APPENDIX G SEDIMENT SAMPLING REPORT AND EPA COMMUNICATION

Sediment Sampling at Carraízo Reservoir, Puerto Rico, May 2021



September, 2021

PREPARED FOR:

Autoridad de Acueductos y Alcantarillados
GOBIERNO DE PUERTO RICO

PREPARED BY:

GLM Engineering Group, PSC
742 Prolongación Paz St.
Santurce, PR 00907
P.O. Box 9024157, San Juan, PR, 00902
Tel. 1-(787)-723-8005
www.glmengineers.com

GLM ENGINEERING - GROUP

TABLE OF CONTENTS:

1. PROJECT OVERVIEW 3

2. SEDIMENT CHARACTERIZATION 3

   2.1. Carraízo Reservoir Sediment Sampling 3
   2.2. Containment Areas Sediment Sampling 7
   2.3. Sediment Physical Characterization 10
   2.4. Sediment Chemical Characterization 15
   2.5. Sampling, Analysis and Results 16

3. COLUMN SETTLING TEST 18

   3.1. Objective 18
   3.2. Test Description and Setup 18
   3.3. Slurry Settling Characteristics 19
   3.4. Supernatant Water Quality 23

LIST OF APPENDIXES:

Appendix A: Sediment Cores Photographs

Appendix B: Sediment Physical Characterization: Jaca & Sierra Laboratory Results

Appendix C: Sediment Chemical Characterization: EQ Lab Report

Appendix D: Water Quality Sampling: EQ Lab Report

LIST OF FIGURES:

Figure 1: Vibecore sediment sampling equipment used in Carraízo reservoir. 4

Figure 2: Vibracore setup used to collect the sediment samples at Carraizo reservoir (May, 2021). 4

Figure 3: Location of sediment cores collected in Carraizo during the month of May, 2021. 5

Figure 4: Sediment core showing the presence of sand (Core Sample No. 2). This core was collected ~ 1 km upstream of the dam. The upper part of this core contained fine material from post-hurricane deposits. 6

Figure 5: Very coarse sand and gravel in Sediment Core Sample No. 9. Note the dark gravel at the tip of the knife blade. 6

Figure 6: Dredging containment areas location. Containment areas No. 1 and No. 1 are the closest to Carraízo reservoir and were the primary areas used in the 1998 dredging. 7

Figure 7: Sediment sampling in the containment areas (June, 2021). 8

Figure 8: Location of sediment sampling in Containment Area no. 1 (June 2021). 8

Figure 9: Location of sediment sampling in Containment Area no. 2 (June, 2021). 9

Figure 10: Location of sediment sampling in Containment Area no. 3 (June, 2021). 9

Figure 11: Visual characteristics of samples from the Containment Areas (June, 2021). 10

Figure 12: Grain size along the length of Carraízo reservoir (May 2021). 13

Figure 13: Coarse sediment fraction at different sampling locations. 14

Figure 14: Column settling test setup and initial filling. 19

Figure 15: Conceptual Plot of Interface Height Versus Time (USACE EM 1110-2-5025). 20

Figure 16: Column settling test results for Carraízo sediments showing the depth to sediment interface. Different initial concentrations were used for the two tests. 20

Figure 17: Photograph showing discrete sediment/water interface during the column settling test. .21

Figure 18: Bulking Factor over time from two column settling tests. 22

Figure 19: Total Suspended Solids concentration of supernatant water from Column Settling Test No. 2. 23

LIST OF TABLES:

Table 1: Geotechnical laboratory results for Carraizo sediment samples. 11

Table 2: Geotechnical laboratory results for containment areas sediment samples. 11

Table 3: Sediment samples at Carraizo reservoir resulting D50 and D85 12

Table 4: Parameters for Chemical and Toxicity Analysis of Sediment Samples. 15

Table 5: TCLP results above Detection Limits for Containment Area samples. 16

Table 6: TCLP results above Detection Limits for Carraízo reservoir sediment samples. 17

Table 7: Column settling test parameters. 18

Table 8: Characteristic Values for Sediment Bulking Factor (adapted from Herbich). 22

Table 9: Column Settling Tests results. 22

1. PROJECT OVERVIEW

Carraízo reservoir, located on the Loíza River, is the largest source of drinking water supply for San Juan, with an average rate of extraction of 90 mgd (3.95 m^3/s). However, sediment accumulation is reducing reservoir volume. A dredging project has been proposed as a measure to combat sedimentation.

The reservoir was previously dredged in 1997, depositing the dredged material into three diked containment areas. This material has partially consolidated, and there was also a portion of the diked volume that was not used. It is desired to re-use these containment areas, with the additional possibility of removing some of the sediment to make room for material from a new dredging activity.

Sediment sampling has been undertaken to characterize the sediment in the reservoir and also in the three containment areas. This characterization includes both granulometry and chemical analysis to determine if hazardous contaminants are present.

2. SEDIMENT CHARACTERIZATION

2.1. Carraízo Reservoir Sediment Sampling

Sediment core samples were obtained during May 2021 using vibracore equipment manufactured by Specialty Devices Inc. using 3-inch diameter thin-walled aluminum tubes 6-feet long (Figure 1). The sampling tubes were vibrated into the sediment to the point of rejection due to coarse sediments or buried debris, or until the core had penetrated to its full length into soft sediments. Recovered sediment core lengths varied from 24 inches in sand to 60 inches (full penetration) in fine sediment. The vibracore setup used at Carraizo is shown in Figure 2. A total of 10 cores were collected and their locations are identified in Figure 3. Additional cores were also taken to provide sufficient material for the column settling tests and for additional sediment characterization related to a proposed aeration system. Data from these additional cores are reported only for granulometry, as will later be presented in Figure 13.

Core samples were extruded from the coring tube (Figure 4) and the extruded cores were photographed and examined, looking for indicators of sediment layers (for example, alternating fine and coarse sediments). **Appendix A** shows photographs for each of the sediment cores. Two sub-samples were taken from each core for laboratory testing, except for cores no. 4, 5 and 9 where only one sample was collected, for a total of 17 samples.

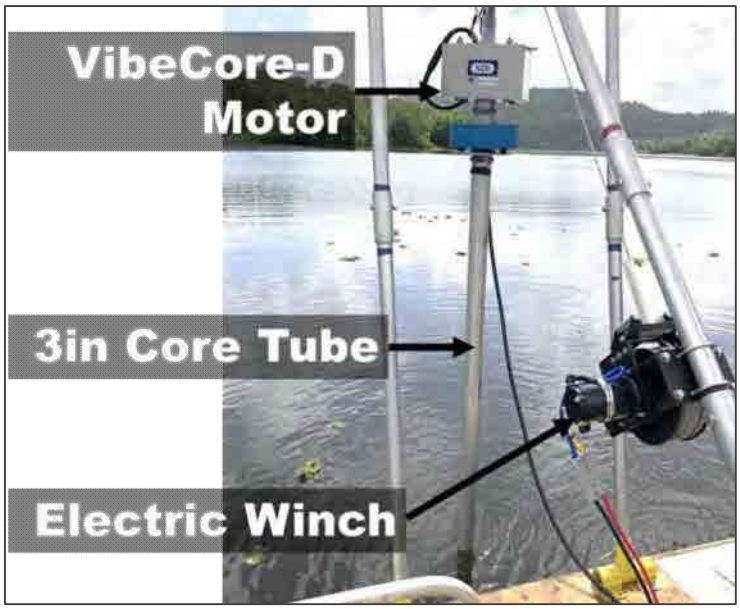


Figure 1: Vibecore sediment sampling equipment used in Carraízo reservoir.



Figure 2: Vibracore setup used to collect the sediment samples at Carraizo reservoir (May, 2021).

Most of the cores contained primarily fine-grained material throughout. However, a clear example of sand prograding over previously deposited fines can be seen in the photograph in Figure 4. Sand was carried deep into the reservoir by the high velocities during hurricane María with all spillway gates open, and layers of sand were found along the entire length of the reservoir except for the last sampling location adjacent to the dam. We have encountered similar sand deposits in other tropical reservoirs, such as Dos Bocas and Peligre (Haiti), subject to periodic large inflows and high velocities. There were also examples of organic layers within the fine sediment corresponding to periods of organic accumulation (leaves) during quiescent periods between sedimentation (flood) events.

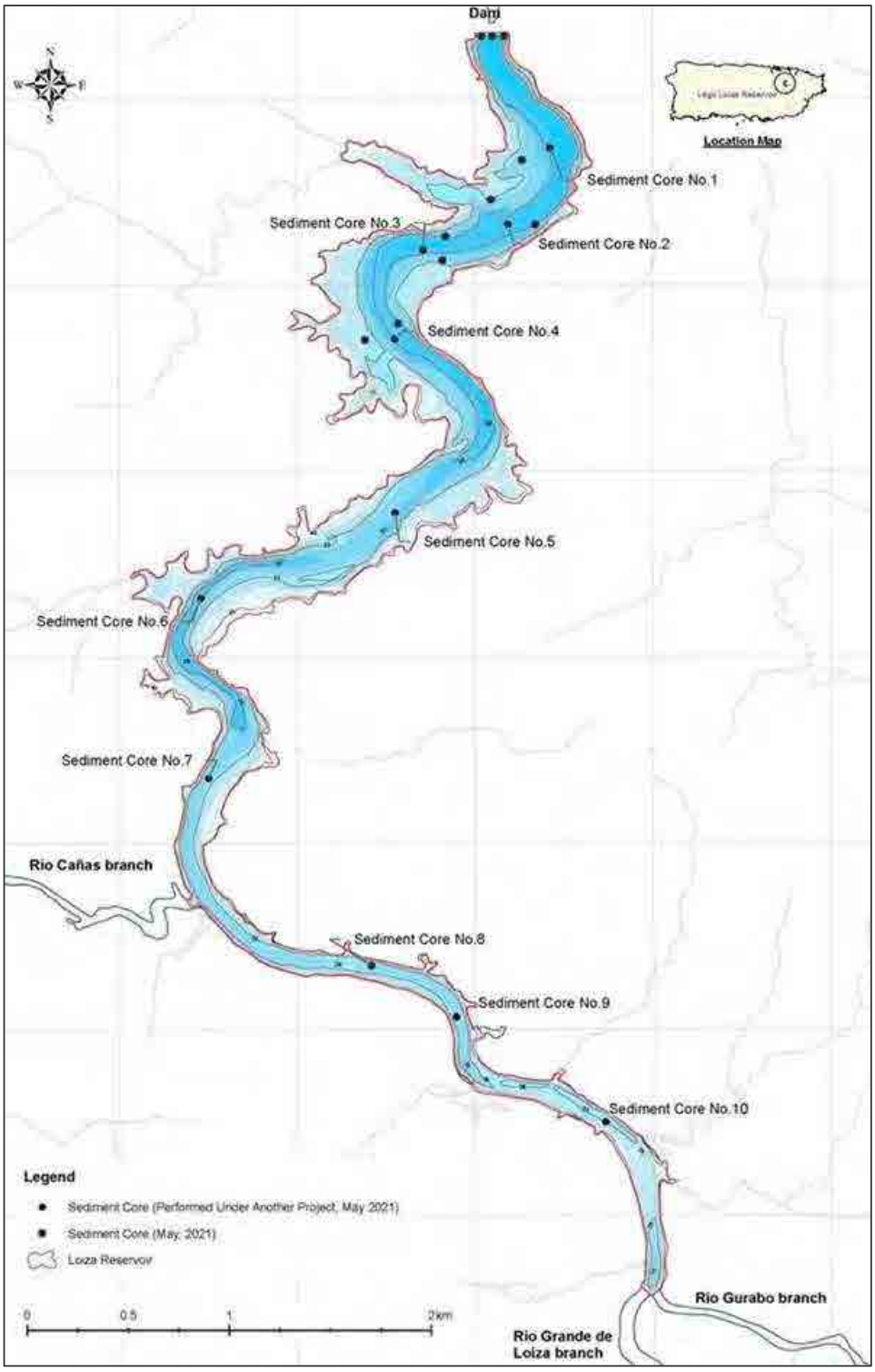


Figure 3: Location of sediment cores collected in Carraízo during the month of May, 2021.

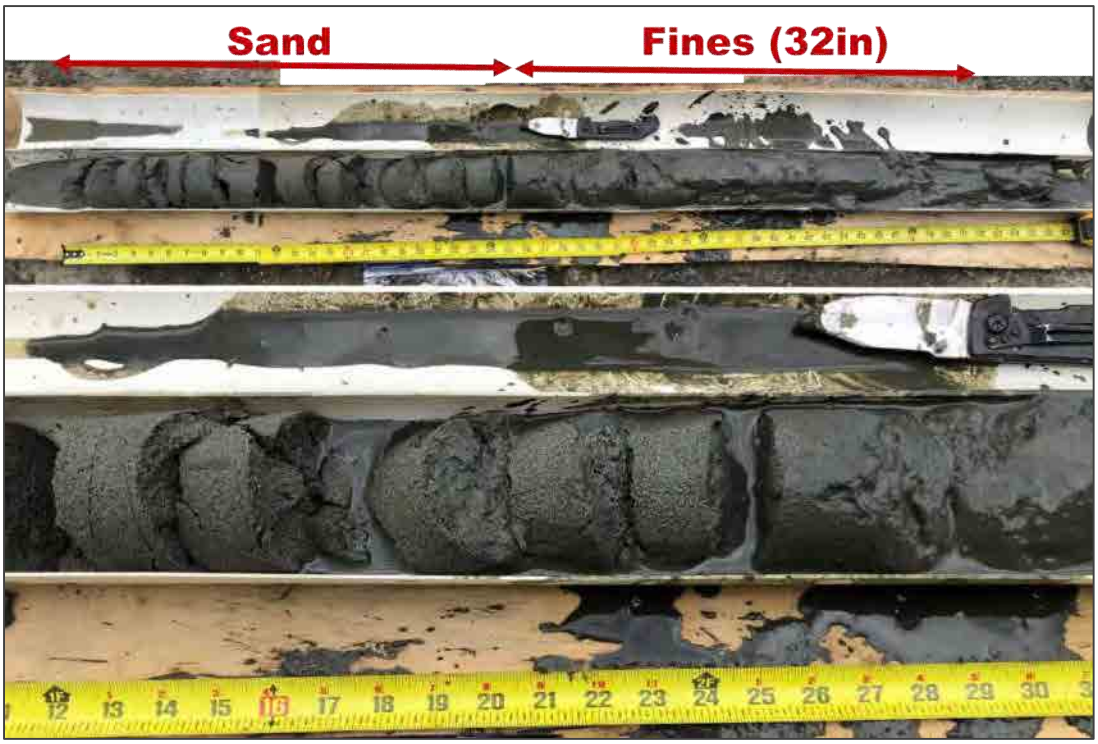


Figure 4: Sediment core showing the presence of sand (Core Sample No. 2). This core was collected ~ 1 km upstream of the dam. The upper part of this core contained fine material from post-hurricane deposits.



Figure 5: Very coarse sand and gravel in Sediment Core Sample No. 9. Note the dark gravel at the tip of the knife blade.

2.2. Containment Areas Sediment Sampling

Sediment samples were also collected at the three existing dredging containment areas located upstream of the reservoir. The locations for these areas are presented in Figure 6. Containment Area No. 1 is closest to the reservoir and was the primary area used in the 1997 dredging, and is largely filled. Two sediment samples were collected at each of the containment areas. A hand soil auger was used to collect the samples up to a depth of 48 inches, as shown in Figure 7.

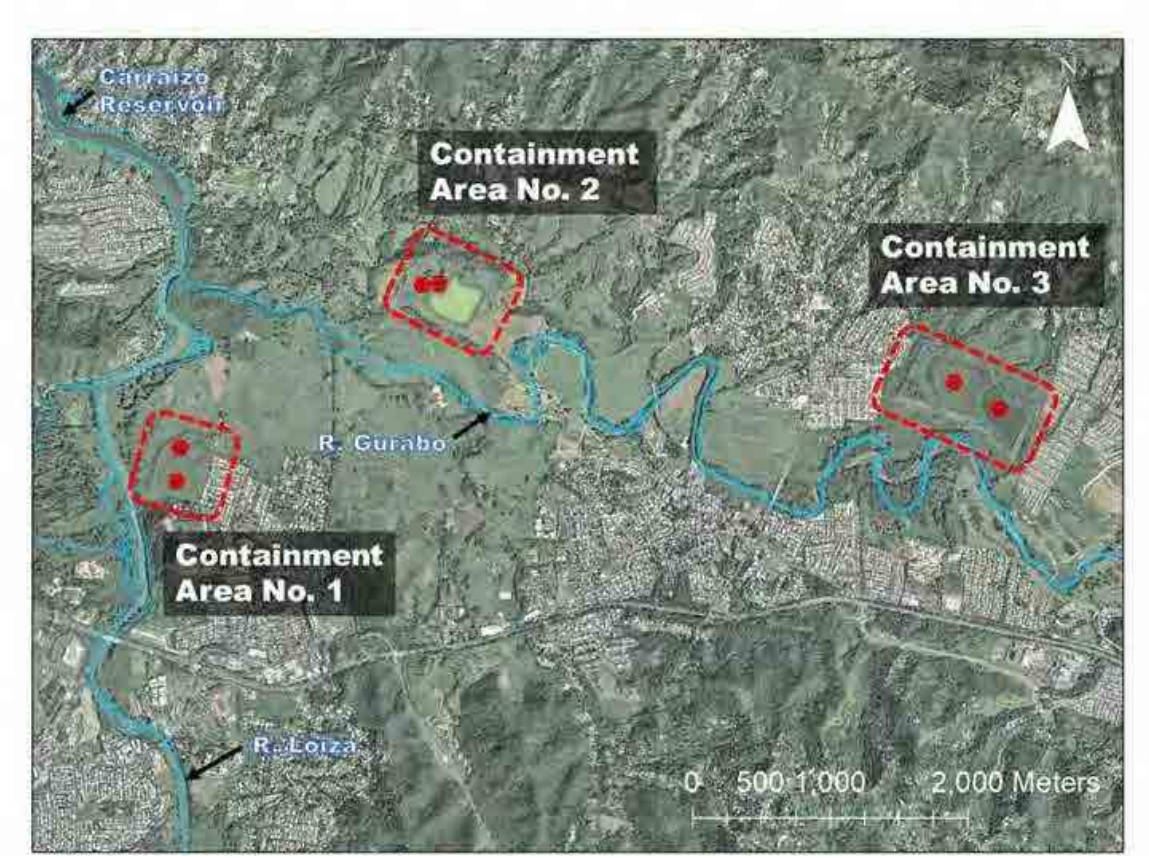


Figure 6: Dredging containment areas location. Containment areas No. 1 and No. 1 are the closest to Carraízo reservoir and were the primary areas used in the 1998 dredging.

Figure 8, Figure 9, and Figure 10 show the sample collection locations in each of the containment areas. Sampling at Containment Area No. 2 (Figure 9) was limited to the western half of the area because most of the easter side was inundated. The presence of sandy soil was noticeable in containment area No. 1, which received dredged material from of the upper part of the reservoir where sediment deposits were sandy due to deltaic deposits. Sediment sampling from Containment Areas 2 and 3 revealed very fine poorly consolidated sediment, very similar to the sediment cores collected in the reservoir. Photographs of samples collected from the containment areas are presented in Figure 11.



Figure 7: Sediment sampling in the containment areas (June, 2021).



Figure 8: Location of sediment sampling in Containment Area no. 1 (June 2021).



Figure 9: Location of sediment sampling in Containment Area no. 2 (June, 2021).



Figure 10: Location of sediment sampling in Containment Area no. 3 (June, 2021).



