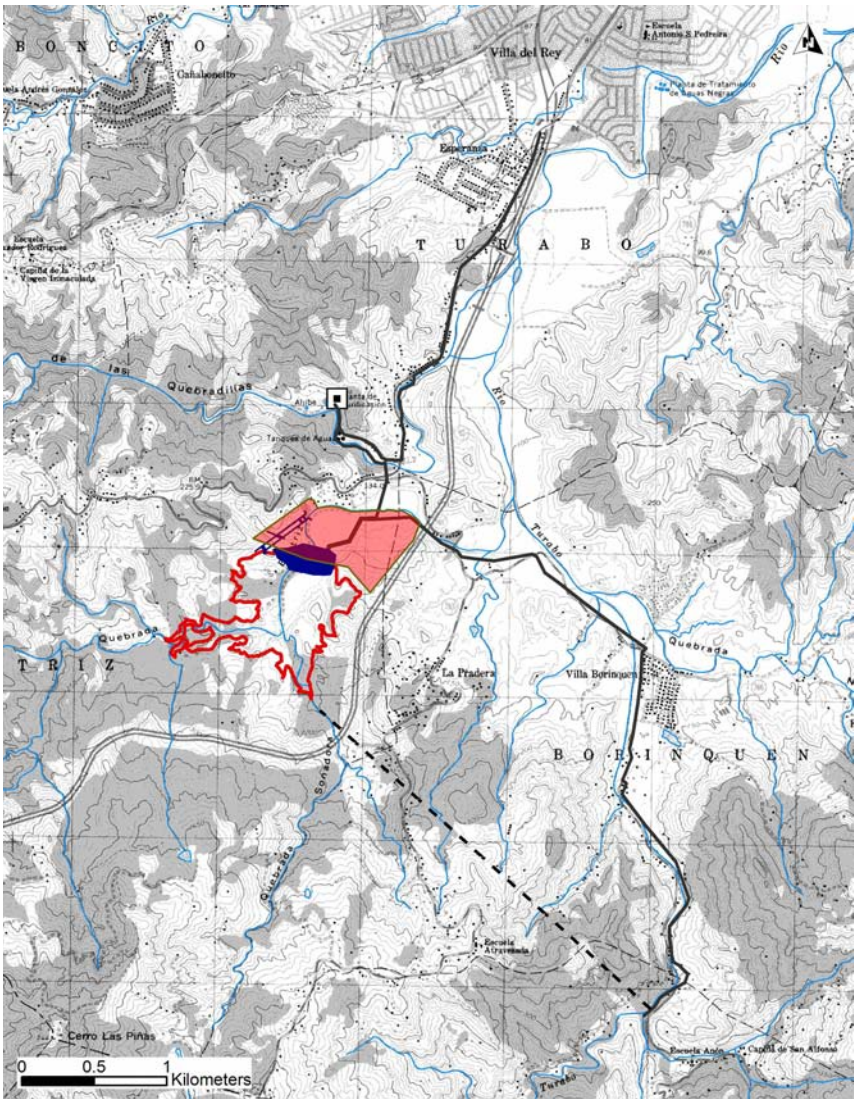
JURISDICTIONAL DETERMINATION REPORT
QUEBRADA BEATRIZ OFFSTREAM RESORVOIR
CAGUAS, PUERTO RICO



APRIL 04, 2007

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EXECUTIVE SUMMARY

The Beatriz reservoir is a project proposed by the Aqueduct and Sewer Authority (AAA) to supply the future water demands projected for the municipality of Caguas. The location for this project was first determined by the United States Corps of Engineers (COE) in 1997 and re-examined by the United State Geological Service (USGS) in 2001. A full environmental evaluation is being carried out by Gregory L Morris Engineering (GME) in contract with AAA.

The project consist of the construction of an off stream reservoir, with a raw water intake located at the Turabo River. Other components related to this project are; (1) construction of a new filter plant, (2) installation of two raw water pipes or construction of an aduction tunnel, (3) installation of a filtered water pipe and (4) a sediment deposit area for future dredging activities. Previously evaluated area did not considered the 70 acre where the proposed filter plant and sediment deposit area are being proposed. A complete description of the project components is presented as fallows:

Quebrada Beatriz Reservoir – The proposed reservoir is located approximately 6.6km southwest from downtown Caguas. The reservoir has an approximate coverage area of 56.2 ha, with a water elevation of 152m msl and a volume capacity of 9Mm^3.

Raw Water Intake – The proposed intake for the Beatriz Reservoir is located at the Turabo River, approximately 3.8 km upstream from the PR-765 Bridge near residential development Villas del Turabo. This intake will extract the water from Turabo River only when levels exceed the minimum flow that is required to maintain the river ecology.

Raw Water Pipe (Intake to Reservoir) – The intake will divert water to the reservoir by an 66"pipe traveling a distance of 4.9 km, running parallel to the Turabo River. The other option for water diversion is the construction of an adduction tunnel covering a distance of 3.1 km.

Raw Water Pipe (Reservoir to Old Filtration Plant) – A forty eigth inch (48") diameter raw water transmission pipeline will be directed from the Dam to the existing filtration plant ("Las Quebradillas").

Filtrated Water Pipe (Old filtration Plant to Distribution system) – A thirty inch (30") diameter finished water distribution pipeline will be directed the filtered water from the plant to the existing Caguas distribution system, by connection at a junction near the PR-1 Bridge over the PR-52.

Filter Plant area and Sediment Deposit site – This new area was incorporated to the Beatriz Reservoir project in an effort to find an adequate place to construct a new filtration plant and to reserve an area for future sediment deposit from reservoir dredging activities. This area consist of a 70 acre site located downstream of the reservoir dam. The proposed filtration plant will have a design capacity of 14 mgd.

INTRODUCTION

The Aqueduct and Sewer Authority of Puerto Rico is proposing the construction of a water reservoir to supply the water demand and future needs of the municipality of Caguas. The project consist of a 56.2 ha reservoir, water intake, water filtration plant and distribution pipe system. All components are not in the same location as the reservoir, which is located in the Beatriz Ward in the municipality of Caguas.

The proposed location for the Beatriz reservoir is 6 km southwest of downtown Caguas or 2.2 km upstream from the confluence with Turabo River. Mean while, the proposed water intake is being propose for the Turabo River 4.4 km upstream from the confluence with the Beatriz Creek. **Figure 1** provides a complete over view of the Beatriz Reservoir Project.

As part of the project planning effort a new area is being evaluated for the construction of a new filtration plant and sediment deposit site for future reservoir dredging activities. This new 70 acre area is located downstream of the Beatriz Reservoir dam site.

This new area was partially evaluated on the march 2006 Jurisdictional Determination (JD) done by Ambienta Inc., which states a maximum impact of 8,434m^2 wetland by the proposed Beatriz Reservoir project. Figure 2 provides a map of wetland impact from the study.

This Jurisdictional Determination consists of evaluating the 70 acre land being evaluated for these new proposed activities for the Beatriz Reservoir project. The methodology used in this study consisted of a preliminary evaluation process to determine the potential jurisdictional wetlands areas within the evaluating boundaries, following the 1987 Corps of Engineers Wetland Delineation Definition. Possible jurisdictional areas where then screen following the 1987 Army Corps of Engineer manual, level 1 and 2 combination methodology. A geographical information System (GIS) was use to establish each data collection point within the project area.

SITE DESCRIPTION

Topography

The topographic features of the 70 acre land being studied may vary widely depending on the location. The highest elevation within the site is 180msl, located on the south side of the property. About 55% of the property is composed of hills located on the northwest and southeast of the property, the rest of the area are planes related to the Quebrada Beatriz, which divides the study area. The lowest elevation within the site boundary is 110msl. **Figure 2** shows the topographic features of the site.

Climate

Temperature

The studied area is located on the subtropical humid region, as shown in the Holdrige zone classification. The annual temperature for this region is 78˚F, with an average annual maximum temperature is 89˚F, while the average minimum is of 63˚F.

RainFall

The average rainfall for the area is approximately 59.44 in per year, as stated by the Caguas 1W (661309) meteorological station, belonging to the National Oceanographic and Atmospheric Administration South east region. As shown in **Figure 3** the wetter months for the Caguas region are from September to early December.

