

WETLAND JURISDICTIONAL DETERMINATION

**339 – ACRES PARCEL IN THE
AQUIRRE WARD, SALINAS, PUERTO RICO**

Submitted to:

**US Army Corps of Engineers
Antilles Regulatory Division**

Prepared for:

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WETLAND JURISDICTIONAL DETERMINATION

A 6.45-ACRES PARCEL CANOVANAS WARD, SALLINAS, PUERTO RICO

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1.0 ABSTRACT

Salinas Development Inc. has proposed the construction of a residential-commercial complex known as Paseo Costa del Sur III. The project will be developed in a 339-acre property located at Km 152.7 of State Road PR-3 in the Aguirre Ward of the Municipality of Salinas. A field reconnaissance of the property revealed potential occurrence of wetlands under the jurisdiction of Section 404 of the Clean Water Act. Accordingly, Salinas Development Inc. asked RMA Environmental to conduct a wetland jurisdictional delineation of the property.

The jurisdictional determination was conducted following the protocols described in the US Army Corps of Engineers Wetland Delineation Manual for a Routine Determination Approach. A Level 1 Routing Approach was followed for the delineation. The following maps and data banks were evaluated: (1) US Geological Survey topographic map for the Central Aguirre quadrangle; (2) Natural Resources Conservation Service Soil survey for the Humacao Region; (3) US Geological Survey geologic map for the Central Aguirre quadrangle; (4) PR Department of Natural and Environmental Resources land use survey; (5) PR Department of Transportation historical aerial photographs; (6) National Oceanic and Atmospheric Administration Environmental Sensitivity Maps for the Central Aguirre quadrangle; and (7) U.S. Fish and Wildlife Service National Wetlands Inventory map for the Central Aguirre quadrangle.

Existing information suggested that wetlands occur along the creek identified in the various map and aerial photographs extending various meters away from the edge of the channel. Although it is clear from the field reconnaissance that wetlands are limited to the bottom channel and the lower parts of the bank slopes, Salinas Development has agreed to adopt wetland limits along the creek as they appear in the USFWS National Wetland Inventory. By adopting these wetland limits, Salinas Development provides a buffer zone between the wetlands and the project activities and protects the only stand of woody vegetation within the Property.

A small patch of wetlands identified on various maps on the northeastern limit of the property, could not be confirmed in the aerial photograph nor during the field reconnaissance. In this particular area we found no wetland indicator and no further investigation was deemed necessary.

Existing information for a 10 acre parcel located in the center of the property and just north of the unnamed creek, seems contradicting about the occurrence of wetlands. Accordingly, a Level 2 Routing Approach was deemed necessary to determine if wetlands are present in this parcel. The Level 2 analysis revealed that wetlands do not occur in the parcel under evaluation. Note that wetland indicators for soil, vegetation and hydrology at all the selected sampling sites were negative.

1.0 INTRODUCTION

Salinas Development Inc. through its consultants Integra Design Group, has proposed the construction of a residential-commercial complex known as Paseo Costa del Sur III. The project will be developed in a 339-acres property located at Km 152.7 of State Road PR-3 in the Aguirre Ward of the Municipality of Salinas.

A field reconnaissance of the property and a preliminary review of existing information revealed potential occurrence of wetlands under the jurisdiction of Section 404 of the Clean Water Act. These wetlands appear to occur in connection with an unnamed creek that crosses the property in a southeastern direction. Accordingly, Salinas Development Inc. contracted the services of RMA Environmental to conduct a wetland jurisdictional delineation within the property.

Pursuant to Section 404 of the Clean Water Act of the U.S. Army Corps of Engineers defines wetlands in 33 CFR 328.3b as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Under current rules, regulations and policies, this definition requires that, under normal circumstances, the three criteria be met for the area to be declared a jurisdictional wetland. These Criteria are hydrophytic or wetland vegetation, wetland hydrology and hydric-soils. If one of the three criteria is, under normal circumstances, not present, then the area is not a jurisdictional wetland.

Section 404 prohibits the discharge of dredged or fill material into the waters of the United States unless previously authorized by a Department of the Army permit. The U.S. Army Corps of Engineers (Corps) administers the Section 404 permit program.

Salinas Development Inc. is committed to avoid any direct or indirect impact over the wetlands occurring in the property. Once the geographical limits of the wetlands

under the jurisdiction of Section 404 of the Clean Water Act are known and certified by the US Army Corps of Engineers, the proposed project will be modified avoid to any impact over the wetlands. The wetland area and any required buffer zone will be protected under a conservation easement.

2.0 METHOD

The jurisdictional determination was conducted following the protocols described in the US Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) for a Routine Determination Approach. Accordingly, a Level 1 Routing Approach was followed for the delineation. The following maps and data banks were evaluated in conducting the delineation.

- US Geological Survey topographic map for the Central Aguirre quadrangle.
- Natural Resources Conservation Service Soil survey for the Humacao Region.
- US Geological Survey geologic map for the Central Aguirre quadrangle.
- Puerto Rico Department of Natural and Environmental Resources land use survey.
- Puerto Rico Department of Transportation historical aerial photographs.
- National Oceanic and Atmospheric Administration Environmental Sensitivity Map for the Central Aguirre quadrangle.
- U.S. Fish and Wildlife Service National Wetlands Inventory map for the Central Aguirre quadrangle.

Review of existing information indicates the occurrence of wetlands along the unnamed creek that crosses the property. A field reconnaissance of the property confirmed that wetlands are present to the unnamed creek and their limits are consistent with those defined from the Level 1 Routine Approach analysis. However, existing information is inconsistent in terms of the presence of wetlands north of the unnamed creek. Accordingly, an on-site inspection of the property was deemed necessary. A Level 2 Routine Approach was used to define the limits of the wetlands in this sector of the Property.

A Level 2 Routine Approach requires the selection of various sampling transects across the study area. The location and number of sampling transects were determined following the protocols outlined in Step 19, Section D "Routine Determinations", Subsection 2 "Onsite Inspection Necessary", of the 1987 US Army Corps of Engineers Wetland Delineation Manual. Along each transect several observation points were selected. At each observation point, soils, vegetation and hydrology data were collected and evaluated to determine if wetland criteria are met at this particular point. Observation points selection and data collection followed the protocols outlined in Step 20, Section D "Routine Determinations", Subsection 2 "Onsite Inspection Necessary", of the 1987 US Army Corps of Engineers Wetland Delineation Manual. In some instances field conditions made necessary to depart somewhat from established protocols.

3.0 DESCRIPTION OF THE PROPERTY

3.1 Location and Major Geographic Features

The property is located on Kilometer 152.7 of State Road PR-3 of the Aguirre Ward in the Municipality of Salinas (Figure 3.1a and 3.1b). The property encompasses an area of about 1,369,560 square meters (m²) (339 acres) and is limited to the north by the Patillas Irrigation Canal, to the south by State Road PR-3, to the east by housing complex Costa del Sur I and II and to the west by El Coquí community. The property is accessed from PR-3. According to Puerto Rico Planning Board maps the property is zoned for agricultural activities.

The topography is relatively flat slopes toward the Southeast. Land surface elevation range from 26 meters (m) (98.8 feet, ft) above mean sea level in the Northern limit of the property to 11 m (36.08 ft) above mean sea level in the Southeastern limit of the property. A small hill known as Cerro Sabater can be found in the middle of the property. The elevation at the top and the base of the hill is about 76.8 and 20 m (251.90 to 65.6 ft) above mean sea level respectively.

Major features of the property include:

1. A limestone quarry located in base of the Southwestern slope of Cerro Sabater. The quarry is no longer in operation.
2. An archeological site consisting of the ruins of a limestone brick oven located in the base of the Southern slopes of Cerro Sabater.
3. An unnamed creek that crosses the property in a southeastern direction.

3.2 Soils

According to the Natural Resources Conservation Service (NRCS) Soil Survey for the Humacao Area of Eastern Puerto Rico (Boccheciamp, R.A., 1977), soils of the Fraternidad, Paso Seco, Ponceña, and Vives series can be found in the Property. None of these soils are listed as a hydric soil (Figure 3.2). Following is a general description of these soils. The descriptions were adapted from Boccheciamp (1977).

Fraternidad Series:

The Fraternidad series consists of deep soils that are moderately well drained and slowly permeable. These soils formed in fine-textured sediment derived from limestone and volcanic rocks. They are on coastal plains. Slopes are 0 to 5 percent. In a representative profile, the upper part of the surface layer is very dark grayish-brown, slightly acid clay, about 8 inches thick, and the lower part is brown clay 63.5 centimeters (cm) (5 inches, in) thick. Below that layer is dark yellowish brown, firm clay that extends to depth of 127 cm (50 in). These soils have a high available water capacity, high natural fertility, and very high shrink-swell potential. Surface runoff is slow. The soils are difficult to work, and they have been used for sugarcane and pasture for many years.

FrB-Fraterniad clay, 2 to 5 percent slopes: This soil is on terraces in the coastal plains. Included with it in mapping were small areas of Paso Seco soils.

Slow permeability, poor workability, slope, and low rainfall are moderate limitation for farming. These limitations affect land leveling and irrigation. If the soil is properly irrigated, it is suited to sugarcane, sorghum, cut grasses, and pasture. Capability units IIIc-1 nonirrigated and IIIs-1 irrigated.

Paso Seco Series:

The Paso Seco series consists of deep soils that are moderately well drained and slowly permeable. These soils formed in fine textured sediment of mixed origin that overlies gravelly, medium-textured sediment. They are on terraces and alluvial fans on the coastal plains. Slopes are 0 to 5 percent. In a

representative profile, the surface layer is dark-brown neutral or mildly alkaline clay about 30.02 cm (13 in) thick. The next layer is brown to dark brown, firm clay 15.24 cm (6 in) thick. It is underlain by brown to dark-brown gravelly clay and gravelly loam that extends to a depth of 127 cm (50 in). These soils have a high available water capacity and high shrink-swell potential and are difficult to work. They have been mainly in sugarcane, pasture, and brush, but some areas are cut grasses.

PIB- Paso Seco clay, clay 0 to 5 percent slopes: This soil is on terraces and alluvial fans in the semiarid part of the survey area. Included with it in mapping were small areas of Fraternidad and Amelia soils. The soil's high shrink-swell potential and poor workability are limitations for farming, and the climate in the area is adverse. This soil commonly has been used for pasture. If irrigated, the soil is suited to sugarcane, pasture, and cut grasses. Capability units IIIc-1 non-irrigated and Iis-1 irrigated.

Ponceña Series

The Ponceña series consists of deep soils that are moderately well drained, calcareous, and slowly permeable. These soils formed in fine – textured sediment derived from volcanic rocks and limestone. They are on terraces and alluvial fans. Slopes are 0 to 2 percent. The depth to the water table ranges from 76.2 to 196.8 ft (30 to 60 in). In a representative profile, the surface layer is about 17.78 cm (7 in) thick. In the upper part it is very dark clay, and the lower part it is dark-gray, mottled clay. Below this layer is dark-gray and greenish-gray, firm, mottles clay that extends to a depth of 134.48 cm (41 in). These soils have a high available water capacity and high shrink-swell potential. Runoff is medium. The soils are fertile but difficult to work. Most of the acreage is used for sugarcane and pasture.

Po- Ponceña Clay

This nearly level soil is on coastal plains in the semiarid part of the survey area. Included with it in mapping were areas of Cartagena and Vayas soils. Low

rainfall in the area and soil's slow permeability, high shrink-swell potential and seasonal high water table are severe limitation for farming. This soil has been used for sugarcane. If drained, irrigated, and properly managed, it is suited to cultivated crops, sugarcane and pasture. Capability units IIIc-1 nonirrigated and IIs-1 irrigated.

Rock Land

Rock land (Rs) consists of areas where rock crops out of 50 to 70 percent of the surface. Loose stones also are common on the surface. Very shallow soil material lies between the outcrops and stones. This land type is in the mountainous part of the survey area. Slopes are 60 to 70 percent. The vegetation is brush. Rock land has little value for farming or engineering uses. Its use is restricted mainly to wildlife habitat. Capability unit VIIs-2.

Vives Series

The vives series consists of deep soils that are well drained and moderately permeable. This soil formed in moderately fine textured sediment of mixed origin. They are on river flood plains and on alluvial fans and terraces above the present river flood plains. Slopes are 0 to 7 percent. In a representative profile, the surface layer is very dark grayish-brown, neutral, mottled clay about reddish-brown clay loam that has fine rock fragments and 58.42 cm (23 in) thick. The underlying material is brown, friable clay loam that extends to a depth of 127 (50 in). These soils have a high available water capacity and high natural fertility. They are easily worked, and they have been in sugarcane for many years.

