RESULTS OF AN ARCHAEOLOGICAL CULTURAL RESOURCE EVALUATION (PHASES I & II) FOR THE TAFUNA PLAINS SEWER SYSTEM - PHASE II(A), LOCATED IN TUALAUTA COUNTY, TUTUILLA ISLAND, AMERICAN SAMOA

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Abstract

Archaeological investigations have been conducted in association with the proposed Tafuna Plains Sewer System - Phase II(A). The purpose of these investigations was to identify and evaluate potential cultural resources found within the sewer line corridor as well as to further assess previously identified historic properties located along the corridor.

During the current investigations two previously unsurveyed areas were investigated through a series of pedestrian sweeps of equidistantly spaced transects. The current study also further investigated six previously identified sites (Sites AS-31-77, 81, 83, 84, 106 & 116) through various techniques including surface inspections, the excavation of shovel test pits and the excavation of controlled test units. The current investigations determined that the sites under consideration were utilized for the purposes of habitation and agriculture from as early as the fourteenth century A.D. until the early historic period.

The current project has been determined to be a Federal undertaking and seven sites investigated during this study (those listed above as previously identified and Site AS-31-85) have been determined to be significant historic properties. It is recommended that the appropriate agency make a determination that the undertakings' effect be considered "adverse" in accordance with the Advisory Council Regulations, 36 CFR Part 800. Mitigation of the adverse effect shall be on a site by site basis the details of which are presented in this document. Recommendations have been made regarding mitigation in the form of data recovery for Sites AS-31-81, 83 and 85.
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Results of an Archaeological Cultural Resource Evaluation
(Phases I & II) for the Tafuna Plains Sewer System -
Phase II(A), Located in Tualauta County, Tutuila Island,
American Samoa

Section 1: Introduction

At the request of Mr. Michael Dworsky of the American
Samoa Power Authority (ASPA), Archaeological Consultants of
the Pacific, Inc. (ACP) has conducted archaeological
investigations for the Tafuna Plains Sewer System - Phase
II(A), located in Tualauta County on the Tafuna Plain of the
Island of Tutuila, American Samoa (see Figure 1). These
investigations were conducted in order to identify and
evaluate potential cultural resources found within the
proposed sewer line corridor.

The project area is located inland of the western end of
Pago Pago International Airport, between 2 and 3km from the
coastline. The parcel ranges in elevation between 80 and
160ft AML (feet above mean sea level). For the purposes of
the current investigations, the "subject property" will be
defined as the corridor within which the proposed sewer line
project will take place. The proposed sewer line corridor is
located between geographical grid coordinates 170 44′00"W to
170 44′45"W by 14 20′15"S to 14 20′35"S, and UTM (Universal
Transverse Mercator) coordinates 527500mE to 529800mE by
8414500mN to 8415100mN.

According to the American Samoa Power Authority -
Wastewater Division, the subject area measures a total of
1545.5m in length. A plan map depicting the specific
corridor to be utilized was not made available to ACP in
either the American Samoa Historic Preservation Office's
Scope-of-Work or through ASPA. However, plans of individual
sections of the route portraying several alternative
alignments for the sewer line were able to be obtained.
Therefore, in order to include alternate proposed sewer line
alignments as well as feeder lines, an Area of Potential
Effect (APE) extending 150m on either side of an idealized
center line of the corridor was established (see Figure 2).
Based upon an APE of this width, the total area of the
corridor measures 114.5 acres (4636.5 are).
Figure 2: Location of Subject Corridor on a U.S.G.S. (Topographic) Map
In 1996, the American Samoa Historic Preservation Office (ASHPO) in a joint endeavor with ASPA conducted an archaeological surface survey of a significant portion of the Tafuna Plain including sections of the area covered by the current APE (Taomia 1997). Several sites were identified during the joint ASHPO/ASPA survey which were subsequently determined to be within the APE for the current proposed sewer line corridor. In addition to the sites identified, two areas within the current APE were not able to be surveyed in 1996. Therefore, a Scope-of-Work (SOW) was prepared which called for the survey of areas within the current APE which had not been previously examined as well as the testing and evaluation of the previously identified sites which were determined to be within the current APE.

The current archaeological project consisted of a Phase I and II (identification and evaluation phase) Cultural Resource Evaluation. The purpose of this archaeological investigation was to perform the tasks and meet the requirements specified by the Advisory Council on Historic Preservation (ACHP) and the ASHPO. Because the Tafuna Plains Sewer System -Phase II(A) Project is being funded by the Environmental Protection Agency and as such is a Federal undertaking, the project is subject to NHPA requirements. Specifically, the investigations had the purpose of assisting ASPA in maintaining compliance with Section 106 of the Historic Preservation Act of 1966.

Archaeological investigations took place under the auspices of the Principal Investigator, Joseph Kennedy, M.A. Fieldwork was conducted by James R. Moore, B.S., and ASPA employee Afu Filiisi, between the 5th and 22nd of May, 1998. All field notes, plan maps, sketched top plans, profiles, photographs, traditionally manufactured cultural artifacts, historic items of potential significance to the current investigations, vertebrate faunal remains, invertebrate faunal remains, potentially culturally utilized floral remains, samples collected for potential use in dating endeavors, and soil samples as well as any and all associated documents and/or related correspondence will be bagged and/or filed, labelled appropriately, placed in labelled and inventoried boxes, and curated at the ACP offices located at 59-624 Pupukea Rd., Haleiwa, HI.

The current study has obtained sufficient information to evaluate the significance of the sites located within the APE of the subject corridor including their eligibility for inclusion in the National Register of Historic Places. These investigations have also obtained sufficient information to allow for making recommendations concerning the mitigation of the impact of future construction activities upon the significant historic resources identified.
Section 2: Physical Setting

The subject property consists of a proposed sewer line corridor which is located on the Tafuna Plain of Tutuila Island. The Tafuna Plain is primarily 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 unpaved roads which weave across the residential sections of the plain.

The Atlas of American Samoa (Atlas 1981) depicts the expected soils on the Tafuna Plain within and near the subject property as being of three possible types:

1) Tafuna Extremely Stony Muck: a thin, organic soil that is well drained, extremely stony, highly permeable with an extremely low water holding capacity. 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.
2) Troporthents: a well drained soil composed of rock fragments, sand, gravel, cobbles and some fine textured material. Some areas are filled with coral, coral sand, cinders and other materials. There is slow to moderately rapid permeability and the available water capacity is low. The underlying composition is fragmented a'a lava and bedrock. This soil supports mixed forest.
3) Paya'ia'i Stony Clay Loam: a moderately deep, well drained soil formed from volcanic ash which is underlain by lava flows. It is extremely stony. The surface is usually composed of black decomposed organic materials. The subsurface is very dark grayish brown extremely stony clay loam. The soil is highly permeable with a low available water capacity. This soil supports mixed forest.

The Atlas further characterizes the Tafuna soils as silty clay loams, sandy clay loams and bouldery loams. It is composed of an R11 Olivine Pahoehoe Basalt Flow. The Tafuna Plain represents a lava delta formed by Holocene volcanic activity (Sterns 1944). There has been no recorded historic volcanic activity 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 Nuu‘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, water is generally quickly absorbed by the stony porous soils.

Average annual rainfall ranges from 3000-4500mm. The mean annual temperature is 23 degrees Celsius. The Tafuna Plain is relatively flat, with an average slope of approximately 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 recovered. This cultural complex has become well documented and will not be reviewed further in this paper.

The Lapita groups are believed to be the first inhabitants of Samoa. It is believed that the early settlers produced and utilized pottery from the time of the earliest occupation until as late as A.D. 1400 (Clark 1993, 1996; Clark & Michlovic 1996; Moore & Kennedy in prep). Over the millennia, these groups have evolved into communities with an adaptation and culture unique to Samoa, having 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 previous 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.
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 I) 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. Shapiro and Cleghorn’s investigations, identified eight previously unknown sites which were 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 (Shapiro & Cleghorn 1994:43-45) with T-15, a prehistoric complex representative of an abandoned village, holding the greatest archaeological potential for future research. Site T-15 also represents the first known occurrence of pottery at an inland location on Tutuila. While it was suggested that the pottery recovered may represent secondary deposition, its presence suggests that there may be nearby sites with pottery in direct association with early occupation deposits (1994:45). Although Site T-15 is located on the Tafuna Plain, this complex occurred inland in an area of more hospitable soil and vegetation than is found on the majority of the plain.

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). 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.

These investigations led Latinis et al. (1996) to suggest that it was unlikely that this portion of the Tafuna Plain was ever densely populated or extensively utilized. Resource exploitation was likely limited to gardening and the
management of fruit and nut trees. There was evidence, however, which suggested that there may have been other limited land use and that by the late prehistoric period areas near the subject property may have been utilized for chiefly sport and/or ritual activities (a 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 the movement of 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, investigations for the Tafuna Plains Sewer System (Best 1992, Shapiro & Cleghorn 1994, Latinis et al. 1996), and the ASHP's recent identification of several features on the Tafuna Plain (Taomia 1997), Moore & Kennedy suggested that earlier archaeological estimates of the density and dispersal of settlement on the Tafuna Plain may have to be re-assessed (1997b). The growing amount of evidence available implies that a greater utilization of the plain may have occurred during the pre-contact period than had been originally hypothesized by archaeologists. Additional investigations at known sites and sites yet to be identified will yield important information concerning the settlement patterns of that region.
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 has been 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 led Davidson (in Jennings 1979) to suggest that prior to western contact, the population was dispersed across the landscape. The historic pattern of coastal settlement is 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 have been recorded at coastal locations (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 subject area was likely utilized for scattered settlement and resource exploitation from as early as the late prehistoric period. Dense settlement of the Tafuna Plain in the prehistoric past was unlikely. Exceptions to this pattern could have occurred in areas along the perimeter
of the plain towards the valleys or along the coast where more accessible and permanent water sources are located and the general terrain, vegetation and soils are more suitable for traditional habitation and cultivation.

Several star mounds, other mounds, stone walls, stone features, lithic scatters, and the possible remnants of residential structures suggest 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 by the late prehistoric period. Intensive prehistoric utilization of the area has, again, never been indicated.

In the early 1900’s, a naval station was based in Pago Pago Harbor and by World War II the Navy had constructed a 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. By 1963, the Tafuna Airbase had become Pago Pago International Airport and Airport Road had been aligned to approach the new terminal.

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.
Section 4: Methodology

Section 4.1: Research Design

The current investigations consist of a Phase I and II Cultural Resource Evaluation of properties located on the Tafuna Plain which are planned to be utilized in association with the Tafuna Plains Sewer System. In the ASHPO’s Cultural Resource Evaluation process the purpose of these phases is to identify (Phase I) and evaluate (Phase II) potentially significant historic properties within the boundaries of a subject property as required by Section 106 of the National Historic Preservation Act of 1966 as amended, and particularly 36 CFR Part 800 of the Advisory Council Regulations concerning the protection of historic and cultural properties. Research of this kind is important with regard to both territorial and regional research goals.

Territorial Goals

Territorial goals include the following:

1) The development of an inventory of significant historic properties.
2) The evaluation of historic and prehistoric sites relative to the criteria for inclusion in the National Register of Historic Places.
3) The nomination of eligible properties to the National Register of Historic Places.
4) The protection of significant historic and prehistoric properties from significant negative impacts.