Soils

The Soil Survey for the San Juan region published by the NRCS on 1969 shows four different soil types for the 70 acre studied area, as shown in **Figure 4**. These formations are described as fallows:

1. Estacion Silty Clay (Es) – The taxonomic class for this type of soil is as a fine-loamy over sandy or sandy-skeletal, mixed, isohyperthermic Fluventic Hapludolls. Soils water features indicate that flooding for this soil are briefly but common, with a permeability of .6 to 5.0 (in/hr)

ranging from 0 to 20 (in) in depth. The USDA categorizes its texture possibilities as silty clay loam, gravelly clay loam o gravelly silty clay loam. This soil is mainly located on river flood plains and deposits, with slopes ranging from 0 to 2 percent. A typical pedon color characteristic of Estacion silt clay loam of this soil is shown above using the Munsell classification system.

Ap – 0 to 8 in., Dark Brown (10YR 3/3)

C1 – 8 to 20 in., very dark grayish brown (10YR 3/2)

C2 – 20 to 50 in., dark brown (10YR 4/3)

2. Toa Silty Clay Loam (To) – The taxonomic class for this type of soil is as a fine, mixed, isohyperthermic fluventic hapludolls. Soils water features indicate that flooding for this soil are briefly and occasionally between the month of July to October. The permeability for Toa series soils range from .6 to 2.0 (in/hr) at all depth. The USDA categorizes the soil texture as silt clay loam. The Toa soils are on river flood plains in the humid portion of the island. Slopes range from 0% to 2%. A typical pedon color characteristic of Estacion silt clay loam of this soil is shown above using the Munsell classification system.

   Ap – 0 to 8 in., Dark Brown (10YR 3/3)

   B – 8 to 16 in., very dark grayish brown (10YR 3/3); mottle (10YR 6/3)

   C1 – 16 to 56 in., dark brown (10YR 5/3)

   C2 – 56 to 60 in, dark brown (7.5YR 4/4)

3. Rio Arriba Clay (RoC2) - The taxonomic class for this type of soil is as a fine, mixed, isohyperthermic vertic paleudalfs. Soils water features indicate that flooding for this soil are briefly and rare, but most commonly within the month of July to October. The permeability for Rio Arriba series soils range from .6 to 2.0 (in/hr) at all depth. The USDA categorizes the soil texture as clay. This tipes of soil are usually located on alluvial fans and terraces above the river floodplain. Slopes range from 2 to 12%, but are dominantly 5 to 12%. A typical pedon color characteristic of Rio

Arriba clay of this soil is shown above using the Munsell classification system.

Ap – 0 to 8 in., Dark Brown (10YR 4/3)

B21t – 8 to 16 in., yellowish brown (10YR 5/8)

B22t – 16 to 28 in., dark brown (10YR 5/6); yellowish red (10YR 5/4) mottles

B23t – 28 to 60 in, reddish yellow (7.5YR 6/6)

4. Naranjito Silt Clay Loam (NaF2) - The taxonomic class for this type of soil is as a clayey, mixed, isohyperthermic Typic Tropohumults. The permeability for Toa series soils range from.6 to 2.0 (in/hr) at all depth. The USDA categorizes the soil texture as sandy loam for the first 4in, clay for the next 20in and clay loam up to 40in. The narajito soils occur on side slopes and hilltops of strongly dissected humid uplands. Slopes range from 12 to 60 percent, but are dominant 40 to 60 percent.

   Ap – 0 to 4 in., Brown to Dark Brown (10YR 3/3)

   B2t – 4 to 12 in., reddish brown (5YR 4/4); mottle (10YR 6/3)

   B3 – 12 to 24 in., yellowish red (5YR 4/6)

   C – 24 to 40 in, yellowish red (5YR 4/6), red (2.5YR 4/6) and light yellow brown (10YR 6/4).

Water Bodies and Drainage Patterns

A portion of the Beatriz creek is located within the site boundary, entering from the southwest boundary of the property and exiting at the northeast boundary. A visual inspection of the site revealed two drainage channels located on the northwest part of the property. The first drainage channel with coordinate: (X=239107.6, Y= 238909.7), is located approximately 1.88km upstream Beatriz creek from the confluence with the Turabo river. The second drainage channel is further upstream, approximately 167m upstream from the fist drainage channel, refer to **Figure 5**.

METHODOLOGY

The technical approach used in this study consisted of a four step evaluation process, which uses as base the level 1 and 2 combination methodology for wetland delineation, following the 1987 Corps of Engineers Wetland Delineation manual.

Step one of the evaluation process consisted of identifying those possible wetland areas within the 70 acre site boundary, as define by section 404 of the Clean Water Act. By using Geographic Information System (GIS) a complete evaluation of site was done using the following maps: Topographic, Soil Survey, National Wetland, Flood Zones and Aerial Photographs; providing the specific and important information for the field data collection effort.

The second step consisted of preliminary site inspection visit to the potential wetland areas. These visit helped validate data gathered during earlier steps of this study. Mean while, the following step consisted of evaluating those potential areas in three categories: hydrology, soil and dominant vegetation, as required by the 1987 Corps of Engineers Wetland Delineation manual.

A total of twenty two (22) sampling points were gathered in several site visits conducted. The following task carried out on this third step, of the four step evaluation approach were; (1) Visual inspection and landscape identification features, (2) Sampling point establishment, (3) Plant community identification within 30 feet of the soil pit, using the 1995 Revision to the National List of Plant Species (Region C), (4) Hydrology description, (5) Soil classification using the Munsell Soil Color Chart, (6) writing the Data Form for routine wetland determination, (7) Photographic documentation of pits area and (8) field delineation using a Trimble (PRO - XR) Global Positioning System (GPS), which operates using the Puerto Rico and Virgin Island NAD 83 coordinate system.

The last step compiled all data collected during the different steps of the study and where used to produce a wetland delineation map and report. Following the final delineation field flagging of the wetland areas was carried out for field identification purposes.

RESULTS

During site evaluation for potential wetland and jurisdictional waters, several locations with U.S. Water where identified within the 70 acre site. Even though the National Wetland Inventory Maps (NWIM) does not posses mapping information with regard to the project region, most of the wetland found within the property can be classified according to the cowarding classification (1979) as Paluastrine wetlands (PEM1C) and Riverine wetland (R2USC). This is a standard definition for all agencies and data reporting as determined by the Federal Geographic Data Committee (1996).

Palaustrine wetland systems are all non-tidal wetland dominated by trees, shrubs, persistent emergent, emergents mosses or lichens, and all such wetland that occur in tidal areas where salinity due to ocean-derived salts in below 0.5 ppt.

Riverine wetlands systems include all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergent, emergent mosses, or lichen, and (2) habitats with water containing ocean-derived salts in excess of 0.5 ppt.

All wetland found within the studied area could be describe as seasonally flooded, meaning, that inundation of the wetland areas varies depending on the yearly watershed hydrology. Even though, wetlands within the area are not inundated all year long, is sufficient to support hydrophitic vegetation and to promote hydric soil characteristics.

A total of 22 sampling point were taken at the 70 acre site to evaluate for wetland and non-wetlands areas. **Figure 6** show all sampling points taken for the study. All sampling points where evaluated for: (1) hydric soils, (2) hydrophitic vegetation and (3) hydrology if a positive identification of all these parameters was found within the sampling point then it was considered a wetland, if one the of parameters was negative then the area was classified as a non-wetland. **Table 1** provides a complete overview of the sampling point results, also included within the table is the location of each sampling point. A copy of all data forms used in the wetland identification process can be found in **Appendix A**.

The study revealed that approximately 10.4 acres of the site can be classified as paluastrine and riverine wetland jurisdictional wetlands and approximately 1,535 lineal meters as United States Water. **Figure 7** shows the wetland

delineation result and US Water identification over a 1999 aerial photography. **Appendix B** shows all picture taken during the evaluation process.

Table 1: Sampling Points Location and Results.