Vs – Vives silty clay loam, high bottom: This nearly level soil is on river flood plains in the semiarid part of the survey area. Included with it in mapping were areas of Arenales and Guamani soils. This soil has moderate limitations for farming because rainfall is low. Most of the acreage is in sugarcane. If the soil is properly irrigated and managed, it is suited to many kinds of crops and to sugarcane and pasture. Capability units IIc-1 nonirrigated and I-3 irrigated.

3.3 Geology

The geologic map for the Central Aguirre quadrangle (Berryhill, Jr., 1960) shows that deposits associated with Alluvial Fans (Quaternary) and rocks of the Coamo Formation (Cretaceous) are present within the property (Figure 3.3). The geologic map does not reveal the presence of deposits associated with wetlands within the property. Following is a description of the geologic formations occurring within the Property. The descriptions have been adopted from Berryhill, Jr., (1960).

- Alluvial Fans (Qf/Qfs): Unconsolidated stratified clay, silt, sand, gravel, cobbles, and boulders; cobbles and boulders mainly in the northern part of alluvial fans; clay silt and sand predominant components in the southern half to one-third of fans; areas with high salt Qfs.
- Coamo Formation (Kcol/Kcos): Predominantly medium light – gray limestone, Kcol; includes some light olive – gray to gray- yellow siltstone, Kcos.

3.4 Hydrology

3.4.1 Surfacewater

An unnamed creek flows through the property in a southeastern direction. The watershed of this creek encompasses an area of about 10.48 square kilometers (km²) (2,594 acres) (Figure 3.4a). The headwaters of this watershed are located in a chain of piedmont hills south of Puerto Rico Central Volcanic Mountain Range. These hills reach an elevation of about 340 m (1,115.2 ft) above mean sea level.

Upstream of the Patillas Irrigation Canal, the creek channel is relatively shallow and the banks are poorly defined. The bank vegetation is limited to grasses. Water

flows within the creek only during relative short periods of time after a rainfall event. This implies that runoff waters collected by the creek recharge the aquifer.

Downstream of the Patillas Irrigation Canal, the creek channel is much deeper. The banks are well defined and almost vertical. Figure 3.4b shows a typical cross section of the creek. The creek bed remains wet for long periods of time after a rainfall event. This implies that groundwater discharge into the creek. Hydrophilic vegetation is evident in both in the creek bed and the lower portions of the bank slopes. Woody vegetation occurs on the banks slopes and extends several meters from the edge of the channel.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for the property area shows that a several meters wide strip along the creek is subject to flood during the rainfall event with a recurrence of one in 100 years (Figure 3.5). Unfortunately, the hydrologic-hydraulic study in connection with FEMA's map was limited to the downstream half of the stretch of the creek within the property. Therefore, the behavior of the upstream half of the creek during an extreme rainfall event is unknown.

Neither the documents revised nor the field reconnaissance revealed the presence of ponds, lagoons, nor topographic depressions that may accumulate water for a period of time long enough to develop soils and vegetation typical of wetlands. It should be notice that in the south coast of Puerto Rico annual evapotranspiration exceeds annual rainfall by 50.8 (20 in). In addition, the soils are moderately to well drain and the runoff potential is relatively high. Therefore, it is very unlikely that water will pond within the property.

A hydrologic-hydraulic study conducted by Osvaldo Rivera & Associates of the unnamed creek shows that runoff waters overflow the creek banks during the rainfall with a recurrence of a 100 years. According to Osvaldo Rivera study shows that water surface elevation for the 100-year event range from 22.90 m (98.07 ft) above mean sea

level where the creek enters the property in its west boundary, to 14.14 m (46.38 ft) above mean sea level where the creek exits the property in its east boundary. This implies that runoff waters during the 100-year rainfall event rise between 2.5 to 4.0 m (8.20 to 13.12 ft) above the channel bottom and overflow the creek banks by no more than 0.5 m (1.64 ft).

Using Osvaldo Rivera & Associates data RMA simulated the 1 year and 2 years rainfall events. The results of these simulations show that runoff waters during these events are contained within the channel and water surface elevations do not rise more than 1.0 m (3.28 ft) above the creek's bottom.

3.4.2 Groundwater

From a groundwater perspective, the property is located in the Santa Isabel-Patillas Region of the South Coast Alluvial Plains Province. The following description of the hydrogeology of the area has been adapted from the Groundwater Atlas of Puerto Rico and the U.S. Virgin Island (Ramos-Ginés, 1996).

The alluvial deposits of Quaternary age are the most important lithologic unit in the Santa Isabel-Patillas region and containing its only sizeable aquifer. Figure 3.6a shows the geographical extension of this aquifer. This aquifer is generally under water-table conditions, although flowing-artesian conditions have been observed throughout the area near the coast.

Aquifer thickness is controlled by the altitude of the bedrock which in turn is controlled by the horst and graben or block-fault patterns. Aquifer thickness ranges from zero at the edge of the bedrock-alluvial contact to about 914.63 m (3,000 ft) in the vicinity of Santa Isabel East of the Río Jueyes and west of the Río Coamo, aquifer thickness decreases to no more than 91.46 (300 ft) along the shore (Figure 3.6b).

Within the property, aquifer thickness ranges from 15.24 m (50 ft) in the northern limit of the property to 45.73 m (150 ft) in the southern limit of the property.

Hydraulic conductivities, ranging from 30.49 to 91.46 meters per day (m/d) (100 to 300, feet per day, ft/d), occur near Santa Isabel, Salinas, and Guayama (Figure 3.6c). Elsewhere, hydraulic conductivity is less than 30.49 m/d (100 ft/d) and decreases toward the coast. Within the property, the hydraulic conductivity ranges from ranges from 76.22 m/d (250 ft/d) in the northern limit of the property to 152.44 m/d (500 ft/d) in the southern limit of the property.

Transmissivity in the Santa Isabel-Patillas region is highly variable. The highest values, as great as 7,434.97 m²/d (80,000 ft²/d), occur in the area between the Río Coamo and Río Jueyes, due to an increase in aquifer thickness. Transmissivities as high as 3,717.47 m²/d (40,000 ft²/d) are observed between the Río Cayures and the approximate divide between the Río Nigua of Salinas and Río Seco. Transmissivity values in this area increase seaward and toward the interfluvial area. West of the Río Coamo and east of the approximate divide between the Río Salinas and Río Seco, transmissivity values range from 92.94 to 2,788.10 m²/d (1,000 to 30,000 ft²/d).

Ground-water levels in the Santa Isabel-Patillas region range from (150 to 200 ft) above mean sea level near the bedrock-alluvial contact to a few feet above mean sea level near the coast (Figure 3.6d). Accordingly, ground-water flows seaward. Where confined conditions occur, ground-water levels may be as high as (10 ft) above land surface. Ground-water levels within the property range from 12.2 m (40 ft) above mean sea level on the northwestern limit of the property to 6.1m (20 ft) above mean sea level on the southeastern limit of the property. This implies that the water-table is about (60ft) below land surface in the northern limit of the property and about (16 ft) below land surface in the southern limit of the property. Accordingly, groundwater discharge does not occur within the property.

Sources of aquifer recharge may vary throughout the region. Seepage from rivers and irrigation canals represent the major source of groundwater recharge. Aquifer

recharge from precipitation represents only about 10 percent of the mean annual rainfall in the region. In the Patillas to Salinas region, aquifer recharge depends primarily on conveyance losses from water diverted from Lago Carite and Lago Patillas through the Canal de Guamaní and Canal de Patillas. A preliminary groundwater flow simulation of the area has shown that if diversion from Lago Guamaní and Lago Patillas ceases and actual ground-water pumpage is sustained, the aquifer will undergo an abrupt decrease in water level. West of the Río Jueyes, aquifer recharge comes primarily from streamflow leakage. Nevertheless, direct infiltration of rainfall may be a significant component of aquifer recharge.

In general, groundwater discharges to streams in the upland areas and near the coast. As mentioned before the unnamed creek appears to intersect the water-table, therefore groundwater discharges to the creek.

3.5 Wetlands

The US Fish and Wildlife Service (USFWS) National Wetland Inventory Map (NWIM) or the Central Aguirre Quadrangle shows that, Palustrine Forested Wetlands occur along and north of the unnamed creek (Figure 3.7). The Palustrine System includes all non-tidal wetlands dominated by trees, shrubs, emergent, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are also included if they exhibit all of the following characteristics:

1. are less than 8 hectares (20 acres);
2. do not have an active wave-formed or bedrock shoreline feature;
3. have at low water a depth less than 2 meters (6.6 feet) in the deepest part of the basin;
4. have a salinity due to ocean-derived salts of less than 0.5 ppt.

All water bodies visible on the aerial photography that are less than 8 hectares (20 acres) in size are considered to be in the Palustrine System unless depth information is available, or unless an active wave-formed or bedrock shoreline feature is visible. The Palustrine System is bounded by upland or by any of the other four systems. The Palustrine System was developed to group the vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen, and prairie, which are found throughout the United States. It also includes the small, shallow, permanent or intermittent water bodies often called ponds. Palustrine wetlands may be situated shoreward of lakes, river channels, or estuaries; on river floodplains; in isolated catchments; or on slopes. They may also occur as islands in lakes or rivers.

The Class (Forrested) describes the general appearance of the habitat in terms of either the dominant vegetation or the physiography and composition of the substrate. Vegetation (e.g. trees, shrubs, emergents) is used to define classes because they are easily recognizable, do not change distribution rapidly, and have traditionally been used to classify wetlands. Other forms of vegetation such as submerged or floating-leaved vascular plants are more difficult to detect. Substrates reflect regional and local variations in geology and the influence of wind, waves, and currents on erosion and deposition of substrate materials. The Forrested Class is characterized by woody vegetation that is 6 m tall or taller. All water regimes are included except subtidal.

The National Oceanic and Atmospheric Administration Environmental Sensitivity Index Map (ESIM) for the Central Aguirre Quadrangle shows that freshwater swamps occur within and along the banks of the unnamed (Figure 3.8). In addition, the ESIM for the Central Aguirre Quadrangle shows that a small patch of freshwater marshes occur on the northeastern boundary of the property (Figure 3.8).

3.6 Land Use

Historically this property is been used for agricultural purposes. Like many other agricultural areas in Puerto Rico, sugar cane was cultivated until the late 80's. Since them the property is been unused for agricultural activities.

The 2000 aerial photograph of the property shows that the property is free of any development and remains primarily in wild pastures (Figure 3.9). Small patches of woody vegetation can be observed along the unnamed creek and near the center of the property just north of the creek. A limestone quarry can also be observed on the southwestern slope of Cerro Sabater. The aerial photograph also shows the significant grow of the El Coqui Community, particularly toward the northeast. The aerial photograph shows no evidence of wetlands except those occurring within the creek channel. Finally a number of residential developments can be observed west of the property.

Through the field reconnaissance it was confirmed that the property is free of any development and remains primarily in wild pastures. In addition, it should be noted that the quarry is no longer in operation.

4.0 JURISDICTIONAL DETERMINATION

4.1 Level 1

Existing information suggested that wetlands under the jurisdiction of Section 404 of the Clean Water Act occur along the creek identified in the various map and aerial photographs reviewed. Although the existing information suggest that wetlands extend various meters away from the edge of the channel, it is clear from the field reconnaissance that wetlands are limited to the bottom channel and the lower parts of the bank slopes. Nevertheless, Salinas Development has agreed to adopt wetland limits along the creek as they appear in the USFWS National Wetland Inventory. By adopting these wetland limits, Salinas Development provides a buffer zone between the wetlands and the project activities both during construction and operation. In addition, the only stand of woody vegetation within the Property will be protected.

Figure 4.1a and 4.1b show the limit of the wetlands along the creek and the selected reference points over an aerial photograph from the Puerto Rico Highway Authority (Number 00-3-130, March 2000, Scale 1: 4,000) and a topographic plan of the property (scale 1:4,000) prepared by Salinas Development.

A series of reference points depicting the limit of the wetland area were selected in the field. The latitude and longitude of these points were determined using a Global Position System (GPS). These reference points will be marked in the field using a 6 feet long stainless steel pipe painted in bright orange. Table 4.1 list the latitude and longitude of these points.