Figure 11: Visual characteristics of samples from the Containment Areas (June, 2021).

2.3. Sediment Physical Characterization

Samples were delivered to Jaca Sierra soils laboratory in San Juan for granulometric analysis. Coarse sediment (>0.062mm) was sized by mechanical sieve and the fine sediment fraction (silt and clay) was determined by hydrometer. The samples were processed by ASTM 6913, ASTM D422, and ASTM D854 methods, except that samples were analyzed using reservoir water and without the addition of a deflocculant, to obtain the natural flocculation effect of the sediment in the reservoir.

Geotechnical laboratory test results for sediments from the reservoir are summarized in Table 1 and samples from the Containment Areas are summarized in Table 2. Geotechnical laboratory reports are reproduced in Appendix B.

Table 1: Geotechnical laboratory results for Carraizo sediment samples.

Sample ID	Moisture Content (%)	Specific Gravity, 20°C	Atterberg Limits			Particle Size Distribution		
			PL	LL	PI	%Gravel	%Sand	%Fines
Sample No. 1-A	85.0	2.665	31	54	23	0	0.8	99.2
Sample No. 1-B	85.0	2.665	29	45	16	0	6.1	93.9
Sample No. 2-A	33	2.651	NP	NV	NP	0.2	93	6.8
Sample No. 2-B	90	2.695	30	42	12	0	5.6	94.4
Sample No. 3-A	75	2.659	27	51	24	0	5.2	94.8
Sample No. 3-B	100	2.668	33	54	21	0	1.7	98.3
Sample No. 4-A	31	2.665	NP	NV	NP	0	88.1	11.9
Sample No. 5-A	49	2.656	30	46	16	0	28.6	71.4
Sample No. 6-A	21	2.665	NP	NV	NP	5.7	88.6	5.7
Sample No. 6-B	84	2.696	29	35	6	0	25.3	74.7
Sample No. 7-A	102	2.765	30	44	14	0	8.5	91.5
Sample No. 7-B	31	2.653	NP	NV	NP	0	95.5	4.5
Sample No. 8-A	60	2.696	27	49	22	0	1.2	98.8
Sample No. 8-B	120	2.66	32	50	18	0.3	11.8	87.9
Sample No. 9-A	44	2.682	NP	NV	NP	35.4	57.3	7.3
Sample No. 10-A	69	2.66	28	38	10	0	11.9	88.1
Sample No. 10-B	98	2.642	30	47	17	0	13.2	86.8

Table 2: Geotechnical laboratory results for containment areas sediment samples.

Sample ID	Containment Area	Moisture Content (%)	Specific Gravity, 20°C	Particle Size Distribution		
				%Gravel	%Sand	%Fines
Sample No.21	1	43	2.639	0	8.4	91.6
Sample No.22	1	16	2.71	0	30.8	69.2
Sample No.23	2	41	2.701	0	32.4	67.6
Sample No.24	2	80	2.699	0	7.4	92.6
Sample No.25	3	72	2.663	0	4.5	95.5
Sample No.26	3	37	2.634	0	4.8	95.2

Granulometric results reflect the presence of a significant sand layer in many of the cores. The d50 and d85 diameters (50% and 85% of the sample finer than) are presented in Table 3. These data are also shown graphically in Figure 12, plotted as a function of distance from the dam. As expected, the d50 and d85 diameters are larger at the upper part of the reservoir were most of the granular material is

deposited. It also noted the presence of sand in the entire length of the reservoir, a condition caused due to the high velocities generated during Hurricane Maria when the water level in the reservoir was lowered and Carraízo flowed as a river with high velocities transporting sand along the length of the reservoir. This condition impeded fine sediment deposition during this large event. Figure 13 shows the average percent of sand size or larger material along the reservoir using data from all sediment samples collected in May 2021, including the additional samples closer to the dam for the aeration study.

Table 3: Sediment samples at Carraizo reservoir resulting D50 and D85

Sample ID	D50 (mm)	D85 (mm)
Sample No. 1-A	0.0173	0.0345
Sample No. 1-B	0.0275	0.0461
Sample No. 2-A	0.1916	0.2719
Sample No. 2-B	0.0268	0.0411
Sample No. 3-A	0.0229	0.0324
Sample No. 3-B	0.0184	0.0288
Sample No. 4-A	0.1773	0.2483
Sample No. 5-A	0.0315	0.184
Sample No. 6-A	0.618	1.57
Sample No. 7-A	0.022	0.0591
Sample No. 7-B	0.2372	0.3768
Sample No. 8-A	0.0063	0.0355
Sample No. 8-B	0.025	0.0664
Sample No. 9-A	1.1601	27.2053
Sample No. 10-A	0.0239	0.0597
Sample No. 10-B	0.0266	0.0704

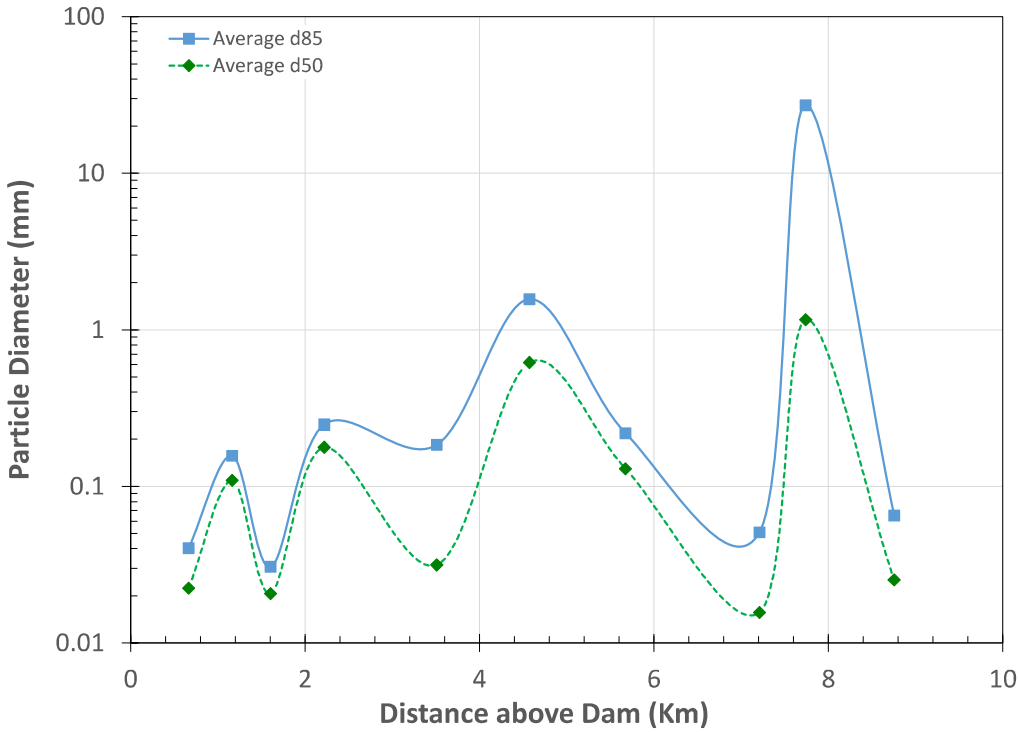


Figure 12: Grain size along the length of Carraízo reservoir (May 2021).

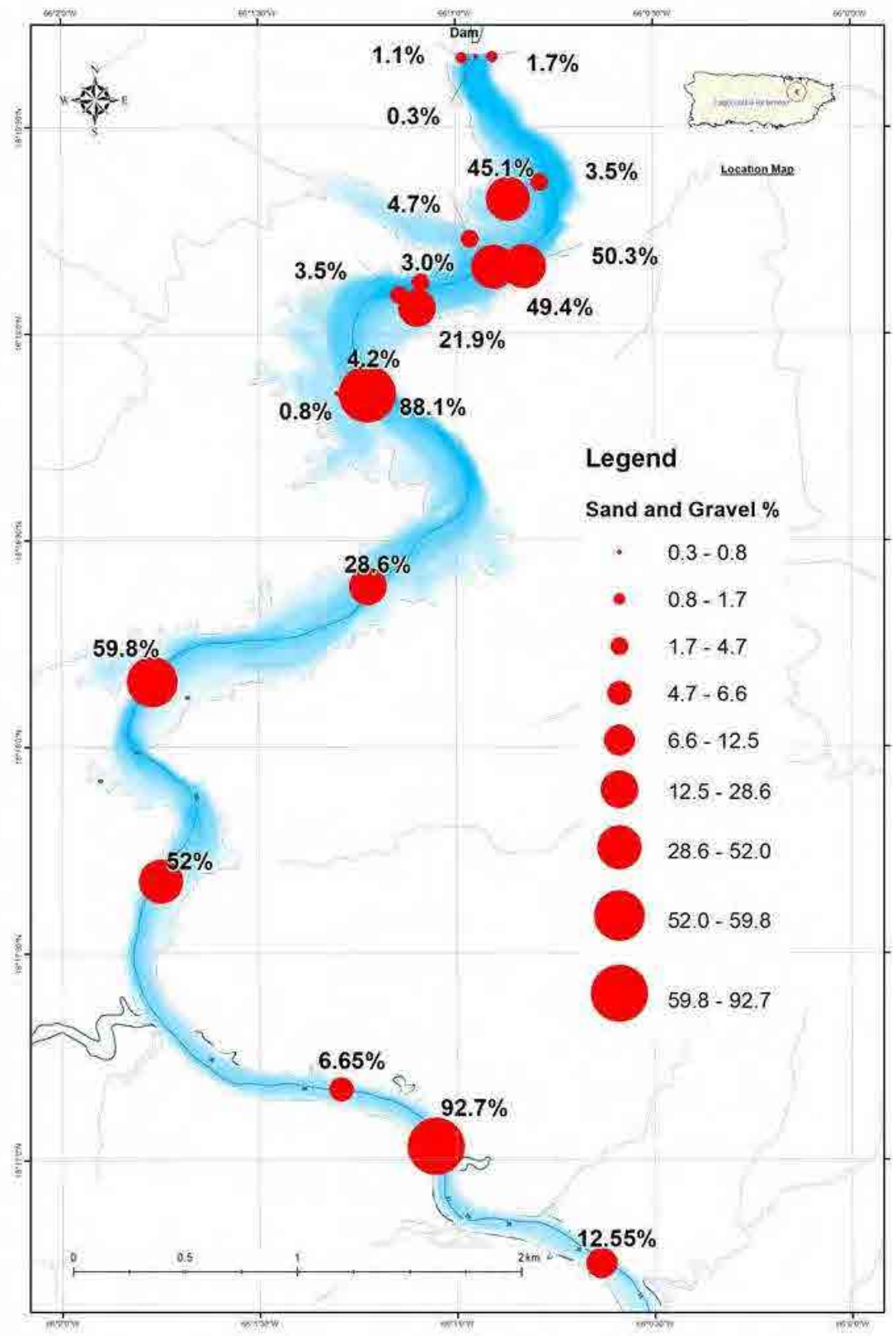


Figure 13: Coarse sediment fraction at different sampling locations.

2.4. Sediment Chemical Characterization

Sediment was sampled and analyzed to determine if significant contaminants are present in the sediments that could be subject to leaching if these sediments are disturbed or relocated. The sub-samples for chemical testing were collected by a technician from EQ Lab, which also performed the analysis. A total of 17 samples were collected and analyzed from the reservoir, and 6 additional samples were collected from the three containment areas, two samples in each containment area. Each sediment sample was analyzed for Releasable Sulfide, Organic Matter, corrosivity and pH; TCLP Herbicides, TCLP VOC's, TCLP Semi volatiles and TCLP Pesticides; TCLP ICP 6010 (metals) and TCLP Mercury and Releasable Cyanide. A complete list of the chemicals and toxics measured is presented in Table 4.

Table 4: Parameters for Chemical and Toxicity Analysis of Sediment Samples.

Parameter	Method
Corrosivity, pH (RCRA)	EPA 9045C
Ignitability	EPA 1030
Releasable Cyanide	SW 846 - 7.3.3
Releasable Sulfide	SW 846 - 7.3.4
TCLP - ICP 6010 B-Arsenic - Total	EPA 6010B
TCLP - ICP 6010 B-Barium -Total	EPA 6010B
TCLP - ICP 6010 B-Cadmium - Total	EPA 6010B
TCLP - ICP 6010 B-Chromium - Total	EPA 6010B
TCLP - ICP 6010 B-Lead - Total	EPA 6010B
TCLP - ICP 6010 B-Selenium - Total	EPA 6010B
TCLP - ICP 6010 B-Silver - Total	EPA 6010B
TCLP VOC	EPA 8260B
TCLP HERBICIDES	EPA 8151A
TCLP Mercury	EPA 7470A
TCLP PESTICIDES	EPA 8081A
TCLP SEMIVOLATILES	EPA 8270C

The Toxicity Characteristic Leaching Procedure (TCLP) performed on samples is an analytical test designed to model a theoretical scenario in which a waste is mismanaged by placing it in an unlined landfill containing municipal solid waste. The acetic acid solution used for extraction in Method 1311 is designed to simulate the result of rainwater infiltrating the landfill, reacting with the municipal solid waste to create an acidic leachate, and which then drains through the waste being tested. The numerical limits for the RCRA toxicity characteristic (40 CFR 261.24) were derived using the same scenario and were set at levels that would prevent contamination of groundwater under the landfill from posing a threat to human health and the environment. This procedure was developed by EPA in

the late 1980s and promulgated in March, 1990[1]. Several revisions have since been made to the TCLP Procedure to clarify and improve results. If the resulting concentrations are less than the regulatory threshold for the parameter, the Maximum Contaminant Level (MCL), the sample is classed as non-hazardous.

2.5. Sampling, Analysis and Results

Sediment samples were obtained along the length of the reservoir using a vibracore sampler on May 25 and 27, 202. All the results and the methods used are presented in Appendix C. Test results above Detection Limits (DL) for for Containment Area samples are given in Table 5 and results for reservoir sediments are tabulated in Table 6. Any tested chemical parameter that resulted in a value below the detection limit has not been listed in these tables.

As can be seen in Table 5 and Table 6, all detectable TCLP parameters remain well below Maximum Contaminant Levels (MCL). Therefore, all samples are characterized as non-hazardous, most of them by several orders of magnitude. Overall, we may consider Carraízo reservoir sediments to be "clean" and free of contaminants. This means that re-suspension or relocation of reservoir sediment by dredging or other processes is not expected to produce a chemical contaminant hazard.

Table 5: TCLP results above Detection Limits for Containment Area samples.

Sample ID	EQ Lab Sample ID	Parameter	Result (mg/l)	Det. Limit, DL (mg/l)	Maximum Contaminant Level, MCL (mg/l)
21	3494187	Barium (T)	0.05	0.050	100
		Cadmium (T)	0.0025	0.0025	1.0
		Selenium (T)	0.15	0.15	1.0
22	3494188	Barium (T)	0.219	0.050	100
		Selenium (T)	0.05	0.15	1.0
23	3494189	Barium (T)	1.37	0.050	100
		Cadmium (T)	0.0070	0.0025	1.0
24	3494190	Arsenic (T)	0.05	0.050	100
		Barium (T)	1.60	0.050	100
		Cadmium (T)	0.0090	0.0025	1.0
25	3494191	Barium (T)	1.58	0.050	100
		Cadmium (T)	0.0070	0.0025	1.0
26	3494190	Barium (T)	0.890	0.050	100
		Cadmium (T)	0.0030	0.0025	1.0
		Selenium (T)	0.20	0.15	1.0

Note: parameters tested but with concentrations below detection limit are not listed above.

[1] Federal Register Vol. 55 No. 61, March 29, 1990.

Table 6: TCLP results above Detection Limits for Carraízo reservoir sediment samples.

Sample ID	EQ Lab Sample ID	Parameter	Result (mg/l)	Det. Limit, DL (mg/l)	Maximum Contaminant Level, MCL (mg/l)
1-A	3476924	Barium (T)	1.06	0.050	100
		Mercury (T)	0.0004	0.0002	0.2
1-B	3476925	2-Butanone	1.94	1.5000	200
		Barium (T)	1.28	0.050	100
		Cadmium (T)	0.0070	0.0025	1.0
		Mercury (T)	0.0005	0.0002	0.2
2-A	3476135	Barium (T)	1.40	0.050	100
2-B	3476170	Barium (T)	0.775	0.050	100
3-A	3476171	Barium (T)	1.23	0.050	100
		Selenium (T)	0.19	0.15	1.0
3-B	3476172	Barium (T)	1.14	0.050	100
		Selenium (T)	0.16	0.15	1.0
4-A	3476173	Barium (T)	1.20	0.050	100
4-B	3476174	Barium (T)	0.940	0.050	100
		Mercury (T)	0.0002	0.0002	0.2
5-B	3476175	Barium (T)	0.875	0.050	100
6-A	347176	Barium (T)	0.950	0.050	100
		Mercury (T)	0.0068	0.0002	0.2
6-B	347177	Barium (T)	1.07	0.050	100
7-A	3476178	Barium (T)	0.770	0.050	100
		Mercury (T)	0.0002	0.0002	0.2
7-B	3476179	Barium (T)	1.44	0.050	100
		Cadmium (T)	0.0030	0.0025	1.0
8-A	3476926	Barium (T)	1.4	0.050	100
		Selenium (T)	0.19	0.15	1.0
8-B	3476927	Barium (T)	1.23	0.050	100
9-B	3476180	Barium (T)	0.660	0.050	100
10-A	3476181	Barium (T)	1.16	0.050	100
10-B	3476182	Barium (T)	1.12	0.050	100
		Cadmium (T)	0.0060	0.0025	1.0
		Mercury (T)	0.0014	0.0002	0.2

Note: parameters tested but with concentrations below detection limit are not listed above.

3. COLUMN SETTLING TESTS

3.1. Objective

Two column settling tests were performed using a composite sample comprising fine sediments collected from multiple locations in the reservoir. The column settling test determines the bulking factor, the ratio of the volume occupied by the dredged material in the containment area compared to its *in situ* volume in the reservoir. This test determines the settling and compaction characteristics of dredged sediment as an aid in determining the volume required for the confined disposal facility (CDF).

3.2. Test Description and Setup

The test was performed following the procedure outlined in USACE EM 1110-2-5025 (Dredging and Dredged Material Management, Appendix H). The test is only run on the fine fraction of the sediment (<0.062 mm). Two tests were run, one with a high sediment concentration and a second one with a lower concentration, thereby encompassing the range of concentrations that may occur as a result of dredging. Table 7 summarizes the parameters for each test.

Table 7: Column settling test parameters.

Parameter	Column No. 1	Column No. 2
Settling Column Height	72 in	72 in
Settling Column Diameter	8in	8in
Water Volume, galllons [A]	8.5	10.7
Sediment Volume, gallons	7.5	5.3
Percent In Situ Solids in Slurry	47%	33%
Sediment Concentration	300 g/l	190 g/l

[A] Water used in the analysis was obtained from Carraizo reservoir to simulate the same water chemistry conditions that will be present during the discharge of the dredged material into a containment area.

Sediment from retrieved by vibecore sampling at multiple locations in the reservoir was composited for the column settling test. Eight (8) gallons of sediments were used and vigorously mixed with water from the reservoir in a large container for subsequent filling of the column. A clear 8 in diameter by 6 ft tall PVC column was employed for the test (Figure 14).



Figure 14: Column settling test setup and initial filling.