Sampling Points	Hydrophitic Vegetation	Hydrology Present	Hydric Soil	Results	Coordinates a/ X	Y
P-1	+	+	+	Wetland	239861	238931
P-2	+	+	+	Wetland	239861	238923
P-3	-	-	-	Non-Wetland	239859	238909
P-4	+	+	+	Wetland	239838	238906
P-5	-	-	-	Non-Wetland	239820	238883
P-6	-	-	-	Non-Wetland	239808	238873
P-7	-	-	-	Non-Wetland	239784	238882
P-8	+	+	+	Wetland	239787	238917
P-9	-	-	-	Non-Wetland	239807	238966
P-10	+	+	+	Wetland	239811	238991
P-11	+	+	+	Wetland	239732	238966
P-12	-	-	-	Non-Wetland	239729	238991
P-13	+	+	+	Wetland	239560	238988
P-14	+	-	-	Non-Wetland	239395	238957
P-15	+	+	+	Wetland	239388	238929
P-16	+	+	+	Wetland	239300	238927
P-17	+	-	-	Non-Wetland	239228	238989
P-18	+	-	-	Non-Wetland	239142	238866
P-19	+	-	-	Non-Wetland	239148	238682
P-20	+	+	+	Wetland	239113	238707
P-21	+	-	-	Non-Wetland	239096	238816
P-22	+	+	+	Wetland	239096	238821

a/ Coordinates were taken with a Trimble (PRO - XR) Global Positioning System (GPS), which operates using the Puerto Rico and Virgin Island NAD 83 coordinate system

CONCLUSION AND RECOMMENDATION

The wetland Jurisdictional Delineation conducted revealed the presence of 10.4 acres of wetland and 1,553 lineal meter of US Water within the 70 acre area under the jurisdiction of the U.S. Army Corps of Engineers, by virtue of section 404 of the Clean Water Act of 1972, as amended. This determination is supported by; (1) the presence of the three parameters needed for wetland identification and (2) Superficial hydrological connection with other wetland or U.S. Waters.

Given imminent possibility of impacting parts of some of the identified wetland during the construction phase of the project, a formal permitting process may need to be initiated with the regulatory Division of the Antilles Regulatory Section of the United State Army Corps of Engineer. It is policy of the USCE and the Environmental Protection Agency (EPA), through a Memorandum of Understanding, that a sequence of steps has to be considered during the design of any project impacting jurisdictional wetlands.

An attempt to avoid any wetland impact should be considered and managed during the design phase of this project. If for any reason the impact to the wetland areas is imminent than a minimization of impact should be carried out, fallowing with a mitigation plan for the unavoidable wetland impact

Impacts to wetland area by future activities (ex. Sediment deposit by dredging activities) should be determine by a preparation of an updated Jurisdictional Determination for the areas, for avoiding a higher unknown impact. Future changes in hydrology could alter the area of those identified wetland, resulting in a slight difference in delineation.

REFERENCE

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APPENDIX A

Routine Wetland Determination Data Forms
(1987 COE Wetland delineation Manual).

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

Project/Site: Beatriz / Caguas Applicant/Owner: AAA / GME Investigator: David L. Aponte	Date: Mar 26, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: Transect ID: P-1 Plot ID: P-1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Mimosa Casta	V	OBL	9.		
2. Alocasia Macrorrhizos	H	FACW+	10.		
3. Mimosa Pigra	S	FACW	11.		
4. Paspalum fasciculatum	H	FAC	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/4 = 100% of dominant species are OBL, FACW, FAC

Remarks:

HYDROLOGY

- (*) Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - (*) Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

- Depth of Surface Water: None (in.)
- Depth to Free Water in Pit: None (in.)
- Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- (*) Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- (*) FAC-Neutral Test 4 : 0
- ___ Other (Explain in Remarks)

Remarks: El lugar parece un area de almacenamiento ó estancamiento de agua proveniente de un pequeño drenaje.

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): Isohyperthermic fluventic hapludolls Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 4/4	10YR 3/1	15%	Clay Loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
X Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Beatriz Reservoir / Bo. Beatriz Applicant/Owner: GME / ABA Investigator: David Aponte	Date: Mar. 26, 2007 County: _____ State: _____
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Paspalum fasciculatum	H	FAC	9.		
2. Alocasia macrorrhizos	H	FACW+	10.		
3. Mimosa Casta	V	OBL	11.		
4. Mimosa Pigra	S	FACW	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/4 = 100% of hydrophitic Vegetation.

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- * Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- * FAC-Neutral Test 4 : 0
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): isohyperthermic vertic paleudalfs Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 3/3	10YR 2/1	10%	Clay loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	(Circle)
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Beatriz Reservoir / Bo. Beatriz	Date: MAR 26, 2007
Applicant/Owner: GME / AAA	County: Caguas
Investigator: David L. Aponte	State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No	Community ID:
Is the site significantly disturbed (Atypical Situation)? Yes (No)	Transect ID:
Is the area a potential Problem Area? Yes (No)	Plot ID: P-3
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Spathodea campanulata	T	UPL	9.		
2. Cyclopeltis semicordata	H	FacU	10.		
3. Mimosa casta	V	OBL	11.		
4. Albizia carbonaria	T	UPL	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 1/4 = 25% of Hydrophytic Vegetation

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

* No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____
Field Observations
Taxonomy (Subgroup): isohyperthermic vertic paleudalfs Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 4/3	None	None	Clay Loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 3/92

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Beatriz Reservoir Applicant/Owner: David Aponte Dones Investigator:	Date: Mar 26, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-4

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fuirena umbelata	H	OBL	9.		
2. Paspalum millegrana	H	FACW	10.		
3. Mimosa casta		OBL	11.		
4. Mimosa pigra	S	FACW	12.		
5. Cyperus odoratus		FACW+	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/5 = 100% Hydrophytic Vegetation

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ✱ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): isohyperthermic vertic paleudalfs Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 3/2	10YR 3/1	20%	Clay Loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- * Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Raices Oxidadas en la muestra de suelo

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	(Circle)
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: _____	Date: _____
Applicant/Owner: _____	County: _____
Investigator: _____	State: _____
Do Normal Circumstances exist on the site? Yes No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? Yes No	Transect ID: _____
Is the area a potential Problem Area? Yes No	Plot ID: P-5
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Cyclopeltis semicordata	H	FACU	9.		
2. Albizia corbonaria	T	UPL	10.		
3. Spathodea campanulata	T	UPL	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0/3 = 0% Hydrophytic Vegetation

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): isohyperthermic vertic paleudalfs Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 4/6	10YR 5/3	5%	Clay loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? Yes (No) (Circle)

Remarks:

Approved by HQUSACE 3/92

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Beatriz Reservoir Applicant/Owner: GHE / AAA Investigator: David L. Aponte Dones	Date: May 26, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-6

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Albizia carbonaria	T	FACU	9.		
2. Spathodea campanulata	T	UPL	10.		
3. Cyclopeltis semicordata	H	UPL	11.		
4. Wedelia calycina	H	FAC+	12.		
5. Mimosa casta	V	OBL	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/5 = 40%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): isohyperthermic vertic paleudalfs Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR(4/3)	None	None	Clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: Beatriz Reservoir Applicant/Owner: GME / AAA Investigator: David L. Aponte	Date: Mar 26, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-7

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Albizia cerbonaria	T	FACU	9.		
2. Spathodea campanulata	T	UPL	10.		
3. Mimosa Casta	V	OBL	11.		
4. Cyplopeltis semicordata	H	upl	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 1/4 = 25%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Data collection point located starting the Expressway Embankment.

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): isohyperthermic vertic paleudalfs Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 4/3	None	None	Clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: Boating Reservoir Applicant/Owner: CMS / AAA Investigator: David L. Aponte	Date: _____ County: Caguas State: P.R
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-8

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Mimosa casta	V	OBL	9.		
2. Mimosa pudica	H	FACW	10.		
3. Paspalum fasciculatum	H	FAC	11.		
4. Mimosa pigra	S	FACW	12.		
5. Alocasia macrorrhiza	H	FACW	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/5 = 100 %

Remarks: The alocasia macrorrhiza had dryness sign from lack of rain fall.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	None	(in.)
Depth to Free Water in Pit:	None	(in.)
Depth to Saturated Soil:	None	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test 5 : 5
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): isohyperthermic vertic paleudolfs Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8		10YR 3/2	None	—	Clay
8-18in		10YR 3/1	None	—	Clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
X Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: Beatrix / Bo Beatrix Applicant/Owner: GME / AAA Investigator: David L. Aponte Dones	Date: May 26, 2004 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-9

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Paspalum paniculatum	H	FAC	9.		
2. Albizia campanulata	T	FACU	10.		
3. Cyclopeltis semicordata	H	UPL	11.		
4. Spathodea campanulata	T	UPL	12.		
5. Triumfetta semitriloba	H	FAC	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/5 = 40%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): fluventic hapludolls Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-13		10YR 5/3	none	none	Silty clay loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No) (Circle)	(Circle)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	Is this Sampling Point Within a Wetland? Yes (No)

Remarks: Area look like a evelated area.