The small patch of wetland in the northeastern boundary of the property identified in the ESIM as a freshwater marsh and by the NWIM as a Palustrine Forested Wetland, could no be identified in the aerial photograph nor during the field reconnaissance. In this particular area we found no wetland indicator. Dominant vegetation was guinea grass (*Panicum maximum*) which is a facultative upland plant. The soils were typical of

the Paso Seco Series, which show no hydric soil indicators. Surfacewater drainage does not provide for a hydrologic regime typical of wetlands and no ground water discharge or recharge occurs in the area. Accordingly, no further investigation of this particular sector of the property was deemed necessary.

Table 4.1.—Reference point for wetlands along the unnamed creek.

POINT	LOCATION	
	LATITUDE	LONGITUDE
1	175857.32	661421.15
2	175856.95	661423.39
3	175853.59	661419.52
4	175853.00	661420.45
5	175853.45	661414.81
6	175852.10	661417.53
7	175850.72	661414.36
8	175849.83	661414.57
9	175851.10	661411.31
10	175849.32	661411.30
11	175849.39	661409.15
12	175847.45	661409.22
13	175849.25	661405.63
14	175847.97	661407.07
15	175846.56	661403.45
16	175846.15	661404.91
17	175847.09	661401.65
18	175845.48	661402.39
19	175845.59	661400.58
20	175844.75	661401.36
21	175842.64	661357.08
22	175841.43	661357.41
23	175842.14	661353.68
24	175840.73	661353.93

Existing information for a 10 acre parcel located in the center of the property and just north of the unnamed creek seems contradicting about the occurrence of wetlands under the jurisdiction of Section 404 of the Clean Water Act. Both the NWIM and the ESIM show that freshwater forested wetlands occur in this parcel. However, the NRCS soil survey shows no occurrence of hydric soils in this parcel. Furthermore, the topographic map and the groundwater maps do not show any evidence that a

hydrologic regime typical of wetlands is present in this parcel. The field reconnaissance revealed the presence of woody vegetation in this parcel including silk cotton and flamboyant (*Cabtropis procera* and *Delonix regia*). These are facultative upland plants.

Given that the existing information is inconclusive at best, a Level 2 Approach was deemed necessary to determine if wetlands under the jurisdiction of Section 404 of the Clean Water Act occur in this parcel.

4.2 Level 2

Approach:

A total of 3 transects were established perpendicular to the property main dirt road. Property main dirt road can be observed in the aerial photograph included in Figure 8 of this report. Between 4 and 5 observation points were established at each transect. Observation points were located using a Global Position System. In some instances the observation point was established somewhat outside the transects to better characterize the occurrence of wetlands. Figures 4.2a and 4.2b show the location of the transects and the observation points.

The area corresponding to a 50-foot radius around the observation point was examined for wetland hydrology indicators. The dominant plant species within this 50-foot radius of the observation point were recorded. Species dominance was determined by visually estimating the percent aerial cover of each species. Reed (1988) was utilized to determine the indicator status of the dominant species within the study area. At each observation a 36 inches deep soil pit was excavated using a split spoon hand auger. If present, water elevation at the pit was recorded. The pit was inspected for wetland hydrologic and soil indicators. Soil samples from the pit were collected at selected depth. The color of the soil matrix and mottles, when present, was determined using a Munsell color chart. The soil samples were also inspected for hydrology

indicators. The collected data at each observation point was recorded in field data sheets (Appendix A). A photographic record of each observation point is included in Appendix B.

Table 4.2.—Location data for the selected sampling sites

OBSERVATION POINT	LOCATION	
	LATITUDE	LONGITUDE
T-1.1	175854.44	661406.53
T-1.2	175854.11	661404.30
T-1.3	175853.83	661403.23
T-1.4	175853.91	661402.21
T-2.1	175853.16	661408.32
T-2.2	175851.97	661405.20
T-2.3	175851.23	661402.03
T-2.4	175850.81	661359.23
T-2.5	175851.76	661403.62
T-3.1	175849.71	661407.63
T-3.2	175848.34	661405.75
T-3.3	175847.38	661402.84
T-3.4	175846.42	661400.76
T-3.5	175845.84	661358.86

Results:

The Level 2 analysis revealed that wetlands under the jurisdiction of Section 404 of the Clean Water Act do not occur in the parcel under evaluation. Wetland indicators for soil, vegetation and hydrology at all selected sampling sites were negative. Table 4.3 shows the results of the field survey. Vegetation is dominated by facultative uplands species including silk cotton (*Catropis procera*), flamboyant (*Delonix regia*), cut grass (*Digitaria decumbens*), and guinea grass (*Panicum maximum*). No hydric soils indicators were observed at the sampling pits. The soils matrix colors were 7.5YR4/4 and 10 YR 4/4 and no mottles nor concretions were observed. Runoff appears to be laminar and surface drainage patterns do not result in concentrate runoff or ponding within the parcel. In addition, no wetland hydrologic indicators were observed in the sampling pits. No evidence of groundwater discharge or recharge was observed within the parcel. Water-table elevation was deeper than 0.6 m (2 ft) below land surface.

**Table 4.3.—Results of jurisdictional determination in the northeastern limit of
the property following a Level 2 Approach**

OBSERVATION POINT	VEGETATION INDICATORS	HYDROLOGY INDICATORS	SOIL INDICATORS	WETLAND
T-1.1	Negative	Negative	Negative	No
T-1.2	Negative	Negative	Negative	No
T-1.3	Negative	Negative	Negative	No
T-1.4	Negative	Negative	Negative	No
T-2.1	Negative	Negative	Negative	No
T-2.2	Negative	Negative	Negative	No
T-2.3	Negative	Negative	Negative	No
T-2.4	Negative	Negative	Negative	No
T-2.5	Negative	Negative	Negative	No
T-3.1	Negative	Negative	Negative	No
T-3.2	Negative	Negative	Negative	No
T-3.3	Negative	Negative	Negative	No
T-3.4	Negative	Negative	Negative	No
T-3.5	Negative	Negative	Negative	No

5.0 BIBLIOGRAPHY

Berryhill Jr., 1960. Geologic Map for the Central Aguirre Quadrangle, US Geological Survey, Miscellaneous Geologic Investigations MAP I-318, 1 map

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Reed, Porter B., Jr. 1988. National List of Plant Species That Occur in Wetlands. U.S. Fish and Wildlife Service.

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Soil Conservation Service. 1993. Hydric Soils of the Caribbean Area. Revised Edition.

Figures

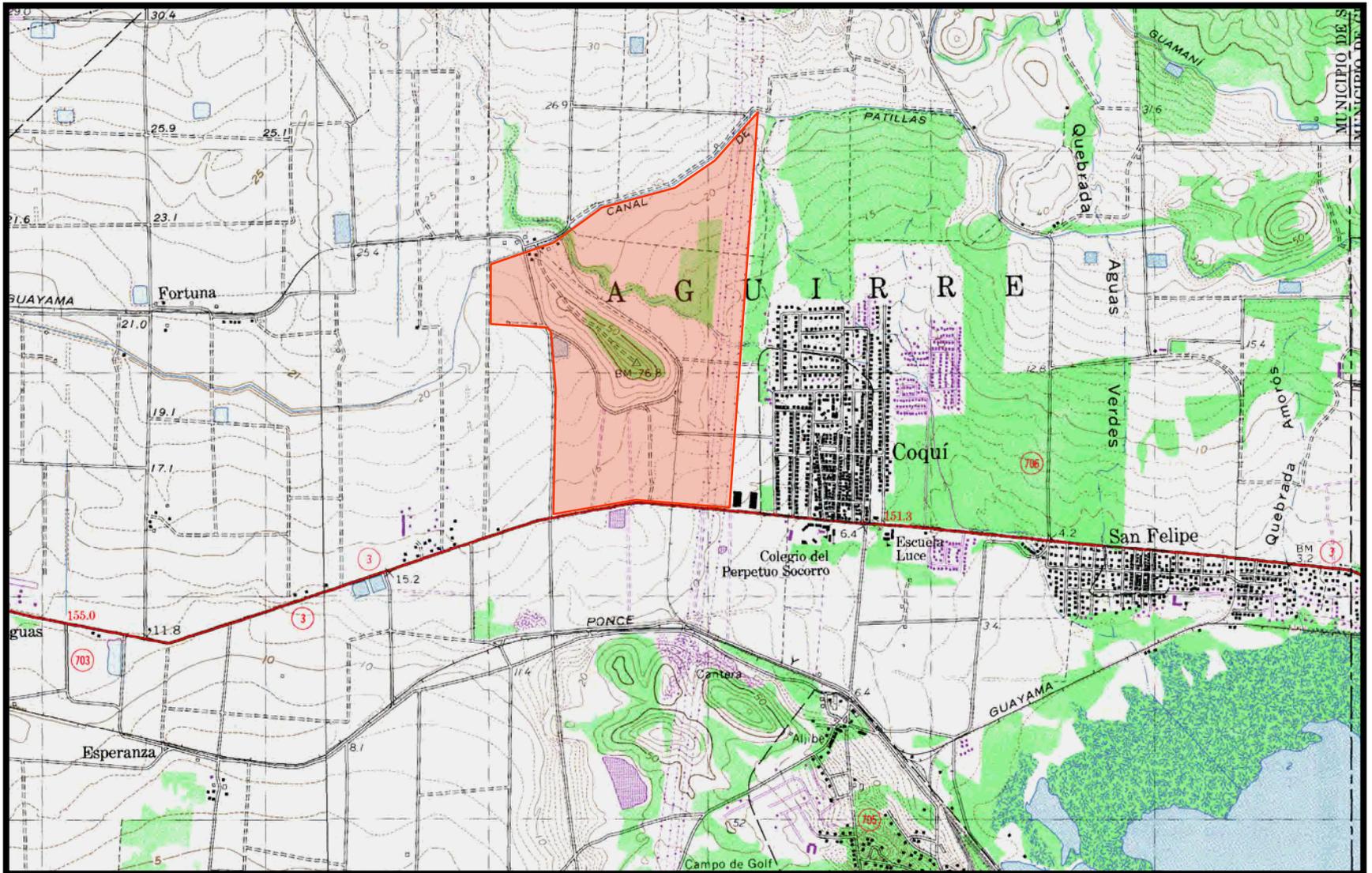


Figure 3.1a.– Location of the Property
 (Base map from US Geological Survey Topographic Map for the Central Aguirre Quadrangle, Scale 1:20,000, reduce to 75 percent of original scale)

Wetland Jurisdictional Determination for
 Costa del Sur III Project, Aguirre Ward,
 Salinas, Puerto Rico



Figure 3.1b.– Location of Property
(Aerial photograph from the Puerto Rico Highway Authority
Number 00-3-130, March 2000, Scale 1: 6,500)

Wetland Jurisdictional Determination for
Costa del Sur III Project, Aguirre Ward,
Salinas, Puerto Rico