3.3. Slurry Settling Characteristics

The settling process can be categorized according to four basic classifications:

a. Discrete settling, where the particle maintains its individuality and does not change in size, shape, or density during the settling process.

b. Flocculant settling, where particles agglomerate during the settling period with a change in physical properties and settling rate.

c. Zone settling, where the flocculant suspension forms a lattice structure and settles as a mass (the high solids concentration partially blocks the release of water and hinders settling of neighboring particles), and a distinct interface between the slurry and the supernatant water is exhibited during the settling process.

d. Compression settling, where settling occurs by compression of the lattice structure. All of the above sedimentation processes may occur simultaneously in a placement area, and any one may control the design of the placement area.

The EM 1110-2-5025 presents the following description of the settling process:

"Discrete settling describes the sedimentation of coarse particles. The important factors governing the sedimentation of fine-grained dredged material are the initial concentration of the slurry, the salinity of the carrier water, and the flocculating properties of the solid particles. Because of the high influent solids concentration and the tendency of fine-grained particles to flocculate, either flocculant or zone settling behavior normally describes sedimentation in containment areas.

Sedimentation of freshwater sediments at slurry concentrations of 100 g/L can generally be characterized by flocculant settling properties. As slurry concentrations or salinity is increased, the sedimentation process may be characterized by zone settling properties. Compression settling occurs in the lower layers of settled material for both the flocculant and zone settling cases. As more settled material accumulates, excess pore pressures develop in the lower layers, and further consolidation occurs as water is expelled and the excess pore pressures dissipate."

The characteristic settling and compaction process for a slurry is shown in Figure 15. The results for the two column settling tests performed from Carraízo sediments are presented graphically in Figure 16, showing that they behave in the anticipated manner, exhibiting both Zone and Compression settling characteristics. The development of the water-sediment interface in the column settling test is shown in the photo of Figure 17. This visible interface typically developed during day-2 of the test, the entire water column being too muddy to detect an interface during the first day.

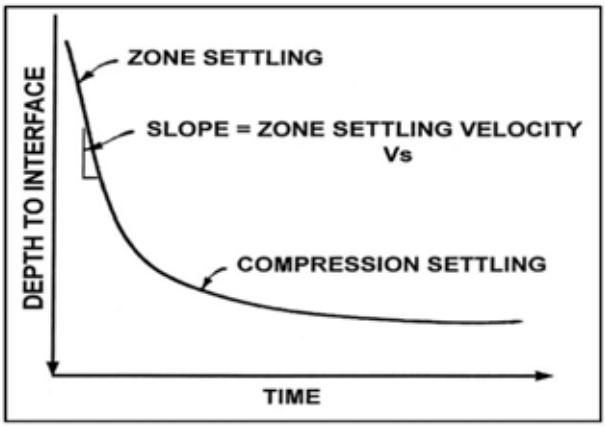


Figure 15: Conceptual Plot of Interface Height Versus Time (USACE EM 1110-2-5025).

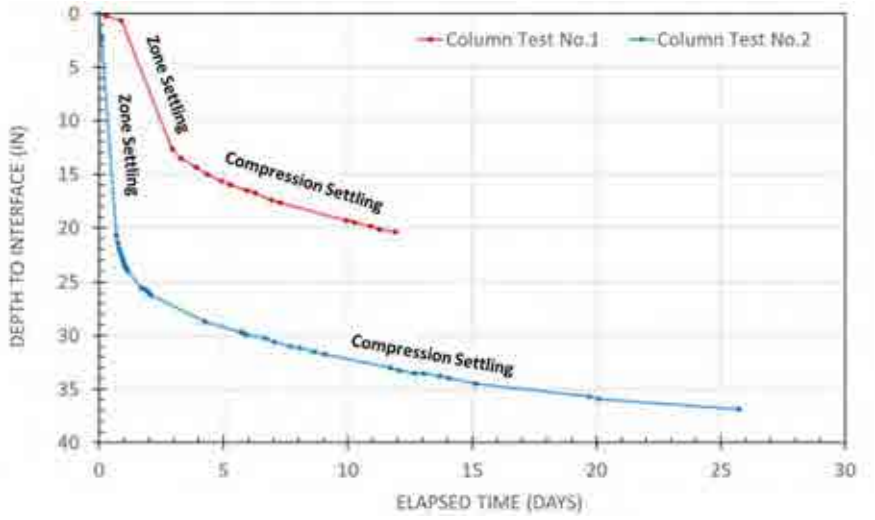


Figure 16: Column settling test results for Carraízo sediments showing the depth to sediment interface. Different initial concentrations were used for the two tests.



Figure 17: Photograph showing discrete sediment/water interface during the column settling test.

Two different initial concentrations were used in the column settling test, encompassing the range of concentrations which may be anticipated during dredging, with Column Test No. 1 having the higher concentration (recall Table 7). The first part of the settling process is characterized as a zone settling, then after an inflection point the settling pattern changes to a compression settling, in conformance with anticipated sediment settling behavior, as may be seen by comparing Figure 15 to Figure 16.

Results for Column Test No. 1 show a slower settling rate at the beginning of the test compared to Column test no. 2. The run time for Column Test No. 2 was 26 days compared to 12 days for Column Test No. 1. Overall, the sediment concentration used in Column Test No. 2 should be more representative of the concentration during the dredging work.

The bulking factor is the primary parameter obtained from a settling column test. It represents the expansion of sediment as a result of agitation during dredging and aids in determining the required containment volume in containment areas. The Bulking Factor represents this increase in volume as a dimensionless ratio:

$$\text{Bulking Factor} = \frac{\text{Sediment Volume in Containment Area}}{\text{Sediment Volume in Reservoir}}$$

Table 8 presents typical bulking factor values for different types of sediment. Figure 18 and Table 9 present the Bulking Factor results from column settling tests for Carraízo sediment. An average 21-day Bulking Factor of 1.45 was obtained, which falls within the expected range for a silt-clay sediment per Table 8.

Table 8: Characteristic Values for Sediment Bulking Factor (Herbich[2]).

Material	Sedimented dry bulk density, kg/m^3	Bulking factor		
		USAE	Huston	Others
Clay	480-1250	1.2-3.1	1.45	
Recent clay deposits				1.3
Silty clay				1.4-1.7
Sandy clay			1.25	
Clayey sand				1.3
Silt		1.1-1.4	2.0	1.3
Silty fine sand				1.1
Sand	1490	1.0-1.2	1.0	

USAE = U.S. Army Corps of Engineers.

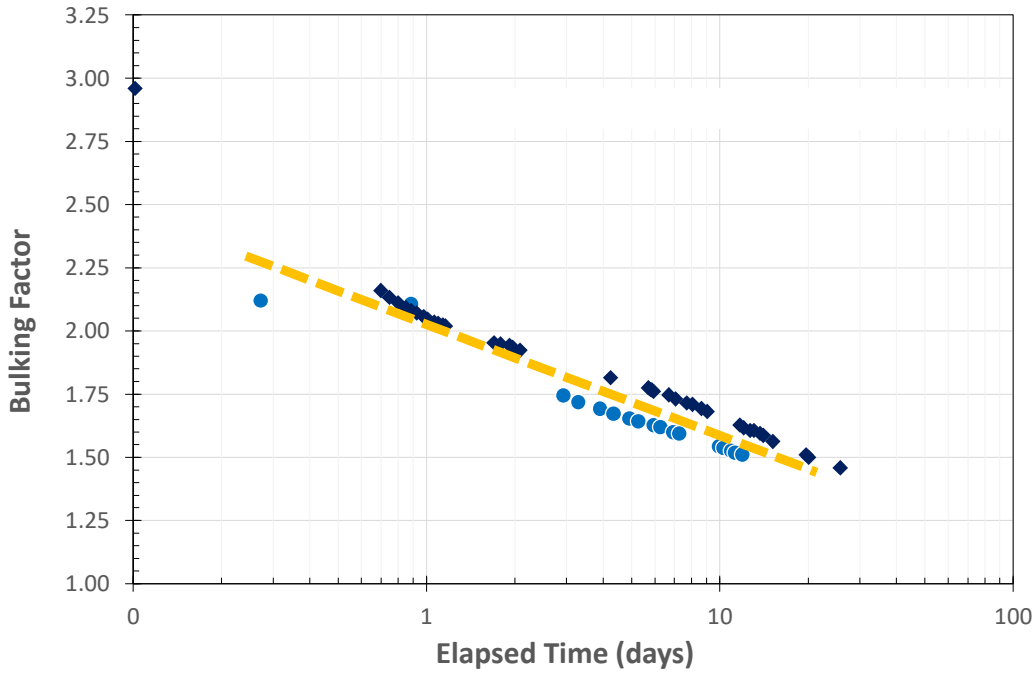


Figure 18: Bulking Factor over time from two column settling tests.

Table 9: Column Settling Tests results.

Parameter	Column No. 1	Column No. 2
Run Time	12 days	26 days
Bulking Factor at end of run time	1.50	1.46

[2] Herbich, J. B. (Ed.). (1992). Handbook of Dredging Engineering. McGraw-Hill, New York.

3.4. Supernatant Water Quality

Another important parameter in the analysis of confined disposal facilities is the Total Suspended Solids (TSS) concentration in the supernatant water. The discharge of supernatant overflow is subject to EPA regulation and will need to meet permitted concentration limits.

TSS samples were withdrawn from Column Settling Test No. 2 at a height of 2 inches (5 cm) above the sediment-water interface at different points in time, and TSS concentration was determined by filtering each sample through 0.45 micron filter media, drying and weighing. The results are summarized in Figure 19. Note that these results are for quiescent water, but in an open containment area subject to wind-driven waves and currents the results can be expected to differ.

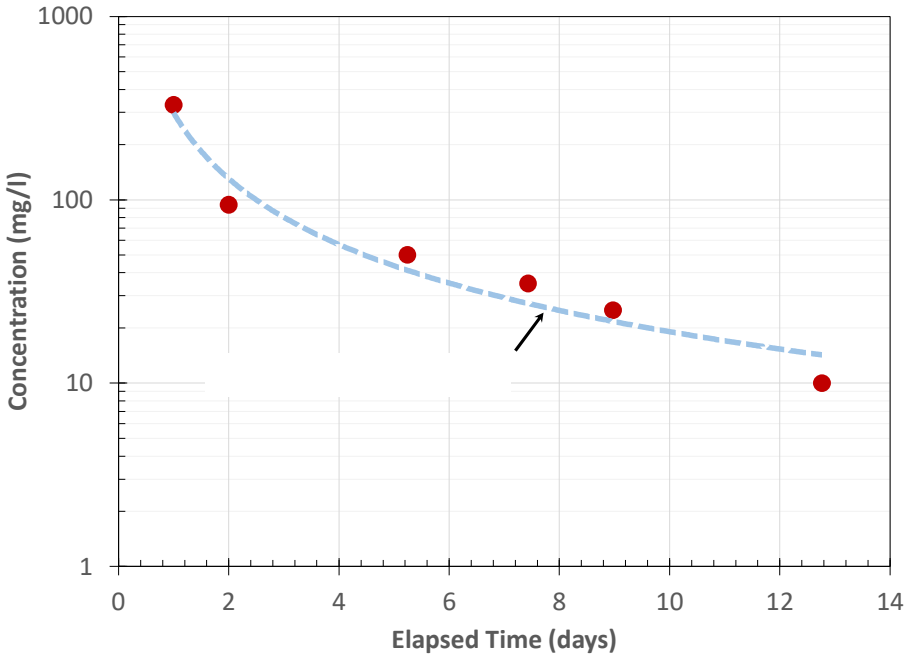


Figure 19: Total Suspended Solids concentration of supernatant water from Column Settling Test No. 2.

Appendix A: Sediment Cores Photographs

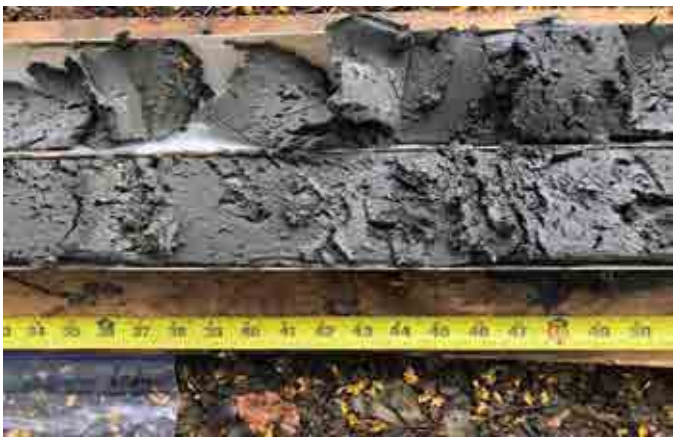
Sediment Core No.1













Sediment Core No.2











Sediment Core No.2 (Continuation)









Sediment Core No.3













Sediment Core No.4







Sediment Core No.5



Sediment Core No.6









Sediment Core No.7





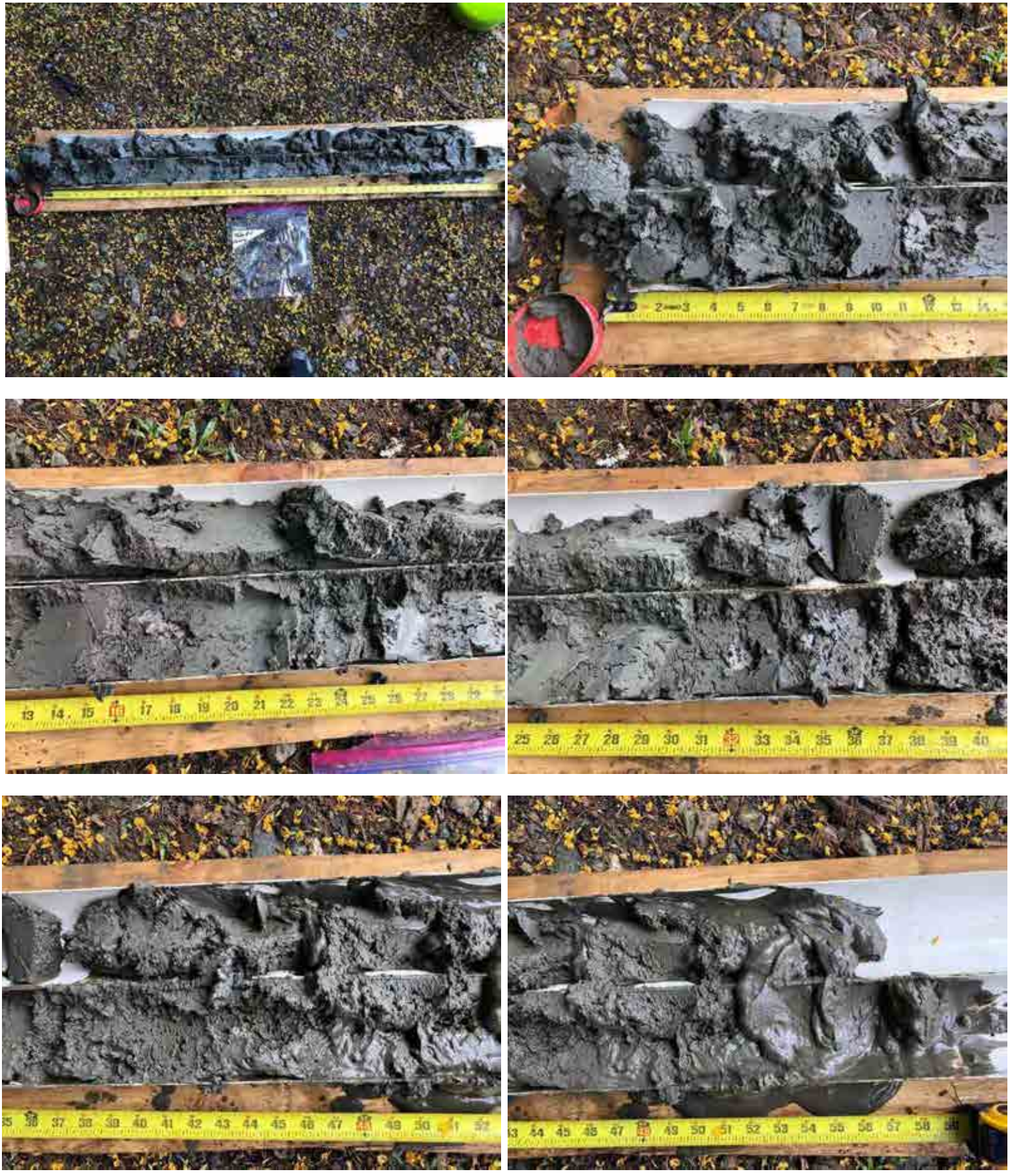








Sediment Core No.8



Sediment Core No.9







Sediment Core No.10











Appendix B: Sediment Physical Characterization: Jaca & Sierra Laboratory Results

JACA & SIERRA
Testing Laboratories
Geotechnical Engineers

Job No.: 8241
Date of Report: 7/9/2021

Client:	GLM Engineering Corp	Standard Test Methods:	
Source of Samples:	Carraizo Lake	ASTM D2216, ASTM D854, ASTM D4318, ASTM D6913	
Project:	Dredging Analysis at Carraizo Reservoir		
Location:	Trujillo Alto, PR		

TEST RESULTS

Sample ID	Moisture Content (%)	Specific Gravity, 20°C	Atterberg Limits			Particle Size Distribution		
			PL	LL	PI	%Gravel	%Sand	%Fines
Sample No. 1-A	85.0	2.665	31	54	23	0.0	0.8	99.2
Sample No. 1-B	85.0	2.665	29	45	16	0.0	6.1	93.9
Sample No. 2-A	33.0	2.651	NP	NV	NP	0.2	93.0	6.8
Sample No. 2-B	90.0	2.695	30	42	12	0.0	5.6	94.4
Sample No. 3-A	75.0	2.659	27	51	24	0.0	5.2	94.8
Sample No. 3-B	100.0	2.668	33	54	21	0.0	1.7	98.3
Sample No. 4-A	31.0	2.665	NP	NV	NP	0.0	88.1	11.9
Sample No. 5-A	49.0	2.656	30	46	16	0.0	28.6	71.4
Sample No. 6-A	21.0	2.665	NP	NV	NP	5.7	88.6	5.7
Sample No. 6-B	84.0	2.696	29	35	6	0.0	25.3	74.7
Sample No. 7-A	102.0	2.765	30	44	14	0.0	8.5	91.5
Sample No. 7-B	31.0	2.653	NP	NV	NP	0.0	95.5	4.5
Sample No. 8-A	60.0	2.696	27	49	22	0.0	1.2	98.8
Sample No. 8-B	120.0	2.660	32	50	18	0.3	11.8	87.9
Sample No. 9-A	44.0	2.682	NP	NV	NP	35.4	57.3	7.3
Sample No. 10-A	69.0	2.660	28	38	10	0.0	11.9	88.1
Sample No. 10-B	98.0	2.642	30	47	17	0.0	13.2	86.8

Respectfully Submitted,
JACA & SIERRA ENGINEERING, PSC



Javier E. Osorio Carraquillo, MECE, PE
Laboratory Engineer

Jaca Sierra Engineering, PSC
Road 850 Km 0.2 Las Cuevas Ward, Trujillo Alto, PR 00976
T: 787-761-2570 F: 787-748-6970 W: www.jacasierra.com

JACA & SIERRA
Testing Laboratories
Geotechnical Engineers

Job No.: 8241
Date of Report: 7/9/2021

Client:	GLM Engineering Corp	Standard Test Methods:
Source of Samples:	Carraizo Lake	ASTM D2216, ASTM D854, ASTM D6913
Project:	Dredging Analysis at Carraizo Reservoir	
Location:	Trujillo Alto, PR	