Approved by HQUSACE 3/92

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: _____	Date: March 26, 2004
Applicant/Owner: _____	County: Caguas
Investigator: David Aponte Dones	State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No	Community ID: _____
Is the site significantly disturbed (Atypical Situation)? Yes (No)	Transect ID: _____
Is the area a potential Problem Area? Yes (No)	Plot ID: P-10
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Cyperus Odoratus	H	FACW+	9.		
2. Cyperus polystachyuos	H	FACW	10.		
3. Colocasia esculenta	H	OBL	11.		
4. Mimosa Pingra	S	FACW	12.		
5. Alternanthera philoxeroides	H	OBL	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/5 = 100 %

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: 12 (in.)

Depth to Saturated Soil: 4 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- X Water Marks
- ___ Drift Lines
- X Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test 5 : 0
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): fluventic hapludolls Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6		10YR (3/6)	none	none	Sandy Clay
6-18		Grey 1 (3/1)	none	none	Sandy Clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: Beatriz / Bo. Beatriz Applicant/Owner: GME / AAA Investigator: David Aponte	Date: March 26, 2004 County: Canovanas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-11

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Cyperus odoratus	H	FACW+	9.		
2. Cyperus polystachy	H	FACW	10.		
3. Mimosa pinga	S	FACW	11.		
4. Brachearia purpurascens	H	FACW-	12.		
5. Ipomea setifera	V	FACW	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 5/5 = 100 %

Remarks:

HYDROLOGY

- * Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - ___ Aerial Photographs
  - ___ Other
- * No Recorded Data Available

Field Observations:

- Depth of Surface Water: None (in.)
- Depth to Free Water in Pit: 6 (in.)
- Depth to Saturated Soil: 3 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- * Water Marks
- * Drift Lines
- ___ Sediment Deposits
- * Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- * FAC-Neutral Test 5 : 0
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): Fluvaquic haplu dolls Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4		10YR (3/6)	none	—	Sandy Clay
4-18		Gley1 3/1	none	—	Sandy Clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: Beatriz Reservoir / Ba. Beatriz Applicant/Owner: Investigator: David Aponte	Date: Mar 26, 2007 County: State:
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: Transect ID: Plot ID: P-12

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Alocasia macrorrhiza	H	FACW	9.		
2. Spathodea campanulata	T	UPL	10.		
3. Spathodea campanulata	S	UPL	11.		
4. Albizia campanulata	T	UPL	12.		
5. Andropogon leucostachys	H	FAC	13.		
6. Albizia campanulata	S	UPL	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/6 = 33 %

Remarks:

HYDROLOGY

* Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- * Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: Beatriz Reservoir Applicant/Owner: GHE / AAA Investigator: David Aponte Dones.	Date: _____ County: _____ State: _____
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-13

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Spathodea campanulata	T	UPL	9.		
2. Mimosa Pigra	S	FACW	10.		
3. Cyperus odoratus	H	FACW+	11.		
4. Colocasia esculenta	H	OBL	12.		
5. Cyperus Polystachyous	H	FACW	13.		
6. Ruellia tuberosa	H	FACU	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/6 = 66%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: None (in.)

Depth to Saturated Soil: 8 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- X Water Marks
- X Drift Lines
- X Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test 4
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0 - 8		7.5 4/6	Gley1 2.5/1	10%	Sandy Clay
8 - 16		Gley 2.5/1	None	—	Sandy Clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- * Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	(Circle)
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Beatriz / Bo. Beatriz Applicant/Owner: GME / AAA Investigator: David L Aponte	Date: March 26, 2007 County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-14

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Mimosa Casta	V	OBL	9.		
2. Mimosa Pinera	S	FACW	10.		
3. Brachiara plantaginea	H	UPL	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/3 = 66%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 4/4	None	—	Sandy Clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 3/92

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Beatty Reservoir Applicant/Owner: _____ Investigator: David Aponte Dones	Date: _____ County: Caguas State: PuertoRico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: D-15

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Mimosa Pigra	S	FACW	9.		
2. Mimosa Casta	H	OBL	10.		
3. Alocasia Macrorrhiza	H	FACW	11.		
4. Monosa Pellita	H	UPL	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 3/4 = 75%

Remarks:

HYDROLOGY

- (*) Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - (*) Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

- Depth of Surface Water: None (in.)
- Depth to Free Water in Pit: None (in.)
- Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- (*) Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5		10YR 4/4	–	–	Silty Clay loam
5-18		10YR 4/4	10YR 2/1	30%	Silty Clay loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
* Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: Beatrie Applicant/Owner: _____ Investigator: David Aponte Dones	Date: _____ County: _____ State: _____
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-16

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Alocasia macorrhiza	H	FACW	9.		
2. Mimosa Casta	V	Obl	10.		
3. Mimosa Pigra	S	Obl	11.		
4. Paspalum Conjugatum	H	FAC	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/4 = 100 %

Remarks:

HYDROLOGY

- ✱ Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - ✱ Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

- Depth of Surface Water: None (in.)
- Depth to Free Water in Pit: None (in.)
- Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ✱ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ✱ FAC-Neutral Test 3 : 0
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 4/3	10YR 2/1	5%	Silty Clay Loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: Beating Applicant/Owner: _____ Investigator: David Aponte	Date: _____ County: _____ State: _____
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-14

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Mimosa Casta	V	OBL	9.		
2. Mimosa Pigra	S	FACW	10.		
3. Brachiara plonteginea	H	UPL	11.		
4. Mimosa Pigra	H	FACW	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 3/4 = 75%

Remarks:

HYDROLOGY

* Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge * Aerial Photographs ___ Other ___ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated ___ Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data * FAC-Neutral Test 3:1 ___ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____(in.) Depth to Free Water in Pit: _____(in.) Depth to Saturated Soil: _____(in.)	

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 4/4	None	-	Silty Clay loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: Beatriz / Bo. Beatriz Applicant/Owner: _____ Investigator: David Aponte	Date: _____ County: _____ State: _____
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-18

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Mimosa Pigra	S	FACW	9.		
2. Mimosa Pigra	H	FACW	10.		
3. Alocasia Macrorrhiza	H	FACW	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 3/3 = 100%

Remarks:

HYDROLOGY

- X Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - X Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

- Depth of Surface Water: _____(in.)
- Depth to Free Water in Pit: _____(in.)
- Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test 3/0
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Confirm Mapped Type? Yes No

Taxonomy (Subgroup): _____

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR(5/4)	None	—	Silty Clay loam.

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: Beatriz Applicant/Owner: _____ Investigator: David Aponte	Date: _____ County: Caguas State: Puerto Rico
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-19

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Mimosa casta	V	OBL	9.		
2. Alocasia Macrorrhiza	H	FACW	10.		
3. Wedelia trilobata	H	NI	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/3 = 66%

Remarks:

HYDROLOGY

- (X) Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - (X) Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

- Depth of Surface Water: None (in.)
- Depth to Free Water in Pit: None (in.)
- Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- (X) FAC-Neutral Test 2 : 1
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 4/3	None	None	None

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Beatriz Applicant/Owner: _____ Investigator: _____	Date: _____ County: _____ State: _____
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-20

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Alocasia macorrhiza	H	FACW	9.		
2. Wedelia trilobata	H	NI	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 1/2 = 50%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 3/1	None	—	silty Clay Loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- Yes Gleyed or (Low-Chroma Colors)
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	(Circle)
Wetland Hydrology Present?	(Yes) No	Is this Sampling Point Within a Wetland? (Yes) No
Hydric Soils Present?	(Yes) No	

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: _____ Applicant/Owner: _____ Investigator: _____	Date: _____ County: _____ State: _____
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: Punto-21

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Wedelia trilobata	H	NI	9.		
2. Alocasia Macrorhizos	H	FACW	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 1/2 = 50%

Remarks:

HYDROLOGY

(X) Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- (X) Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: None (in.)

Depth to Free Water in Pit: None (in.)

Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 4/4	None	None	None

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 3/92

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

Project/Site: _____ Applicant/Owner: _____ Investigator: _____	Date: _____ County: _____ State: _____
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: P-22

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Alocasia Macrorrhizos	H	FACW	9.		
2. Cyperus Polystachyous	H	FACW	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/2 = 100%

Remarks:

HYDROLOGY

Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- (X) Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:
- Depth of Surface Water: None (in.)
- Depth to Free Water in Pit: None (in.)
- Depth to Saturated Soil: None (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- (X) Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- (X) Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- (X) FAC-Neutral Test 2/2
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 3/1	None	None	None

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

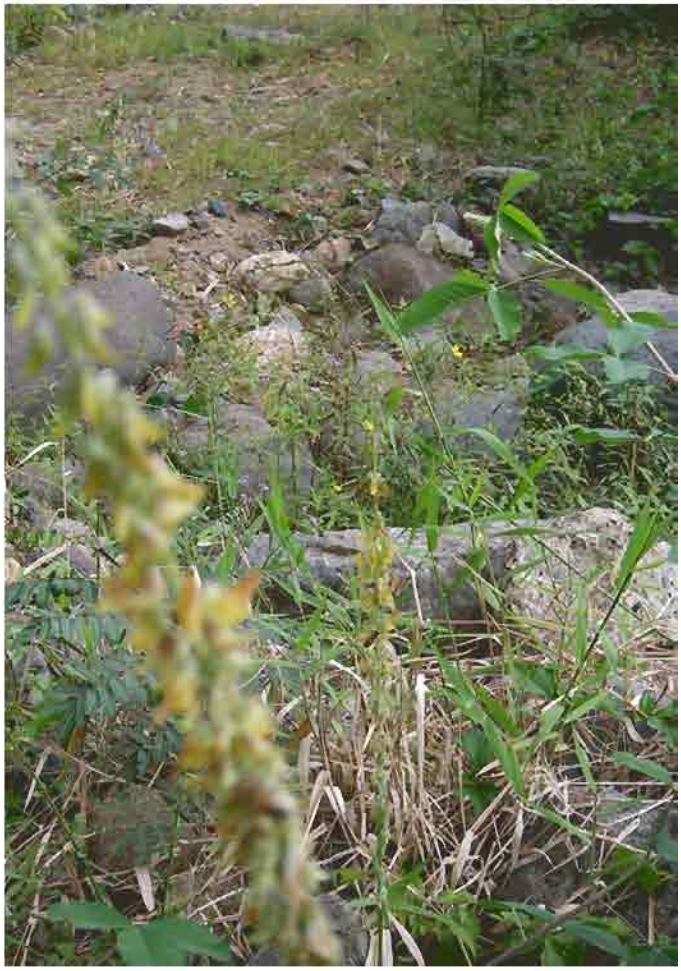
(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

APPENDIX B

Photographic Log for sampling area and points of interest.




1 2 3 4 5 6 7 8 9 10 11 12 13 14


Punto 15

FIGURES

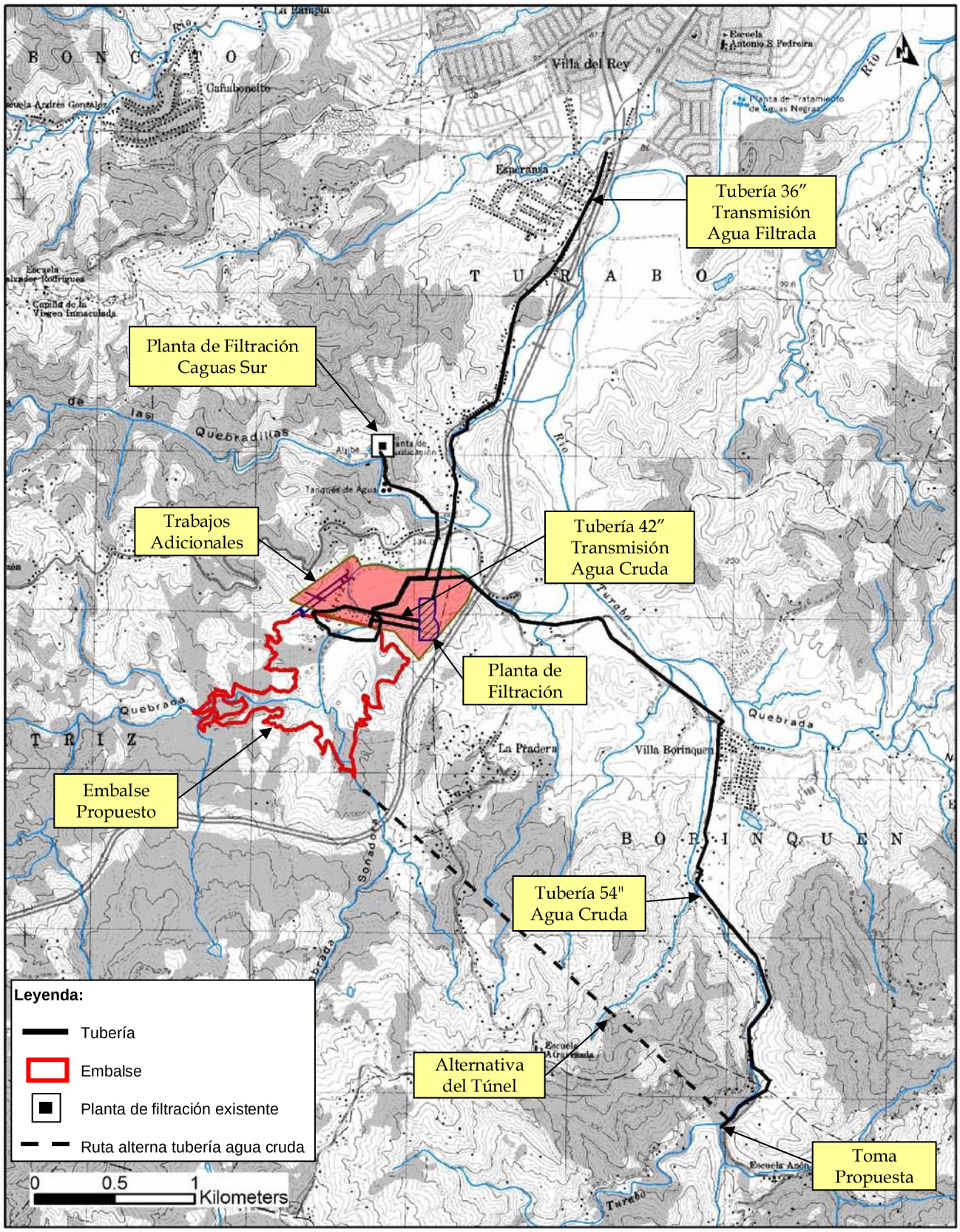


Figure 1: Complete over view of the Beatriz Reservoir Project.