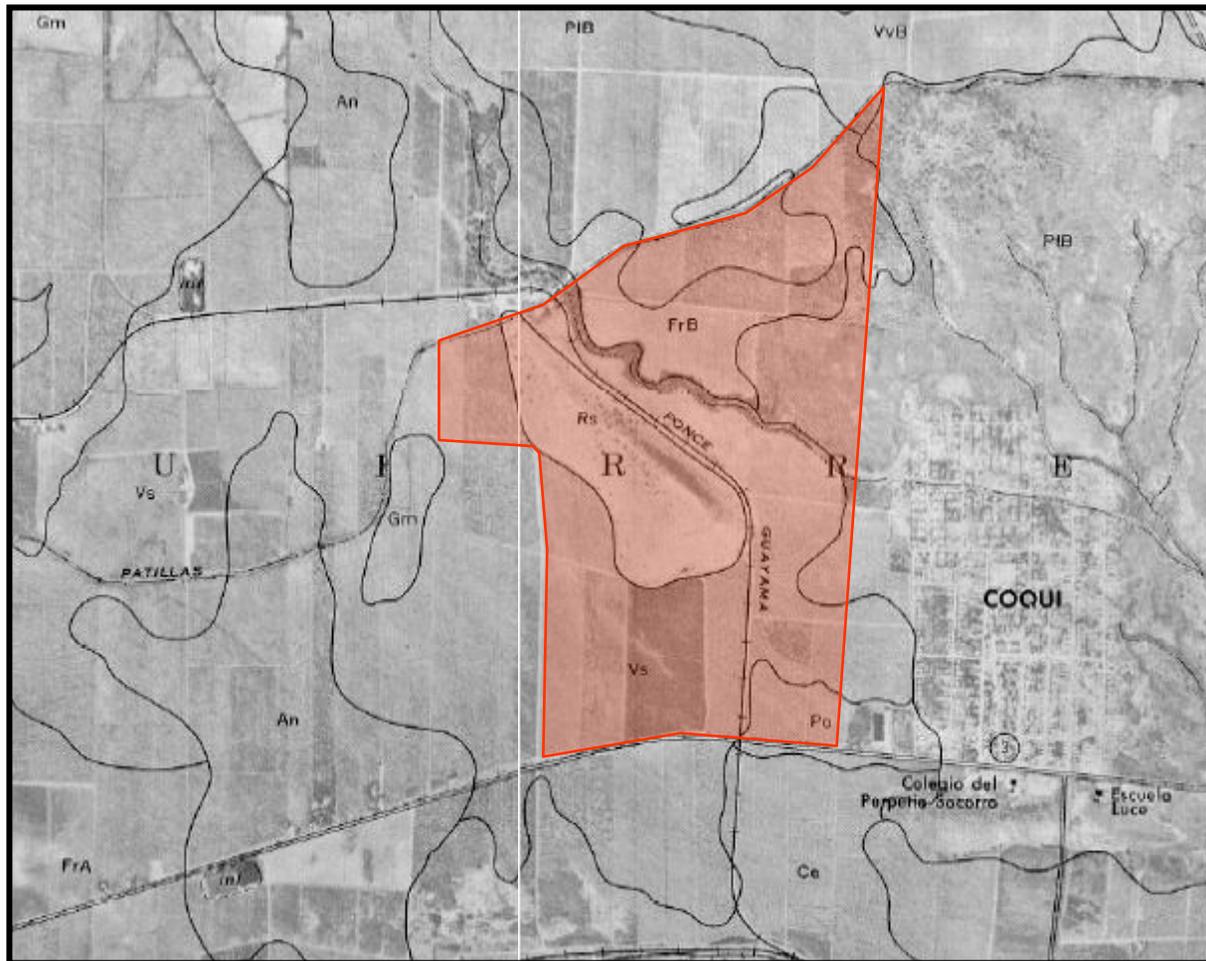


Figure 3.2.– Soils within the Property
 (Adopted from Boccheciamp, 1977)

Wetland Jurisdictional Determination for
 Costa del Sur III Project, Aguirre Ward,
 Salinas, Puerto Rico



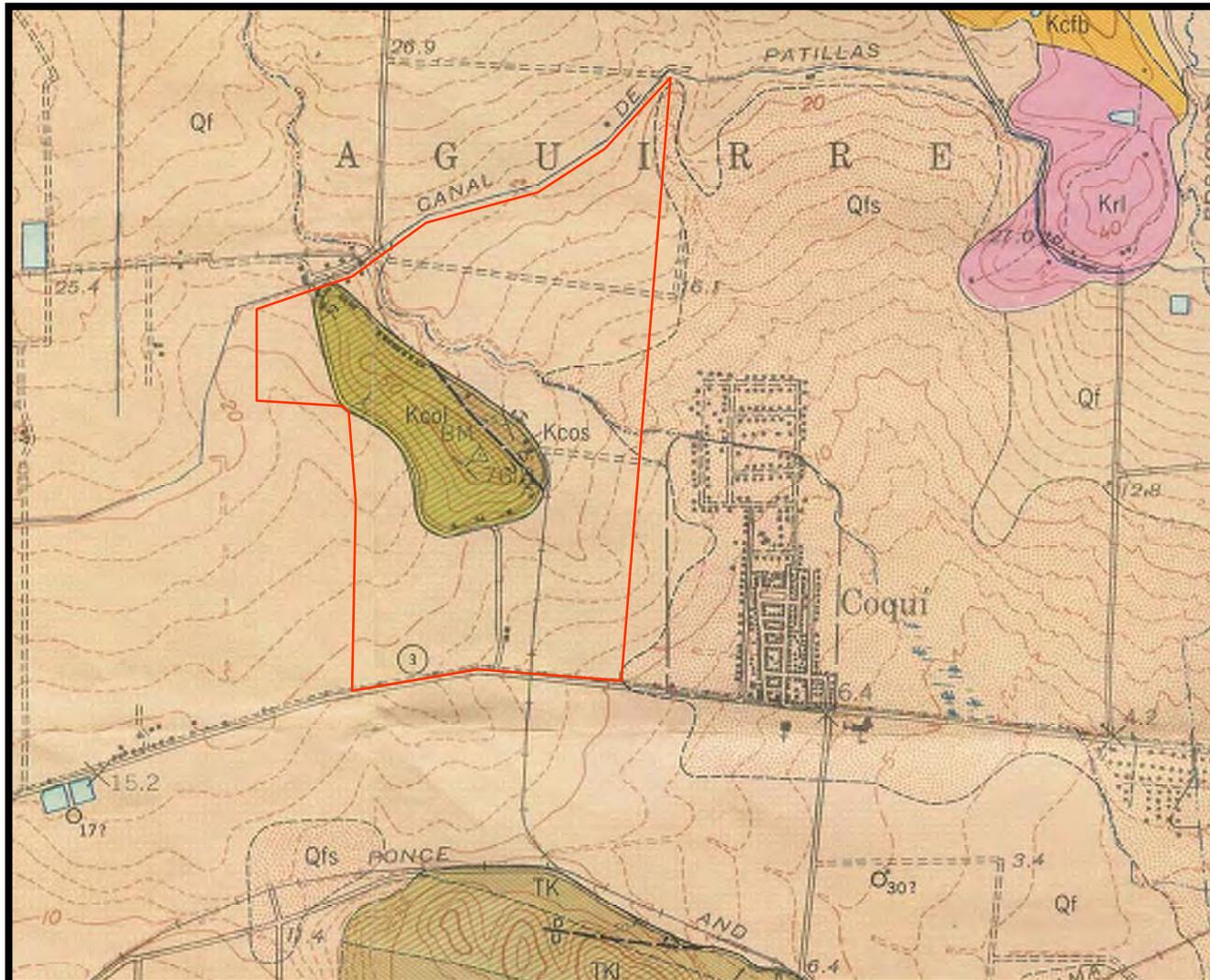


Figure 3.3.– Geology for the Property
 (Adopted from Berryhill Jr., 1960)

Wetland Jurisdictional Determination for
 Costa del Sur III Project, Aguirre Ward,
 Salinas, Puerto Rico



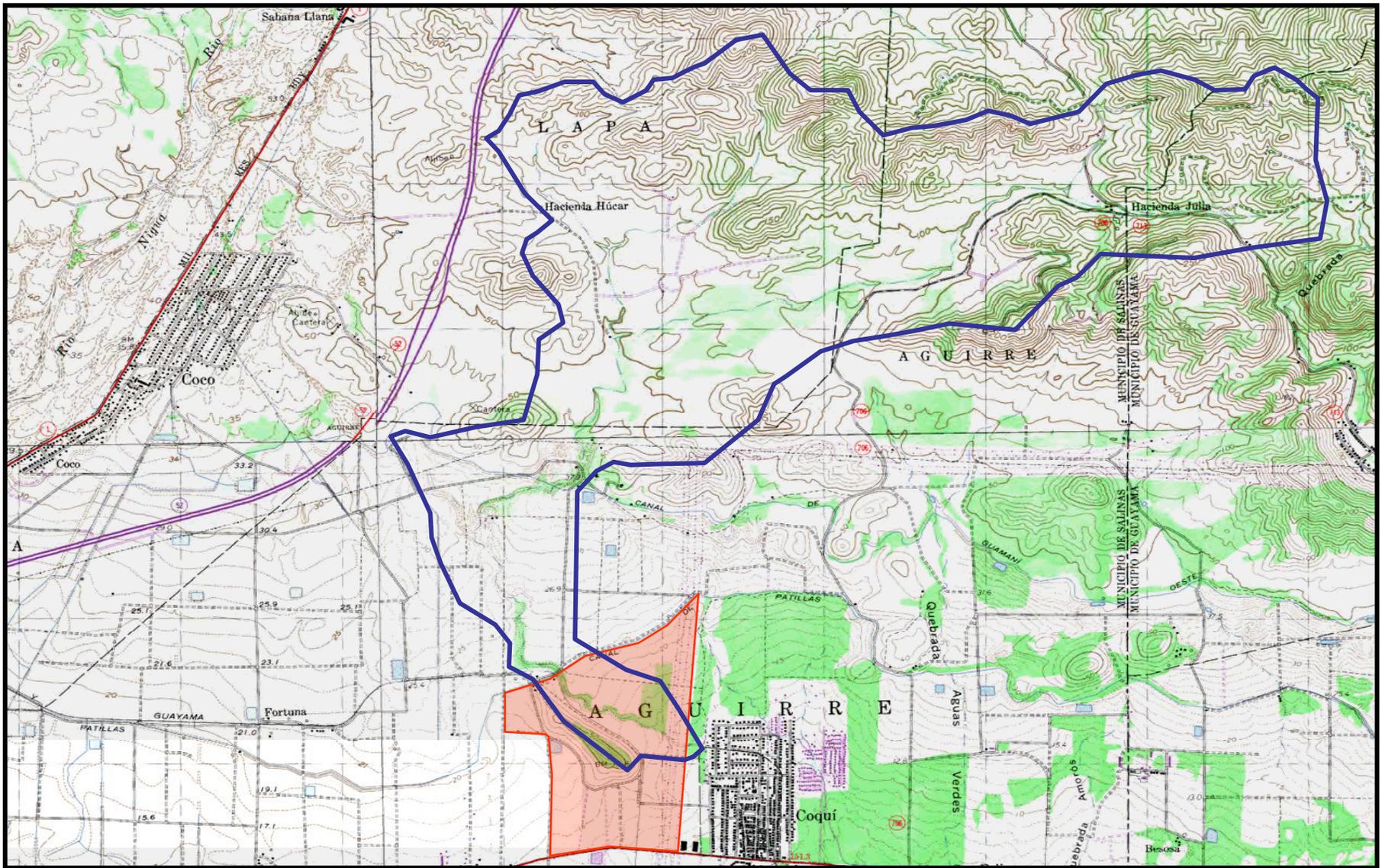


Figure 3.4a.– Watershed Limit for the Unnamed Creek
 (Base map from US Geological Survey Topographic Map for the Central Aguirre Quadrangle, Scale 1:20,000, reduce to 56 percent of original scale)

Wetland Jurisdictional Determination for Costa del Sur III Project, Aguirre Ward, Salinas, Puerto Rico

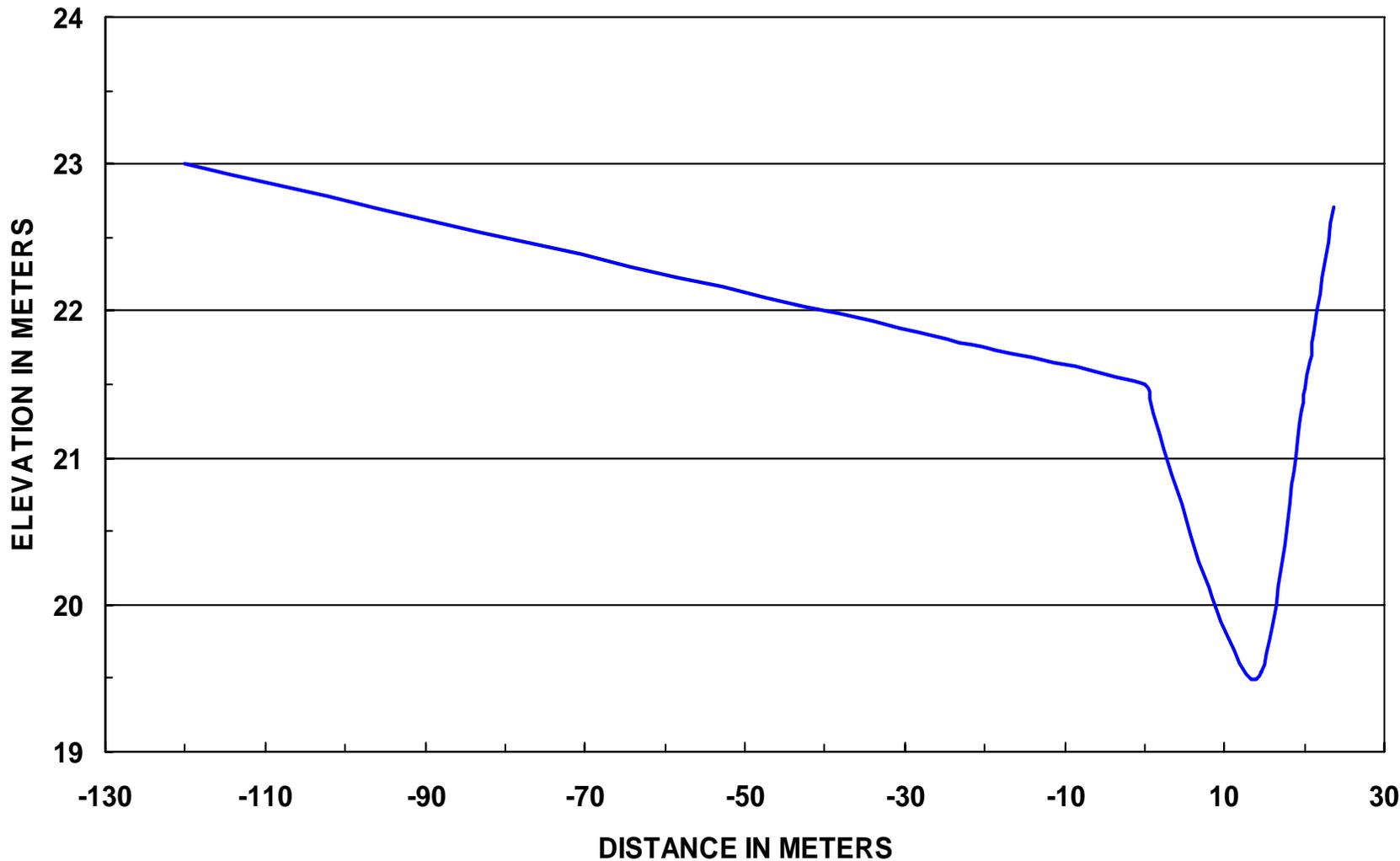


Figure 3.4b.-- Typical Cross Section for the Unnamed Creek

Wetland Jurisdictional Determination for
Costa del Sur III Project, Aguirre Ward,
Salinas, Puerto Rico

