

SWAINS ISLAND  
REPORT

Prepared by William A. Sword,  
Department of Public Works

DEPARTMENT OF PUBLIC WORKS  
AMERICAN SAMOA GOVERNMENT  
PAGO PAGO, AMERICAN SAMOA 96799

October 2, 1986

SWAINS

INTRODUCTION

On 9-22-86 10:00 A.M. the Sausauimoana left Pago harbor with 3 engineers from Public Works, Ron Burgess, Andy Scanlan and myself. Also included was an engineer from TEO, John Kirby who was exploring the possibility of solar power for 40 W. lights; 2 members of the house of representatives, Mr. Sagale and Mr. Fuiava, the inspector from the office of communications, and passengers for Swains.

The trip was long (22 hours) so the boat arrived at Swains at 9:00 A.M. The island was sighted at 7:30 A.M. about 10 miles off the starboard bow - another 5 miles to the left and we would have missed Swains as we would not have seen it. The Captain, Paul Pedro, says that if one is more than 10 miles from Swains, one cannot see it - he was right.

Swains is an atoll which has a high elevation of about 15' above mean low water. The top of the coconut trees are only 60' to 80' above the waters surface. The wind blows fairly evenly at 5 to 10 knots from the North-east. Humidity is about 95%, with temperatures ranging from 70 deg. F at night to 100 deg. in the day.

## VILLAGE

The village or "Taulaga" is on the west side of the island, and is fronted by the "ava" or reef opening, the only suitable one in the whole island. (see sketch). The only other settlement is known as "Etena" or Eden and is where Eli Jennings lived - an old rustic but rundown 4 bedroom home is the only remnant of what used to be a fairly large complex. The rest of the complex was destroyed by fire some time ago.

The village consists of several huts and 1 large house, called the "iupeli". It is situated in the center of the village and serves as the town hall. It is also the main rain catchment for the village of 20 persons (11 kids, 9 adults). A recent grant from the Community Development Block Grant program (a HUD grant) allowed the reroofing of this community building. An old concrete tank collects water from the gutters along the eaves of the tin roofed iupeli. Several 55 gallon drums alongside the building also collect water from the roof gutters.

To the north and east of the iupeli are two fale belonging to two villagers. To the south is the school, and communication shack. Beyond the school is what seems to be the foundation stones of several houses belonging to the extended village. We were told that at one time, about 150 people lived in the taulaga. To the west is the small guest fale, with thatched roof. 50 yards to the East of the guest fale is the

old wooden church with about 60 seats. 55 gallon drums collect water from the infirmary and school also. In the center of the atoll is the pond or "namu". (It is probably called this because even though brackish, somehow mosquitos "namu" still breed here).

#### ISLAND GEOLOGICAL CHARACTERISTICS

The entire atoll is coral. Seashells prevade the pond or lagoon bed at the center of the island. The north and east side of the pond is deep and is where the old seaplane or "paopao lele" used to land in a N.E. direction. A shallow beach on the west side of the lagoon is used by villagers for bathing. (Soap lathers in this water); the Hach chloride kit registers chlorides oven 2500 ppm). At one time the elderly report that this pond or lagoon was open to the ocean. This has since been closed to prevent flooding of the island when the big waves come. This seems to occur every 20 years. The villages describe 20 foot waves breaking just before the village, carrying off anything loose - this happened in 1966.

The ground has a think layer of top soil in areas, but is mostly coral of various sizes ranging from sand to 3 in plus rocks. Boulders are common. The growth is mostly coconut and banana trees, with some shrubs and ferns. Taro doesn't grow well; there are only a few lime trees.

The reefs are shallow and are a constant 100 yards from the shore. All the coral seems live, with some fish. The reef

has blow holes or "pu" 20 to 30 feet from the reef edge, indicating hollow tubes or cavities below the hard flat surface of the coral reef. These can suck a person under the reef if one falls into a pu. Numerous fish was observed on the edge of the reef, but not much seen on the reef. There always seemed to be sea birds 50 to 100 yards beyond the reef edge, a good indication that fish is always present. This was verified by the fact that the Sausauimoana caught two 20 lb wahoo in one just circuit around the island. The reef gets deep very quickly beyond the reef edge. The Sausauimoana had to anchor 100 yards off the reef edge and downwind otherwise her anchor could not touch bottom. Thus whenever the wind changed directions (as it did the second night), the boat had to leave its moorage until the wind reverted to its original direction.

#### INFRASTRUCTURE

There is no electric power on the island except for that produced by diesel generators, one owned by the Jennings family, one by the office of communications (the residents place one radio call a night to Pago Pago). A 60 foot radio antenna provides the necessary height for the radio signal. The Sau brings over a drum of fuel every time to run the generator.

There is no piping on the island for water or sewer. Water used to be hauled from 4 dug wells on the East side of the island. Only one dug well now exists. It is 10 feet to the

South of the main road to Etena. Water tested here indicated about 150 ppm chlorides. The other 3 wells were destroyed in the 1966 storm per the villagers so they were buried. Upon closer study of the island, three dug wells were discovered on the SW side of the island, 600 yards south of the Taulaga. These wells were hand dug, and located in a straight line about 150 feet apart. I would guess that someone had been studying the fresh water lens on the island. All the wells were filled with metal scrap. The wells were in an alignment perpendicular to the track. At present the villagers use the pond or the water in the 55 gal drums for bathing. Only water in the drums are used for cooking and drinking. A USGS rain gauge was found lying near the school. There were no records available from the rain gauge. In checking with USGS (Mr. Chip Hunt) in Hawaii, their information indicates that about 100 inches of rain fall per year in the ocean in this area.