Research conducted during the course of identification and evaluation phase investigations would be expected to contribute to these territorial goals in the following ways: 1) by conducting a systematic archaeological survey of the subject property any historic or prehistoric sites located within the parcel would be identified; 2) by conducting a systematic evaluation of sites identified in the survey area, a determination of their significance relative to the National Register of Historic Places criteria would be able to be made (the first step in the process of nominating sites to the National Register of Historic Places); and 3) following the identification and evaluation of potentially significant historic properties an assessment of the potential impact of the proposed project on the sites would be able to be made and, where necessary, recommendations would be made for site protection or for the mitigation of the potential impact to a site. In addition, documenting the location of significant historic sites will contribute to the protection of these sites in the event of future developments.
Regional Goals

Regional goals include the following:
1) Gaining an understanding of trade relationships between various island groups.
2) Constructing a sequence of migration and colonization of island groups to help define the origins of the Polynesian peoples.
3) Documenting settlement patterns as evidence of the evolutionary trajectory of island societies in order to gain understanding of the evolutionary mechanisms affecting the development of societies throughout the Pacific.

Research conducted during the course of identification and evaluation phase investigations would be expected to contribute to these regional goals in the following ways:
1) If significant cultural materials are recovered, these materials could be analyzed to determine whether they were of local origin or were made from exotic materials thereby providing information concerning the existence and extent of interisland trade networks with these materials; 2) If significant historic properties are identified which yield datable samples the dating of those samples may provide important evidence for understanding the sequence of migration and colonization in the Pacific; and 3) If significant historic properties are identified the documentation of their locations would make important contributions to the understanding of Samoan settlement patterns. An increased understanding of Samoan settlement patterns will eventually lead to a better understanding of regional evolutionary mechanisms and trajectories.

Due to the fact that identification and evaluation phase investigations are compliance oriented the investigators were not guided by an explicit theoretical orientation other than a very general scientific and evolutionary perspective. Also given that this is a compliance investigation it was not guided by explicit hypothesis testing. However, at this level of the Cultural Resource Evaluation process, one specific hypothesis does apply. Based upon the historic and archaeological background summarized above, it is evident that archaeological sites have been identified in the vicinity of the current subject property. Therefore it is logical to hypothesize that significant archaeological sites may be present on the subject property. It is this hypothesis that is tested during identification and evaluation phase investigations. A systematic archaeological survey with subsurface testing would be able to verify if significant historic properties exist on a property.

Although only the one hypothesis cited above directly applies to identification and evaluation phase
investigations, archaeological work conducted in the Samoan archipelago does relate to a large variety of research topics. The results of the current work has relevance or potential relevance to two specific archaeological research topics.

The primary topic of concern is the pattern of prehistoric settlement distribution. The Tafuna Plain is thought to have never been a location for intensive settlement and land use due to its geological nature, topography, and paucity of certain resources (i.e., water). However, limited land use, habitation and the construction of ritual structures (star mounds and platforms) is quite evident. It is obvious that the Tafuna Plain was at least utilized on a limited basis. However, little is known concerning the nature of settlement on the Tafuna Plain and the nature of site distribution. Spatial and temporal data is needed for proper reconstructions of the prehistory and history of the Tafuna Plains. Ultimately, this will play a role concerning settlement, land use, and the distribution of sites throughout Samoa.

A second area of research interest has to do with prehistoric ceramics. Green (1974) has argued that Samoa has a continuous sequence of pottery which begins with Lapita pottery, a decorated and statistically thin pottery found in Upolu of Western Samoa. Pottery deriving from Lapita continues through time changing to an undecorated and statistically thicker pottery. Until recently it has been believed that pottery production stopped around 200 A.D.. Kirch and Hunt (1993) have found pottery at To'aqa that dates to 400-500 A.D., later than Green's sequence. Kirch and Hunt argue that their dates simply show a minor variation and is of no consequence for Green's general description of the Samoan pottery sequence. Clark, however, has excavated pottery in Aoa on Tutuila with C14 dates as late as 1400 A.D. (Clark 1993, 1996; Clark & Michlovic 1996).

Clark's dates are at least 1000 years later than Green's which raises several possibilities with regard to Green's hypothesized sequence. First, it may be that there is regional variation within the archipelago and that Green's sequence is generally correct, but certain communities such as Aoa maintained their tradition longer (Clark 1993, 1994). Secondly, Green (1974a-b) did have late dates from his pottery sites, but interpreted pottery in late stratigraphic contexts as having been pulled up by the prehistoric excavation of posts and features. Clark, in a review of radiocarbon dates and contexts for Samoa, argues that Green's interpretation exaggerated the extent of this uplifting process (Clark 1994).
Shapiro and Cleghorn have documented evidence of pottery at an inland site (T-15) on the Tafuna Plain although they raise the possibility of the material having been secondarily deposited (1994). Further investigations have been conducted at Site T-15 the results of which are still in the process of being prepared (Suafoa in prep). Additional investigations at pottery bearing sites located on the Tafuna Plain and elsewhere will provide information which will help clarify the chronological sequence of ceramic manufacture and use on Tutuila.

The research strategy used in Phase I and II Cultural Resource Evaluation investigations is twofold. First, a systematic surface survey accompanied by controlled subsurface testing would be utilized to ensure that potential sites located on a subject property would be identified. Following the identification of a potentially significant historic property, sufficient amounts of data (such as scaled plans, sketched profiles, photographs, portable artifacts, floral and faunal remains, soil samples and charcoal samples) would be collected through detailed mapping and controlled manual excavation to enable an evaluation of a site's significance and determine its eligibility for inclusion in the National Register of Historic Places.

The strengths of this form of investigation include the following:

1) The survey to identify sites would be intensive and systematic ensuring that all sites within a project area have been identified.
2) Evaluation of sites identified would be thorough. Sufficient data would be collected from potential sites in question to make sound and reasonable evaluations as to their significance and eligibility for placement on the National Register of Historic Places.

The limitations of this form of investigation include the following:

1) First and foremost this form of investigation would be part of a compliance oriented project. Therefore, research would be limited to the defined limits of the subject property. If investigations were guided by purely academic research goals, the survey area would likely have a wider scope and different survey techniques would be used.
2) Phase I (Identification) and Phase II (evaluation) Cultural Resource Evaluations inherently limit investigations to conducting excavations for evaluation purposes only. Once enough data has been collected to evaluate a site, it is not within the constraints of the investigation to collect additional data which
could have contributed to answering purely research oriented questions.

Section 4.2: Archaeological Methods

All field work was performed under the direction of the principal investigator, Joseph Kennedy, M.A. Field work to be conducted was specified in a Scope-of-Work (SOW) prepared by the ASHPO.

Two subject areas were designated within which complete surface surveys were to be undertaken (Area A and Area 85) (see Figure 3). Each of these areas was systematically investigated by conducting 100% surface surveys of each parcel. The field crew swept each area using transects spaced approximately 5m apart. Transects ran roughly north to south, being perpendicular to the dirt road which provided access to the areas. Visibility was poor to excellent with some portions of these areas developed and landscaped and others overgrown with jungle.

Archaeological sites and/or features encountered during the surface sweeps were flagged using high color plastic engineering tape, assigned temporary field designations (prefixed by TF for "temporary feature"), and subsequently assigned Territorial site numbers if determined to be significant historic properties. All features identified were mapped, using tape and compass, from fixed points established within each of the subject areas based upon plans provided by ASPA.

Several stone walls were identified in the course of the current investigations. These features were also mapped following the methodology described above. In several instances these walls extended well outside the APE into areas privately owned and for which permission had not been obtained to survey. Because some features extended into these areas and because it is believed that many of the walls on the Tafuna Plain are modern, detailed mapping of walls which extended outside the APE was not conducted.

Surface and subsurface testing was specified in the SOW for several of the previously identified sites located along the proposed sewer line corridor. Testing took the form of both Shovel Test Pits (STP's) excavated along controlled transects spaced at 5m intervals as well as the controlled manual excavation of one meter by one meter test units. Where previously unidentified features were encountered (i.e., in Area 85), a representative sample of the features identified were subjected to subsurface testing.

All soils removed from excavation units were sifted in order to identify cultural materials or deposits. One hundred percent of traditional or potentially traditional
cultural materials recovered from these procedures was collected. Representative samples of obviously historic cultural remains were collected. Soil samples were collected from each stratigraphic layer identified and a profile drawn of a representative section of one face of each controlled excavation unit.

All sampling was conducted using standard archaeological methods including the screening of soils using one eighth inch mesh in order to retrieve significant cultural deposits. Soil samples were collected and placed in airtight zip-lock bags and labelled for use in laboratory analyses. Potential midden and artifactual material collected from soils were similarly bagged. Samples collected for radiocarbon dating were gathered, without coming into contact with human skin, wrapped in aluminum foil and sealed in a labelled airtight zip-lock bag.

Laboratory analyses included a range of diagnostic endeavors. Vertebrate faunal remains were identified to the species level, as possible, by Dr. Alan Ziegler with the results being tabulated and presented by provenience and weight. Invertebrate faunal remains (i.e., marine shell midden) were identified to the generic level as possible by ACP staff members James R. Moore, B.S., and Michelle Elmore, B.A., who sorted the material into like groups comparing them with ACP's reference collection to ensure correct identification. The results were then tabulated and presented by provenience and weight. Artifactual material was sorted by type, counted and measured by ACP personnel with the results tabulated for presentation by provenience. Datable material recovered was sent to Beta Analytic, Inc. for radiocarbon analysis.

This report provides complete descriptions of the investigations undertaken including written accounts, placement of the sites and excavation units on plans drawn to scale, and profiles depicting stratigraphic and/or cultural deposits. Also included are soil descriptions according to U.S.D.A. standards and the presentation of the results of all laboratory analyses described above.

There were a number of constraints on the current investigations. Dense vegetation limited visibility on portions of the subject property making the identification of low lying structural remains and surface artifacts somewhat difficult. The presence of modern standing structures on portions of the subject property prevented the identification of potential historic properties which may exist below the structures. Limited access to private properties outside the APE prevented a complete documentation of some walls which extended beyond the boundaries of the subject property into areas for which permission to survey was not granted. Fill was present in some areas which hampered an examination of
the deposits below. In other areas, extremely clayey soils were encountered which made the sifting of soils and identification of cultural materials very difficult.

When utilizing local labor there are also constraints due to language. Communication with Samoan assistants concerning archaeological methodology can be difficult to convey due to the language barrier. The fact that the current investigations were simply a Phase I and II investigation in itself constrained the researchers' ability to fully determine the extent, complexity, time and duration of site use. Finally, there are also inherent constraints due to the level of technology currently in use. Future technologies may be able to elucidate information from sites that is unable to be obtained at this time.

The methods employed both in the field and the laboratory were sufficient in identifying and determining the probable age and function as well as the significance of potential historic properties located on the subject property. The surface survey was sufficiently controlled to identify all structural remains on the property along with a number of artifacts. Subsurface testing was sufficient to determine the horizontal and vertical extent of subsurface deposits and features. A sufficient number of controlled test units were excavated to evaluate the significance of the sites identified.

Although there were a number of constraints on the current investigations, the overall research objectives (identifying and evaluating potentially significant historic properties) for the current project were able to be achieved. The primary objective, to maintain compliance with Section 106, was achieved. The secondary objective of relating the findings of the current investigations to the Territorial and Regional goals was adequately addressed through the discussion of the findings with regards to previous findings concerning site distribution and the age of inland pottery bearing sites.
Section 5: Archaeological Findings

Area A: Area A is located at the eastern end of the corridor through which Phase II(A) of the sewer line project will be passing (see Figure 3). The Scope-of-Work (SOW) for the current investigations called for a surface survey to be conducted within the boundaries of Area A. The boundaries of Area A were prescribed by the ASHPO. The area requiring survey (measuring approximately 68,000 square meters or about 17 acres) was determined based upon the areal extent of neighboring areas previously surveyed by the ASHPO during joint endeavors with ASPA.

The majority of Area A is highly developed with a large unfinished church or school building and at least 15 occupied residences scattered across the parcel. The parcel is accessed by several dirt roads and driveways.