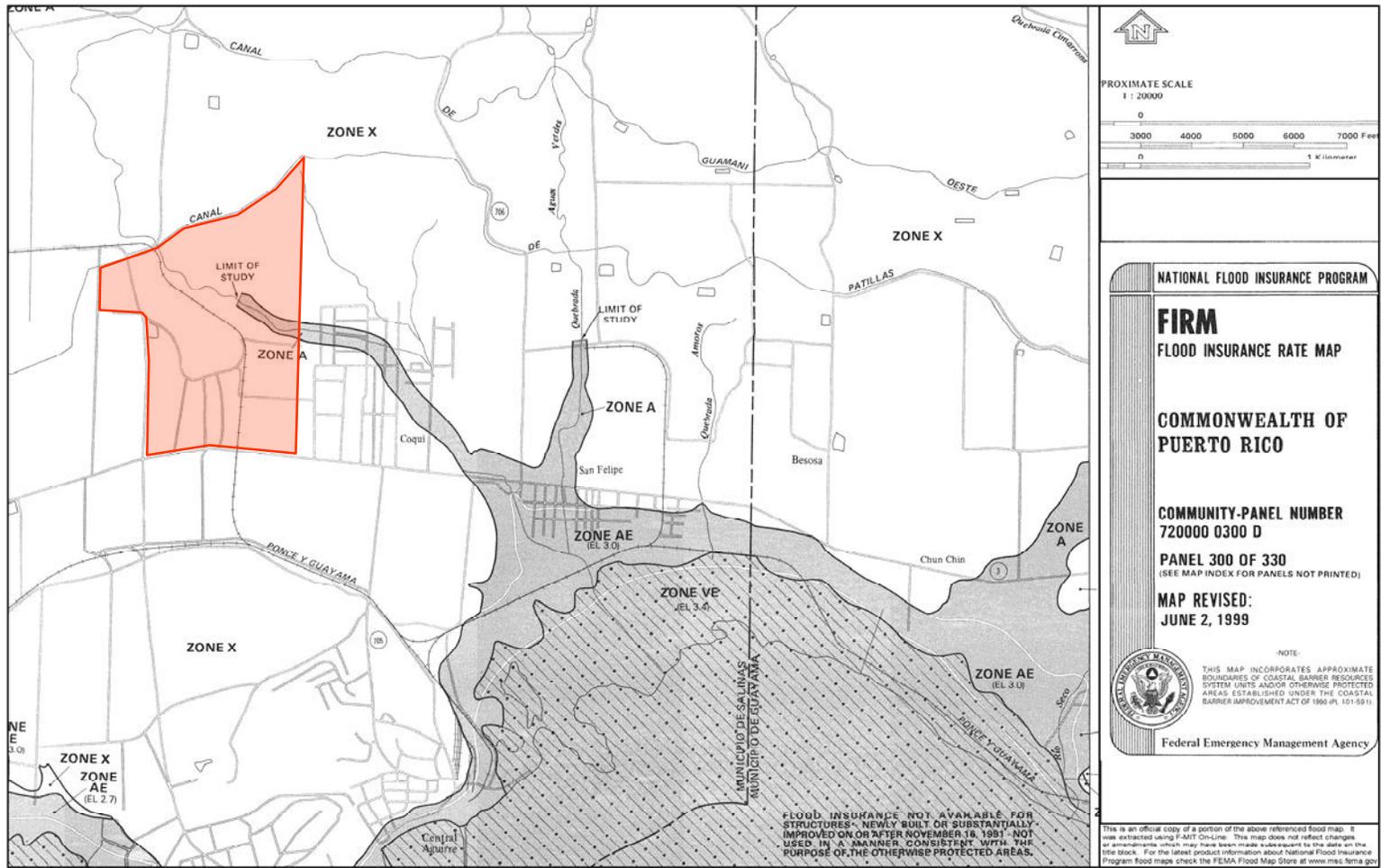


Figure 3.5.– FEMA Flood Insurance Rate Map for the Property

Wetland Jurisdictional Determination for Costa del Sur III Project, Aguirre Ward, Salinas, Puerto Rico

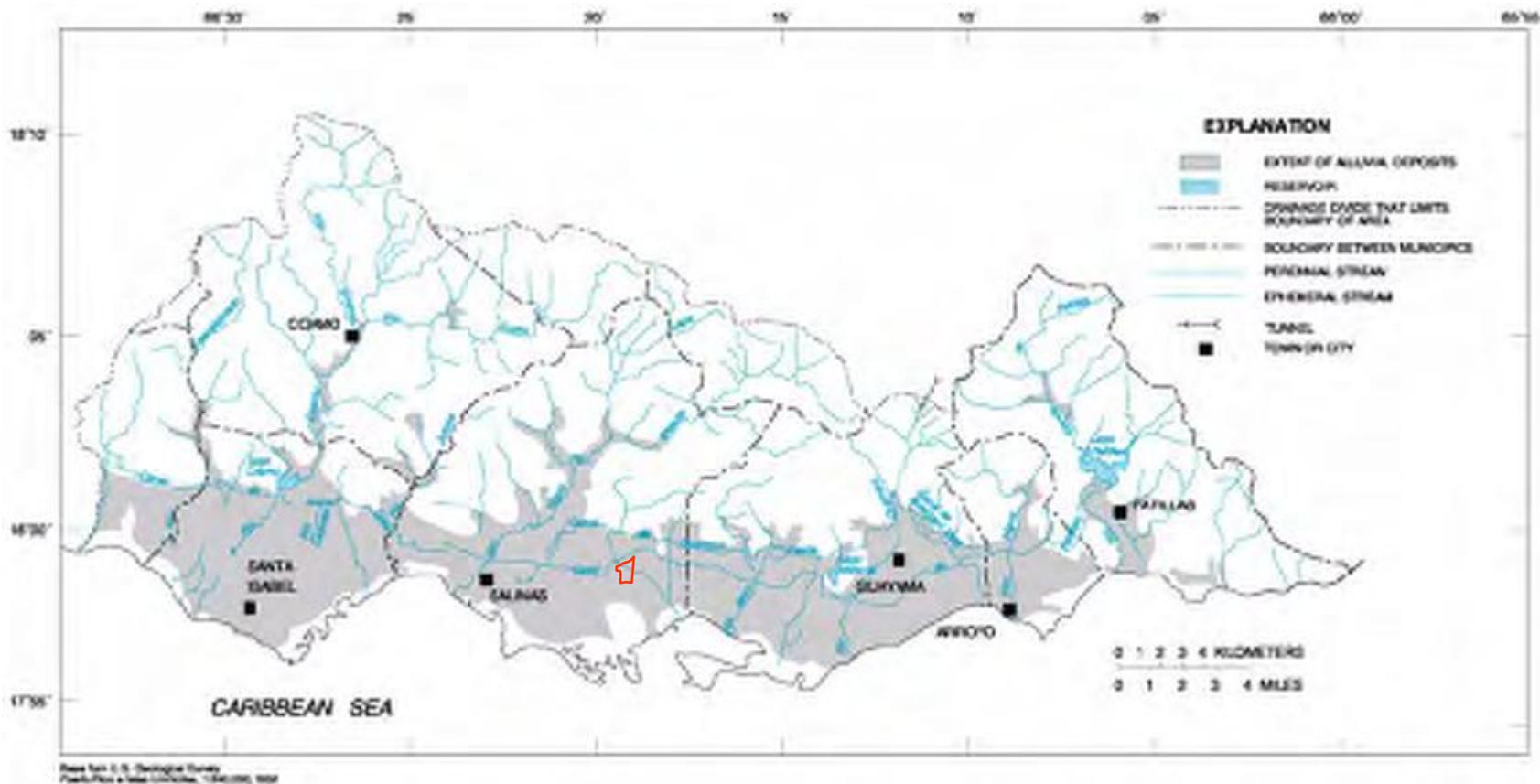


Figure 3.6a.- Limits of the Alluvial Aquifer in the Santa Isabel – Patillas Region

(Adopted from Ramos-Gines, 1996)

Wetland Jurisdictional Determination for Costa del Sur III Project, Aguirre Ward, Salinas, Puerto Rico

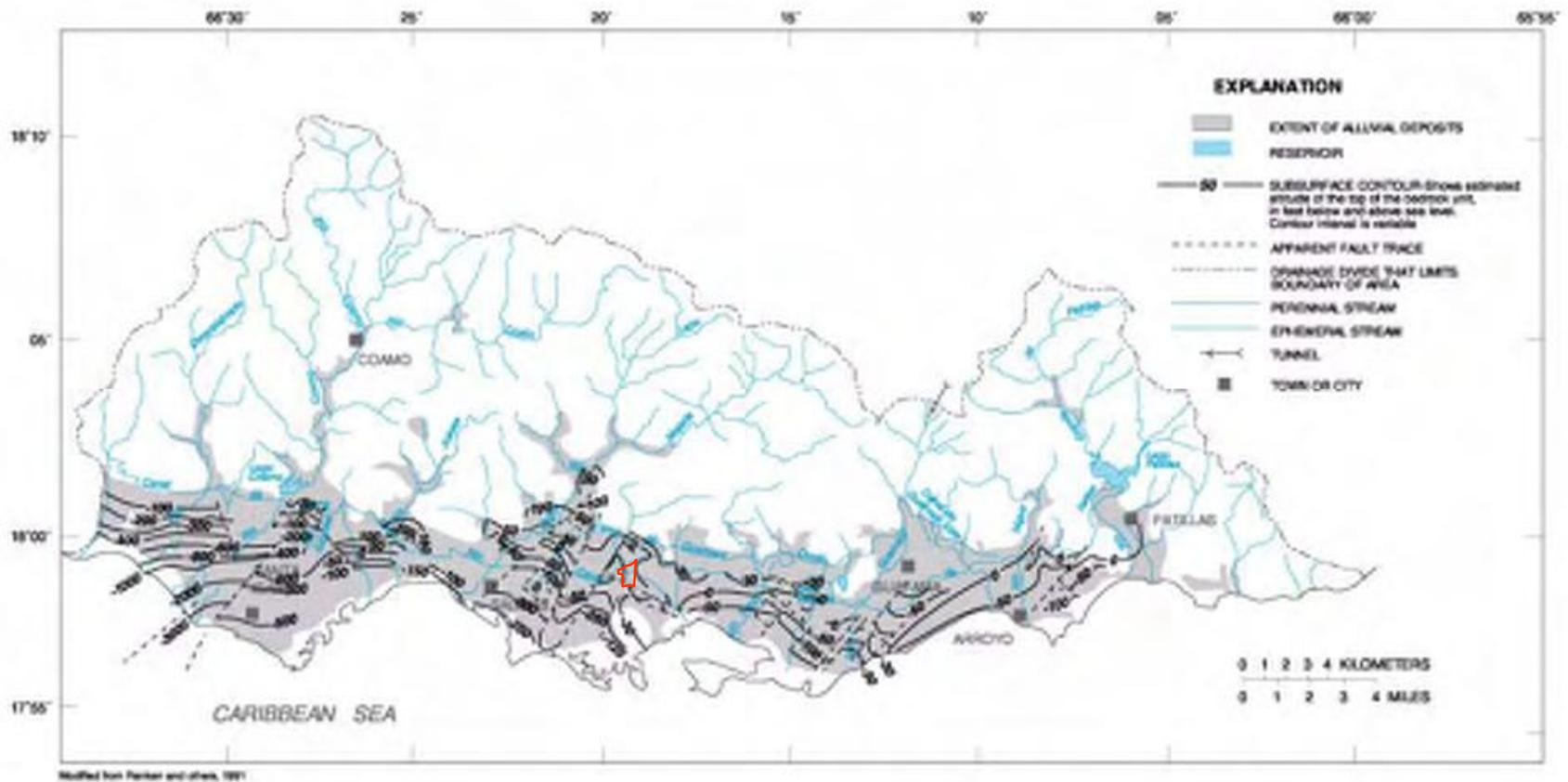


Figure 2.2.1.D-1 Altitude of the top of the bedrock unit in the Santa Isabel-Patillas region, Puerto Rico.