TEST RESULTS

Sample ID	Moisture Content (%)	Specific Gravity, 20°C	Particle Size Distribution		
			%Gravel	%Sand	%Fines
Sample No. 21	43.0	2.639	0.0	8.4	91.6
Sample No. 22	16.0	2.710	0.0	30.8	69.2
Sample No. 23	41.0	2.701	0.0	32.4	67.6
Sample No. 24	80.0	2.699	0.0	7.4	92.6
Sample No. 25	72.0	2.663	0.0	4.5	95.5
Sample No. 26	37.0	2.634	0.0	4.8	95.2

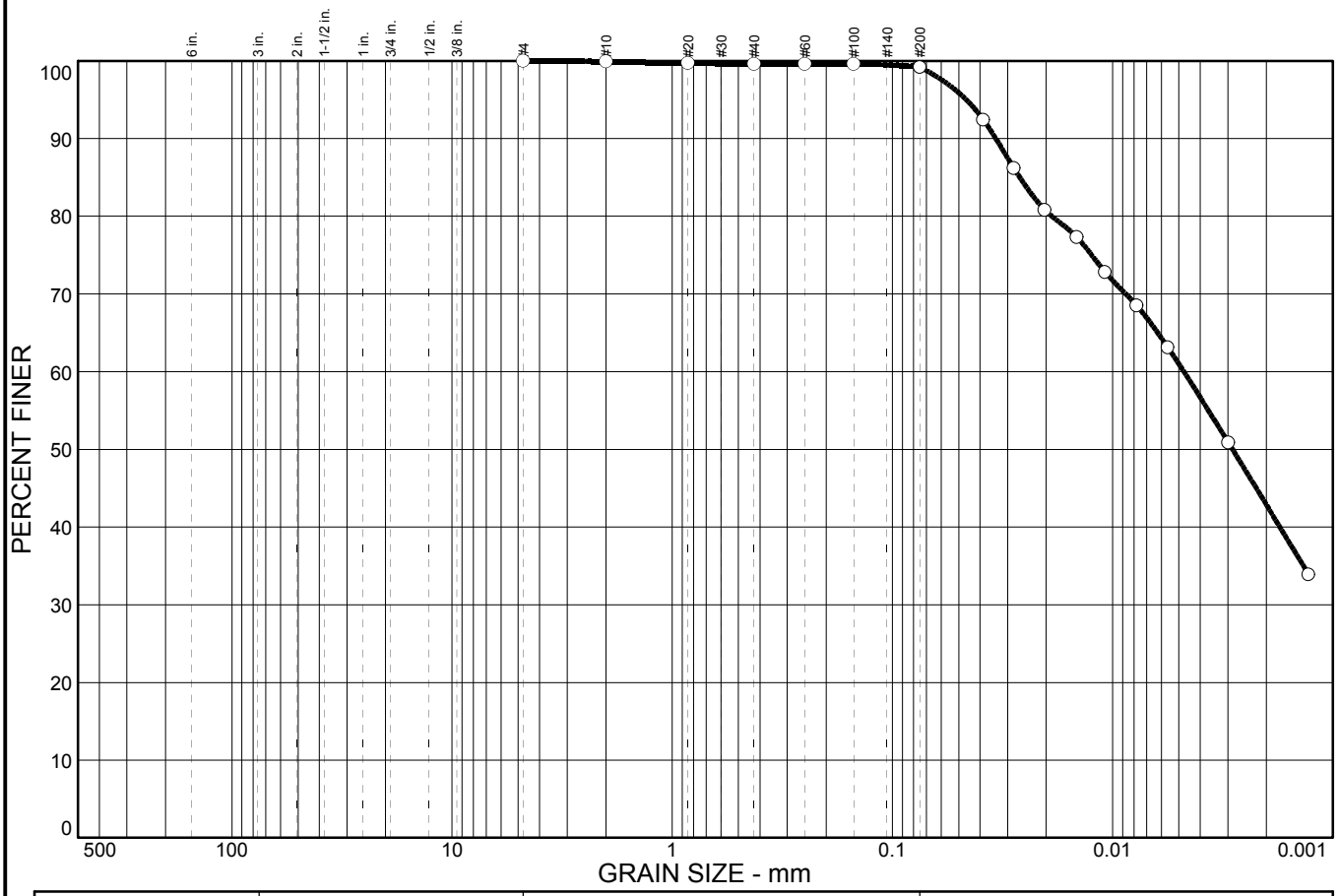
Respectfully Submitted,
JACA & SIERRA ENGINEERING, PSC



Javier E. Osorio Carraquillo, MECE, PE
Laboratory Engineer

Jaca Sierra Engineering, PSC
Road 850 Km 0.2 Las Cuevas Ward, Trujillo Alto, PR 00976
T: 787-761-2570 F: 787-748-6970 W: www.jacasierra.com

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.1	0.3	0.4	38.3	60.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.7		
#40	99.6		
#60	99.6		
#100	99.6		
#200	99.2		

* (no specification provided)

Material Description

Elastic silt

Atterberg Limits

PL= 31 LL= 54 PI= 23

Coefficients

D_{85}= 0.0264 D_{60}= 0.0048 D_{50}= 0.0029
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(28)

Remarks

Tested by: Y.Reyes
Checked by: Javier Osorio, MECE,PE
F.M.=0.00

Sample No.: 1-A **Source of Sample:** Project Site **Date:** 6/17/21
Location: Trujillo Alto, PR **Elev./Depth:** Distilled

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.1	0.3	0.4	87.8	11.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.7		
#40	99.6		
#60	99.6		
#100	99.6		
#200	99.2		

* (no specification provided)

Material Description

Elastic silt

Atterberg Limits

PL= 31 LL= 54 PI= 23

Coefficients

D_{85}= 0.0345 D_{60}= 0.0191 D_{50}= 0.0173
D_{30}= 0.0139 D_{15}= 0.0062 D_{10}= 0.0045
C_u= 4.22 C_c= 2.22

Classification

USCS= MH AASHTO= A-7-5(28)

Remarks

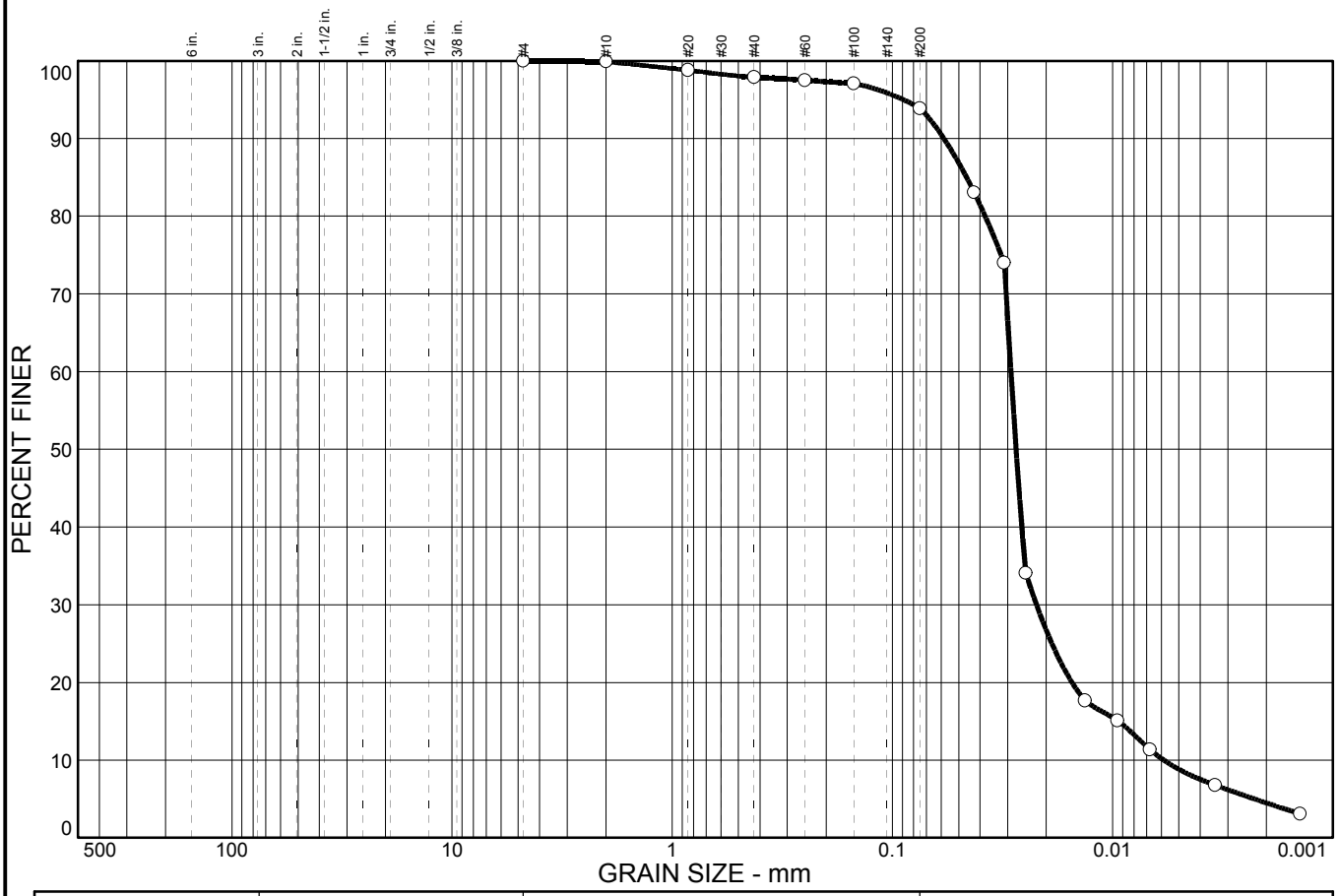
Tested by: Y. Reyes
Checked by: Javier Osorio, MECE, PE
F.M.=0.00

Sample No.: 1-A **Source of Sample:** Project Site **Date:** 6/17/21
Location: Trujillo Alto, PR **Elev./Depth:** Lake

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.1	2.0	4.0	85.1	8.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	98.8		
#40	97.9		
#60	97.5		
#100	97.1		
#200	93.9		

* (no specification provided)

Material Description

Silt

Atterberg Limits

PL= 29 LL= 45 PI= 16

Coefficients

D_{85}= 0.0461 D_{60}= 0.0290 D_{50}= 0.0275
D_{30}= 0.0222 D_{15}= 0.0094 D_{10}= 0.0059
C_u= 4.95 C_c= 2.90

Classification

USCS= ML AASHTO= A-7-6(18)

Remarks

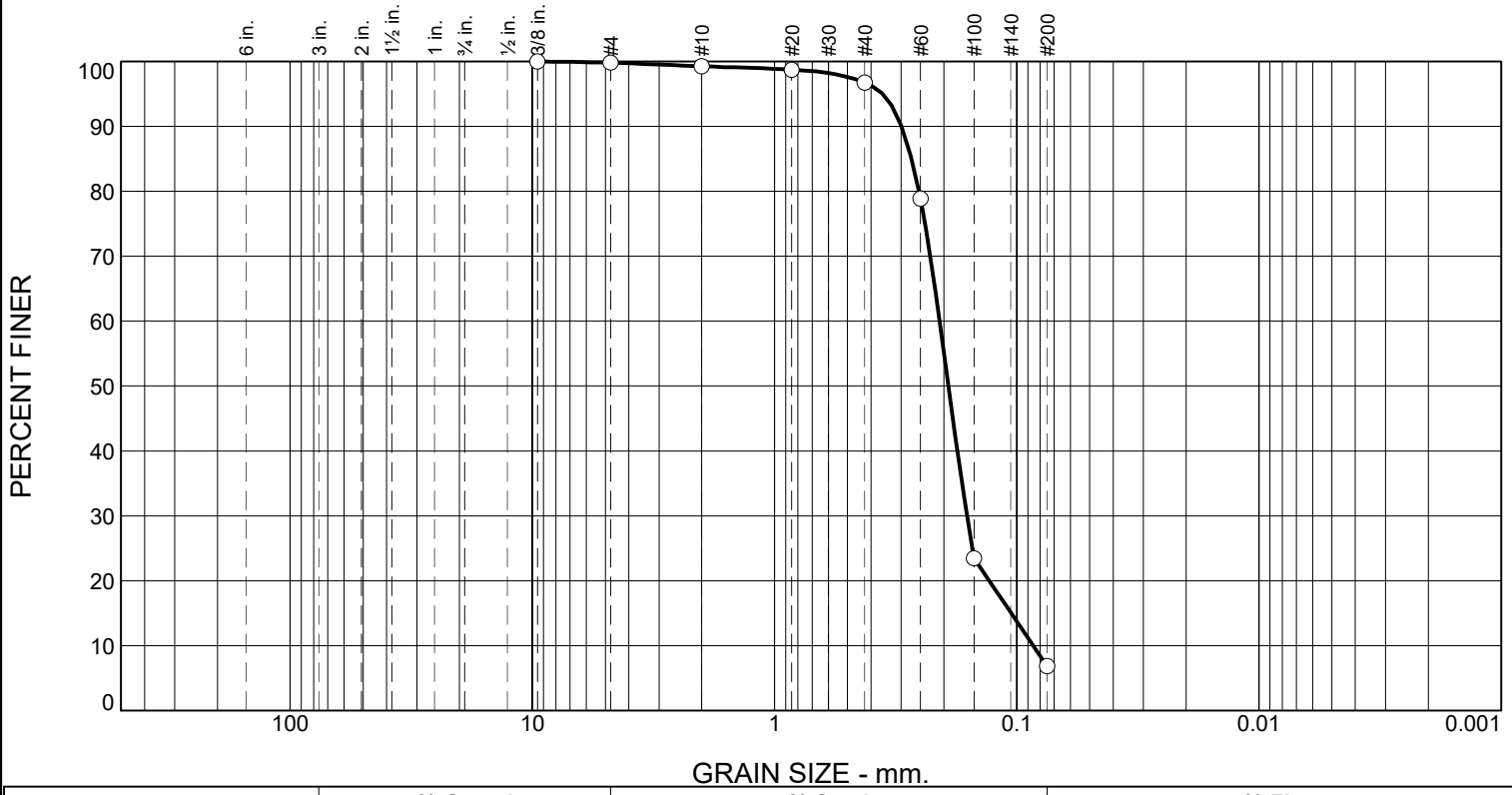
Tested By: Y. Reyes
Checked By: Javier Osorio, MECE,PE
F.M.= 0.03

Sample No.: 1-B **Source of Sample:** Project Site **Date:** 6/29/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	2.6	89.9	6.8	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	99.8		
#10	99.3		
#20	98.7		
#40	96.7		
#60	78.9		
#100	23.4		
#200	6.8		

* (no specification provided)

Material Description

Poorly graded sand with silt

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=** A-3

Coefficients

D_{90}= 0.2993 D_{85}= 0.2719 D_{60}= 0.2083
D_{50}= 0.1916 D_{30}= 0.1607 D_{15}= 0.1054
D_{10}= 0.0856 C_u= 2.44 C_c= 1.45

Remarks

F.M.=0.90

Date Received: 6/11/21 **Date Tested:** 6/16/21

Tested By: Y. Reyes

Checked By: Javier Osorio, MECE, PE

Title: Geotechnical Engineer

Source of Sample: Project Site **Date Sampled:**

Sample Number: 2-A

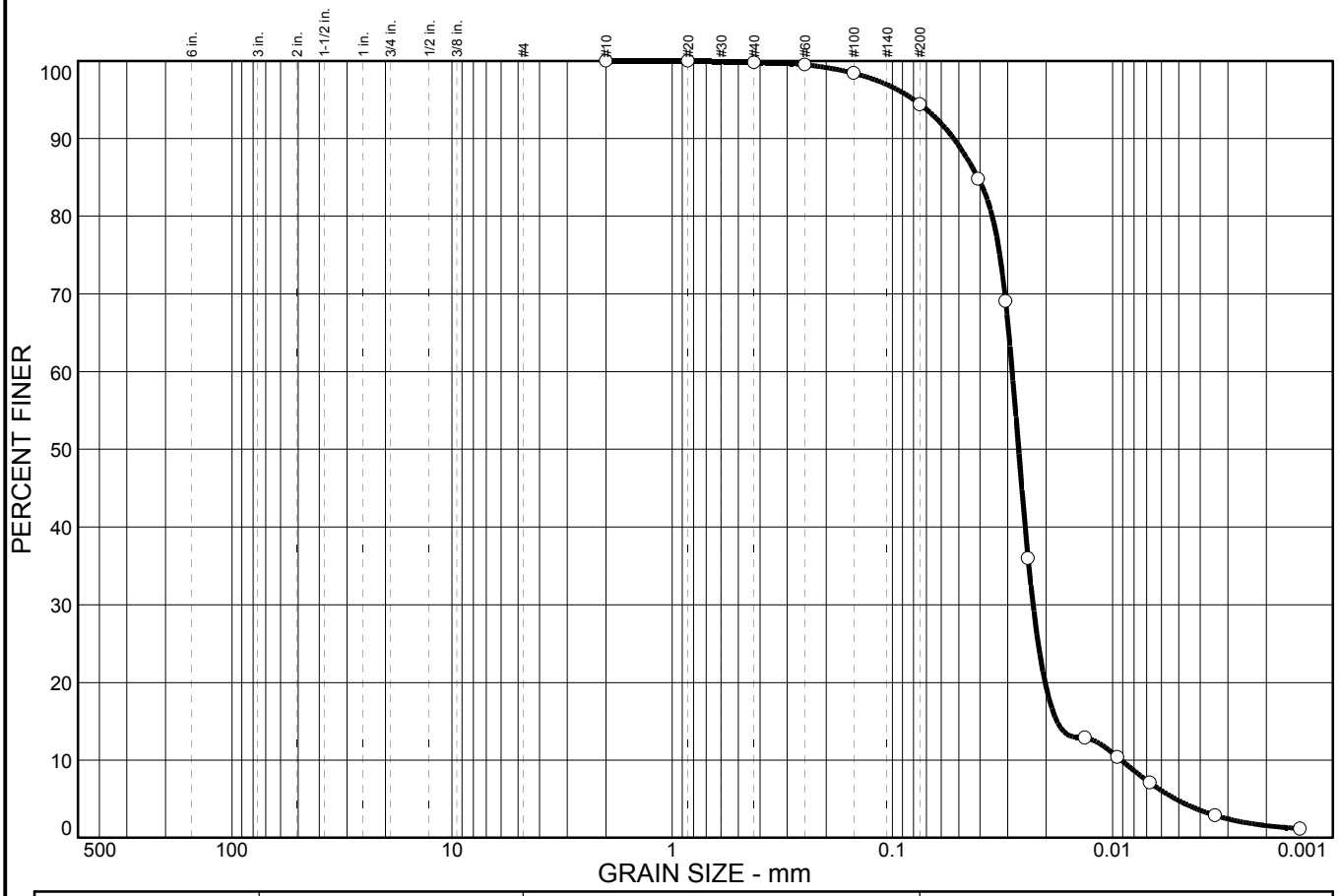
JACA & SIERRA Since 1967
Testing Laboratory | Geotechnical Engineers

Client: GLM Engineering Corp.