The only portion of Area A which was not currently developed was towards the southeastern corner of the parcel (see Figure 4). In this corner there was a dilapidated shack that appeared to be currently utilized. Surrounding this structure the land was overgrown with grasses and weeds. No significant surface sites were identified when this area was surveyed. Based upon the absence of well developed flora and large trees (except on the perimeter of Area A along the dirt road where a couple of mature trees were noticed) and the level nature of the terrain, it is probable that this portion of Area A had been cleared at some time in the recent past.

To the north of the undeveloped area in the southeastern corner of Area A the pedestrian survey encountered a ta'amu/taro patch which measured approximately 40m in length (east to west) by 15m in width (north to south). The ta'amu/taro patch was bounded on the north by a mortared stone wall (see Figure 4). On the northern side of the wall there exists a rise in elevation which appears to be a natural basalt outcrop or hillock. Atop this hillock are two occupied residences along with ancillary structures.

Immediately to the west of the undeveloped area in the southeastern corner of Area A the pedestrian survey encountered a pineapple patch delimited by chain link fencing on its southern and eastern sides and bounded by a driveway on its western side (see Figure 4). The chain link fence was lined with fau. This driveway extends to the houses located atop the hillock as well as a large cleared and walled area located in the center of Area A.

Immediately to the west of this driveway and the pineapple patch exists a cluster of at least five occupied residences with ancillary structures and small plots utilized for gardening. This cluster lies midway along the southern boundary of Area A (see Figure 4).
To the north of the cluster of homes located along the southern boundary of Area A lies a large cleared area which is enclosed by a wall on all sides with an entranceway at its southeastern corner (see Figure 4). The entire enclosed area has been leveled and a large, unfinished structure exists at the center of the area. Construction of the building had begun but for some reason had been abandoned. The walls enclosing the leveled area are constructed of mortared cement blocks standing approximately 1.5m in height upon which stands wrought iron fencing. The area itself was probably leveled using heavy equipment.

The structure is constructed with cement blocks and wooden beams. The walls of the structure appear to have been finished but the roof had just been started when construction of the building was halted. The building is large with a gymnasium or auditorium dominating the structure, implying that it would have become a school or church.

Southwest of the enclosed church/school lot, Area A extends approximately 150m further towards the west with a dirt road bisecting this extension (see Figure 4). On the south side of the dirt road along this extension there exists a cleared, walled lot. At the time of the pedestrian survey, the lot had been cleared of all vegetation. A mortared stone wall completely enclosed the lot except for a small driveway. It is likely that the lot was cleared in preparation for the construction of a new residence.

On the north side of the dirt road along this western extension of Area A exists at least three occupied residences (see Figure 4). The spaces between the homes are occupied by ancillary structures, garden plots and landscaping. These homes appear to have incorporated somewhat more landscaping between garden plots than those to the east in Area A.

The remaining portion of Area A, that to the west and northwest of the enclosed church/school lot, is bisected by a dirt driveway (see Figure 4). On the eastern side of the driveway exists three occupied residences surrounding a banana patch. The homes on the south and east sides of the banana patch are landscaped in a contemporary Samoan fashion while the home on the northern side of the patch has a small paved circular drive, a mown lawn and no trees.

On the western side of the driveway there exists a large structure believed to be utilized as a private school (see Figure 4). This structure and its grounds are enclosed by a chain link fence. The grounds are landscaped, having a mown grass lawn with scattered coconut and plumeria trees encircled by rings of stones. No sites of historic significance were identified on any portion of Area A.
Site AS-31-77: This site is a natural geological feature located along the southern side of the eastern end of the sewer line project corridor (see Figure 3). The Atlas of American Samoa (Atlas 1981) depicts the expected soils in the vicinity of Site AS-31-77 as being of three possible types; Tafuna Extremely Stony Muck, Tropolthents or Pava’ia’i Stony Clay Loam (refer to Section 2). Vegetation in the area varied from stands of unmanaged cane grass interspersed between stands of mature trees to managed garden plots containing species such as those described in Section 2.

The site consists of a gulch-like feature approximately 7m deep and measuring between 15 and 30m in width (see Figure 5). The southern edge of the gulch is formed by a ridge of basalt standing 7 to 10m in height and measuring 10 to 15m in width at its base.

Beyond this stone ridge, on the southern side of the feature, the elevation of the plain is at or below that of the floor of the gulch and continues gently falling as one travels towards the coast. It is possible that this geological feature consists of a thin tongue of pahoehoe extending in front of a low escarpment formed by the leading edge of a lava flow. The area has subsequently eroded through fluvial action. It has also been suggested that the gulch was formed by the collapse of a lava tube (Taomia 1997). No evidence of traditional modification to the gulch was observable although evidence of modern modifications and trash disposal (including what looked like a small automobile junkyard) were identified within the gulch itself.

This natural feature was assigned a territorial site number because of its association with a legendary event. At some time in the past, it is said that the island of Aunu’u (located off the southeastern end of Tutuila) moved or was moved from the northwestern side of Tutuila to its current location. According to some accounts the island moved on its own accord while in other accounts the island was moved by an octopus. The gulch itself is said to be the "track" or "footprint" left by the island of Aunu’u as it traveled from northwest to southeast across Tutuila. None of the nearby residents with whom ACP was able to speak knew of the legend and one referred to the gulch simply as a former stream bed.

Site AS-31-81: Site AS-31-81 consists of a large level area, possibly a modified outcrop, located about midway along the sewer line project corridor (see Figure 3). The Atlas of American Samoa (Atlas 1981) depicts the expected soils in the vicinity of Site AS-31-81 as being of three possible types; Tafuna Extremely Stony Muck, Tropolthents or Pava’ia’i Stony Clay Loam (refer to Section 2). Vegetation in the area consists of a variety of grasses, shrubs and trees of undetermined species.
Figure 5: Top Plan of Site AS-31-77

Source: American Samoa Power Authority 1998
Site AS-31-81 measures approximately 100m in length by 60m in width covering an area of almost 1.5 acres (see Figure 6). The site is elevated from the surrounding plain on three sides with its southwestern side being roughly level with the existing terrain.

Around the majority of the site's perimeter the edges are terraced with roughly stacked, sloping structural fill. In places, though, the sloping terraced edges were replaced by sections of neatly faced stacked stone. In addition, at one spot (Point 3; see Figure 7) the sloping structural fill appeared to form two tiers of terracing. Stones within the fill consisted of angular vesicular basalt which generally measured 5 to 10cm in diameter, although occasional stones reached up to 50cm in diameter.

From three locations around the perimeter of Site AS-31-81, stone walls extended away from the site (see Figure 7). These walls were roughly stacked measuring between 50 and 100cm in width and standing no more than 30cm AGL. The walls were constructed of angular basalt pieces generally between 10 to 20cm in diameter with occasional larger stones. The walls on the eastern and western sides of the site extended away from the structure for over 50m each trailing into the overgrowth while the wall on the southern of the site extended for approximately 30m, was crossed by a foot path and terminated at the edge of a nearby residence's banana patch.

In addition to the walls, a low linear alignment of stones was observed on the surface of the site along its eastern edge (see Figure 7). This alignment was constructed of angular basalt pieces 5 to 15cm in diameter. It measured approximately 16m in length and stood only 15cm AGL.

In the northwestern corner of the site a large mango tree was observed. The mango tree was located on the level surface of the site and, for mapping purposes, Point 7 was established on the tree (see Figure 7). The mango tree is situated approximately 3m from the perimeter of the site in a spot where the edge is nicely faced with water worn basalt stones standing 4 to 6 courses or about 80cm AGL (see Plate 1; all plates are presented in Appendix C). The mango tree measures greater than 1m in diameter indicating that it is of relatively mature age. Being located in a level soil area above, and retained by, a neatly faced section of the site's perimeter would imply that the neatly faced section itself pre-dates the age of the tree. Also identified on the surface around the base of the tree were both a traditional artifact in the form of a basalt scraper (refer to Appendix A, Table 6, Artifact # TAF-003; see Figure 9) as well as modern building materials such as cement blocks, metal screening and lumber.
Figure 7: Detailed Top Plan of Site AS-31-81

[Diagram of the site with labeled points and a legend indicating different features such as walls, levels, and areas bulldozed since survey.]
Figure 8: Depiction of Artifact # TAF-003

TAF-003: Basalt Scraper (Site AS-31-81)
In order to further assess Site AS-31-81, one shovel test pit and one controlled test unit were excavated. Each will be described below.

Subsurface Testing at Site AS-31-81

STP 81:01 - A shovel test pit was placed on the surface of the site, 3m east of the mango tree on which Point 7 was placed (see Figure 7). As stated above, near this location both modern debris and a basalt scraper were identified.

Excavation encountered a surface cover of grass and detritus underlain by a deposit (Layer I) of black (10YR 2/1) stony clay loam that reached a maximum depth of 40cmbs (refer to Appendix A, Table 2). Layer I was underlain by a deposit (Layer II) of dark yellowish brown (10YR 4/6) very stony clay loam that reached a maximum depth of 65cmbs where bedrock was encountered. The STP measured approximately 75cm in diameter at the surface tapering to about 60cm in diameter at its base.

A very small amount of faunal remains and several pieces of modern debris were recovered from Layer I. Faunal remains were represented by 0.2g of material identified as originating from a medium to large sized bird (refer to Appendix A, Table 4). Modern debris recovered from Layer I included melted plastic, charred lumber, metal mesh and nails (refer to Table 5) (note: only a representative sample of the nails was collected). No potential cultural remains were recovered from Layer II.

Test Unit 81:A (TU 81:A) - This unit was placed immediately north of Point 7, below a neatly faced section of the site perimeter (see Figure 7). The unit measured 1m by 1m, square and was excavated in controlled 20cm levels.

Excavation encountered a surface cover of grass and detritus underlain by a deposit (Layer I) of dark grayish brown (10YR 4/2) very stony clay loam that reached a maximum depth of 42cmbs and rested on bedrock in most of the unit (see Figure 9 and refer to Appendix A, Table 2). Along the southern edge of the unit Layer I overlayed a second deposit (Layer II) of dark brown (10YR 4/3) stony clay loam that measured only 3cm in thickness at its maximum and rested on bedrock. Layer II was present in less than 25% of the unit.

A variety of potentially cultural remains were recovered from the sifted soils of Layer I, level 1 (5 - 20cmbs). Invertebrate faunal remains were represented by a fragment of a giant clam shell (Tridacna sp.) and a piece of unidentified marine shell (refer to Appendix A, Table 3). Vertebrate faunal remains recovered consisted by a metal sawed fragment of a medium to large sized mammal (refer to Table 4). Artifactual material recovered included historic debris (a
nail and aluminum foil) and traditionally modified lithic material in the form of one lithic flake, one possibly polished flake and one edge fragment with three polished surfaces (refer to Tables 5 & 6). Layer I, level 2 and Layer II were culturally sterile.

The results of the subsurface testing indicate that traditional cultural activities occurred in the vicinity of Site AS-31-81. These activities included tool use and possibly manufacture. Utilization of the site likely occurred in the late pre-contact to early post-contact period and some activities at the site continued to recent times.

Site AS-31-83: Site AS-31-83 is a site complex comprised of three features located towards the western end of the proposed sewer line corridor (see Figure 3). It was originally identified by the ASHPO/ASPA field crew and described as a "complex of terraces" consisting of two features (Taomia 1997). The Atlas of American Samoa (Atlas 1981) depicts the expected soils in the vicinity of Site AS-31-83 as being of three possible types; Tafuna Extremely Stony Muck, Troporthents or Pava’ia’i Stony Clay Loam (refer to Section 2).

The location of Site AS-31-83 was re-identified during the current study and found to be under heavy bush adjacent to a small banana plantation (see Figure 10). After clearing the site, three distinct features were identified which formed this complex including a two tiered terrace, one wall and one medium sized mound. Feature designations in this document supersede those used in Taomia (1997).