Figure 3.6b.- Altitude of the Bedrock in the Alluvial Aquifer in the Santa Isabel – Patillas Region

(Adopted from Ramos-Gines, 1996)

Wetland Jurisdictional Determination for Costa del Sur III Project, Aguirre Ward, Salinas, Puerto Rico

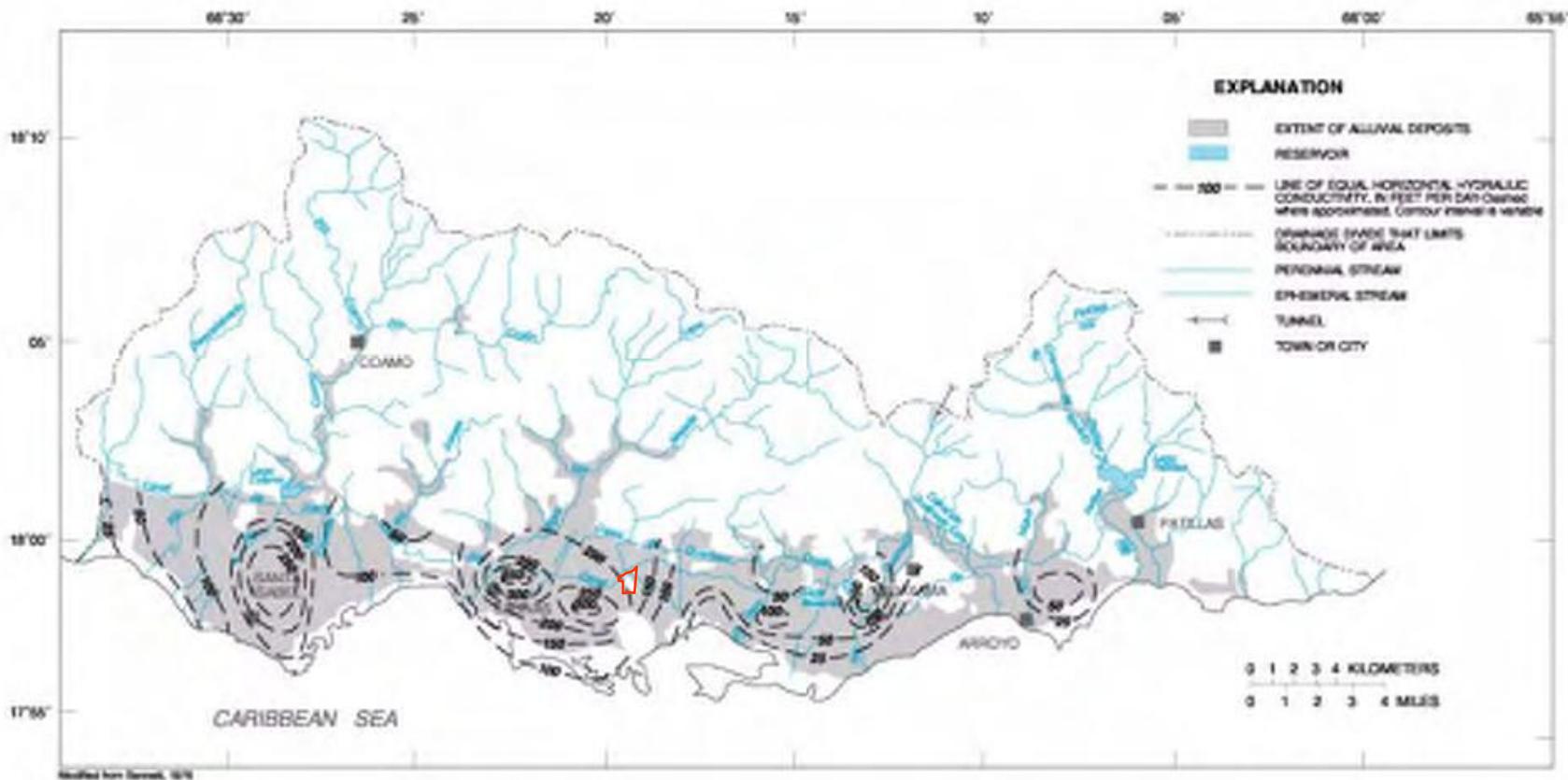


Figure 3.6c.– Hydraulic Conductivity for the Alluvial Aquifer in the Santa Isabel – Patillas Region

(Adopted from Ramos-Gines, 1996)

Wetland Jurisdictional Determination for Costa del Sur III Project, Aguirre Ward, Salinas, Puerto Rico

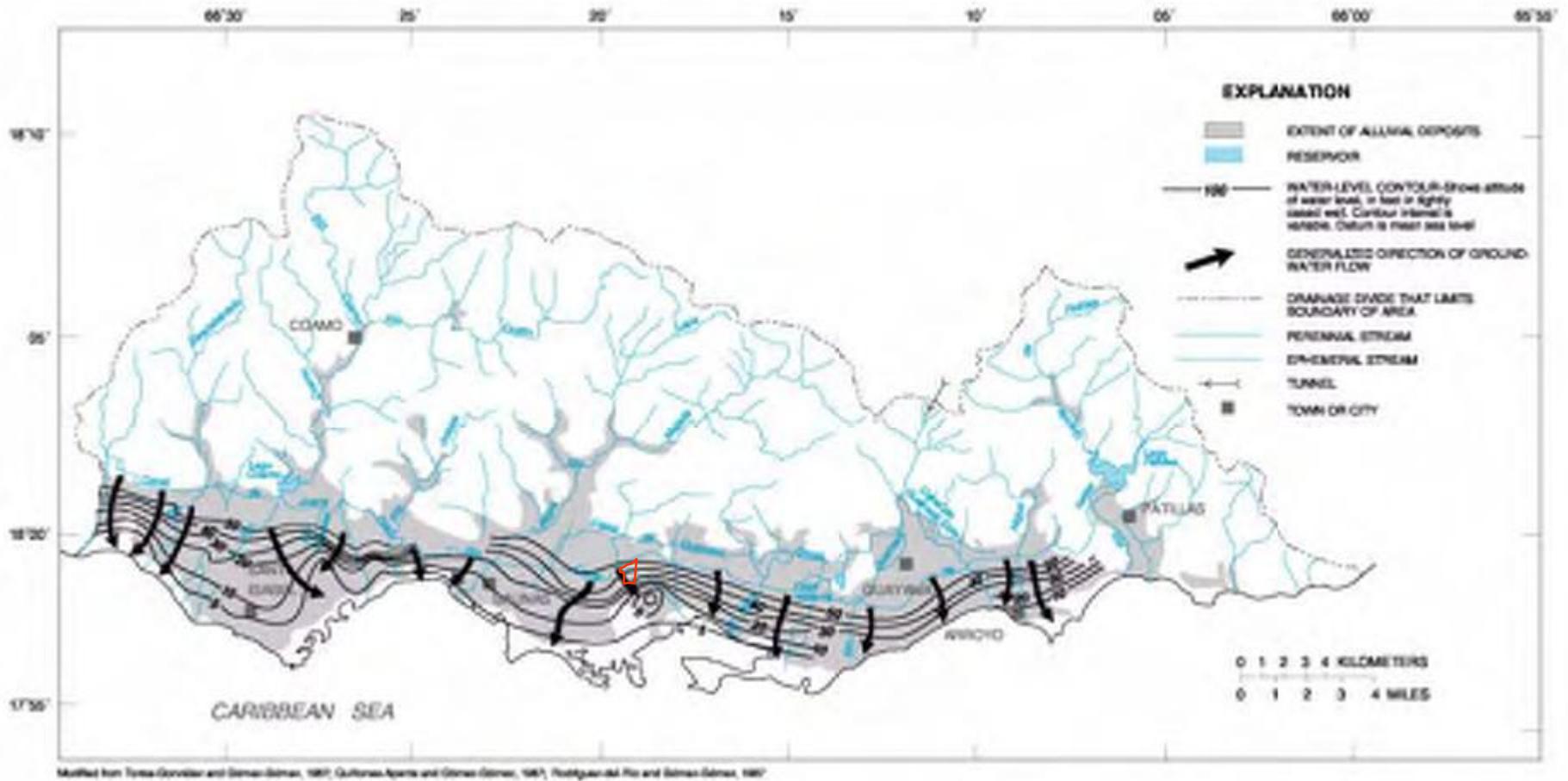


Figure 2.2.1E-1 Composite attitude of water-level surface and direction of ground-water flow during 1986 and 1987 in the Santa Isabel-Patillas region, Puerto Rico.



Figure 3.6d.— Water-Table Elevation for the Alluvial Aquifer in the Santa Isabel – Patillas Region

(Adopted from Ramos-Gines, 1996)

Wetland Jurisdictional Determination for Costa del Sur III Project, Aguirre Ward, Salinas, Puerto Rico

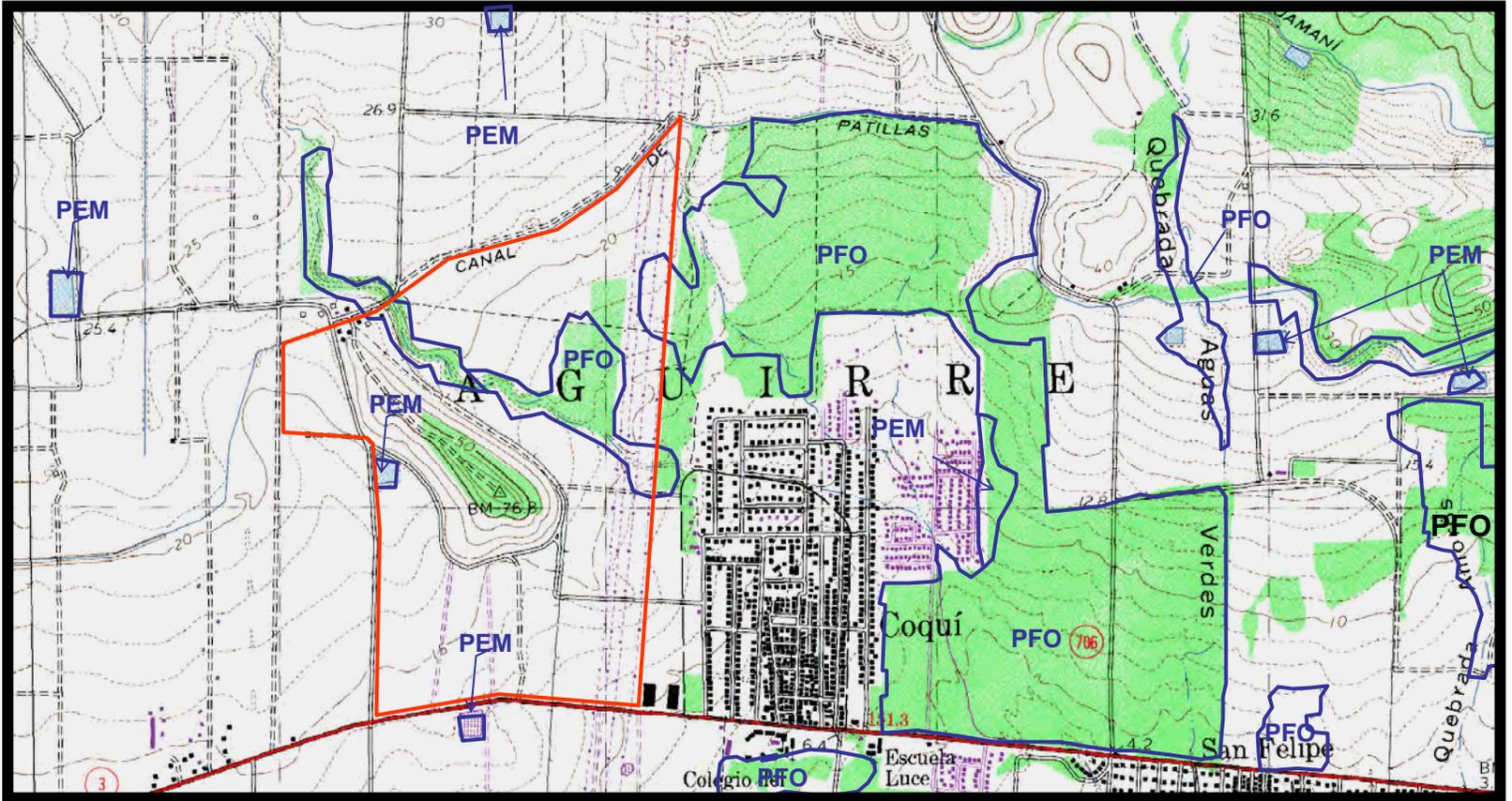


Figure 3.7.- US Fish and Wildlife Service National Wetland Inventory for the Property