Project: Dredging Analysis at Carraizo Reservoir, Trujillo Alto

Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.2	5.4	89.6	4.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.8		
#60	99.5		
#100	98.4		
#200	94.4		

* (no specification provided)

Material Description

Silt

Atterberg Limits

PL= 30 LL= 42 PI= 12

Coefficients

D_{85}= 0.0411 D_{60}= 0.0286 D_{50}= 0.0268
D_{30}= 0.0230 D_{15}= 0.0179 D_{10}= 0.0092
C_u= 3.13 C_c= 2.03

Classification

USCS= ML AASHTO= A-7-5(14)

Remarks

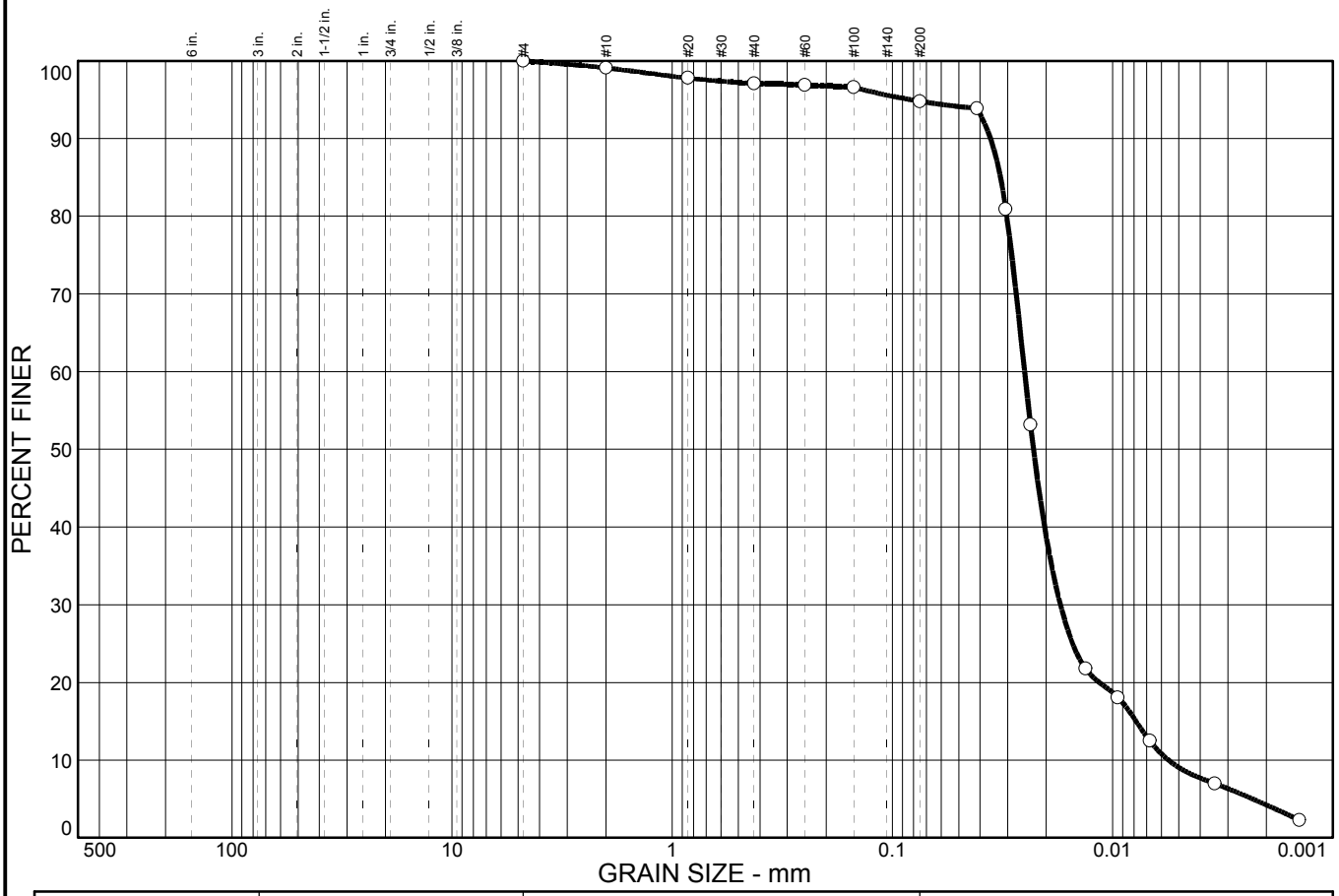
Tested By: Y. Reyes
Checked By: Javier Osorio, MECE,PE
F.M.=0.02

Sample No.: 2-B **Source of Sample:** Project Site **Date:** 6/28/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.9	2.0	2.3	85.8	9.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.1		
#20	97.8		
#40	97.1		
#60	96.9		
#100	96.6		
#200	94.8		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 27 LL= 51 PI= 24

Coefficients

D_{85}= 0.0324 D_{60}= 0.0252 D_{50}= 0.0229
D_{30}= 0.0173 D_{15}= 0.0078 D_{10}= 0.0056
C_u= 4.51 C_c= 2.13

Classification

USCS= CH AASHTO= A-7-6(26)

Remarks

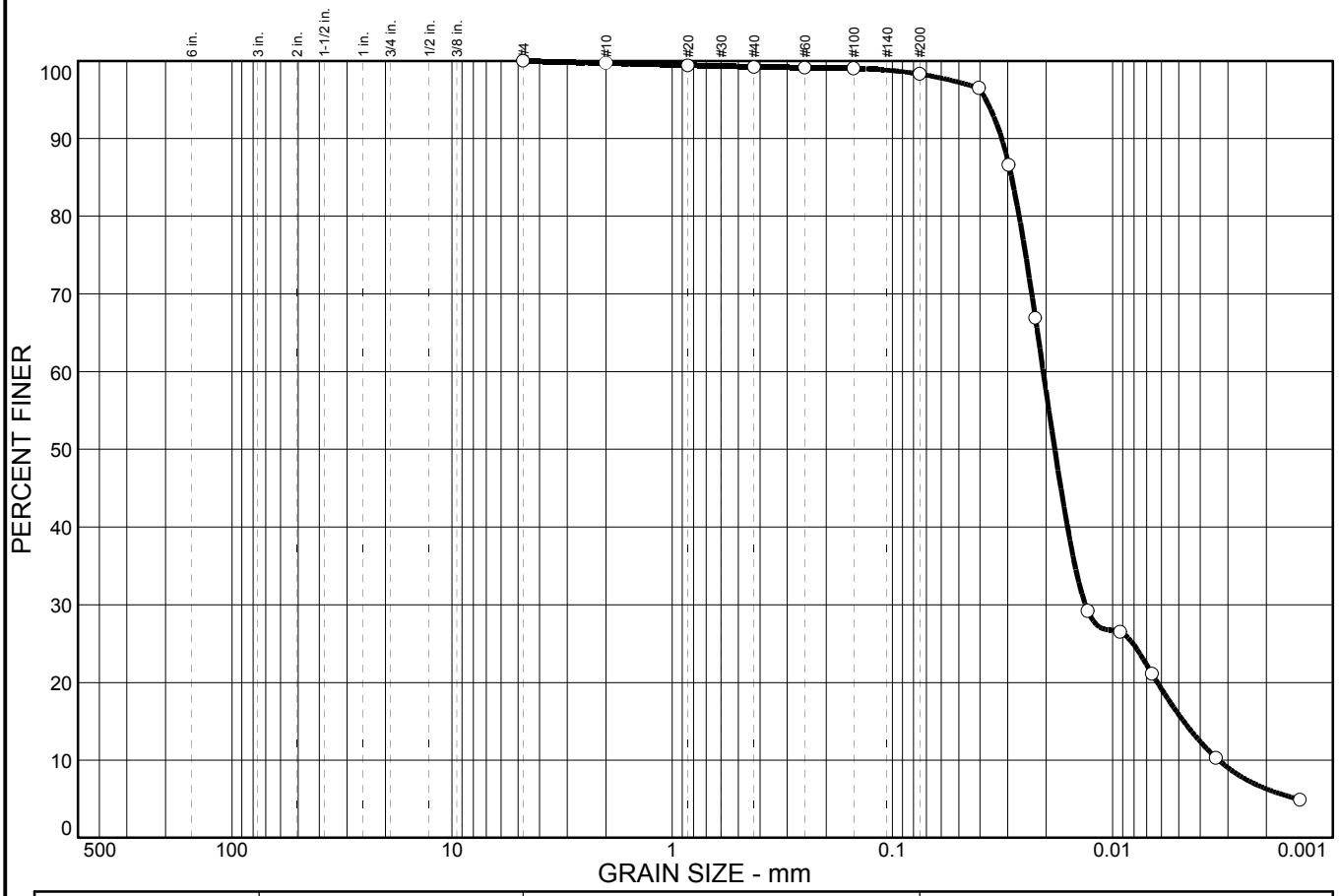
Tested by: Y.Reyes
Checked by: Javier Osorio, MECE, PE
F.M.=0.03

Sample No.: 3-A **Source of Sample:** Project Site **Date:** 6/29/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.3	0.5	0.9	82.5	15.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	99.4		
#40	99.2		
#60	99.1		
#100	99.0		
#200	98.3		

* (no specification provided)

Material Description

Elastic Silt

Atterberg Limits

PL= 33 LL= 54 PI= 21

Coefficients

D_{85}= 0.0288 D_{60}= 0.0207 D_{50}= 0.0184
D_{30}= 0.0133 D_{15}= 0.0048 D_{10}= 0.0033
C_u= 6.26 C_c= 2.58

Classification

USCS= MH AASHTO= A-7-5(26)

Remarks

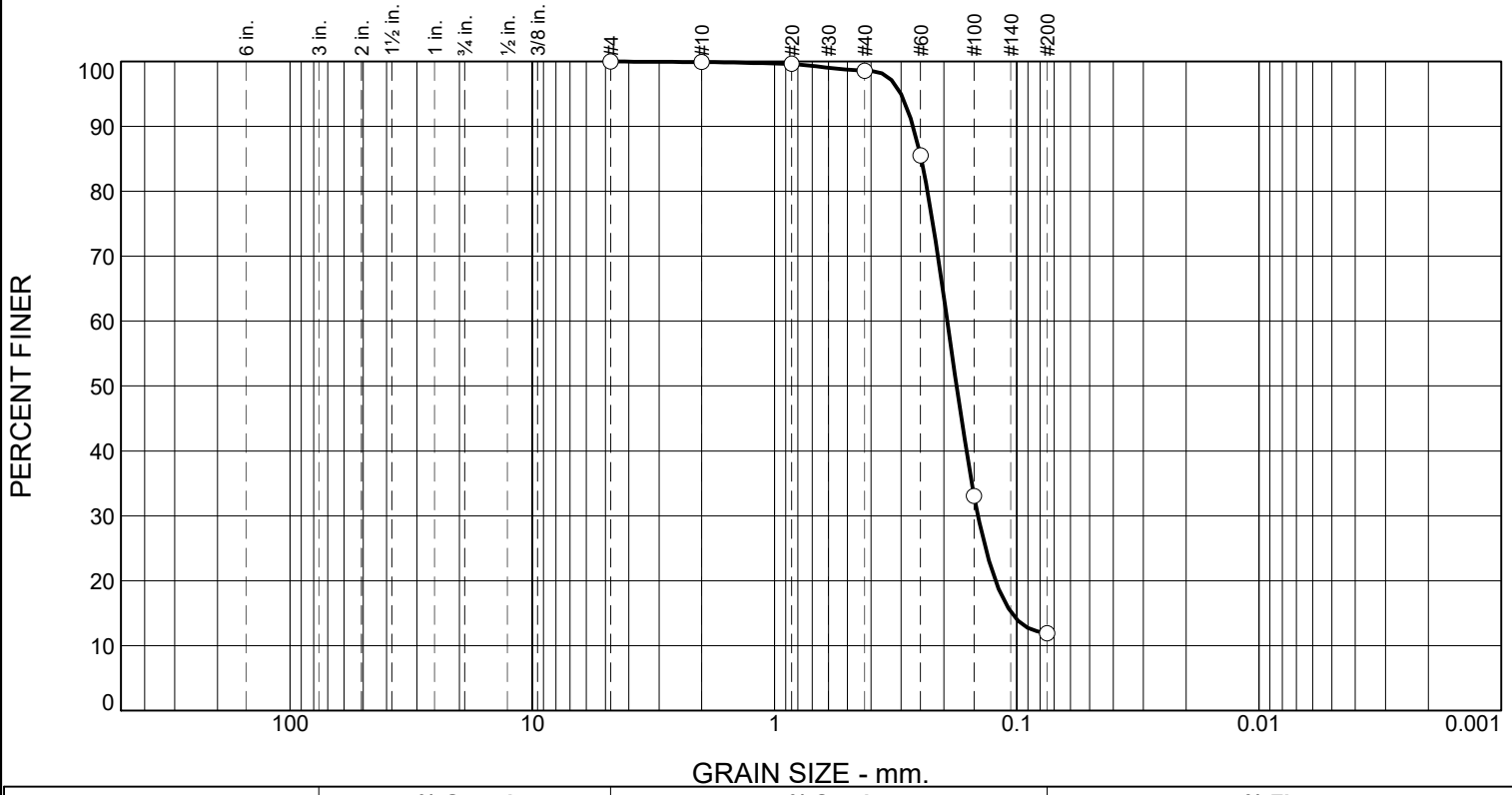
Tested by: Y. Reyes
Checked by: JAvier Osorio, MECE, PE
F.M.=0.01

Sample No.: 3-B **Source of Sample:** Project Site **Date:** 6/22/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.3	86.7	11.9	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.6		
#60	85.5		
#100	33.0		
#200	11.9		

* (no specification provided)

Material Description

Poorly graded sand with silt

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 0.2678 D_{85}= 0.2483 D_{60}= 0.1936
D_{50}= 0.1773 D_{30}= 0.1445 D_{15}= 0.1050
D_{10}= C_u= C_c=

Remarks

F.M.=0.73

Date Received: 6/11/21 **Date Tested:** 6/22/21

Tested By: Y. Reyes

Checked By: Javier Osorio, MECE, PE

Title: Geotechnical Engineer

Source of Sample: Project Site **Date Sampled:**

Sample Number: 4-A

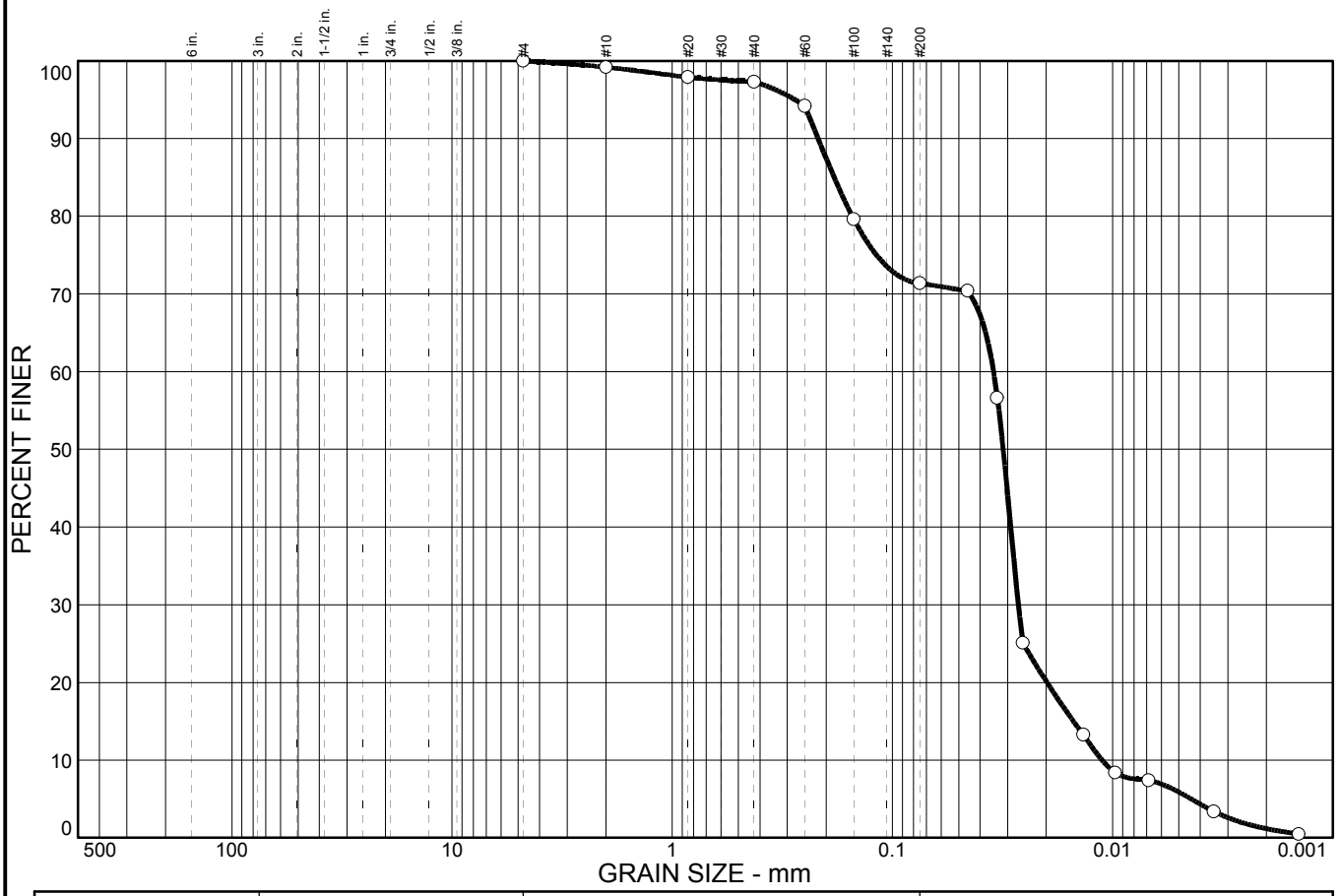
JACA & SIERRA Since 1967
Testing Laboratory | Geotechnical Engineers

Client: GLM Engineering Corp.