**Feature 83:A** - This feature consists of a large two tiered terrace. The lower tier of this feature extends about 10m from an outcrop of exposed pahoehoe along a dirt road before curving towards the north along the edge of a banana patch (see Figure 10). The eastern edge of the lower tier extends towards the north for approximately 25m where it intersects a deteriorated section of a stone wall (Feature 83:B). Along the majority of the lower tier’s leading edge, the former structure is collapsed forming a sloping rubble revetment. In two locations, however, the leading edge of the terrace is still nicely faced (see Figure 11 and Plate 2). Stones which make up the leading edge of the lower tier measure between 5 and 30cm in diameter. Backing the leading edge of the feature the surface of the lower tier is roughly paved with angular basalt stones measuring 5 to 50cm in diameter. Several structural anomalies were identified on the roughly paved surface of the lower tier including two locations which exhibit exposed pahoehoe (one of which forms a small cave-like opening which extends below the surface of the terrace approximately 1m), one disturbed/ jumbled circular depression.
Figure 11: Detailed Top Plan of Site AS-31-083

Feature 83.C

Feature 83.B

Feature 83.A

KEY

stone line

banana plantation
(likely a former tree mold), and one roughly linear low spot thought to represent the results of fluvial action.

Resting atop the paved, roughly level surface of the lower tier is the upper tier of the terrace (see Figure 11). The upper tier of the terrace stands two to three courses of stone above the lower tier, between 50 to 75cm above its rough surface. The upper tier measures approximately 15m in length by 5m in width. The leveled, filled area, however, covers a somewhat greater amount of space extending a few meters west beyond the boundary defined by the upper tier’s stone facing. The leading edge of the upper tier is constructed of angular basalt stones 15 to 30cm in diameter while the paved surface of the upper tier has been constructed using smaller stones and soil.

**Feature 83:B** - Feature 83:B is a wall which extends along the northern boundary of the site (see Figure 11). At the southeastern end of the wall a medium sized mound exists (Feature 83:C). The mound represents the eastern end of Site A6-31-83 and is surrounded by a banana plantation. From Feature 83:C, as one travels northwest, the wall extends approximately 20m before intersecting with Feature 83:A (see Figure 11). Along this section of the wall (Feature 83:B) the structure consists of a loosely constructed alignment of stone measuring about 1m in width, although in places it is somewhat wider due to collapse. This section of the feature is roughly stacked with three to five courses of stone standing from 60 to 120cm AGL. Stones used in this section of the walls’ construction are angular basalt measuring 25 to 75cm in diameter.

The area where Feature 83:B intersects with the leading edge of the lower tier of the terrace (Feature 83:A) is extremely deteriorated with collapsing rubble spilling out on both sides. It is possible that those tending the crops in this area cross from the plantation on the northern side of the site to the banana patch on the eastern side of Feature 83:A at this spot accentuating the deterioration.

From the intersection with Feature 83:A, the wall continues extending towards the northwest (see Figure 11). As the wall extends northwest its construction becomes more formal and its condition improves dramatically. Feature 83:B becomes bi-faced and core filled with a level surface. In this section of the wall, both sides are nicely face standing 4 to 6 courses tall and reaching up to 90cm AGL. Here the wall measures approximately 1m in width. The facings of the wall are constructed of angular basalt stones 15 to 50cm in diameter while the interior is filled with smaller stones and soils. The walls extend northwestward for over 30m until intersecting a wall which runs along the northern side of the dirt road.
Feature 83:C - This feature consists of a medium sized stone mound located at the southeastern end of Feature 83:B. The structure is roughly stacked out of angular basalt stone measuring 20 to 100cm in diameter. It measures approximately 5m in length by 4m in width and stands up to 2.6m AGL. This haphazardly stacked pile of stones may have been utilized as a growing medium or may simply represent a portion of Feature 83:B which was dismantled clearing space and/or allowing greater access for the nearby banana growing areas.

Subsurface Testing at Site AS-31-83

Two perpendicular transects of Shovel Test Pits (STPs) were excavated across the two tiered terrace in order to determine if cultural deposits were present. A total of thirteen STPs were excavated across the site (see Figure 11). STPs were placed at 5m intervals along the two transects beginning in the southwestern corner of the upper terrace.

In the majority of the STPs, excavation encountered structural fill underlain by a single layer (Layer 1) of dark yellowish brown (10YR 4/4) to dark brown (10YR 4/3 or 10YR 3/3) very stony clay loam (refer to Appendix A, Table 2). Structural fill was composed of angular basalt stones 5 to 15cm in diameter and generally reached between 15 and 25cmbs at its greatest depth. The fill was distinguished by the absence of soils in the matrix. Excavations reached a maximum depth of 80cmbs and every STP was excavated until reaching bedrock (refer to Appendix A, Table 7).

Very little in the way of cultural remains were recovered from these excavations. In STP 83:01, one lithic flake (TAF-008) and one basalt adze fragment (TAF-009) were recovered from the structural fill between 0 and 20cmbs. In STP 83:02 only a small amount of faunal remains were recovered represented by less than one half gram of an unidentified fish species and 1.1g of a small to medium sized mammal of indeterminable species. These faunal remains were also recovered from structural fill between 0 and 20cmbs. In STP 83:05 one fragment of broken brown bottle glass was recovered from the structural fill. Finally, in STP 83:10 a single lithic flake was recovered from Layer 1 soils between 0 30cmbs. No additional cultural or potentially cultural remains were recovered from excavations at Site AS-31-83.

Based upon the results of the investigations conducted, it is believed that Site AS-31-83 was utilized as a habitation site. Although very little in the way of material remains were present, the tiered terrace would have provided a level surface upon which a structure could have been constructed. Perhaps the site was utilized on a temporary basis by those tending nearby plantations. Utilization could have occurred at any time from the pre-contact period to recent times.
**Site AS-31-84:** This site consists of an oval platform located towards the middle of the proposed sewer line corridor (see Figure 3). The site was originally identified by the ASHPD/ASPA field crew and described as both a mound and a platform (Taomia 1997:24). Because the structure is elevated from the surrounding terrain around its entire perimeter and has a level paved surface, the site is more accurately classified as a platform rather than a mound. The Atlas of American Samoa (Atlas 1981) depicts the expected soils in the vicinity of Site AS-31-84 as being of three possible types; Tafuna Extremely Stony Muck, Troporthents or Pava‘ia‘i Stony Clay Loam (refer to Section 2). The site was covered with noncultivars including small trees and vines of undetermined species.

Taomia describes the platform as measuring 19.8m in length by 13.7m in width. Around its perimeter the structure stands 7 to 12 (or more) coarses tall varying from 1.45 to 2.4m AGL (Taomia 1997). The perimeter is constructed of angular basalt stones measuring from 30 to 150cm in diameter. Approximately one half to two thirds of the surface of the platform is covered in soil while the remaining portion is paved with angular basalt stones measuring 5 to 10cm in diameter. At the time of this writing, there is no detailed top plan of Site AS-31-84 available (see Figure 12).

The SOW for the current investigations called for a surface inspection of the site to be conducted. The surface of the structure was cleared of vegetation in order to conduct the inspection. Other than modern trash only a small amount of potentially cultural materials were recovered from the surface. Several pieces of coral were identified, two of which measured greater than 20cm in diameter and weighed more than 2kg each. These were not collected. Also identified was a single marine shell of the family Littorinidae. All of these items represent manos. In addition, one lithic flake and one possible scraper were recovered (refer to Appendix A, Table 7, TAF-011 & TAF-012; see Figure 13).

Based upon this information little can be said regarding the function of the site. Structurally the site is similar to others used for habitation. Concerning the age of the site, utilization could have occurred at any time from the pre-contact period to recent times.

**Site AS-31-85:** During the ASHPD/ASPA survey of 1997 an area (designated "Area 85" for the purposes of this discussion) of approximately 37,100 square meters (9.2 acres) located at the western end of the proposed sewer line corridor was unable to be surveyed because access was denied by a landowner (see Figure 3). The landowner granted access to the parcel to conduct the current survey. The SOW indicated that historic properties were believed to exist within this area and called for a pedestrian survey of the area to be undertaken. If
Figure 12: Top Plan of Site AS-31-84

AS-31-084

Site AS-31-84

T18

T19

LOW

T13

160

T14

130

T15

170

36

NF

KEY

ramp/rock fill

Adapted from: American Samoa Power Authority 1998 and Taormia 1997

Tafuna Sewer Phase II(A)
Figure 13: Depiction of Artifact # TAF-012

TAF-012: Possible Basalt Scraper (Site AS-31-84)
significant properties were identified during the pedestrian survey, subsurface testing was to take place to evaluate the potential sites. The Atlas of American Samoa (Atlas 1981) depicts the expected soils in the vicinity of Site AS-31-85 as being of three possible types: Tafuna Extremely Stony Muck, Troporthents or Pava‘ia‘ia Stony Clay Loam (refer to Section 2).

During the current surface survey two locations within the boundaries of Area 85 were determined to be occupied by current residents. One large family home with outbuildings was found to exist towards the northwestern corner of the area and a row of at least five smaller homes and their ancillary structures was identified along the southwestern boundary of the area (see Figure 14). The property immediately surrounding these homes contains landscaped lawns and small garden plots. No significant historic properties were identified in these areas.

Only two portions of Area 85 appeared to remain undisturbed by modern activity. These are located in the eastern and western corners of the parcel (see Figure 14). Each of these areas was thoroughly surveyed by the field crew.

The portion of the parcel located towards the eastern corner of Area 85 was found to contain six structures which were considered potential historic properties. After further analysis and subsurface testing four of these structures were determined to be modern while two remained potentially significant to the interests of historic preservation. Those determined to be modern are listed in this text using the temporary feature (TF) field designations while the two determined to be potentially significant have been assigned site number AS-31-85. Each will be briefly described below.

**Temporary Feature 1 (TF-1):** Temporary Feature 1 consists of an oval platform located towards the center of Area 85 (see Figure 15). The structure measures approximately 6m in length by 4m in width standing 100cm AGL at its northern end and 47cm AGL along its southwestern side (see Figure 16). At the southern end of the structure a possible segment of terracing exists between an exposed outcrop of pahoehoe and the edge of the feature. At the northern end of the feature the structure is partially collapsed or has been mined. The structure is constructed of angular basalt stones measuring 15 to 30cm in diameter and is paved with vesicular basalt ‘illi ‘illi measuring 5 to 10cm in diameter. In order to further assess Temporary Feature 1, one controlled test unit (Test Unit 85:A) was excavated through the surface of the structure.

**Test Unit 85:A (TU 85:A)** - This test unit was placed towards the southern end of the paved surface of TF-1 (see
Figure 15: Top Plan of Site AS-31-85

Tafuna Sewer Phase II(A)  
Source: American Samoa Power Authority 1998
Figure 16). An arbitrary datum was established approximately 10cm above the surface of the structure. Excavation commenced with the manual removal of structural fill. At 55cmbd, within the structural fill, a piece of lumber (measuring 4" x 4", with one painted surface) was recovered. Soils were ultimately encountered at 90cmbd. After encountering soils, all excavated material was passed through a one-eighth inch screen mesh. A variety of artifactual material was recovered from the sifted soils including plastic, broken glass, a U.S. penny dated A.D. 1988 (refer to Appendix A, Table 5), a water worn basalt cobble and a possible lithic flake (refer to Table 6). The presence of modern debris both within the structural fill and in the soils beneath the structure imply that this structure is modern, possibly dating to 1988 or after (based upon the age of the penny).