## ROADS

The main road or track extends from the Taulaga to Etena, passing very close (50 yards) to the pond. There is also a track from the Etena house to the beach. Otherwise most of the travelling on the island is done along the beach if it isn't too hot. The road was obviously used for wheeled vehicles and seemed in fair condition. There was only one 4-w drive Toyota on the island although it had not been used for awhile. There is a chance that coconuts could have been used to produce fuel

on the island. The coral base on the road surface was hard - a good cover.

#### SURVEY MONUMENTS

Swains island does not have a surveying coordinate grid as does Tutuila and Manu'a. However, two monuments were found. One is three feet high concrete pyramid located 100 yards West of the iupeli, the other is the same type of monument about 10 yards from the front stairs of the Etena house. The iupeli monument had a brass inscription dated 1954. This monument is referenced in survey drawing no. 1293 made in 1964 for the purpose of obtaining land for a school. We paced this out with a 100 foot tape and arrived at a point about 100 feet South of the present school site. According to the landowners, there was never any lease made from this drawing.

#### SCHOOL

The school is a open fale with rusty tin roof and is adequate for the several children residing on the island. The teacher had no complaints as he had just arrived back on island after being away for three months. The floor of the school is of coral. The building has dimensions of 30 x 20 feet. The principals fale is a wooden and tin shack (12 x 15 feet) about 20 feet behind the school. This building collects

rainwater also into 55 gal drums for the teachers use.

#### INFIRMARY

The infirmary is a converted tale. The thatched roof recently had a corrugated metal roof placed over it, with gutters to channel water into the barrels. The medical supplies are stored in the blue colored building behind the infirmary. Recently the office of communications sent 4 men for two weeks to Swains to construct an addition to the medical supply building, for the purpose of storing the radio and its generator. This wooden building is unpainted and will soon rot away if not painted. Behind this plywood assemblage is a sealed area used by the nurse for bathing. The roof of the infirmary has leaks. One quarter of this building is open and is used to treat patients. The other portion of the building is used as nurses quarters.

#### RECOMMENDATIONS

1. Improve transportation to Swains by building an airport.

It takes 22 hours to get to Swains by boat, and only 1.5 hours by plane. The Manu'a Air plane has a range of 600 miles and a speed of 120 mph. It would be more expedient to have an



airport on Swains at this time. If there was an emergency, a patient would be dead before a boat gets there. The Mataala, although very fast, only has a range of 175 miles. It is 210 miles from Tula (on Tutuila) to Swains island.

There is a suitable area of land available for an airport on the South end of the island. This section of land is sufficient for a 2200 feet airstrip and is between the taulaga and etena. The other sites have various undesirable qualities; for instance sites B and C are too close to the Taulaga and site C passes over the most desirable land for future improvements (this is where the past village was located). It also passes through the old graveyard for the inhabitants. Site A is too far from the village whereas site D is between etena and the village. All sites are in alignment with the predominant wind direction which is North-east. (This has been verified in conversations with the inhabitants.)

Equipment has to be shipped in to do the work. The port administration has toyed with this idea in the past. They suggest that 55 gal drum floats be attached to the heavy equipment and the equipment floated in to the beach from over the reef. This was how the lone jeep on island was taken ashore. A D-5, a 5 yard dump truck and a backhoe would be sufficient to do the job. Time allotted would be 6 weeks. There is still \$25,000 available to do this work.

This equipment can also be used to grade additional roads around the island. The coral material is abundant and would make excellent road bed material. Roads can easily be

constructed along the top of the beach where the coral rock is plentiful.

2. Improve water quantity throughout the island.

About half the water drums on the island contain rust colored water which the inhabitants have to use anytime it doesn't rain for a few days. The water lens can provide water for a longer period of time than the islands roof catchment system can sustain at present. Low yield pumps (2 to 6 gpm) can be used in various locations on the island to produce at least 20 gpm. A water line system of 2 in pipe would be sufficient for the Taulaga.

A water tank of about 20,000 gals is also needed. The existing water tank is at ground level and is old and requires much cleaning. In fact the village has not cleaned it for years as there is no other water storage on the island. The water tank will have to be at least 30 feet high to provide sufficient water pressure. Solar power can be used to power these low yield pumps.

3. Use solar power where possible.

The island has an abundant amount of sunlight. According to J. Kirby from TEO, there is good likelihood that solar powered

fluorescent lights are possible on the island. Solar power can also be used to power water pumps. Such systems are common (eg. the system proposed by Cityscape International.) In walking over the fields in front of the iupeli, it seemed that the ground reflects a lot of heat as should be for coral grounds and would be suitable for a solar farm. There are several empty spaces South of the Taulaga that can be cleared and used for a solar farm. A building could be built to house the batteries and electrical paraphenalia required. In 2 days of sunlight over the island, only 2 out of 20 sunlight hours had clouds. TEO should expend funds for solar power systems on Swains.

#### 4. Navigation Aids

A boat passing within 10 miles of Swains will probably sail on by without seeing Swains as it is so low on the ocean. A guidance beam of some sort readily available on the market should be instituted on Swains to aid in boat and airplane navigation. The proposed water storage tank or the radio antenna could be used to support a beacon at a sufficient height to give such a homing signal some range.

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