the results of ACP’s investigations, Latinis et al. (1996) suggested that it was unlikely that this portion of the Tafuna Plain was ever densely populated or extensively utilized. Resource exploitation was predominantly limited to gardening and the management of fruit and nut trees. Although, there was evidence which suggested that there may have been other limited land use and habitation and that by the late prehistoric period, areas near the subject property may have been utilized for chiefly sport and/or ritual activities (an hypothesis supported by the existence of star mounds and other surface features).

In 1996, ACP conducted archaeological investigations associated with Tafuna Junior High School Lunch Warehouse and Cafeteria Project (Moore & Kennedy 1996). These investigations determined that the project area had been greatly impacted by agricultural activities in the recent past. Since 1950, government sponsored grading activities had leveled the northern portion of the property and during the construction of the Tafuna Junior High School portions of the southern end of the property had been covered with bulldozed fill. Subsurface testing revealed very little. There was only a thin surface layer of soil which was underlain by fine grained basalt bedrock. Surface features which were present were determined to be modern, representing either foundations for recent residential structures or structures to control livestock.

Finally, in 1997, ACP conducted investigations associated with the Faga’ima Road - Reconstruction of Road and Drainage Improvements Project (Moore & Kennedy 1997a and 1997b). This survey documented one site of historic significance (Site AS-31-92), a modified outcrop. The results of this investigation determined that the modifications to the outcrop were likely traditional in nature and could have occurred at any time since before Western contact to recent times. It appeared that Faga’ima Rd. had impacted the structure’s northwestern side and, therefore, the site was likely present before the paving of the road. It was considered possible that the raised, leveled surface could have been utilized for some form of habitation, but the lack of definitive evidence made this hypothesis speculative.

Based upon the results of ACP’s investigations on Faga’ima Road and the additional archaeological investigations cited above, Moore & Kennedy (1997b) suggested that earlier archaeological estimates of the density and dispersal of settlement on the Tafuna Plain may have to be
re-assessed. The growing amount of evidence available implies that, in the pre-contact period, a greater utilization of the plain may have occurred than had been originally hypothesized by archaeologists.

Section 3.2: Settlement Pattern and Land Use History

Since the initial colonization of the Samoan Islands, approximately three millennia ago, there is evidence which suggests that settlement pattern changes have taken place over time. It is suggested that the first settlements on the islands were centered along the coast and that at some time in the past, the loci of habitation spread inland. Following this, around the time of Western contact, the bulk of the population returned to coastal habitation areas.

The archaeological record accords with this suggested pattern. This lead Davidson to suggest that prior to western contact, the population was dispersed across the landscape with the historic pattern of coastal settlement believed to be a modern development. Davidson stated;

The bulk of the modern population lives in coastal settlements, and this has been the case since the 1830’s. There is abundant archaeological evidence, however, that coastal concentration was a response to the beginning of European contact, and that until the early nineteenth century the population was much more evenly distributed over both coastal and inland areas in a form of dispersed settlement, probably with clusters around the residences of people of high status (Davidson in Jennings 1979:96).

Specifically, in American Samoa, changes in settlement patterns over time and the shifting of the population has become increasingly well documented in the archaeological record. The earliest settlements, thought to be recognizable by the inclusion of ceramics in their cultural deposits, have been recorded at coastal locations (or locations thought to have previously been near the coast) (Clark 1989; Kirch & Hunt 1993). Later prehistoric settlement has been documented in the uplands, along ridges and at the peaks of mountains (Clark and Herdrich 1993). Of the inland sites, a unique feature type is the tia ‘ave (or star mound), although various site types including permanent residential sites, defensive sites and resource exploitation sites have also been identified.

Being located relatively inland, the subject property could have been utilized for a variety of purposes over time. The Atlas of American Samoa depicts the subject area as currently utilized for limited residence and agriculture (largely in the form of small gardens, forestry activities
and the management of fruit and nut trees). Most of this region is rapidly developing and becoming densely populated.

The presence of several star mounds, other mounds, stone walls, stone features, lithic scatters, stone tools, pottery, and the possible remnants of residential structures suggests that a number of activity areas including some ritual activity areas as well as limited settlement, agricultural production and resource exploitation areas, likely occurred on the Tafuna Plain in the pre-contact period. Therefore, it is also likely that the subject area, itself, was utilized for similar activities. The increased number of traditional sites identified on the Tafuna Plain in the past few years indicates that the potential for identifying additional sites in this area is high.

In the early 1900’s, a naval station was based in Pago Pago Harbor and by World War II the Navy had constructed an air strip along the coastline of the Tafuna Plain at what is currently called Avatele Point. A large complex of runways and taxiways along with ancillary roads, housing structures, warehouses, etc., extended from the coastline to the Main Road. Faga’ima Rd. was present at the time and several warehouses and a gas tank were located along this road. By the 1960’s, the Tafuna Airbase had become Pago Pago International Airport and much of the airbase had been converted to civilian functions.

Based upon the reviewed information, expected finds should be consistent with the features listed above. Potentially, these include a variety of traditional surface features and structures, traditional implements, and evidence of limited land use and resource exploitation. In addition, potential remains of WWII era structures could be present.