Temporary Feature 2 (TF-2): This structure consists of an oval shaped terrace located approximately 8m southeast of Temporary Feature 1 (see Figure 15). The leading edge of the terrace wraps around the northern end of the structure (see Figure 16). It is somewhat deteriorated standing only 30cm AGL. The southern side of the feature is level with the ground surface. The terrace is roughly paved, being constructed out of angular basalt stones 20 to 40cm in diameter. Strewn across the structure’s surface is modern debris in the form of broken glass and lumber. Also found resting on the surface of the feature was a single specimen of marine gastropod of the family Drupidae. The shell was relatively large implying that it was obtained from deeper waters (as opposed to immediately offshore). The plans of the proposed sewer line route provided by ASPA portray a structure present in this location as of 1990. The fact that the structure was likely occupied as recently as 1990, the presence of modern debris on the structure’s surface and the fact that the adjacent structures has been proven to have been recently constructed implies that the feature is modern.

Temporary Feature 3 (TF-3): This feature is also a small terrace. It is located approximately 10m south of TF-2 (see Figure 15). The terrace is rectangular and as with TF-2, due to the natural slope of the land, its leading edge wraps around the northern end of the structure and the southern end is level with the ground surface. The terrace measures approximately 4m in length by 3m in width. The leading edge is nicely stacked standing 40cm AGL. Temporary Feature 3 is paved with a mixture of vesicular basalt ‘ili ‘ili, gravel and patches of concrete. Along the eastern side of the terrace a piece of PVC pipe extrudes from a chunk of concrete. Apparently, this pipe formerly extended to an adjacent cesspool located approximately 3m east of TF-3 and now covered with a square concrete slab. It is believed that this feature represents the foundation for an outhouse used by the residents of TF-1 and 2 and is modern.
Temporary Feature 4 (TF-3): This structure consists of a small high-walled enclosure located at the southeastern end of Area 85 (see Figure 15). The feature is constructed of mortared stone walls resting on a concrete slab. The structure measures approximately 3m in length by 2m in width. The walls are constructed of angular basalt stones measuring between 20 and 40cm in diameter. They stand about 120cm AGL and measure approximately 40cm in width. It is likely that this feature is currently utilized on an irregular basis as a holding pen for livestock (i.e., a pig pen).

Feature 85:A - Feature 85:A consists of a modified outcrop forming a long stone revetment. It is located at the southeastern end of Area 85 and extends outside the arbitrary boundaries of the area (see Figures 14 & 15). The natural pahoehoe outcrop is a relatively large formation whose curving leading edge stretches for a distance of approximately 60m. It likely represents the lip of a pahoehoe flow left in place when a volcanic eruption ceased. Along this leading edge stones have been stacked and piled forming a sloping face, although in some places the stones are neatly stacked. The feature is constructed of angular basalt stones measuring 10 to 75cm in diameter. The revetment face stands between 65 and 130cm AGL. This feature extends along the edge of a small plantation in which banana and ta’amu are cultivated. It is possible that the modifications to the outcrop are the result of clearing some of the stones from the plantation.

Feature 85:B - This feature consists of a small enclosure located just outside the boundaries of Area 85 at the southeastern end of the parcel (see Figures 14 & 15). The feature is constructed of dry laid stone walls resting on the ground’s rocky surface. The structure measures 4.7m in length by 3.2m in width. The walls are constructed of angular basalt stones measuring between 20 and 40cm in diameter. They stand about 100cm AGL and measure approximately 45cm in width. This feature is located along the edge of a small plantation and it is likely that this feature is currently utilized on an irregular basis as a holding pen for livestock (i.e., a pig pen).

The remaining portion of Area 85 that appeared undisturbed by modern disturbance is the area located towards the western corner of the parcel (see Figure 14). This area was surveyed and found to be occupied by an enclosed banana/ta’amu plantation and a probable enclosed livestock pen (although no livestock other than chickens were present at the time of the survey). Both of these enclosures measure approximately 25m on a side. Walls forming the enclosures are constructed of angular basalt stones measuring 25 to 75cm in diameter. The walls are informally constructed, being roughly stacked standing from 60 to 100cm in height and up to 100cm in thickness. From the southeastern corner of the two
enclosures, walls extend in two directions out of Area 85
continuing to delineate portions of a relatively large
network of plantation plots. The fact that these enclosed
plantation plots are actively cultivated implies that the
property delineations expressed by the walls are likely
modern.

Site AS-31-106: This site was initially identified by the
ASHPO/ASPA field crew in 1997. The site was described as a
surface scatter of lithic artifacts and Polynesian plainware.
It is located towards the western end of the sewer line
corridor near the Village of Pava’ia’i (see Figure 3). The
Atlas of American Samoa (Atlas 1981) depicts the expected
soils in the vicinity of Site AS-31-106 as being of three
possible types; Tafuna Extremely Stony Muck, Trophorthents or
Pava’ia’i Stony Clay Loam (refer to Section 2).

The SOW called for the evaluation of the site through
the excavation of a series of shovel test pits (STP’s).
STP’s would allow for the determination of the presence or
absence of a subsurface cultural deposit and, if present,
determine the limits of the site.

Investigation of the site began with a surface survey of
the area originally identified by the ASHPO/ASPA field crew.
This area is located in a fa’alā and banana patch between two
small clusters of currently occupied residential structures
(see Figure 17). Traditional artifacts were identified on
the ground surface at several locations including a basalt
adze and an adze fragment as well as three sherds of
Polynesian plainware (TAF-015 through TAF-019; refer to
Appendix A, Table 6; see Figure 18).

Several walls were identified in the area designated
Site 106 which divide the land into plots (see Figure 17).
To the east of Wall A is the garden plot with fa’alā and banana
which was originally identified by the ASHPO/ASPA team while
the area to the west of Wall A and north of Wall D is
overgrown with weeds and grasses and the area to the south of
Wall D is cultivated in banana with several stone mounds
scattered beneath the clumps of banana. Walls A, B and C are
bi-faced and core filled standing 60 to 70cm AGL while Wall D
is roughly stacked standing 30 to 50cm AGL. All are
constructed of angular basalt stones measuring 20 to 75cm in
diameter. According to Arlene Lauvau, a member of the
property owner’s family, the walls and mounds in this area
were built by her father 30 to 35 years ago both to control
pigs and for agricultural purposes (pers. comm. 1998).

Subsurface Testing at Site AS-31-106

A pair of perpendicular transects of STP’s were
excavated in order to determine whether subsurface cultural
deposits were present and if so their extent. The first STP
Figure 18: Depiction of Artifact # TAF-015

TAF-016: Adze (Site AS-31-108)
transect began immediately behind a small pink house and was oriented south to north with units placed at intervals of 5m. The second transect was oriented east to west and crossed the first transect at STP 106:1 with STP’s spaced at intervals of 5m (see Figure 17). The east-west transect continued on the western side of Wall A. Placement of STP’s along the east-west transect did not follow a perfectly straight line in order to avoid walls and trees. In addition, spacing between STP’s increased as the field crew approached Site AS-31-116. Both transects were discontinued when they extended into areas currently occupied and/or into areas in which the landowners withheld permission to test.

All STP’s were excavated to bedrock which was encountered at depths of from 25 to 100cmbs. Excavation revealed that the entire area tested contained a single layer (Layer I) of dark brown (7.5 YR 3/3) to dark yellowish brown (10 YR 4/4) very stony clay loam that gradually became somewhat lighter in shade with depth (refer to Appendix A, Tables 2 & 8). No cultural layer was encountered. Modern trash as well as traditional cultural remains were generally recovered from the upper 50cm of Layer I. The bottom 15 to 50cm of Layer I was culturally sterile in every STP.

Modern trash was recovered from the sifted soils of almost every STP excavated. This material was generally recovered from the upper 20cm of the STP, although in some cases modern debris was recovered as deep as 45cmbs. This modern trash was not collected. Traditional cultural remains were encountered in 10 of the 15 STP’s excavated. These remains were recovered at depths ranging from the surface to as deep as 75cmbs. All traditional cultural remains or potential traditional cultural remains were collected. In addition, a small amount of invertebrate and vertebrate faunal remains were recovered which were considered potential manuports and/or midden.

The modern trash encountered consisted of a wide range of rubbish including broken glass, used disposable diapers, shoes, cans, paper, plastic, etc. Traditional cultural remains consisted predominantly of lithic artifacts and sherds of Polynesian plainware (refer to Appendix A, Table 6). Lithic artifacts include three adze fragments (TAF-022, 027 & 037), six lithic flakes and one water worn stone with possible wear on one side (believed to be a manuport). Polynesian plainware was recovered from three of the STP’s (STP 106:5, 8 & 11). Nine sherds were recovered from the three STP’s. All of these sherds were small and well worn (refer to Table 6).

Faunal remains were represented by a very small amount of material. Invertebrate remains consisted of one very small cowrie shell (*Cyprea sp.*; STP 106:1), a fragment of an ark clam (*Barbatia sp.*; STP 106:13) and a couple pieces of
coral (refer to Appendix A, Table 3). All of these items represent manuports, while the marine shell remains may represent food refuse. Vertebrate remains were represented by fragmentary remains of an unidentified medium sized bird (STP 106:12), a pig (Sus scrofa; STP 106:12) and unidentified medium sized mammals (STP 106:12 & 13) (refer to Appendix A, Table 4).

Of particular interest to the investigations at Site AS-31-106 was STP 106:8. At a depth of approximately 15cmbs, charcoal began to be encountered. The field crew noted a scattered charcoal flecking present from 15 to 35cmbs. At 35cmbs, an in situ sherd of Polynesian plainware was recovered. From this depth, several larger pieces of charcoal were also noted and a sample was collected in situ for radiocarbon dating.

Immediately below the depth from which the charcoal and pottery sherd were collected (35cmbs), a single coarse of angular basalt stones measuring approximately 20cm in diameter was encountered. The soils underlying this single course of stone were culturally sterile. It is unknown whether these stones represent a natural phenomenon or are an artifact of cultural activity. A similar single course of stones was encountered in STP 106:7 (5m to the east of STP 106:8) at a depth of 30cmbs. Although it cannot be confirmed that these stones form a contiguous feature, the presence of two similar courses of stone at similar depths implies that they may, in fact, be cultural.

The results of the radiocarbon dating indicate that the charcoal dates to a most probable age range of between A.D. 1414 and 1529 (calibrated to 1 sigma using the University of Washington, Quaternary Isotope Lab’s Radiocarbon Calibration Program Ver. 3.0.3; refer to Appendix A, Table 9 & Appendix B). This information implies that the sherd of Polynesian plainware recovered from the same depth was deposited within the calibrated age range obtained.

Based upon the findings reviewed above, Site AS-31-106 can be characterized. Although a distinctive cultural deposit or layer was not identified, it is likely that the upper 50cm of Layer I were deposited during a period in which cultural activities were occurring in the immediate vicinity of the area tested. The area near Site AS-31-106 (including Site AS-31-116) was likely utilized for purposes relating to habitation from as early as the Fourteenth century A.D. by a group of people who used pottery, at least in the early stages of their occupation of the area. Perhaps this site was on the fringe of a more frequently utilized area given the low density and wide dispersion of traditional cultural remains recovered. From the current findings it is not possible to determine whether occupation of the area
continued uninterrupted into the historic period, although the area has clearly been impacted by modern activities. Further work at this site is warranted and is recommended if changes are made to the current plans instigating the placement of sewer lines through this area.

**Site AS-31-116:** Site AS-31-116 was also identified in 1997 by the ASHPO/ASPA field crew. The site was initially described as a "long stone and earthen platform" but it actually consists of a soil backed terrace with stone facing on two sides. It is located adjacent to Site AS-31-106 towards the western end of the sewer corridor near the Village of Pava’ia’i (see Figure 3). The Atlas of American Samoa (Atlas 1981) depicts the expected soils in the vicinity of Site AS-31-116 as being of three possible types: Tafuna Extremely Stony Muck, Troporthents or Pava’ia’i Stony Clay Loam (refer to Section 2).