Project: Dredging Analysis at Carraizo Reservoir, Trujillo Alto

Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.8	1.9	25.9	65.5	5.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.2		
#20	97.9		
#40	97.3		
#60	94.2		
#100	79.6		
#200	71.4		

* (no specification provided)

Material Description

Silt with sand

Atterberg Limits

PL= 30 LL= 46 PI= 16

Coefficients

D_{85}= 0.184 D_{60}= 0.0348 D_{50}= 0.0315
D_{30}= 0.0268 D_{15}= 0.0151 D_{10}= 0.0112
C_u= 3.12 C_c= 1.85

Classification

USCS= ML AASHTO= A-7-5(12)

Remarks

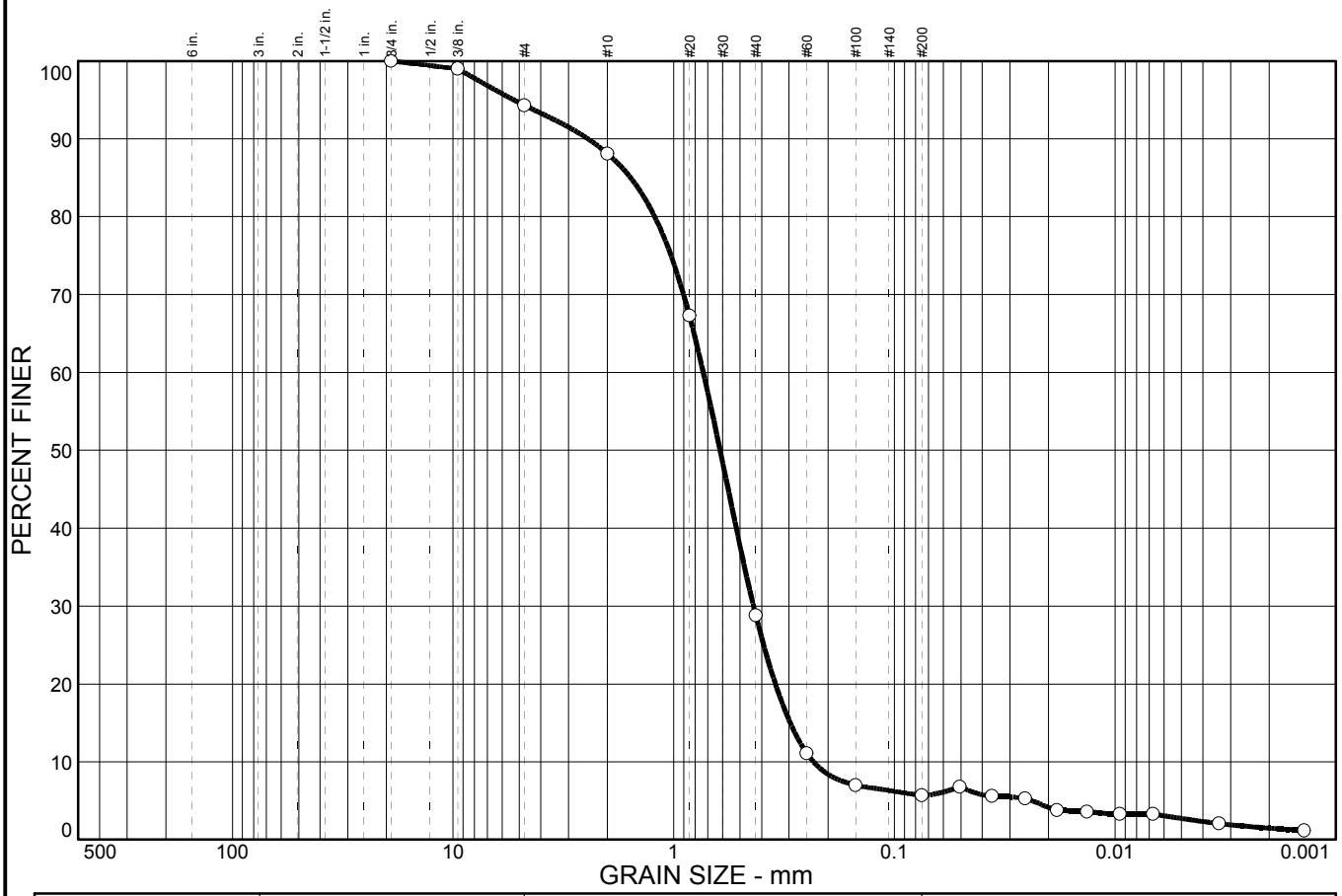
Tested by: Y. Reyes
Checked by: Javier Osorio, MECE, PE
F.M.=0.20

Sample No.: 5-A **Source of Sample:** Project Site **Date:** 6/18/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	5.7	6.2	59.3	23.1	3.0	2.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.375 in.	99.0		
#4	94.3		
#10	88.1		
#20	67.3		
#40	28.8		
#60	11.1		
#100	7.0		
#200	5.7		

* (no specification provided)

Material Description

Poorly graded sand with silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 1.57 D_{60}= 0.736 D_{50}= 0.618
D_{30}= 0.435 D_{15}= 0.297 D_{10}= 0.233
C_u= 3.16 C_c= 1.10

Classification

USCS= SP-SM AASHTO= A-1-b

Remarks

Tested by: Y. Reyes
Checked by: Javier Osorio, MECE, PE
F.M.=1.00

Sample No.: 6-A **Source of Sample:** Project Site **Date:** 6/22/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.9	6.6	85.9	5.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	98.8		
#40	98.1		
#60	97.7		
#100	96.6		
#200	91.5		

* (no specification provided)

Material Description

Silt

Atterberg Limits

PL= 30 LL= 44 PI= 14

Coefficients

D_{85}= 0.0591 D_{60}= 0.0242 D_{50}= 0.0220
D_{30}= 0.0187 D_{15}= 0.0157 D_{10}= 0.0136
C_u= 1.78 C_c= 1.06

Classification

USCS= ML AASHTO= A-7-5(16)

Remarks

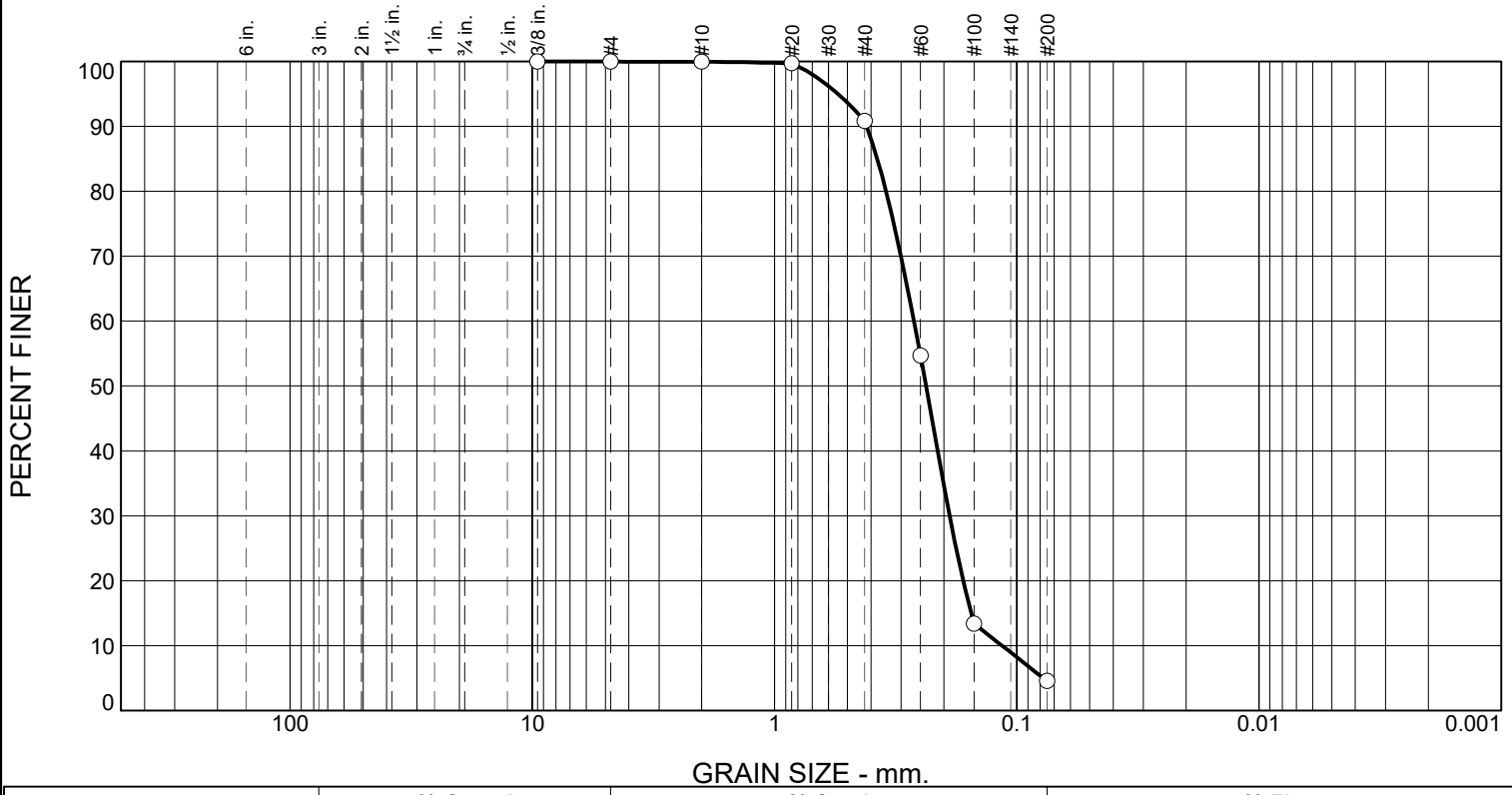
Tested by: Y.Reyes
Checked by: Javier Osorio, MECE, PE
F.M.=0.03

Sample No.: 7-A **Source of Sample:** Project Site **Date:** 6/29/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.1	86.4	4.5	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	90.9		
#60	54.7		
#100	13.4		
#200	4.5		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SP **AASHTO (M 145)=** A-3

Coefficients

D_{90}= 0.4165 D_{85}= 0.3768 D_{60}= 0.2658
D_{50}= 0.2372 D_{30}= 0.1894 D_{15}= 0.1543
D_{10}= 0.1151 C_u= 2.31 C_c= 1.17

Remarks

F.M.=1.21

Date Received: 6/11/21 **Date Tested:** 6/23/21

Tested By: Y. Reyes

Checked By: Javier Osorio, MECE, PE

Title: Geotechnical Engineer

Source of Sample: Project Site **Date Sampled:**

Sample Number: 7-B

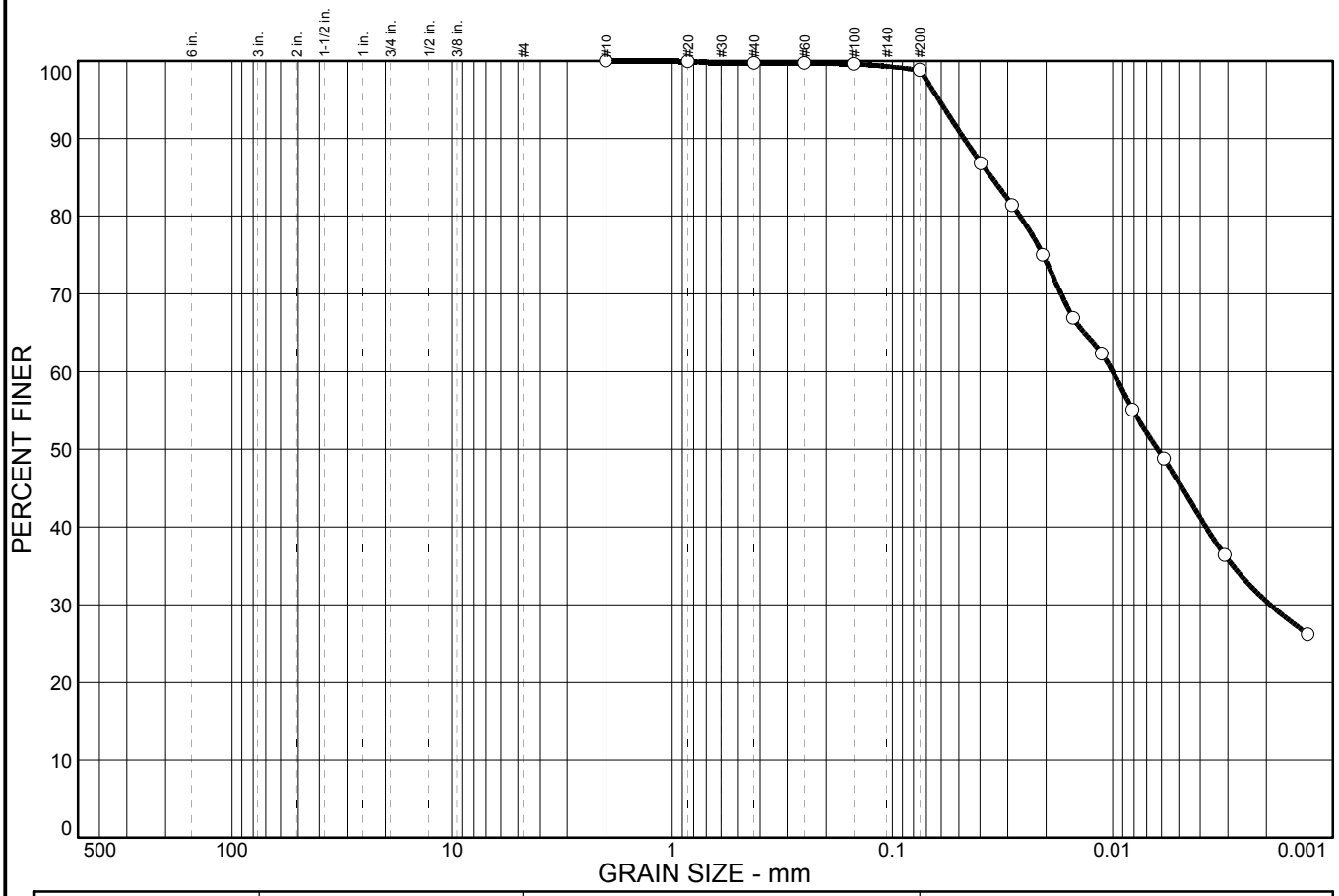
JACA & SIERRA Since 1967
Testing Laboratory | Geotechnical Engineers

Client: GLM Engineering Corp.

Project: Dredging Analysis at Carraizo Reservoir, Trujillo Alto

Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.3	0.9	53.1	45.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.7		
#60	99.7		
#100	99.6		
#200	98.8		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits

PL= 27 LL= 49 PI= 22

Coefficients

D_{85}= 0.0355 D_{60}= 0.0100 D_{50}= 0.0063
D_{30}= 0.0019 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(26)

Remarks

Tested by: Y. Reyes
Checked by: Javier Osorio, MECE, PE
F.M.=0.00

Sample No.: 8-A **Source of Sample:** Project Site **Date:** 6/23/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.3	1.3	7.9	2.6	83.1	4.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375 in.	100.0		
#4	99.7		
#10	98.4		
#20	94.2		
#40	90.5		
#60	90.1		
#100	89.8		
#200	87.9		

* (no specification provided)

Material Description

Elastic slit

Atterberg Limits

PL= 32 LL= 50 PI= 18

Coefficients

D_{85}= 0.0664 D_{60}= 0.0272 D_{50}= 0.0250
D_{30}= 0.0216 D_{15}= 0.0190 D_{10}= 0.0152
C_u= 1.79 C_c= 1.13

Classification

USCS= MH AASHTO= A-7-5(19)

Remarks

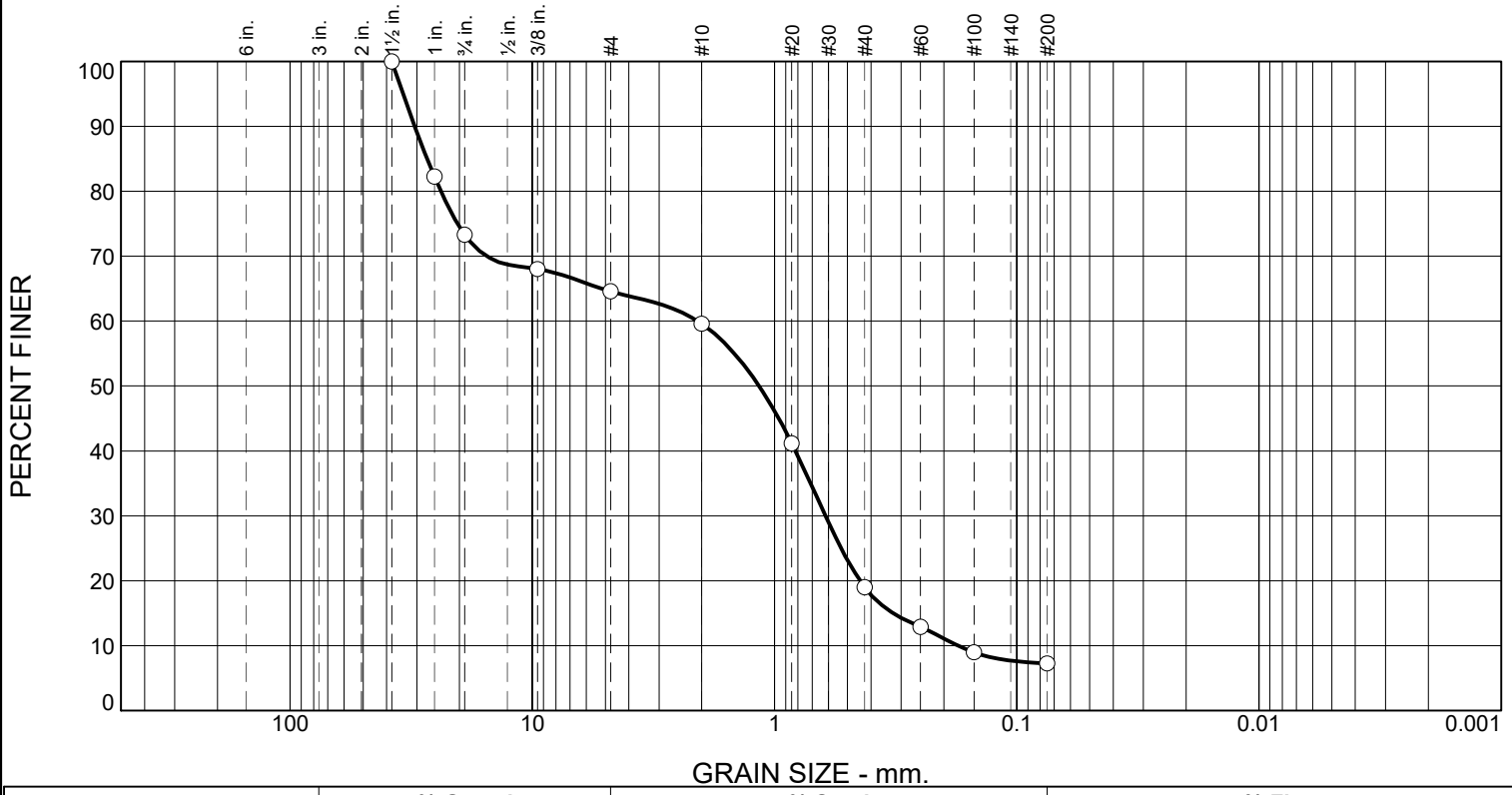
Tested by: Y. Reyes
Checked by: Javier Osorio,MECE, PE
F.M.=0.10

Sample No.: 8-B **Source of Sample:** Project Site **Date:** 6/29/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	26.7	8.7	5.0	40.6	11.7	7.3	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1.5	100.0		
1	82.3		
.75	73.3		
.375	68.0		
#4	64.6		
#10	59.6		
#20	41.2		
#40	19.0		
#60	12.9		
#100	9.0		
#200	7.3		

* (no specification provided)

Material Description

Well-graded sand with silt and gravel

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 30.5979 D_{85}= 27.2053 D_{60}= 2.0784
D_{50}= 1.1601 D_{30}= 0.6166 D_{15}= 0.3248
D_{10}= 0.1747 C_u= 11.90 C_c= 1.05

Remarks

F.M.=4.30

Date Received: 6/11/21 **Date Tested:** 6/29/21

Tested By: Y. Reyes

Checked By: Javier Osorio, MECE, PE

Title: Geotechnical Engineer

Source of Sample: Project Site **Date Sampled:**

Sample Number: 9-A

JACA & SIERRA Since 1967
Testing Laboratory | Geotechnical Engineers

Client: GLM Engineering Corp.