Section 4: Methodology

Section 4.1: Research Design

Previous research has taken place in areas near the subject property which have identified and tested archaeological sites and cultural remains (refer to Sections 3.1 and 3.2 above for further detail). The list of finds include star mounds, stone platforms, stone walls, additional stone surface features, house mounds, habitation sites, complex activity sites, historic sites (including a World War II era coral road or taxiway), lithic tools, and pottery.

Archaeological work conducted in the Samoan archipelago relates to a large variety of research topics. The results of the current work, however, have relevance or potential relevance to only one specific archaeological research topic. The primary topic of concern is the pattern of prehistoric
settlement distribution. The Tafuna Plain was thought to have never been a location for intensive settlement and land use due to its geological nature, topographical nature, and paucity of resources such as water. The documentation of habitation sites, ritualistic structures (i.e., star mounds), and other sites is, however, increasing in the archaeological record. It is obvious that the Tafuna Plain was utilized on a limited (and possibly a more intensive) basis, although, little is known concerning the nature of settlement on the Tafuna Plain and the nature of site distribution. Spatial and temporal data are needed for proper reconstructions of the prehistory and history of the Tafuna Plains. Ultimately, this will play a role in discerning settlement patterns and the distribution of sites throughout Samoa.

A topic of historic (as opposed to archaeological) interest is the extent of development in the World War II era or before for the airbase at Tafuna. As well as being of potential historic significance themselves, the presence of structures from this era, or their remains, provides information which has implications concerning the density of pre-contact sites and features.

Section 4.2: Archaeological Methods

Archaeological reconnaissance investigations took the form of a pedestrian survey conducted by the one man field crew traversing both shoulders of the existing roadway. 100% of the area within the subject corridor and its APE was examined. The entire length of the Kokoland Road Extension was reconnoitered.

Sites identified were numbered using temporary field designations (eg. T-1 = Temporary Site 1). Locations were surveyed by MACDOW personnel and plotted onto plans of the project prepared by MACDOW. All field notes are curated at ACP facilities located at 59-624 Pupukea Rd., Haleiwa, HI. 96712.

Section 5: Archaeological Findings

Two structures of potential historic significance were identified within the area visible from the defined APE. Both structures are located in undeveloped areas covered in overgrown jungle flora. While the presence of Well #60 (located on the northern side of the road between the edge of the roadway and T-1) would likely protect Temporary Site T-1 from direct damage caused by construction activities, both of the features identified are within areas which could potentially be impacted by activities associated with the proposed improvements. Therefore, for the purposes of historic preservation, it has been determined that the
Kokoland Rd. project would potentially have an "adverse effect" on the structures identified.

**Temporary Site 1 (T-1):** This site consists of a single feature in the form of an L-shaped wall resting on mounded rubble. It is located on the northern side of Kokoland Rd. just behind Well #60 (see Figures 3 & 4). The mounded rubble measures between 5 to 8m in width and is of unknown depth while the wall itself measures approximately 50cm in width and stands approximately 60cm above ground level (agl) (see Figure 5). The long leg of the L-shaped wall measures approximately 46m in length and the short leg measures approximately 18m in length. The feature is constructed of angular basalt stones, 10 to 30cm in diameter, that are roughly stacked to form the structure. Potential age and function determinations for this site are unable to be made until further evaluations are undertaken.

**Temporary Site 2 (T-2):** This site consists of a modified, pahoehoe blister, outcrop. It is located on the southern side of Kokoland Rd. directly across from Well #60 (see Figure 3). The structure measures approximately 60m in length, 10m in width and stands approximately 50cm agl along its modified edge (see Figure 6). The feature is constructed of angular basalt stones, 10 to 30cm in diameter, that are roughly stacked along the northeastern edge of the outcrop. It appears to consist of a natural pahoehoe blister outcrop which has been modified through the addition of stone paving and facing. Potential age and function determinations for this site are unable to be made until further evaluations are undertaken.

Modern features were identified along much of the roadway. These include, residential structures, unimproved driveways, concrete and stone matrix walls, landscaped hedges and lawns, and managed garden plots. All of these features were associated with currently utilized residences, businesses, or churches.
Figure 3: Location Map of Temporary Sites T-1 and T-2
Figure 4: Plan Of Temporary Site T-1

Source: MACDOW 1997
Conclusion

Archaeological investigations have been conducted within a roadway corridor in which construction activities are planned for the Federal Highway Administration’s Kokoland Road Extension of the Faga’ima Road Rehabilitation and Drainage Improvements Project. While the presence of Well #60 would likely protect Temporary Site T-1 from damage caused by construction activities, both of the features identified during the current investigations are located within areas which would likely be impacted by activities associated with the proposed improvements and construction activities could potentially have an "adverse effect" on the sites. Therefore, it is recommended that a Phase II Cultural Resource Evaluation be undertaken in which detailed mapping, subsurface testing and the collection of informant testimony be conducted in order to determine the probable age and function of the sites as well as to evaluate their potential significance as defined by the National Register of Historic Places criteria.
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