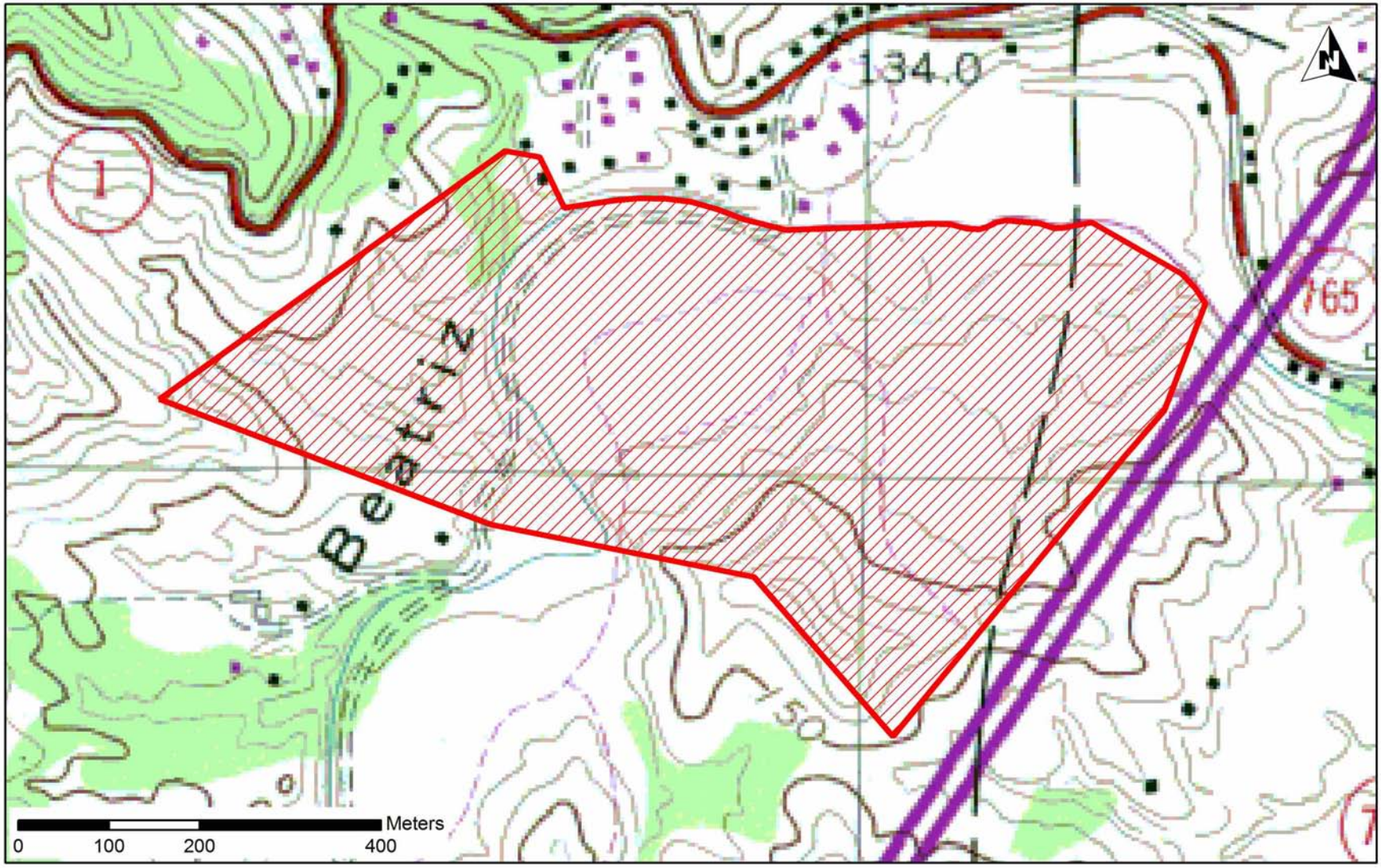


Figure 2: Topographic features for the 70 acre studied area, on the USGS topographic map.

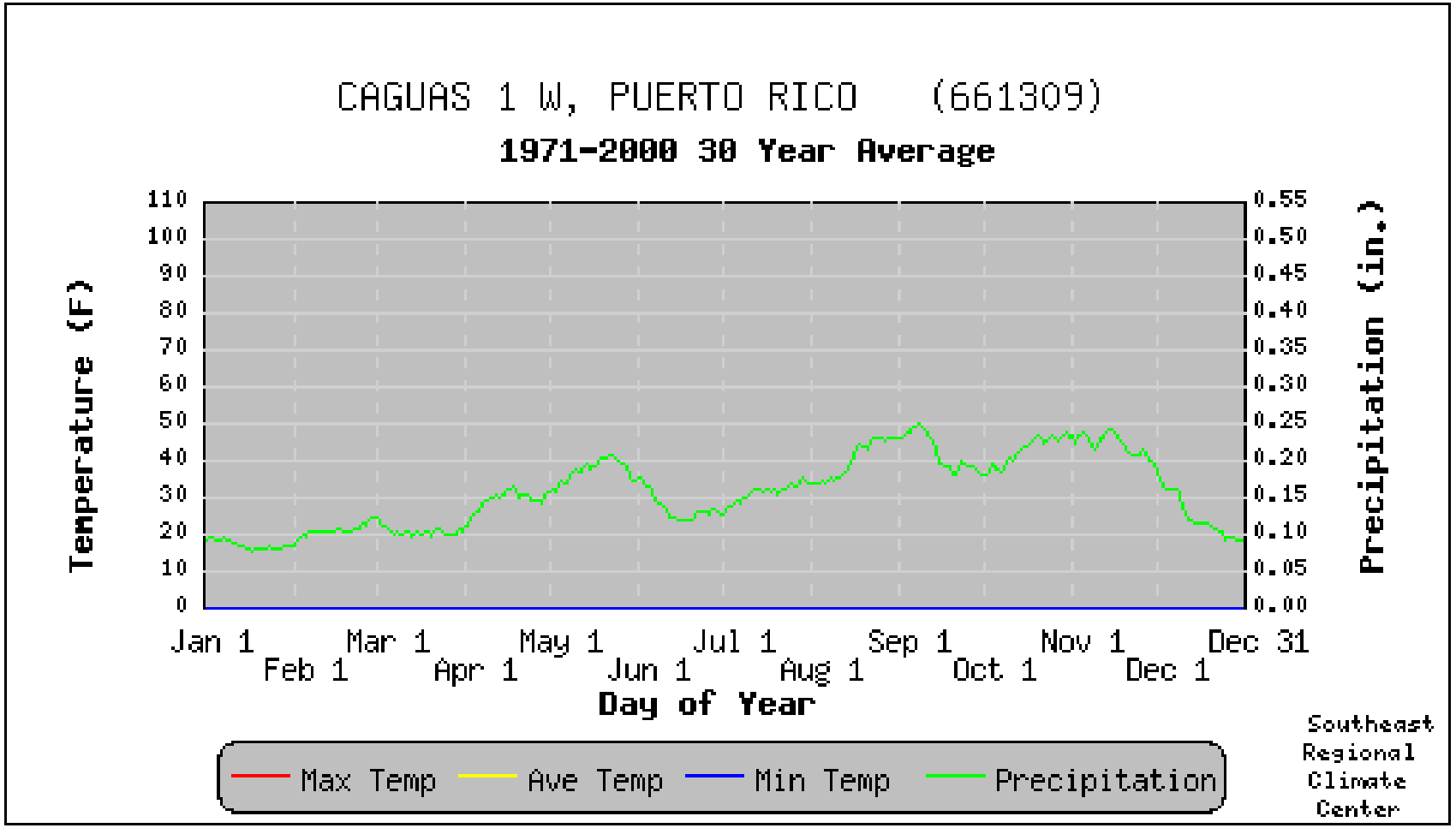


Figure 3: Graphical Representation of the rainfall tendency in the Caguas Region

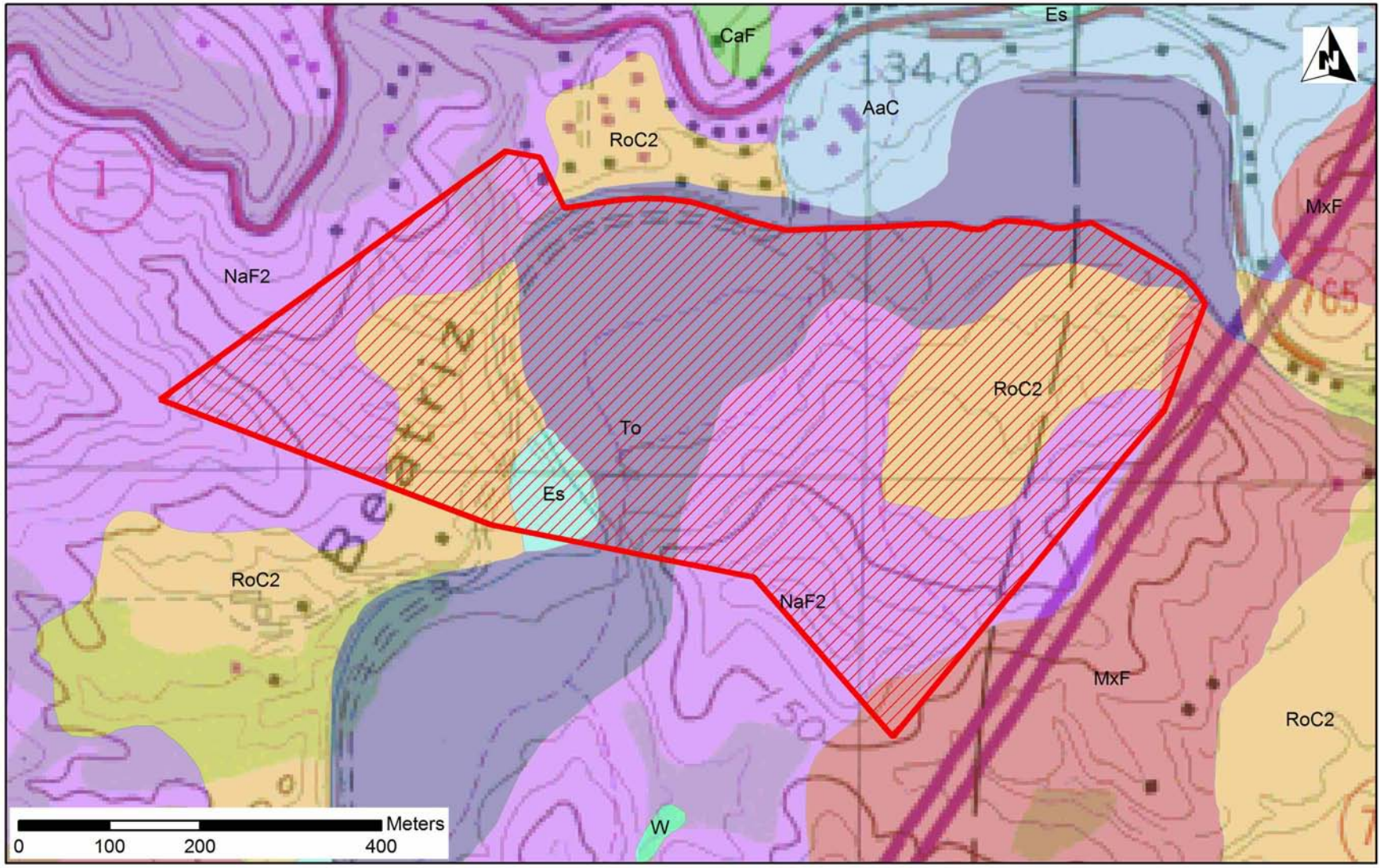


Figure 4: Sites soil classification map, using the Soil Survey of San Juan Area.