The SOW called for the evaluation of the site through a surface inspection of the property. Conducting a surface examination of the property would enable the investigators to determine if the site has the potential to yield important scientific information.

Site AS-31-116 consists of an L-shaped terrace measuring approximately 15m in length by 5m in width. The structure is nicely faced on its northeastern and southeastern edges with the corner on the eastern side of the feature forming an obtuse angle. The western side of the feature is basically level with the gently sloping surrounding terrain. The facing of the structure is constructed of angular basalt stones measuring 5 to 20cm in diameter. The surface of the terrace is level, partially paved with angular basalt ‘ili ‘ili and backed with soil although gravel is intruding on the southwestern side of the site due to the presence of a recently constructed gravel parking lot. The downslope, leading (or faced) edge of the terrace stands a maximum of 65cm AGL. The structure was accurately sketched by the ASHPO/ASPA field crew in 1997 (see Figure 19).

A modern, wood frame structure rests atop the terrace. This structure is square measuring 4.4m on a side and is in a dilapidated condition. The building is currently uninhabited.

An area surrounding Site AS-31-116 measuring approximately 2500 meters square was surveyed by the field crew using a series of pedestrian sweeps. The area atop the structure and its immediate surroundings were subjected to a more intensive examination. No additional surface features were identified. One surface location (an area measuring 3m in diameter) approximately 25m northwest of the site yielded one lithic flake and three sherds of Polynesian plainware. In addition, the roughly stacked wall designated "Wall D" at
Figure 19: Plan View of Site AS-31-116

End of stone facing; runs into natural landscape.

45cm high stone facing

dilapidated shack

Downward slope of land (E/W)

Previous fence rubble

65cm high stone facing

Facing ends at this point but loosely continues in the form of a rough stone alignment on the other side of the trail.

KEY

basalt stone

banana

Wall

Tafina Sewer Phase II(A)  Adapted from: American Samoa Historic Preservation Office Site Information Form 1997
Site AS-31-106 passes approximately 15 to 20m northeast of the northeastern corner of Site AS-31-116 and STP 106:15 is located approximately 18m east of that corner.

During the 1997 survey conducted by the ASHPO/ASPA field crew, two artifacts were identified at Site AS-31-116 (see Figure 20). One of these (the adze; the possession of this item was requested by the landowner and since the artifact had been adequately sketched by the ASHPO/ASPA crew it was turned over to Arlene Lauvau) was reidentified during the current investigations immediately adjacent to STP 106:15 while the other (the scraper) was not able to be located.

Because of the proximity of Sites AS-31-106 and 116 to one another and the fact that similar cultural remains were recovered from both sites as well as the intervening area, these two sites are believed to represent a single site complex whose areal limits have yet to be defined. Unfortunately, the landowner did not allow subsurface testing to continue beyond the area tested at Site AS-31-106. These sites likely date to similar time periods and activities which occurred at the sites were likely similar. As with Site AS-31-106, further archaeological investigations are warranted at Site AS-31-116.
Figure 20: Artifacts Recorded by ASHPO/ASPA Field Crew

Tafuna Sewer Phase II(A)  Source: American Samoa Historic Preservation Office Site Information Form 1997
Section 6: Evaluation of Site Significance

Archaeological investigations were conducted at seven sites identified within the Area of Potential Effect for the proposed sewer line project. Each of these sites is considered a significant historic property and because the project has the potential to damage or destroy the integrity of each of these sites a recommendation has been made for a determination of an "adverse effect". The mitigation of the project's potential "adverse effect" will vary from site to site. Recommendations concerning the method of mitigation will be summarized for each site, individually, below.

Site AS-31-77 consists of a natural geological formation associated with a legendary event. The site is considered significant to the interests of historic preservation under Criterion D (has yielded or is likely to yield information important in prehistory or history) of the National Register of Historic Places Criteria (refer to Table 1). Because the proposed sewer line will pass approximately 20m north of the site, the proposed undertaking will have "no effect" on the site.

Site AS-31-81 consists of a modified outcrop believed to have been utilized for habitation and/or agriculture. The site is considered significant to the interests of historic preservation under Criterion D (has yielded or is likely to yield information important in prehistory or history) of the National Register of Historic Places Criteria. Because the project crosses through the site and will cause the physical destruction of at least a portion of Site AS-31-81, the undertaking would be considered to have an "adverse effect" on a significant historic property under the Advisory Council Regulations, 36 CFR 800.9(b)(1). In order to mitigate the anticipated "adverse effect", further investigations are recommended in the form of data recovery.

Site AS-31-83 consists of a tiered terrace complex believed to have been utilized for habitation and/or agriculture. The site is considered significant to the interests of historic preservation under Criterion D (has yielded or is likely to yield information important in prehistory or history) of the National Register of Historic Places Criteria. Because the project crosses through the site and will cause the physical destruction of all or part of Site AS-31-83, the undertaking would be considered to have an "adverse effect" on a significant historic property under the Advisory Council Regulations, 36 CFR 800.9(b)(1). In order to mitigate the anticipated "adverse effect", further investigations are recommended in the form of data recovery.

Site AS-31-84 consists of a partially paved stone platform believed to have been utilized for habitation. The site is considered significant to the interests of historic
Table 1: Summary of Site Significance Evaluations

<table>
<thead>
<tr>
<th>Site</th>
<th>Feature</th>
<th>Description</th>
<th>Function</th>
<th>Significance Evaluations</th>
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<td>AS-31-77</td>
<td>Geological Formation</td>
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<td>Modified Outcrop</td>
<td>HAB/AG</td>
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<td>D</td>
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<td>Platform</td>
<td>HAB</td>
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<td>D</td>
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<td>AS-31-85</td>
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<td>D</td>
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<tr>
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<tr>
<td>B</td>
<td>Enclosure</td>
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<td>A &amp; D</td>
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<td></td>
<td>Scatter Complex</td>
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</table>

**Code For Significance Evaluation Criteria**

A  - Site Reflects Major Trends in History  
B  - Site is Associated with the Life of a Significant Person  
C  - Site is an Excellent Example of a Site Type  
D  - Site Likely to Yield Important Scientific Data  

**note:**  
LGD = Legendary  
HAB = Habitation  
AG = Agricultural
preservation under Criterion D (has yielded or is likely to yield information important in prehistory or history) of the National Register of Historic Places Criteria. Because the proposed sewer line will pass within five meters of the structure, the project has the potential to damage or destroy Site AS-31-84. Therefore, the undertaking would be considered to have an "adverse effect" on a significant historic property under the Advisory Council Regulations, 36 CFR 800.9(b)(1). The recommended mitigation of the potential "adverse effect" is through avoidance.

Site AS-31-85 consists of a modified outcrop and an adjacent enclosure believed to have been utilized for agricultural purposes. The site is considered significant to the interests of historic preservation under Criterion D (has yielded or is likely to yield information important in prehistory or history) of the National Register of Historic Places Criteria. Because the project crosses through the site and will cause the physical destruction of all or part of Site AS-31-85, the undertaking would be considered to have an "adverse effect" on a significant historic property under the Advisory Council Regulations, 36 CFR 800.9(b)(1). In order to mitigate the anticipated "adverse effect", further investigations are recommended in the form of data recovery.

Sites AS-31-106 and 116 consist of a stone terrace and a surrounding area of undefined limits which yielded traditional artifacts from both surface and subsurface contexts. Both sites are considered significant to the interests of historic preservation under Criteria A (site reflects major trends in history) and D (has yielded or is likely to yield information important in prehistory or history) of the National Register of Historic Places Criteria. Because the proposed sewer line passes through the roadway to the south of the site complex and not through the sites themselves, the undertaking would be considered to have "no effect" on significant historic properties under the Advisory Council Regulations, 36 CFR 800. If plans change and feeder lines are extended through this area, construction would produce an "adverse effect" which would require mitigation in the form of data recovery.
Conclusion

Archaeological investigations have been conducted in association with the proposed Tafuna Plains Sewer System - Phase II(A). That project has been determined to be a Federal undertaking and seven sites investigated during this study (Sites AS-31-77, 81, 83, 84, 85, 106 & 116) have been determined to be significant historic properties.

Site AS-31-77 consists of a natural geological formation associated with a legendary event. This natural feature was assigned a territorial site number because of its association with a legendary event. At some time in the past, it is said that the island of Aunu'u moved, or was moved, from the northwestern side of Tutuila to its current location. The gulch itself is said to be the "track" or "footprint" left by the island of Aunu'u as it traveled across Tutuila.

Site AS-31-81 consists of a modified outcrop believed to have been utilized for habitation and/or agriculture. Subsurface testing at the site indicates that traditional cultural activities occurred in the vicinity of Site AS-31-81. These activities included tool use and possibly manufacture. Utilization of the site likely occurred in the late pre-contact to early post-contact period and some activities at the site continued to recent times.

Site AS-31-83 consists of a tiered terrace complex believed to have been utilized for habitation and/or agriculture. Based upon the results of the investigations conducted, it is believed that Site AS-31-83 was utilized as a habitation site. Although very little in the way of material remains were present, the tiered terrace would have provided a level surface upon which a structure could have been constructed. Perhaps the site was utilized on a temporary basis by those tending nearby plantations. Utilization could have occurred at any time from the pre-contact period to recent times.

Site AS-31-84 consists of a partially paved stone platform believed to have been utilized for habitation. The SOW for the current investigations called for a surface inspection of the site to be conducted. Only a small amount of potentially cultural materials were recovered of which, several items were determined to be manuports. Unfortunately the SOW did not call for subsurface testing. Based upon the information available, little can be said regarding the function of the site. Structurally the site is similar to others used for habitation. Concerning the age of the site, utilization could have occurred at any time from the pre-contact period to recent times.

Site AS-31-85 consists of a modified outcrop and an adjacent enclosure believed to have been utilized for
Agricultural purposes. The modified outcrop is a relatively
large formation whose curving leading edge stretches for a
distance of approximately 60m. It likely represents the lip
of a pahoehoe flow left in place when a volcanic eruption
ceased. This feature extends along the edge of a small
plantation in which banana and ta'amu are cultivated. It is
possible that the modifications to the outcrop are the result
of clearing some of the stones from the plantation. The
adjacent enclosure is located along the edge of a small
plantation and it is likely that this feature is currently
utilized on an irregular basis as a holding pen for livestock
(i.e., a pig pen).

Sites AS-31-106 and 116 consist of a stone terrace and a
surrounding area of undefined limits which yielded
traditional artifacts from both surface and subsurface
contexts. Although a distinctive cultural deposit or layer
was not identified, it is likely that the upper soils in this
area were deposited during a period in which cultural
activities were occurring in the immediate vicinity. The
area near Sites AS-31-106 and 116 was likely utilized for
purposes relating to habitation from as early as the
Fourteenth century A.D. by a group of people who used
pottery, at least in the early stages of their occupation of
the area. Perhaps this site was on the fringe of a more
frequently utilized area given the low density and wide
dispersion of traditional cultural remains recovered. From
the current findings it is not possible to determine whether
occupation of the area continued uninterrupted into the
historic period, although the area has clearly been impacted
by modern activities.

The current investigations have successfully completed
the tasks called for in the SOW. The results of the
investigations have yielded information which is relevant to
both territorial and regional research objectives by adding
to the data base on known site locations thereby increasing
our knowledge of site distribution and settlement patterns.
Unfortunately, the SOW did not call for subsurface testing at
two sites (Sites AS-31-84 and 116) which, in retrospect,
warranted more in depth investigation.