Wetland Jurisdictional Determination for Costa del Sur Pro



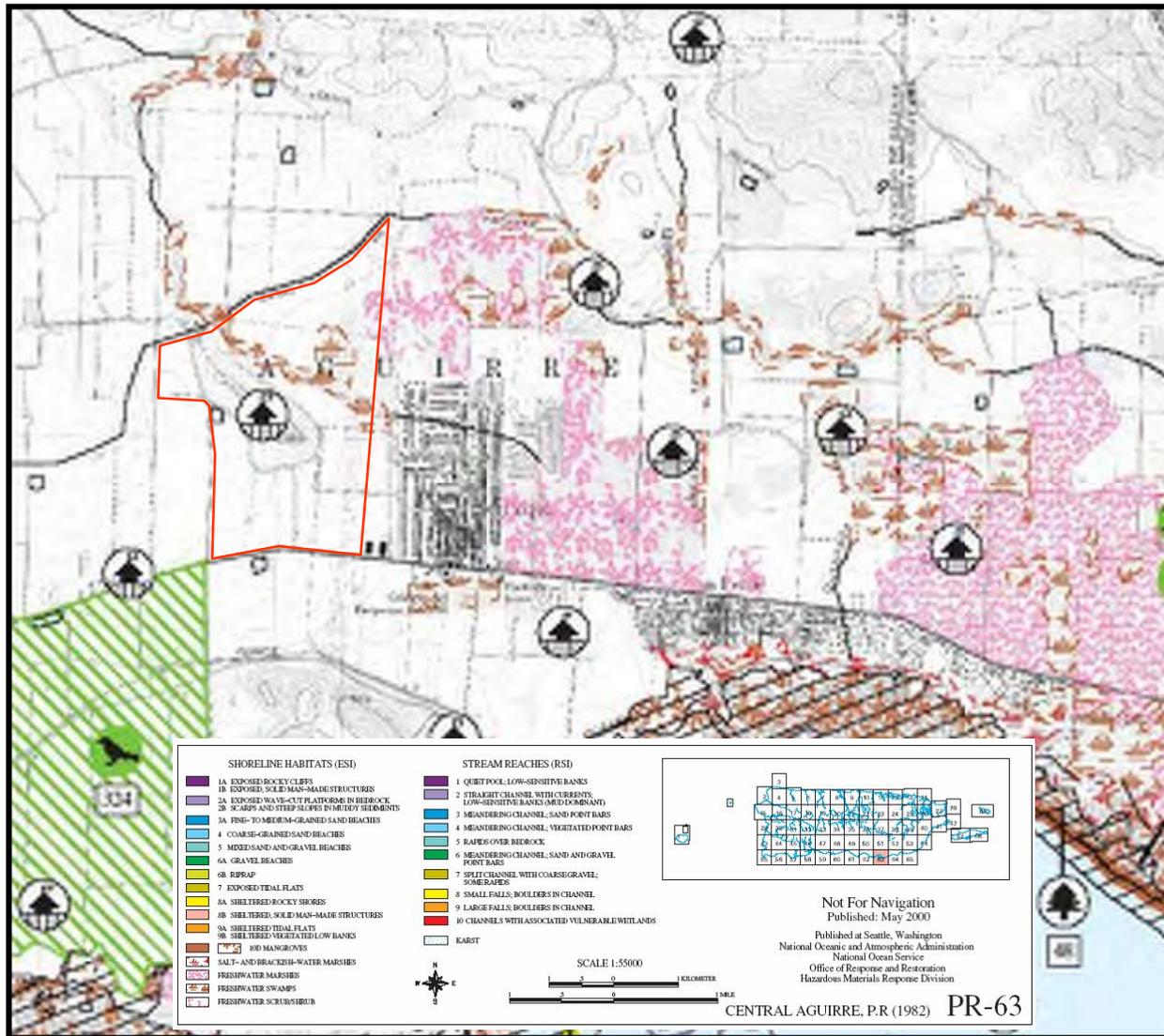


Figure 3.8.– NOAA Environmental Sensitivity Index Map for the Project Area

Wetland Jurisdictional Determination for
Costa del Sur III Project, Aguirre Ward,
Salinas, Puerto Rico

Appendix A: Field Survey Sheets

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: COSTA DEL SUR	Date: 3/10/2005
Applicant/Owner: SALINAS DEVELOPMENT	County: SALINAS
Investigator: ANGEL ROMÁN-MAS	State: PUERTO RICO
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: _____ Transect ID: Plot ID:
Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	
(If hended, explain on reverse)	

VEGETATION			VEGETATION		
Dominant Plant Species	Statum	Indicator	Dominant Plant Species	Statum	Indicator
1. Yerba Guinea	FACU	50	9.		
2. Pangola	FACU	50	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		
Percent of dominant species that are OBL, FACW, or FAC 0%					
Remarks: NO WETLAND VEGETATION			• Vegetation impacted by wild fire		

HYDROLOGY		Wetland Hydrology Indicators	
<u>NO</u> Recorded Data (describe in Remarks):		<u>NO</u> Inundated	
<u>NO</u> Stream, Lake, or Tide Gage		<u>NO</u> Saturated in the Upper 12 in	
<u>NO</u> Aerial Photographs		<u>NO</u> Water Marks	
<u>NO</u> Others		<u>NO</u> Drift Lines	
<u>NO</u> No Recorded Data Available		<u>NO</u> Sediment Deposits	
		<u>NO</u> Drainage Patterns in Wetlands	
Field Observations		Wetland Secondary Indicators (2 or more required)	
Depth of Surface Water: 224 (in)		<u>NO</u> Oxidize Root Channels in Upper 12 in	
Depth to Free Water in Pit: 724 (in)		<u>NO</u> Water-Saturated Leaves	
Depth to Saturated Soils: 724 (in)		<u>NO</u> Water Stained Leaves	
		<u>NO</u> Local Soils Survey Data	
		<u>NO</u> FAG-Neutral Test	
		<u>NO</u> Other (Explain in Remarks)	
Remarks: Negative Hydrologic Indicators			

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

SOILS

Map Unit Name, Series and Phase: Fraternidad

Drainage Class: moderately to well drained

Taxonomy (Subgroup): _____ Field observations confirmed mapped type Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottel Color (Munsell Moist)	Mottel Abundance/ Size/Contrast	Texture, Concentration Structure, ect.
<u>18-24</u>	<u>C</u>	<u>7.5YR 4/4</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Hydric Soils Indicators:

- | | |
|---------------------------------------|--|
| <u>NO</u> Histosol | <u>NO</u> Concretions |
| <u>NO</u> Histic Epipedon | <u>NO</u> High Organic Content in Surface Layer in Sandy Soils |
| <u>NO</u> Sulfidic Odor | <u>NO</u> Organic Streaking in Sandy Soils |
| <u>NO</u> Aquic Moisture Regime | <u>NO</u> Listed on Local Hydric Soils List |
| <u>NO</u> Reducing Conditions | <u>NO</u> Listed on National Hydric Soils List |
| <u>NO</u> Gleyed or Low-Chroma Colors | <u>NO</u> Other (Explain in Remarks) |

Remarks: NEGATIVE SOIL INDICATORS

WETLAND DETERMINATION

Hydrographic vegetation present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the sampling point a wetland	Yes <input type="radio"/> No <input checked="" type="radio"/>
Wetland hydrology present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Hydric soils present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		

Remarks:

Angel Román-Mas

Name

[Signature]

Signature

3/10/2005

Date

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: COSTA DEL SUR III	Date: 3/10/2005
Applicant/Owner: SALINAS DEVELOPMENT	County: SALINAS
Investigator: ANGEL ROMAN-MA'S	State: PUERTO RICO
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: _____ Transect ID: 1 Plot ID: 2
Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Is the area a potential problem area? (If hended, explain on reverse) <input type="radio"/> Yes <input checked="" type="radio"/> No	

VEGETATION			VEGETATION		
Dominant Plant Species	Status	Indicator	Dominant Plant Species	Status	Indicator
1. Flamboyán	UPL	80			
2. Algarrobo de Seda	UPL	20			
3.					
4.					
5.					
6.					
7.					
8.					

Percent of dominant species that are OBL, FACW, or FAC: 0%

Remarks: • NO WETLAND VEGETATION • Vegetation impacted by wild fire

HYDROLOGY		Wetland Hydrology Indicators	
<u>NO</u> Recorded Data (describe in Remarks):		<u>NO</u> Inundated	
<u>NO</u> Stream, Lake, or Tide Gage		<u>NO</u> Saturated in the Upper 12 in	
<u>NO</u> Aerial Photographs		<u>NO</u> Water Marks	
<u>NO</u> Others		<u>NO</u> Drift Lines	
<u>NO</u> No Recorded Data Available		<u>NO</u> Sediment Deposits	
		<u>NO</u> Drainage Patterns in Wetlands	
Field Observations		Wetland Secondary Indicators (2 or more required)	
Depth of Surface Water: >24 (in)		<u>NO</u> Oxidize Root Channels in Upper 12 in	
Depth to Free Water in Pit: >24 (in)		<u>NO</u> Water-Saturated Leaves	
Depth to Saturated Soils: >24 (in)		<u>NO</u> Water Stained Leaves	
		<u>NO</u> Local Soils Survey Data	
		<u>NO</u> FAG-Neutral Test	
		<u>NO</u> Other (Explain in Remarks)	
Remarks: NEGATIVE HYDROLOGIC INDICATORS.			

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

SOILS

Map Unit Name, Series and Phase: Paso Seco

Drainage Class: MODERATELY TO WELL DRAINIED

Taxonomy (Subgroup): _____ Field observations confirmed mapped type Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottel Color (Munsell Moist)	Mottel Abundance/ Size/Contrast	Texture, Concentration Structure, ect.
<u>18-24</u>	<u>C</u>	<u>7.5YR 4/4</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Hydric Soils Indicators:

- | | |
|---------------------------------------|--|
| <u>NO</u> Histosol | <u>NO</u> Concretions |
| <u>NO</u> Histic Epipedon | <u>NO</u> High Organic Content in Surface Layer in Sandy Soils |
| <u>NO</u> Sulfidic Odor | <u>NO</u> Organic Streaking in Sandy Soils |
| <u>NO</u> Aquic Moisture Regime | <u>NO</u> Listed on Local Hydric Soils List |
| <u>NO</u> Reducing Conditions | <u>NO</u> Listed on National Hydric Soils List |
| <u>NO</u> Gleyed or Low-Chroma Colors | <u>NO</u> Other (Explain in Remarks) |

Remarks: NEGATIVE SOIL INDICATORS

WETLAND DETERMINATION

Hydrographic vegetation present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the sampling point a wetland	Yes <input type="radio"/> No <input checked="" type="radio"/>
Wetland hydrology present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Hydric soils present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		

Remarks: NEGATIVE - UPLAND

Angel Román - Mas
Name

[Signature]
Signature

31.07.2005
Date

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: COSTA DEL SUR III	Date: 3/10/2005
Applicant/Owner: SALINAS DEVELOPMENT	County: SALINAS
Investigator: ANGEL ROMAN-MAIS	State: PUERTO RICO
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: Transect ID: 1 Plot ID: 3
Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Is the area a potential problem area? (If hended, explain on reverse) <input type="radio"/> Yes <input checked="" type="radio"/> No	