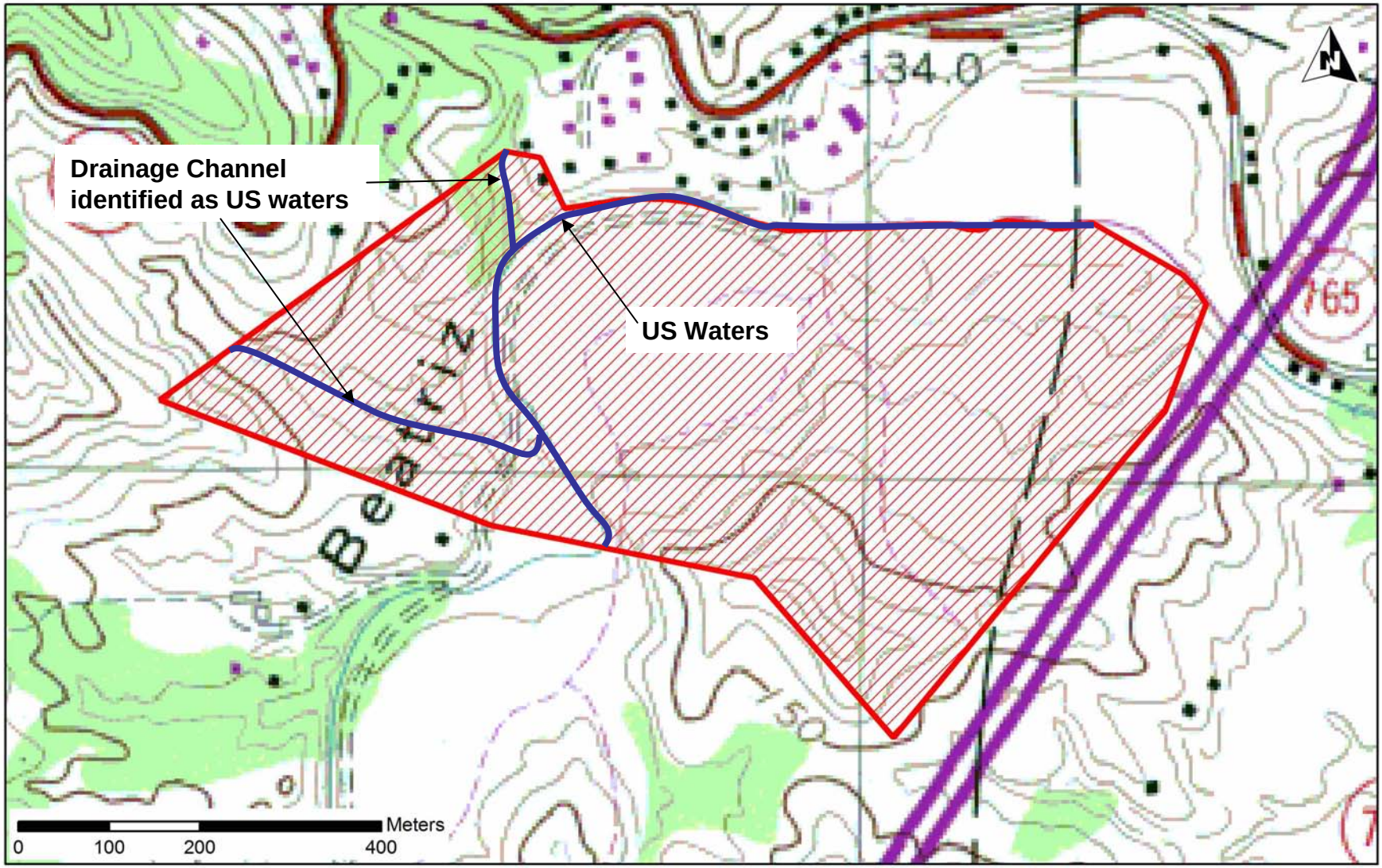


Figure 5: USGS topographic map showing both drainage channels observed.

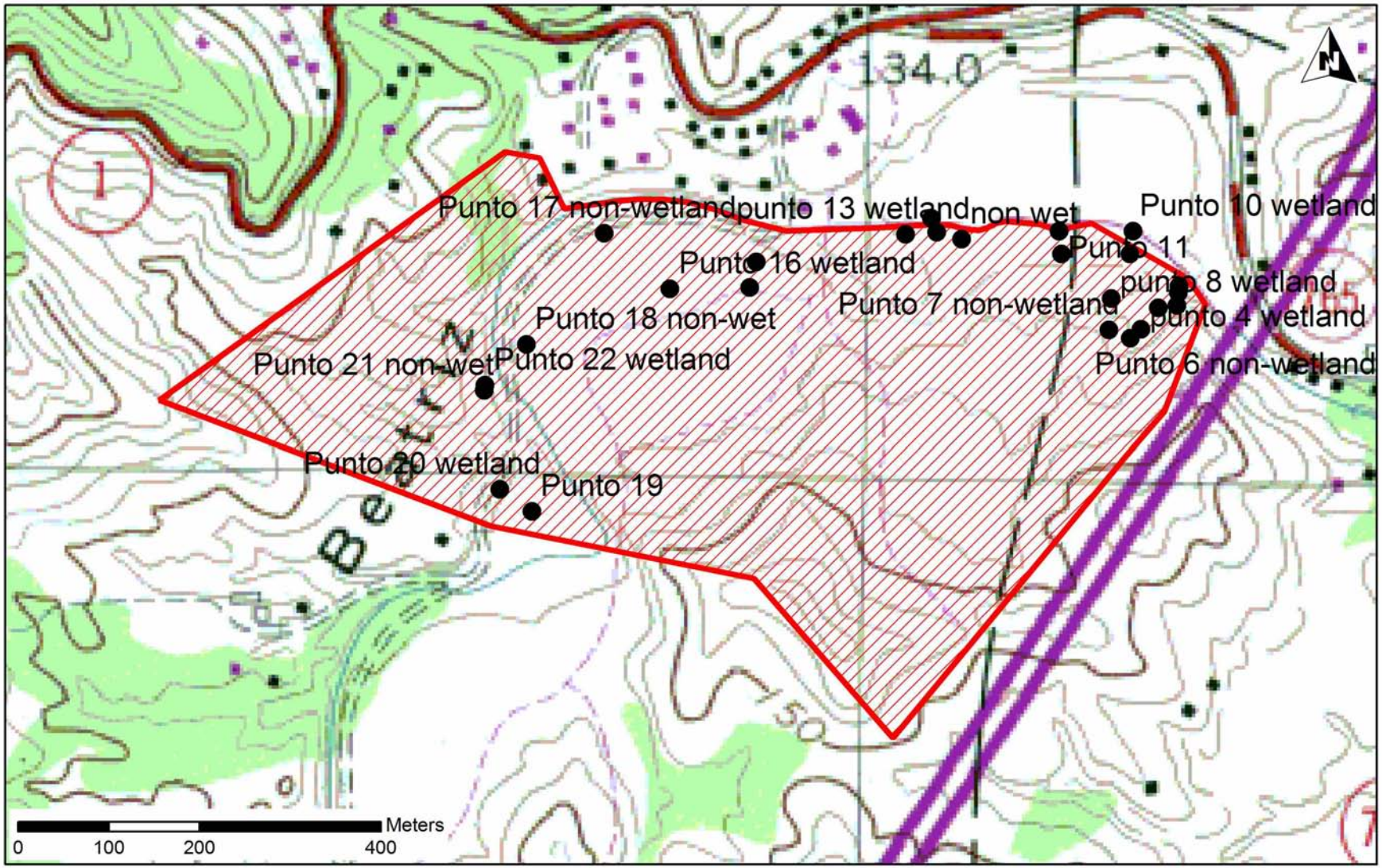


Figure 6: Topographic map showing all sampling point location.