Project: Dredging Analysis at Carraizo Reservoir, Trujillo Alto

Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.3	11.6	82.5	5.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.7		
#60	99.6		
#100	98.4		
#200	88.1		

* (no specification provided)

Material Description

Silt

Atterberg Limits

PL= 28 LL= 38 PI= 10

Coefficients

D_{85}= 0.0597 D_{60}= 0.0257 D_{50}= 0.0239
D_{30}= 0.0210 D_{15}= 0.0188 D_{10}= 0.0093
C_u= 2.75 C_c= 1.84

Classification

USCS= ML AASHTO= A-4(10)

Remarks

Tested by: Y. Reyes
Checked by: Javier Osorio, MECE, PE
F.M.=0.02

Sample No.: 10-A **Source of Sample:** Project Site **Date:** 6/30/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	2.2	11.0	81.9	4.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.0		
#40	97.8		
#60	96.7		
#100	95.1		
#200	86.8		

* (no specification provided)

Material Description

Silt

Atterberg Limits

PL= 30 LL= 47 PI= 17

Coefficients

D_{85}= 0.0704 D_{60}= 0.0293 D_{50}= 0.0266
D_{30}= 0.0225 D_{15}= 0.0194 D_{10}= 0.0156
C_u= 1.87 C_c= 1.11

Classification

USCS= ML AASHTO= A-7-5(17)

Remarks

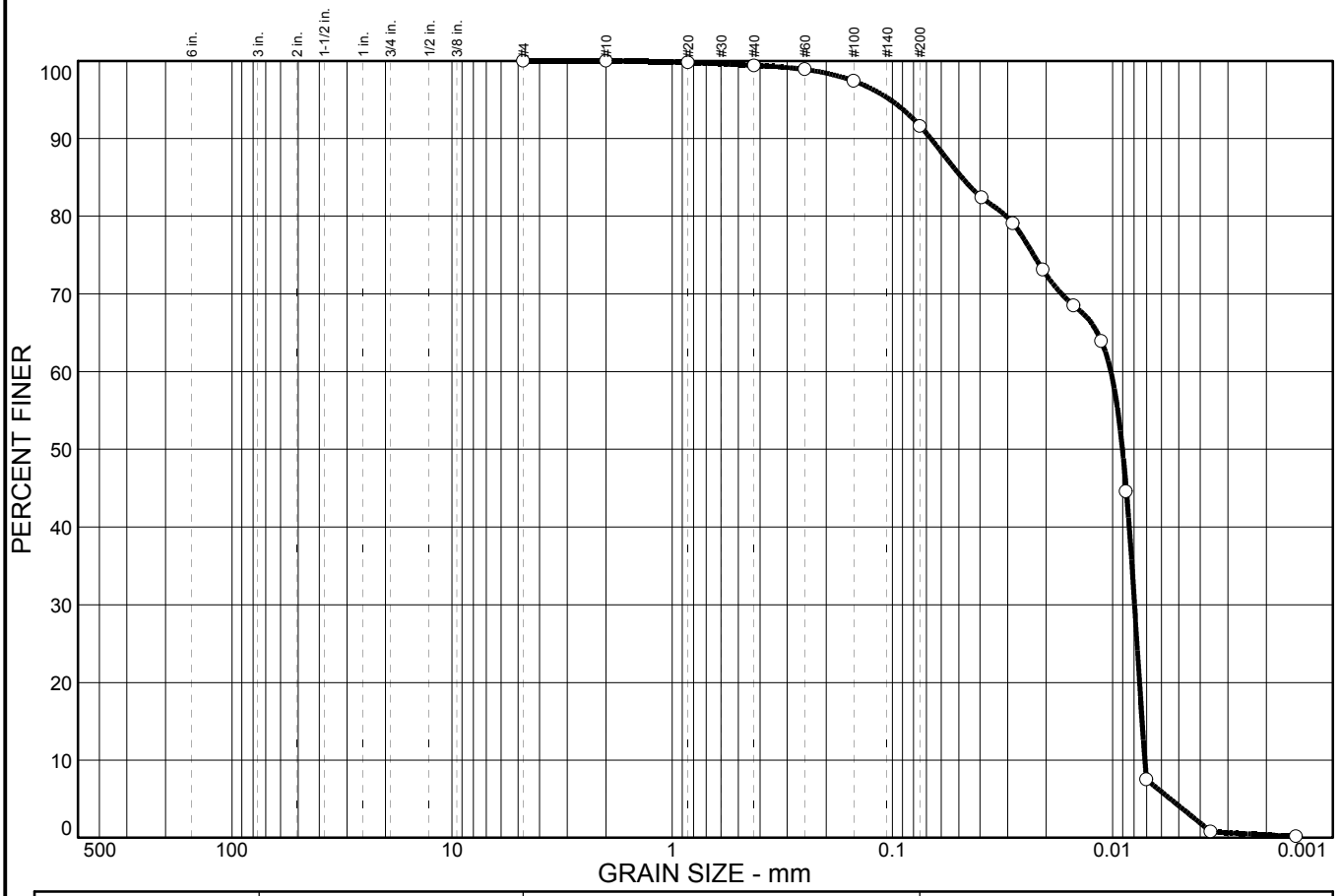
Tested by: Y. Reyes
Checked by: Javier Osorio, MECE, PE
F.M =0.05

Sample No.: 10-B **Source of Sample:** Project Site **Date:** 6/30/21
Location: Trujillo Alto **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.6	7.8	87.5	4.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.4		
#60	98.9		
#100	97.4		
#200	91.6		

* (no specification provided)

Material Description

Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0485 D_{60}= 0.0102 D_{50}= 0.0091
D_{30}= 0.0080 D_{15}= 0.0074 D_{10}= 0.0072
C_u= 1.43 C_c= 0.87

Classification

USCS= AASHTO=

Remarks

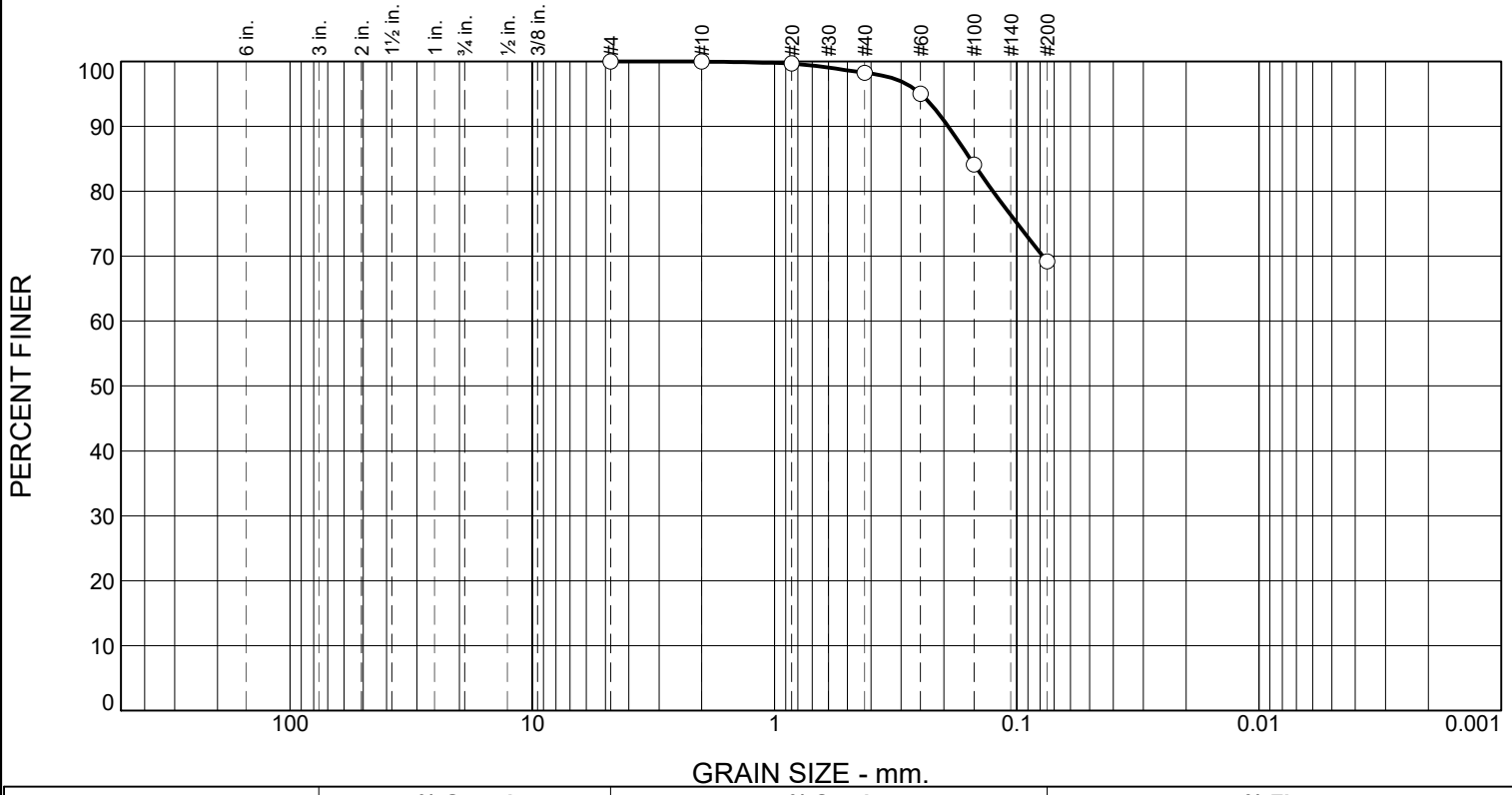
Tested by: Y. Reyes
Checked by: Javier Osorio, MECE, PE
F.M.=0.03

Sample No.: 21 **Source of Sample:** Project Site **Date:** 7/6/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.7	29.1	69.2	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	100.0		
#20	99.7		
#40	98.3		
#60	95.0		
#100	84.1		
#200	69.2		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.1921 D_{85}= 0.1556 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 7/1/21 **Date Tested:** 7/6/21

Tested By: Y. Reyes

Checked By: Javier Osorio, MECE, PE

Title: Geotechnical Engineer

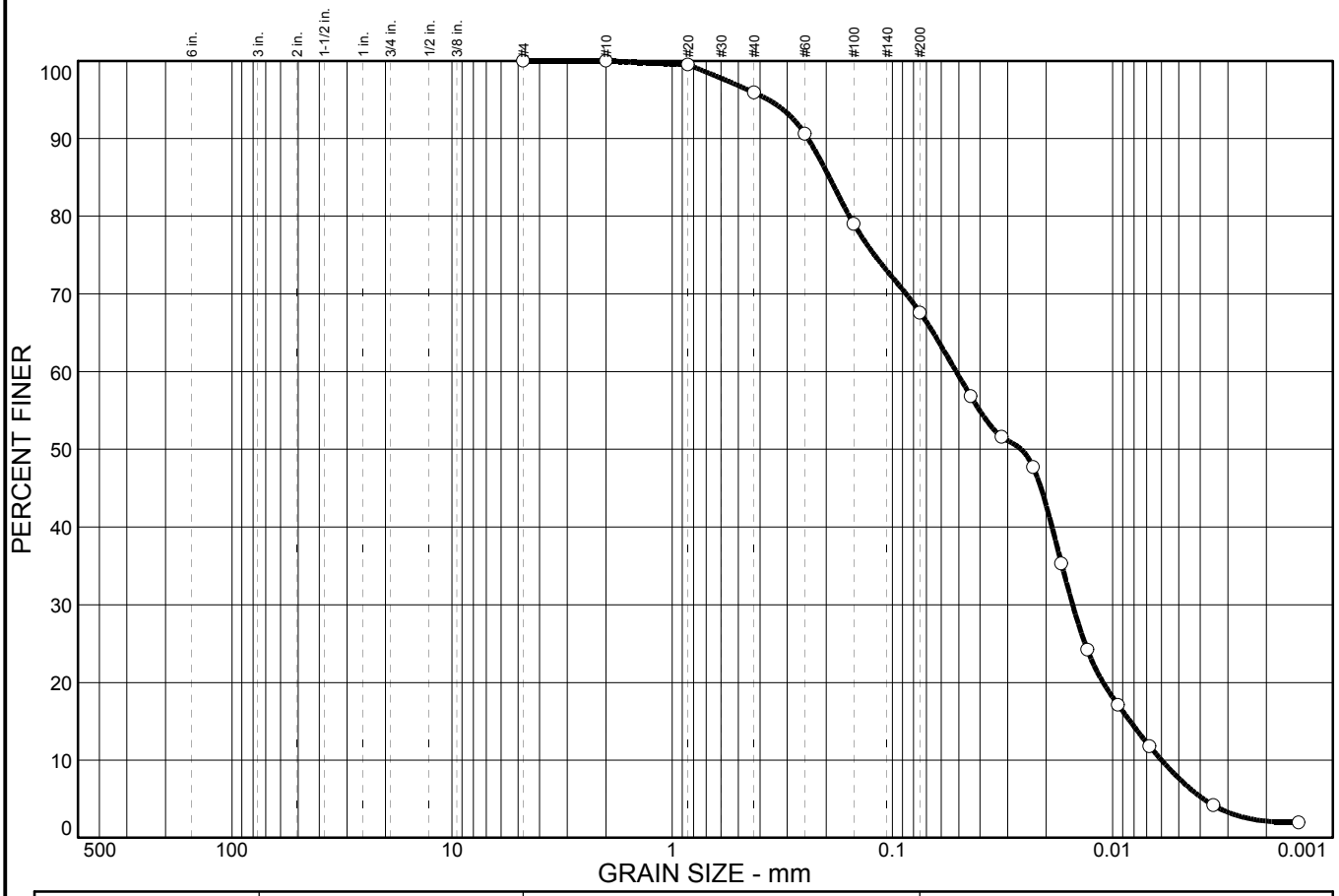
Source of Sample: Project Site **Date Sampled:**
Sample Number: 22

JACA & SIERRA Since 1967
Testing Laboratory | Geotechnical Engineers

Client: GLM Engineering Corp.
Project: Dredging Analysis at Carraizo Reservoir, Trujillo Alto

Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	4.1	28.3	60.0	7.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.5		
#40	95.9		
#60	90.6		
#100	79.0		
#200	67.6		

* (no specification provided)

Material Description

Sandy silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.194 D_{60}= 0.0514 D_{50}= 0.0261
D_{30}= 0.0152 D_{15}= 0.0083 D_{10}= 0.0060
C_u= 8.56 C_c= 0.75

Classification

USCS= AASHTO=

Remarks

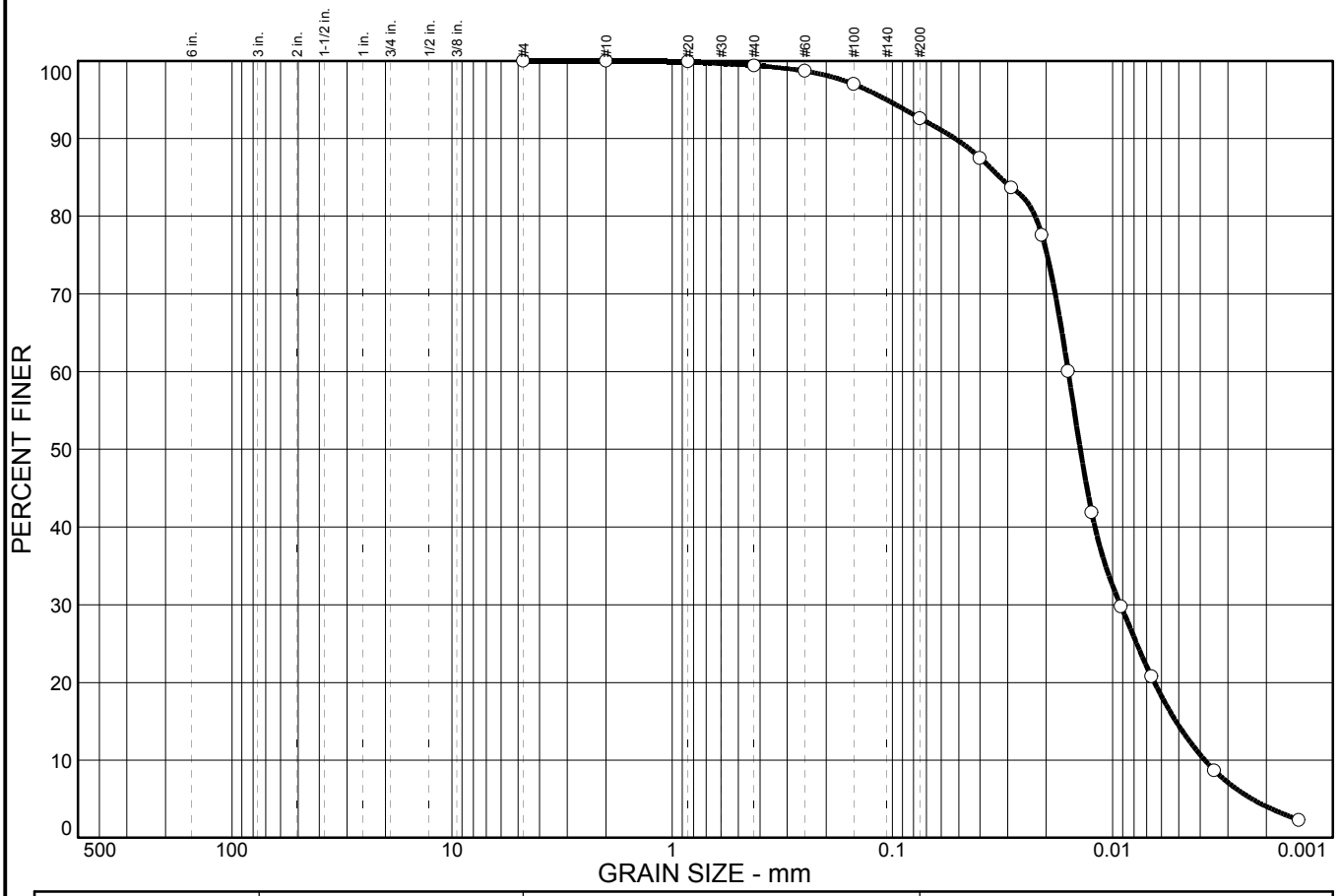
Tested by: Y. Reyes
Checked by: JAvier Osorio, MECE, PE
F.M.=0.21

Sample No.: 23 **Source of Sample:** Project Site **Date:** 7/6/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.6	6.8	78.2	14.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.4		
#60	98.7		
#100	97.0		
#200	92.6		

* (no specification provided)

Material Description

Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0325 D_{60}= 0.0159 D_{50}= 0.0140
D_{30}= 0.0092 D_{15}= 0.0052 D_{10}= 0.0038
C_u= 4.17 C_c= 1.40