It is recommended that the appropriate agency make a
determination that the undertakings' effect be considered
"adverse" in accordance with the Advisory Council
Regulations, 36 CFR Part 800. Mitigation of the adverse
effect shall be on a site by site basis the details of which
are presented in this document. Recommendations have been
made regarding mitigation in the form of data recovery for
Sites AS-31-81, 83 and 85.
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Shapiro, W., & P. Cleghorn


Sterns, H.T.


Taomia, Julie M.E.

### Table 2: Results of Soil Analysis in Sites AS-31-81, 83, & 106

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<tr>
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<th>Unit</th>
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<td>0-51</td>
<td>7.5YR 3/3</td>
<td>Dark brown</td>
<td>Very stony clay loam</td>
</tr>
<tr>
<td></td>
<td>STP 106:5</td>
<td>I</td>
<td>0-45</td>
<td>10YR 4/3</td>
<td>Dark brown</td>
<td>Very stony clay loam</td>
</tr>
<tr>
<td></td>
<td>STP 106:6</td>
<td>I</td>
<td>0-55</td>
<td>10YR 4/4</td>
<td>Dark yellowish brown</td>
<td>Very stony clay loam</td>
</tr>
<tr>
<td></td>
<td>STP 106:8</td>
<td>I</td>
<td>0-65</td>
<td>7.5YR 3/3</td>
<td>Dark brown</td>
<td>Very stony clay loam</td>
</tr>
<tr>
<td></td>
<td>STP 106:10</td>
<td>I</td>
<td>0-75</td>
<td>10YR 3/4</td>
<td>Dark yellowish brown</td>
<td>Very stony clay loam</td>
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<tr>
<td></td>
<td>STP 106:11</td>
<td>I</td>
<td>0-90</td>
<td>10YR 3/4</td>
<td>Dark yellowish brown</td>
<td>Very stony clay loam</td>
</tr>
<tr>
<td></td>
<td>STP 106:15</td>
<td>I</td>
<td>0-60</td>
<td>10YR 4/3</td>
<td>Dark brown</td>
<td>Very stony clay loam</td>
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</tbody>
</table>
Table 3: Quantitative Analysis of Invertebrate Faunal Material

<table>
<thead>
<tr>
<th>Site</th>
<th>AS-31-81</th>
<th>AS-31-84</th>
<th>AS-31-108</th>
<th>AS-31-109</th>
<th>AS-21-108</th>
<th>AS-31-100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit</td>
<td>TU 81 A</td>
<td>NA</td>
<td>STP 106:1</td>
<td>STP 106:2</td>
<td>STP 106:6</td>
<td>STP 106:13</td>
</tr>
<tr>
<td>Layer/Level</td>
<td>1/1</td>
<td>Surface</td>
<td>1</td>
<td>1</td>
<td>S/M</td>
<td>1</td>
</tr>
<tr>
<td>Depth (cm x mm)</td>
<td>5-20</td>
<td>NA</td>
<td>0-51</td>
<td>0-100</td>
<td>NA</td>
<td>0-85</td>
</tr>
</tbody>
</table>

**SHELL**

- Gastropoda
  - Littorina sp.
    - 0.3
  - Cypraea sp.
    - 0.8

**Bivalvia**

- Balaenidae sp.
  - 15

**OTHER**

- Charcoal
  - 0.5
- Coral
  - 11.5  2.5  28.5

Note: Data is presented by weight in grams.
Table 4: Quantitative Analysis of Vertebrate Faunal Material

<table>
<thead>
<tr>
<th>Site</th>
<th>AS-31-81</th>
<th>AS-31-81</th>
<th>AS-31-81</th>
<th>AS-31-108</th>
<th>AS-31-108</th>
<th>AS-31-108</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Unit</td>
<td>STP 81-1</td>
<td>TJ 91 A</td>
<td>STP 82-3</td>
<td>STP 108-2</td>
<td>STP 108-12</td>
<td>STP 108-13</td>
<td></td>
</tr>
<tr>
<td>Layer/Level</td>
<td>I</td>
<td>I/II</td>
<td>Fill</td>
<td>I</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depth (cm)</td>
<td>0-40</td>
<td>5-20cmwd</td>
<td>0-20</td>
<td>0-100</td>
<td>0-60</td>
<td>0-80</td>
<td></td>
</tr>
</tbody>
</table>

Chondrichthyes/Osteichthyes

Fish                        | 0.4

Aves

<table>
<thead>
<tr>
<th>Order and Family Indeterminate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Bird</td>
</tr>
<tr>
<td>Medium Bird</td>
</tr>
<tr>
<td>Medium to Large Bird</td>
</tr>
<tr>
<td>Large Bird</td>
</tr>
</tbody>
</table>

Mammalia

<table>
<thead>
<tr>
<th>Order and Family Indeterminate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Mammal</td>
</tr>
<tr>
<td>Small-to-Medium Mammal</td>
</tr>
<tr>
<td>Medium Mammal</td>
</tr>
<tr>
<td>Medium-to-Large Mammal</td>
</tr>
<tr>
<td>Large Mammal</td>
</tr>
<tr>
<td>Artifact (metal sawed)</td>
</tr>
</tbody>
</table>

Note: Data is presented by weight in grams.
### Table 5: List of Historic Remains Collected

<table>
<thead>
<tr>
<th>Site</th>
<th>Unit</th>
<th>Layer/Level</th>
<th>Depth</th>
<th>Artifact #</th>
<th>Material</th>
<th>Object</th>
<th>Color</th>
<th>Description</th>
<th>Weight (g)</th>
<th>Size (cm)</th>
<th>Cl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS-31-81</td>
<td>STP 81:1</td>
<td>1</td>
<td>0-40cm</td>
<td>Steel</td>
<td>Plate</td>
<td>?</td>
<td>Black</td>
<td>Party memoburles</td>
<td>4.40</td>
<td>5.3x2.4x1.0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>0-40cm</td>
<td>Wood</td>
<td>Point</td>
<td>Lumber</td>
<td>Charred lumber with blue green paint</td>
<td>3.00</td>
<td>5.3x2.7x0.9</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>0-40cm</td>
<td>Metal</td>
<td>Metal mesh</td>
<td>Bent edges, slightly corroded</td>
<td>5.00</td>
<td>2.2x1.9x0.4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>0-40cm</td>
<td>Metal</td>
<td>Nails</td>
<td></td>
<td>2 cent.1 straight nail</td>
<td>20.70</td>
<td>5.1x0.8</td>
<td>3</td>
</tr>
<tr>
<td>AS-31-81</td>
<td>TU 81:A</td>
<td>1</td>
<td>5-20cm</td>
<td>Steel</td>
<td>Metal</td>
<td></td>
<td>Nails</td>
<td>Rusted, slightly bent</td>
<td>4.50</td>
<td>7.4x0.6x0.3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>5-20cm</td>
<td>Aluminum</td>
<td></td>
<td></td>
<td>Charred, foiled</td>
<td>0.10</td>
<td>2.9x1.6x1.0</td>
<td>1</td>
</tr>
<tr>
<td>AS-31-83</td>
<td>STP 83:5</td>
<td>Pill</td>
<td>0-40cm</td>
<td>Steel</td>
<td>Glass</td>
<td>Bowler segment</td>
<td>Brown</td>
<td></td>
<td>1.10</td>
<td>1.7x1.5x0.2</td>
<td>1</td>
</tr>
<tr>
<td>AS-31-85</td>
<td>TU 85:A</td>
<td>1</td>
<td>5-11cm</td>
<td>Steel</td>
<td>Metal</td>
<td>U.S. penny</td>
<td>1860 penny, somewhat corroded</td>
<td>2.30</td>
<td>1.8x1.8x0.1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
Table 6: Traditional Artifacts Accession List

<table>
<thead>
<tr>
<th>Site</th>
<th>Unit</th>
<th>Layer/Level</th>
<th>Depth</th>
<th>Artifact #</th>
<th>Material</th>
<th>Object</th>
<th>Color</th>
<th>Description</th>
<th>Weight (g)</th>
<th>Size (cm)</th>
<th>Qt</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS-31-81</td>
<td>Surface</td>
<td>Found next to Pit 1</td>
<td>TAF-001</td>
<td>Basalt</td>
<td>Pitted</td>
<td>Vary roughly trapezoidal</td>
<td>231.00</td>
<td>8.0 x 3.0 x 1.9</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface</td>
<td>5m NW of Pit 7</td>
<td>TAF-002</td>
<td>Basalt</td>
<td>Flake</td>
<td>Rough polish on one side</td>
<td>17.10</td>
<td>5.2 x 2.1 x 0.8</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface</td>
<td>5m NW of Pit 7 (mangrove tree)</td>
<td>TAF-003</td>
<td>Basalt</td>
<td>Scraper</td>
<td>Unusually retouched along 2 edges</td>
<td>41.25</td>
<td>4.9 x 3.0 x 1.4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-81</td>
<td>TU 81A</td>
<td>I</td>
<td>5-25cmbd</td>
<td>TAF-004</td>
<td>Basalt</td>
<td>Flake</td>
<td>Rough polish on one side</td>
<td>9.50</td>
<td>4.7 x 2.2 x 1.2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TU 81A</td>
<td>I</td>
<td>3-25cmbd</td>
<td>TAF-005</td>
<td>Basalt</td>
<td>Flake</td>
<td>Rough polish on one side</td>
<td>5.00</td>
<td>2.5 x 2.5 x 0.5</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TU 81A</td>
<td>I</td>
<td>3-25cmbd</td>
<td>TAF-006</td>
<td>Basalt</td>
<td>Adze fragment</td>
<td>Corner of cutting edge; possible evidence of resharpening with polished surfaces</td>
<td>1.60</td>
<td>2.0 x 4.0 x 0.4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-81</td>
<td>TU 81A</td>
<td>I</td>
<td>5-25cmbd</td>
<td>TAF-007</td>
<td>Basalt</td>
<td>Flake</td>
<td>Rough polish on one side</td>
<td>8.70</td>
<td>2.5 x 3.0 x 0.6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AS-31-81</td>
<td>TU 81A</td>
<td>I</td>
<td>0-5cmbd</td>
<td>TAF-008</td>
<td>Basalt</td>
<td>Flake</td>
<td>Rough polish on one side</td>
<td>2.60</td>
<td>2.8 x 4.0 x 0.6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AS-31-81</td>
<td>TU 81A</td>
<td>I</td>
<td>0-5cmbd</td>
<td>TAF-009</td>
<td>Basalt</td>
<td>Flake</td>
<td>Rough polish on one side</td>
<td>2.20</td>
<td>2.8 x 2.0 x 0.6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AS-31-81</td>
<td>TU 81A</td>
<td>I</td>
<td>0-5cmbd</td>
<td>TAF-010</td>
<td>Basalt</td>
<td>Flake</td>
<td>Rough polish on one side</td>
<td>2.40</td>
<td>2.8 x 2.0 x 0.6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AS-31-81</td>
<td>TU 81A</td>
<td>I</td>
<td>95-119</td>
<td>TAF-011</td>
<td>Basalt</td>
<td>Flake</td>
<td>Possible use wear damage</td>
<td>6.40</td>
<td>3.0 x 3.0 x 0.6</td>
<td>1</td>
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</tr>
<tr>
<td>TU 81A</td>
<td>I</td>
<td>95-119</td>
<td>TAF-012</td>
<td>Basalt</td>
<td>Adze fragment</td>
<td>Water worn (implies possible modification)</td>
<td>3.20</td>
<td>2.5 x 3.0 x 0.3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-108</td>
<td>Surface</td>
<td></td>
<td>TAF-015</td>
<td>Basalt</td>
<td>Adze</td>
<td>Small roughly polished quadrangular edge; one side &amp; cutting edge have polish</td>
<td>41.50</td>
<td>6.7 x 3.5 x 1.0</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>AS-31-108</td>
<td>Surface</td>
<td></td>
<td>TAF-016</td>
<td>Basalt</td>
<td>Adze fragment</td>
<td>One side polished</td>
<td>1.10</td>
<td>2.8 x 1.5 x 0.3</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>AS-31-108</td>
<td>Surface</td>
<td></td>
<td>TAF-037</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>11.40</td>
<td>2.8 x 2.0 x 1.3</td>
<td>1</td>
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<td>AS-31-108</td>
<td>Surface</td>
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<td>TAF-038</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>18.60</td>
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<tr>
<td>AS-31-108</td>
<td>Surface</td>
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<td>TAF-039</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>16.55</td>
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<td>Surface</td>
<td></td>
<td>TAF-040</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>54.30</td>
<td>5.0 x 2.4 x 1.6</td>
<td>1</td>
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</tr>
<tr>
<td>AS-31-108</td>
<td>Surface</td>
<td></td>
<td>TAF-041</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>3.30</td>
<td>2.8 x 2.0 x 0.5</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>AS-31-108</td>
<td>Surface</td>
<td></td>
<td>TAF-042</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>7.40</td>
<td>3.0 x 2.0 x 0.5</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-108</td>
<td>Surface</td>
<td></td>
<td>TAF-043</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>5.50</td>
<td>2.8 x 1.0 x 1.0</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-108</td>
<td>Surface</td>
<td></td>
<td>TAF-044</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>8.40</td>
<td>4.1 x 3.0 x 0.7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-108</td>
<td>Surface</td>
<td></td>
<td>TAF-045</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>2.20</td>
<td>3.7 x 1.0 x 0.3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-108</td>
<td>Surface</td>
<td></td>
<td>TAF-046</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>1.00</td>
<td>1.8 x 0.5 x 0.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-108</td>
<td>Surface</td>
<td></td>
<td>TAF-047</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>11.10</td>
<td>4.2 x 2.0 x 0.8</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-108</td>
<td>Surface</td>
<td></td>
<td>TAF-048</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>3.90</td>
<td>2.0 x 1.0 x 0.8</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-049</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>1.65</td>
<td>1.8 x 1.0 x 0.7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-050</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>4.20</td>
<td>2.0 x 1.0 x 0.7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-051</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>4.20</td>
<td>2.0 x 1.0 x 0.7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-052</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>4.20</td>
<td>2.0 x 1.0 x 0.7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-053</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>1.00</td>
<td>1.8 x 1.0 x 0.5</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-054</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>1.10</td>
<td>1.8 x 1.0 x 0.5</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-055</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>12.20</td>
<td>5.0 x 4.0 x 0.5</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-056</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>3.00</td>
<td>2.0 x 1.0 x 0.6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-057</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>1.60</td>
<td>3.0 x 2.0 x 0.6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-058</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>25.50</td>
<td>3.0 x 2.0 x 1.0</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-059</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>9.10</td>
<td>2.8 x 1.0 x 0.6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS-31-111</td>
<td>Surface</td>
<td></td>
<td>TAF-060</td>
<td>Pottery</td>
<td>Sherd</td>
<td>Plainware</td>
<td>10.50</td>
<td>3.0 x 2.0 x 1.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7: Summary of Shovel Test Pits at Site AS-31-83