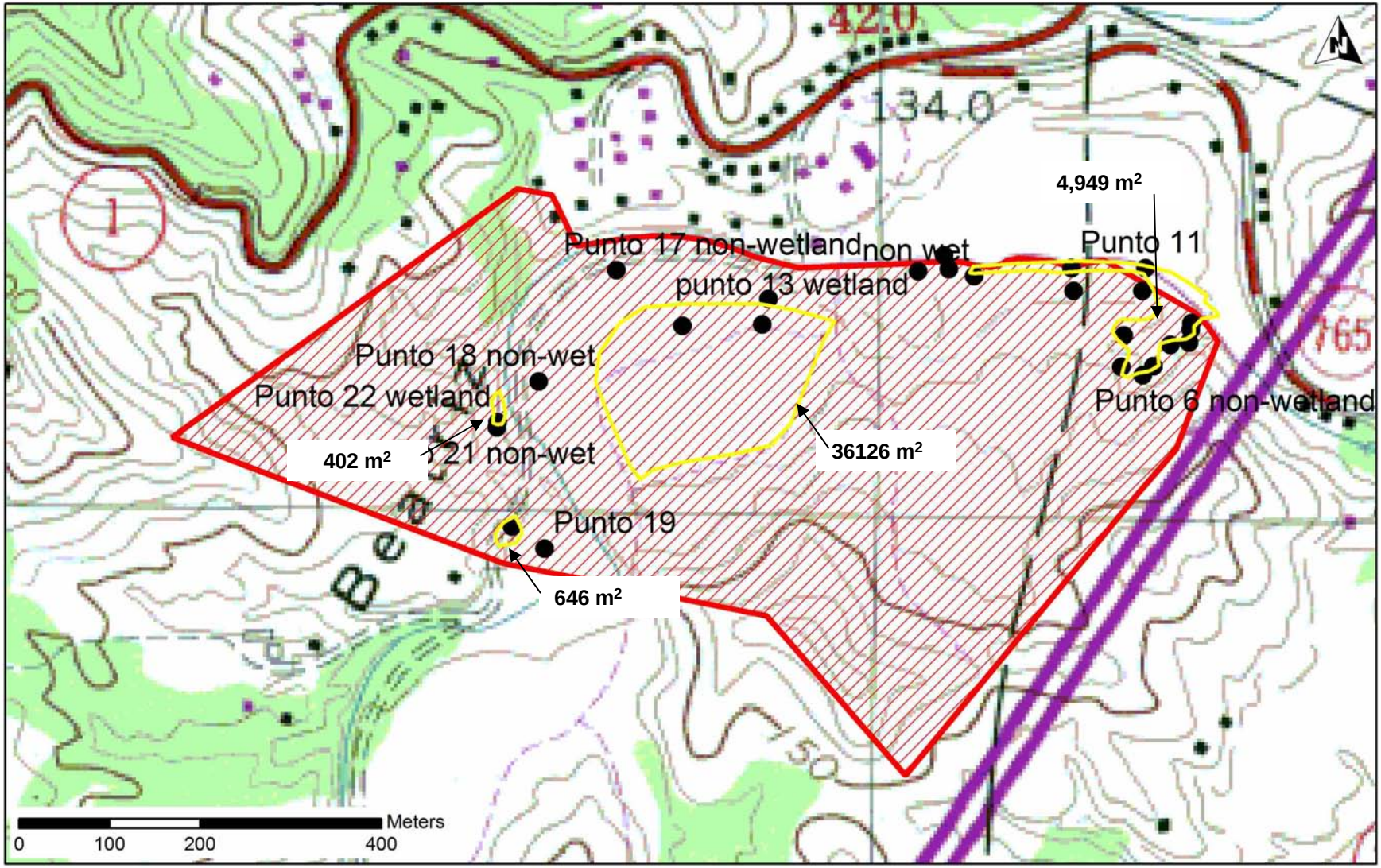


Figure 7: Wetland Delimitation and US Water identification USGS Topographic Map.

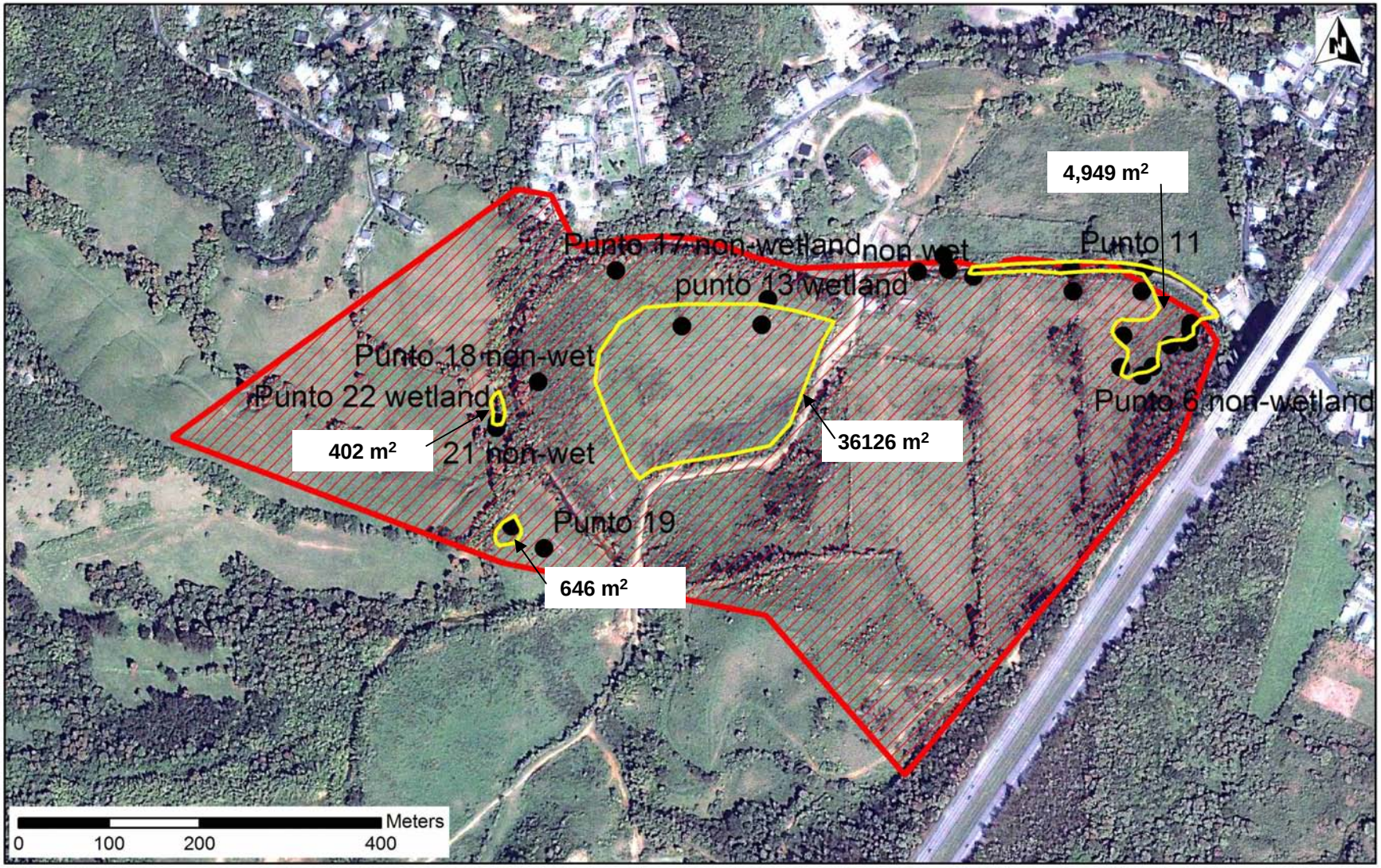


Figure 8: Wetland Delineation and US Water identification over an aerial photography