VEGETATION					
Dominant Plant Species	Statum	Indicator	Dominant Plant Species	Statum	Indicator
1. Flamboyán	UPL	50	9.		
2. Algodón de Seda	UPL	50	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		
Percent of dominant species that are OBL, FACW, or FAC			0%		
Remarks: NO WETLAND VEGETATION - Vegetation impacted by wild fire					

HYDROLOGY			
<u>NO</u> Recorded Data (describe in Remarks): <u>NO</u> Stream, Lake, or Tide Gage <u>NO</u> Aerial Photographs <u>NO</u> Others No Recorded Data Available	Wetland Hydrology Indicators <u>NO</u> Inundated <u>NO</u> Saturated in the Upper 12 in <u>NO</u> Water Marks <u>NA</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands		
Field Observations Depth of Surface Water: >24 (in) Depth to Free Water in Pit: >24 (in) Depth to Saturated Soils: >24 (in)	Wetland Secondary Indicators (2 or more required) <u>NO</u> Oxidize Root Channels in Upper 12 in <u>NO</u> Water-Saturated Leaves <u>NO</u> Water Stained Leaves <u>NO</u> Local Soils Survey Data <u>NO</u> FAG-Neutral Test <u>NO</u> Other (Explain in Remarks)		
Remarks: NEGATIVE HYDROLOGIC INDICATORS			

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

SOILS

Map Unit Name, Series and Phase: PASO Soco

Drainage MODERATELY TO WELL
 Class: DRAINED

Taxonomy (Subgroup): _____ Field observations confirmed mapped type Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottel Color (Munsell Moist)	Mottel Abundance/ Size/Contrast	Texture, Concentration Structure, ect.
<u>18-24</u>	<u>C</u>	<u>7.5YR 4/4</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

Hydric Soils Indicators:

<u>NO</u> Histosol	<u>NO</u> Concretions
<u>NO</u> Histic Epipedon	<u>NO</u> High Organic Content in Surface Layer in Sandy Soils
<u>NO</u> Sulfidic Odor	<u>NO</u> Organic Streaking in Sandy Soils
<u>NO</u> Aquic Moisture Regime	<u>NO</u> Listed on Local Hydric Soils List
<u>NO</u> Reducing Conditions	<u>NO</u> Listed on National Hydric Soils List
<u>NO</u> Gleyed or Low-Chroma Colors	<u>NO</u> Other (Explain in Remarks)

Remarks: NEGATIVE SOIL INDICATORS

WETLAND DETERMINATION

Hydrographic vegetation present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the sampling point a wetland	Yes <input type="radio"/> No <input checked="" type="radio"/>
Wetland hydrology present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Hydric soils present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		

Remarks: NEGATIVE - UPLAND

Angel Román-Mas Name [Signature] Signature 3/10/2005 Date

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: COSTA DEL SUR III	Date: 3/10/2005
Applicant/Owner: SALINAS DEVELOPMENT	County: SALINAS
Investigator: ANGEL ROMAN - MAS	State: PUERTO RICO
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: Transect ID: 1 Plot ID: 4
Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	
(If hended, explain on reverse)	

VEGETATION					
Dominant Plant Species	Statum	Indicator	Dominant Plant Species	Statum	Indicator
1. Algodón de Seda	UPL	70			
2. Flamboyant	UPL	30			
3.					
4.					
5.					
6.					
7.					
8.					
Percent of dominant species that are OBL, FACW, or FAC			0%		
Remarks: <i>NO WETLAND VEGETATION; Vegetation impacted by wildfire</i>					

HYDROLOGY			
<u>NO</u> Recorded Data (describe in Remarks): <u>NO</u> Stream, Lake, or Tide Gage <u>NO</u> Aerial Photographs <u>NO</u> Others <u>NO</u> No Recorded Data Available	Wetland Hydrology Indicators <u>NO</u> Inundated <u>NO</u> Saturated in the Upper 12 in <u>NO</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands		
Field Observations Depth of Surface Water: <u>24</u> (in) Depth to Free Water in Pit: <u>24</u> (in) Depth to Saturated Soils: <u>24</u> (in)	Wetland Secondary Indicators (2 or more required) <u>NO</u> Oxidize Root Channels in Upper 12 in <u>NO</u> Water-Saturated Leaves <u>NO</u> Water Stained Leaves <u>NO</u> Local Soils Survey Data <u>NO</u> FAG-Neutral Test <u>NO</u> Other (Explain in Remarks)		
Remarks: <i>NEGATIVE WETLAND INDICATORS</i>			

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

SOILS

Map Unit Name, Series and Phase: PASO SECO

Drainage Class: MODERATELY TO WELL DRAINED

Taxonomy (Subgroup): Field observations confirmed mapped type Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottel Color (Munsell Moist)	Mottel Abundance/ Size/Contrast	Texture, Concentration Structure, ect.
18-24	C	7.5YR2.4/4	NA	NA	NO

Hydric Soils Indicators:

- | | |
|---------------------------------------|--|
| <u>NO</u> Histosol | <u>NO</u> Concretions |
| <u>NO</u> Histic Epipedon | <u>NO</u> High Organic Content in Surface Layer in Sandy Soils |
| <u>NO</u> Sulfidic Odor | <u>NO</u> Organic Streaking in Sandy Soils |
| <u>NO</u> Aquic Moisture Regime | <u>NO</u> Listed on Local Hydric Soils List |
| <u>NO</u> Reducing Conditions | <u>NO</u> Listed on National Hydric Soils List |
| <u>NO</u> Gleyed or Low-Chroma Colors | <u>NO</u> Other (Explain in Remarks) |

Remarks: NEGATIVE SOIL INDICATORS

WETLAND DETERMINATION

Hydrographic vegetation present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the sampling point a wetland	Yes <input type="radio"/> No <input checked="" type="radio"/>
Wetland hydrology present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Hydric soils present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		

Remarks: NEGATIVE - UPLAND

Angel Román - Mas
Name

[Signature]
Signature

3/10/2005
Date

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>COSTA DEL SUR III</u>	Date: <u>3/10/2005</u>
Applicant/Owner: <u>SALINAS DEVELOPMENT</u>	County: <u>SALINAS</u>
Investigator: <u>ANGEL ROMAN - MAS</u>	State: <u>PUERTO RICO</u>
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: Transect ID <u>2</u> Plot ID: <u>1</u>
Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Is the area a potential problem area? <input type="radio"/> Yes <input checked="" type="radio"/> No	
(If hended, explain on reverse)	

VEGETATION					
Dominant Plant Species	Statum	Indicator	Dominant Plant Species	Statum	Indicator
1. <u>Yerba Guinea</u>	<u>FACO</u>	<u>45</u>	9.		
2. <u>Pangola</u>	<u>FACO</u>	<u>45</u>	10.		
3. <u>Flamboyant</u>	<u>UPL</u>	<u>10</u>	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		
Percent of dominant species that are OBL, FACW, or FAC <u>0%</u>					
Remarks: <u>NO WETLAND VEGETATION. Vegetation impacted by wild fire</u>					

HYDROLOGY			
<u>NO</u> Recorded Data (describe in Remarks): <u>NO</u> Stream, Lake, or Tide Gage <u>NO</u> Aerial Photographs <u>NO</u> Others <u>NO</u> No Recorded Data Available	Wetland Hydrology Indicators <u>NO</u> Inundated <u>NO</u> Saturated in the Upper 12 in <u>NO</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands		
Field Observations Depth of Surface Water: <u>24</u> (in) Depth to Free Water in Pit: <u>24</u> (in) Depth to Saturated Soils: <u>24</u> (in)	Wetland Secondary Indicators (2 or more required) <u>NO</u> Oxidize Root Channels in Upper 12 in <u>NO</u> Water-Saturated Leaves <u>NO</u> Water Stained Leaves <u>NO</u> Local Soils Survey Data <u>NO</u> FAG-Neutral Test <u>NO</u> Other (Explain in Remarks)		
Remarks: <u>NEGATIVE HYDROLOGIC INDICATORS</u>			

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

SOILS

Map Unit Name, Series and Phase: FRATERNIDAD

Drainage Class: moderately to well drained

Taxonomy (Subgroup): Field observations confirmed mapped type Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottel Color (Munsell Moist)	Mottel Abundance/ Size/Contrast	Texture, Concentration Structure, ect.
<u>18-24</u>	<u>C</u>	<u>10YR 4/4</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

Hydric Soils Indicators:

- | | |
|---------------------------------------|--|
| <u>NO</u> Histosol | <u>NO</u> Concretions |
| <u>NO</u> Histic Epipedon | <u>NO</u> High Organic Content in Surface Layer in Sandy Soils |
| <u>NO</u> Sulfidic Odor | <u>NO</u> Organic Streaking in Sandy Soils |
| <u>NO</u> Aquic Moisture Regime | <u>NO</u> Listed on Local Hydric Soils List |
| <u>NO</u> Reducing Conditions | <u>NO</u> Listed on National Hydric Soils List |
| <u>NO</u> Gleyed or Low-Chroma Colors | <u>NO</u> Other (Explain in Remarks) |

Remarks: NEGATIVE SOIL INDICATORS

WETLAND DETERMINATION

Hydrographic vegetation present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the sampling point a wetland	Yes <input type="radio"/> No <input checked="" type="radio"/>
Wetland hydrology present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Hydric soils present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		

Remarks: NEGATIVE

Angel Román-Más
Name

[Signature]
Signature

3/10/2005
Date

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: COSIDA DEL SUR III	Date: 3/10/2005
Applicant/Owner: SALINAS DEVELOPMENT	County: SALINAS
Investigator: ANGEL ROMÁN - MAS	State: PUERTO RICO
Do normal circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: Transect ID: 2 Plot ID: 2
Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Is the area a potential problem area? (If hended, explain on reverse) <input type="radio"/> Yes <input checked="" type="radio"/> No	

VEGETATION					
Dominant Plant Species	Statum	Indicator	Dominant Plant Species	Statum	Indicator
1. Flamboyán	UPL	SO	9.		
2. Algodón de Seda	UPL	SO	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		
Percent of dominant species that are OBL, FACW, or FAC			0%		
Remarks: NO WETLAND VEGETATION. Vegetation impacted by Wild fire					

HYDROLOGY			
<u>NO</u> Recorded Data (describe in Remarks): <u>NO</u> Stream, Lake, or Tide Gage <u>NO</u> Aerial Photographs <u>NO</u> Others <u>NO</u> No Recorded Data Available	Wetland Hydrology Indicators <u>NO</u> Inundated <u>NO</u> Saturated in the Upper 12 in <u>NO</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands		
Field Observations Depth of Surface Water: > 24 (in) Depth to Free Water in Pit: > 24 (in) Depth to Saturated Soils: > 24 (in)	Wetland Secondary Indicators (2 or more required) <u>NO</u> Oxidize Root Channels in Upper 12 in <u>NO</u> Water-Saturated Leaves <u>NO</u> Water Stained Leaves <u>NO</u> Local Soils Survey Data <u>NO</u> FAG-Neutral Test <u>NO</u> Other (Explain in Remarks)		
Remarks: NEGATIVE WETLAND INDICATORS			

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

SOILS

Map Unit Name, Series and Phase: Paso Seco

MODERATELY TO
 Drainage Class: WELL DRAINED

Taxonomy (Subgroup): _____ Field observations confirmed mapped type Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottel Color (Munsell Moist)	Mottel Abundance/ Size/Contrast	Texture, Concentration Structure, ect.
<u>18-24</u>	<u>C</u>	<u>7.5YR4/4</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

Hydric Soils Indicators:

- | | |
|---------------------------------------|--|
| <u>NO</u> Histosol | <u>NO</u> Concretions |
| <u>NO</u> Histic Epipedon | <u>NO</u> High Organic Content in Surface Layer in Sandy Soils |
| <u>NO</u> Sulfidic Odor | <u>NO</u> Organic Streaking in Sandy Soils |
| <u>NO</u> Aquic Moisture Regime | <u>NO</u> Listed on Local Hydric Soils List |
| <u>NO</u> Reducing Conditions | <u>NO</u> Listed on National Hydric Soils List |
| <u>NO</u> Gleyed or Low-Chroma Colors | <u>NO</u> Other (Explain in Remarks) |

Remarks: NEGATIVE - SOIL INDICATORS

WETLAND DETERMINATION

Hydrographic vegetation present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the sampling point a wetland	Yes <input type="radio"/> No <input checked="" type="radio"/>
Wetland hydrology present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Hydric soils present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		

Remarks: NEGATIVE - WETLAND

Angel Román - Mas
 Name

[Signature]
 Signature

3/10/2005
 Date