<table>
<thead>
<tr>
<th>STP #</th>
<th>Dimensions (cm)</th>
<th>Depth (cm)</th>
<th>Presence of Cultural Remains</th>
<th>Stratigraphy</th>
</tr>
</thead>
<tbody>
<tr>
<td>83:1</td>
<td>70 x 70</td>
<td>65</td>
<td>+</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>83:2</td>
<td>60 x 60</td>
<td>75</td>
<td>+</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>83:3</td>
<td>75 x 70</td>
<td>60</td>
<td>-</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>83:4</td>
<td>60 x 60</td>
<td>40</td>
<td>-</td>
<td>Layer I</td>
</tr>
<tr>
<td>83:5</td>
<td>75 x 60</td>
<td>75</td>
<td>+</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>83:6</td>
<td>65 x 65</td>
<td>10</td>
<td>-</td>
<td>Fill</td>
</tr>
<tr>
<td>83:7</td>
<td>70 x 60</td>
<td>70</td>
<td>-</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>83:8</td>
<td>60 x 60</td>
<td>80</td>
<td>-</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>83:9</td>
<td>60 x 55</td>
<td>60</td>
<td>-</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>83:10</td>
<td>55 x 55</td>
<td>30</td>
<td>+</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>83:11</td>
<td>50 x 50</td>
<td>45</td>
<td>-</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>83:12</td>
<td>65 x 60</td>
<td>25</td>
<td>-</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>83:13</td>
<td>50 x 50</td>
<td>30</td>
<td>-</td>
<td>Fill &amp; Layer I</td>
</tr>
</tbody>
</table>
### Table 8: Summary of Shovel Test Pits at Site AS-31-106

<table>
<thead>
<tr>
<th>SP #</th>
<th>Dimensions (cm)</th>
<th>Depth (cm)</th>
<th>Presence of Traditional Cultural Remains</th>
<th>Stratigraphy</th>
</tr>
</thead>
<tbody>
<tr>
<td>106:1</td>
<td>50 x 50</td>
<td>51</td>
<td>+</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>106:2</td>
<td>60 x 50</td>
<td>100</td>
<td>-</td>
<td>Fill &amp; Layer I</td>
</tr>
<tr>
<td>106:3</td>
<td>60 x 60</td>
<td>25</td>
<td>-</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:4</td>
<td>70 x 50</td>
<td>55</td>
<td>+</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:5</td>
<td>70 x 70</td>
<td>45</td>
<td>+</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:6</td>
<td>75 x 75</td>
<td>55</td>
<td>+</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:7</td>
<td>65 x 60</td>
<td>60</td>
<td>+</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:8</td>
<td>70 x 70</td>
<td>65</td>
<td>+</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:9</td>
<td>60 x 55</td>
<td>55</td>
<td>-</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:10</td>
<td>70 x 70</td>
<td>75</td>
<td>-</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:11</td>
<td>70 x 65</td>
<td>90</td>
<td>+</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:12</td>
<td>75 x 75</td>
<td>60</td>
<td>+</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:13</td>
<td>70 x 60</td>
<td>85</td>
<td>+</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:14</td>
<td>65 x 60</td>
<td>65</td>
<td>+</td>
<td>Layer I</td>
</tr>
<tr>
<td>106:15</td>
<td>70 x 70</td>
<td>60</td>
<td>-</td>
<td>Layer I</td>
</tr>
</tbody>
</table>
Table 9: Results of Radiocarbon Dating at Site AS-31-106

<table>
<thead>
<tr>
<th>Test Unit</th>
<th>Provenience</th>
<th>Beta</th>
<th>Conventional C14 Age</th>
<th>Most Probable Calibrated Age Ranges A.D. 1 Sigma</th>
<th>2 Sigma</th>
</tr>
</thead>
<tbody>
<tr>
<td>STP 106:8</td>
<td>Layer I 35cmbs in situ</td>
<td>119762</td>
<td>430 +/- 110</td>
<td>1414 - 1529</td>
<td>1300 - 1571</td>
</tr>
</tbody>
</table>

Note: Calibrated using the University of Washington, Quaternary Isotope Lab's Radiocarbon Calibration Program Ver. 3.0.3; refer to Appendix C.
APPENDIX B

Results of Radiocarbon Analyses
REPORT OF RADIOCARBON DATING ANALYSES

Mr. Joseph Kennedy
Archaeological Consultants
of the Pacific, Inc.

July 1, 1998
August 3, 1998

<table>
<thead>
<tr>
<th>Sample Data</th>
<th>Measured C14 Age</th>
<th>C13/C12 Ratio</th>
<th>Conventional C14 Age (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta-119782</td>
<td>430 +/- 110 BP</td>
<td>-25.0* o/oo</td>
<td>430 +/- 110* BP</td>
</tr>
</tbody>
</table>

SAMPLE #: AS-31-106
ANALYSIS: radiometric-standart
MATERIAL/PRETREATMENT: (charred material): acid/alkali/acid
COMMENT: the small sample was given extended counting time

NOTE: It is important to read the calendar calibration information and to use the calendar calibrated results (reported separately) when interpreting these results in AD/BC terms.

NOTE: Sample FG/1 was cancelled (as instructed).

---

Dates are reported as RCYBP (radiocarbon years before present, "present" = 1950 A.D.). By international convention, the modern reference standard was 95% of the C14 content of the National Bureau of Standards Oxalic Acid & calculated using the Libby C14 half-life (5568 years). Quoted errors represent 1 standard deviation statistics (68% probability) & are based on combined measurements of the sample, background, and modern reference standards. Measured C13/C12 ratios were calculated relative to the PDB-1 international standard and the RCYBP ages were normalized to -25 per mil. If the ratio and age are accompanied by an (*), then the C13/C12 value was estimated, based on values typical of the material type. The quoted results are NOT calibrated to calendar years. Calibration to calendar years should be calculated using the Conventional C14 age.
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: estimated C13/C12 = 25: lab mult. = 1)

Laboratory Number: Beta-119762

Conventional radiocarbon age*: 430 ± 110 BP

Calibrated results: cal AD 1305 to 1670

* C13/C12 ratio estimated

Intercept data:

Intercept of radiocarbon age with calibration curve: cal AD 1450

1 sigma calibrated results: cal AD 1415 to 1535 and cal AD 1545 to 1635

References:

Pretoria Calibration Curve for Short Lived Samples

A Simplified Approach to Calibrating C14 Dates

Calibration - 1993

Beta Analytic Radiocarbon Dating Laboratory
4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0954 • E-mail: betaradiocarbon.com

B2
Radiocarbon Age BP 430 ± 110
Calibrated age(s) cal AD 1445

Cal AD/BC age ranges obtained from intercepts (Method A):

one Sigma**
cal AD 1412 - 1532 1546 - 1635

two Sigma**
cal AD 1301 - 1374 1379 - 1669
1783 - 1797 1948 - 1982

Summary of above:
minimum of cal age ranges (cal ages) maximum of cal age ranges:
1σ cal AD 1412 (1445) 1635
2σ cal AD 1301 (1445) 1952

cal AD/BC age ranges (cal ages as above)
from probability distribution (Method B):

<table>
<thead>
<tr>
<th>% area enclosed</th>
<th>cal AD age ranges</th>
<th>relative area under probability distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>68.3 (1σ)</td>
<td>cal AD 1414 - 1529</td>
<td>.63</td>
</tr>
<tr>
<td></td>
<td>1556 - 1632</td>
<td></td>
</tr>
<tr>
<td>95.4 (2σ)</td>
<td>cal AD 1300 - 1671</td>
<td>.98</td>
</tr>
<tr>
<td></td>
<td>1761 - 1799</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1948 - 1983</td>
<td>.01</td>
</tr>
</tbody>
</table>

References for datasets used:

Comments:
† This standard deviation (error) includes a lab error multiplier.
** 1 sigma = square root of (sample std. dev.1 + curve std. dev.1)
2 sigma = 2 x square root of (sample std. dev.1 + curve std. dev.1)
0* represents a "negative" age BP
1955* denotes influence of bomb C-14
For cal yrs between 5500-5190 BC an offset of 25 years is possible.
NOTE: Cal ages and ranges are rounded to the nearest year which
may be too precise in many instances. Users are advised to
round results to the nearest 10 yr for samples with standard
development in the radiocarbon age greater than 50 yr.
APPENDIX C

Photographs of Selected Sites
Plates 1 & 2: Photographs of Sites AS-31-81 & 83

Plate 1: Site AS-31-81 (view facing South, near Point 7)

Plate 2: Site AS-31-83 Feature A (view facing Northwest)
Plate 3: Site AS-31-84 (view facing Southwest)

Plate 4: Area 85, Temporary Feature 1 (view facing North)