Classification

USCS= AASHTO=

Remarks

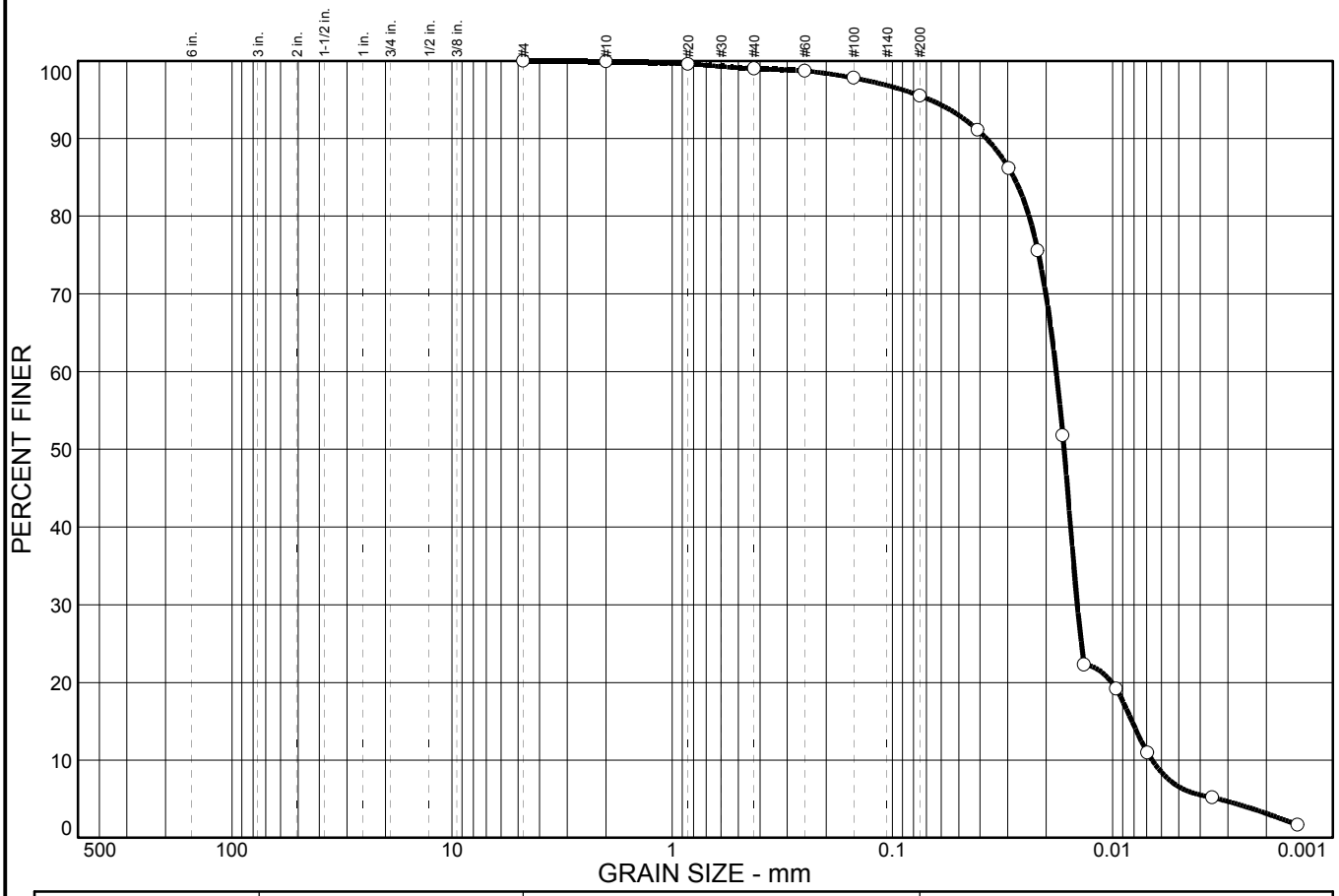
Tested by: Y. Reyes
Checked by: Javier Osorio, MECE, PE
F.M.=0.03

Sample No.: 24 **Source of Sample:** Project Site **Date:** 7/6/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.1	0.9	3.5	88.9	6.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.6		
#40	99.0		
#60	98.7		
#100	97.8		
#200	95.5		

* (no specification provided)

Material Description

Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0281 D_{60}= 0.0181 D_{50}= 0.0167
D_{30}= 0.0145 D_{15}= 0.0082 D_{10}= 0.0066
C_u= 2.73 C_c= 1.75

Classification

USCS= AASHTO=

Remarks

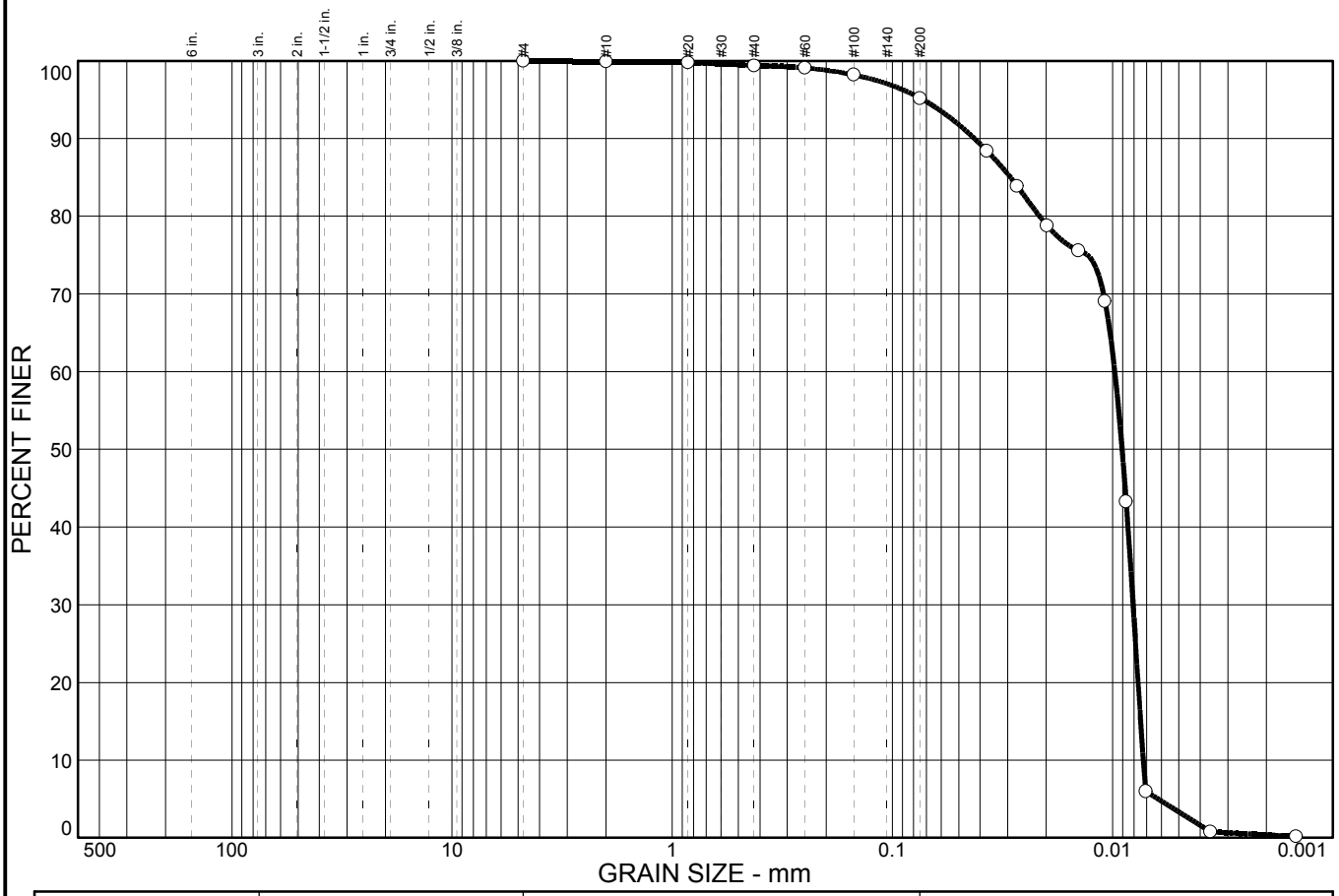
Tested by: Y. Reyes
Checked by: Javier Osorio, MECE, PE
F.M.=0.02

Sample No.: 25 **Source of Sample:** Project Site **Date:** 7/6/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Particle Size Distribution Report



% +75 MM	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.1	0.5	4.2	91.9	3.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.4		
#60	99.1		
#100	98.2		
#200	95.2		

* (no specification provided)

Material Description

Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0292 D_{60}= 0.0098 D_{50}= 0.0091
D_{30}= 0.0081 D_{15}= 0.0075 D_{10}= 0.0073
C_u= 1.35 C_c= 0.92

Classification

USCS= AASHTO=

Remarks

Tested by: Y. Reyes
Checked by: Javier Osorio, MECE, PE
F.M.=0.02

Sample No.: 26 **Source of Sample:** Project Site **Date:** 7/6/21
Location: Trujillo Alto, PR **Elev./Depth:**

JACA & SIERRA TESTING LABORATORIES
San Juan, Puerto Rico

Client: GLM Engineering Corp
Project: Dredging Analysis at Carraizo Reservoir
Project No: 8241 **Figure**

Appendix C: Sediment Chemical Characterization: EQ Lab Report

June 15, 2021

Eng. Juan Portalatin
GLM Engineering Coop.
PO Box 9024157
San Juan, PR 00902-4157

I hereby certify that the results reported for EQ Lab Sample #: 3476135 and 3476170 to 3476182 have been reviewed by me and are correct as presented herein.

Lcda. Sonia Pichardo
Laboratory Director

amps

To: GLM ENGINEERING COOP
P O BOX 9024137
SAN JUAN PR 00902-4137

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 03**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476135**	Collected Date & Time	**05/25/2021** 14:40	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number	305464			Proposal Number:	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	3.46	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.14	S.U	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	01:46	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	01:46	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	06:29	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	06:29	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	06:29	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	06:29	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	06:29	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	06:29	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	06:29	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	06:29	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	06:29	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	06:29	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	06:29	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MQL = Monitoring Quit MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number: PR00014 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 03**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A



Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3476135	Collected Date & Time:	05/25/2021 14:40	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/25/2021 16:47	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-05064	Temperature at Arrival:	3.0 °C	Eq'lab Rep:	ELAZARO
Folder Number:	305464			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	13:45	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	13:45	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	13:45	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	13:45	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	13:45	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	13:45	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	13:45	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	13:45	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	13:45	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	13:45	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	13:45	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	17:04	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	17:04	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	17:04	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	17:04	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	17:04	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification



The results presented herein meet all NELAC requirements
Refer to eqlab accreditation number - PR00014 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00958
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG JUAN PORTALATIN
Source: **SAMPLE 03**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab
ENVIRONMENTAL QUALITY LABORATORIES INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	3476135	Collected Date & Time	05/25/2021 14:40	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	20865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	17:04	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	17:04	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	21:43	AFNC	06/01/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.40	mg/L	D	0.050	1.000	100	06/01/2021	21:43	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	21:43	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	21:43	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	21:43	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/01/2021	21:43	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	21:43	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
* Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	JRC	06/01/2021	[illegible]	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	[illegible]	[illegible]	[illegible]	METHOD EXT

SONIA PICHARDO RODRIGUEZ
Químico Licenciado
Estado Libre Asociado de Puerto Rico
LICENCIA NUM. [illegible]

Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level MDL = Method Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit NA = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAC Certification

nelac
The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING CORP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 04**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476170**	Collected Date & Time	**05/25/2021** 14:42	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	1.31	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.08	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	02:06	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	02:06	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	06:57	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	06:57	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	06:57	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	06:57	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	06:57	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	06:57	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	06:57	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	06:57	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	06:57	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	06:57	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	06:57	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MW = Monitoring Only MRL = Minimum Reporting Level PTRL = Puerto Rico Regulated Level. All results are calculated on a dry weight basis unless otherwise noted. All results relate only to the sample.
+ = Parameter not covered under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87781 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 04**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A



Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3476170	Collected Date & Time:	05/25/2021 14:42	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/25/2021 16:47	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-066064	Temperature at Arrival:	2.0 °C	Eqlab Rep:	ELAZARO
Folder Number:	305464			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	LQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	14:14	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	14:14	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	14:14	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	14:14	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	14:14	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	14:14	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	14:14	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	14:14	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	14:14	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	14:14	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	14:14	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	17:21	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	17:21	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	17:21	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	17:21	PSR	06/04/2021		EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	17:21	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level MDL = Method Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
** Parameter is not yet validated under EQLab's NELAP Certification

ACCREDITED IN ACCORDANCE WITH nelac
The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11456 SANTURCE, PR 00910-1456 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING CORP
P O BOX 902457
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 04**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476170**	Collected Date & Time	**05/25/2021** 14:42	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number	305464			Proposal Number:	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	17:21	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	17:21	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	21:49	AFNC	06/01/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	0.775	mg/L	D	0.050	1.000	100	06/01/2021	21:49	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	21:49	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	21:49	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	21:49	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/01/2021	21:49	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	21:49	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	JRG	06/01/2021	--	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	LHC	05/26/2021	--	METHOD EXT

SONIA PICHARDO RODRIGUEZ Químico Licenciado Licencia Libre Asociado de Puerto Rico 238 LICENCIA NUM

Certified Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample
+ = Parameter is not accredited under EQLab's NELAP Certification

To: GLM ENGINEERING COOP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 05**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476171**	Collected Date & Time	**05/25/2021** 15:03	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
* Organic Matter	ASTM 2974	4.24	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.19	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	02:26	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	02:26	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
* 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	07:25	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	07:25	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	07:25	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	07:25	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	07:25	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	07:25	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	07:25	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	07:25	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	07:25	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	07:25	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	07:25	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to equivalence letter number E87787-3 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 05**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc

Laboratory Test Report

Sample Number	**3476171**	Collected Date & Time	**05/25/2021** 15:03	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	14:43	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	14:43	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	14:43	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	14:43	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	14:43	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	14:43	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	14:43	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	14:43	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	14:43	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	14:43	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	14:43	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	17:39	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	17:39	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	17:39	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	17:39	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	17:39	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DQI = Data Qualifier MDL = Minimum Detection Limit N/A = Not Applicable
MD = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
* = Parameter not accredited under EQLab's NELAP Certification

ACCREDITED IN ACCORDANCE WITH nelac
The results presented here meet all NELAC requirements
Refer to eqlab certification number - E87785 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 05**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476171**	Collected Date & Time:	**05/25/2021** 15:03	Date of Report:	06/15/2021
Work Order	1202-01-08	Received Date & Time:	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival:	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	17:39	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	17:39	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	22:24	AFNC	06/01/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.23	mg/L	D	0.050	1.000	100	06/01/2021	22:24	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	22:24	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	22:24	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	22:24	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	0.19	mg/L	D	0.15	0.50	1.0	06/01/2021	22:24	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	22:24	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	JRG	06/01/2021		EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	LHE	05/25/2021		METHOD EXT

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

PRQH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, M NILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00958
PO BOX 11488 SANTURCE, PR 00910-1488 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 06**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476172**	Collected Date & Time	**05/25/2021** 15:00	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	4.48	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.14	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	02:46	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	02:46	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	07:53	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	07:53	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	07:53	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	07:53	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	07:53	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	07:53	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	07:53	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	07:53	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	07:53	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	07:53	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	07:53	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number - PA 7765 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
FPA ID PR00014

To: GLV ENGINEERING CORP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 06**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476172**	Collected Date & Time	**05/25/2021** 15:00	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	15:11	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	15:11	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	15:11	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	15:11	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	15:11	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	15:11	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	15:11	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	15:11	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	15:11	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	15:11	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	15:11	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	17:57	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	17:57	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	17:57	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	17:57	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	17:57	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

ENVIRONMENTAL QUALITY LABORATORIES, INC.
50 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 788-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 06**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	3476172	Collected Date & Time	05/25/2021 15:00	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep.	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	17:57	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	17:57	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	22:30	AFNC	06/01/2021	AFNC	EPA 1311
* Barium - Total	EPA 6010B	1.14	mg/L	D	0.050	1.000	100	06/01/2021	22:30	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	22:30	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	22:30	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	22:30	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	0.16	mg/L	D	0.15	0.50	1.0	06/01/2021	22:30	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	22:30	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
* Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	JRG	[illegible]		EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	LHT	[illegible]	[illegible]	METHOD EXT

SONIA PICHARDO RODRIGUEZ
Químico Licenciado
Libro Asociado de Puerto Rico
LICENCIA NUM. 4538

Certified by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit BNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MD = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification.

PRDOH Certified
EPA ID PR00014

The results presented herein meet all NELAC requirements
Refer to eqlab certificate on number F87753 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 07**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476173**	Collected Date & Time	**05/25/2021** 15:20	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	2.78	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.31	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	03:06	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	03:06	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	08:20	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	08:20	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	08:20	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	08:20	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	08:20	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	08:20	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	08:20	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	08:20	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	08:20	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	08:20	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	08:20	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PRL = Patient Recognition Level. All results are calculated on a wet weight basis unless otherwise noted. All results relate only to this sample.
* = Parameters not accredited under EQLab's NELAC Certification

The results provided herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 07**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab
ENVIRONMENTAL QUALITY LABORATORIES INC

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476173**	Collected Date & Time	**05/25/2021** 15:20	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number	305464			Proposal Number:	22865 - 4

Remarks

					Limits			Analysis			Prep Method		
Parameter	Method	Results	Units	DQ	MDL	MRL	MCL	Date	Time	By	Date	By	Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	15:40	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	15:40	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	15:40	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	15:40	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	15:40	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	15:40	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	15:40	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	15:40	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	15:40	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	15:40	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	15:40	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	18:15	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	18:15	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	18:15	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	18:15	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	18:15	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

ACCREDITED IN ACCORDANCE WITH nelac
The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 F ST REET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
P.O BOX 11458 SANTURCE PR 00910-1458 TEL (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: CLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 07**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476173**	Collected Date & Time	**05/25/2021** 15:20	Date of Report:	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	18:15	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	18:15	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	22:37	AFNC	06/01/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.20	mg/L	D	0.050	1.000	100	06/01/2021	22:37	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	22:37	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	22:37	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	22:37	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/01/2021	22:37	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	22:37	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	JRG	06/01/2021	[illegible]	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	[illegible]	[illegible]	[illegible]	METHOD EXT

SONIA PICHARDO RODRIGUEZ
Químico Licenciado
Estado Libre Asociado de Puerto Rico
LICENCIA NUM. 4538

Certified by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

PRDOH Certified
EPA ID PR00014

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 08**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc

Sample Number	**3476174**	Collected Date & Time	**05/25/2021** 15:16	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	4.75	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.30	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	03:45	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	03:45	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	12:30	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	12:30	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	12:30	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	12:30	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	12:30	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	12:30	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	12:30	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	12:30	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	12:30	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	12:30	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	12:30	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MD = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
* = Parameter not covered under EQLab's NELAP Certification

The results presented here meet all NELAC requirements
Refer to eqlab certification number PR00014 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMON, PR 00958
PO BOX 11488 SANTURCE, PR 00910-1488 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 08**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476174**	Collected Date & Time	**05/25/2021** 15:16	Date of Report:	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	16:09	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	16:09	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	16:09	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	16:09	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	16:09	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	16:09	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	16:09	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	16:09	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	16:09	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	16:09	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	16:09	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	11:28	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	11:28	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	11:28	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	11:28	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	11:28	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MQL = Monitoring Only MRL = Minimum Reporting Level PTRL = Practical Reporting Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

ACCREDITED IN ACCORDANCE WITH nelac
The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 08**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab
ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc

Sample Number	**3476174**	Collected Date & Time	**05/25/2021** 15:16	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	11:28	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	11:28	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/09/2021	03:17	YDCV	06/07/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	0.940	mg/L	D	0.050	1.000	100	06/09/2021	03:17	YDCV	06/07/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/09/2021	03:17	YDCV	06/07/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/09/2021	03:17	YDCV	06/07/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/09/2021	03:17	YDCV	06/07/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/09/2021	03:17	YDCV	06/07/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/09/2021	03:17	YDCV	06/07/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	0.0002	mg/L	--	0.0002	0.0005	0.2	06/14/2021	16:56	AFNC	[illegible]	AFNC	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	[illegible]	05/26/2021	[illegible]	METHOD EXT

SONIA PICHARDO RODRIGUEZ
Químico Licenciado
Estado Libre Asociado de Puerto Rico
LICENCIA NUM. 6138
Certified Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample(s).
+ = Parameter is not accredited under EQLab's NELAP Certification

ACCREDITED IN ACCORDANCE WITH nelac
The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

PRFDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP.
P O BOX 9034157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 10**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476175**	Collected Date & Time	**05/25/2021** 15:30	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	1.71	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.30	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	05:24	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	05:24	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	11:07	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	11:07	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	11:07	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	11:07	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	11:07	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	11:07	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	11:07	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	11:07	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	11:07	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	11:07	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	11:07	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

To: GLM ENGINEERING COOP.
P.O. BOX 9034157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 10**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A



Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476175**	Collected Date & Time	**05/25/2021** 15:30	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	16:38	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	16:38	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	16:38	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	16:38	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	16:38	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	16:38	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	16:38	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	16:38	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	16:38	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	16:38	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	16:38	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	18:32	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	18:32	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	18:32	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	18:32	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	18:32	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PRRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
* = Parameter is not accredited under EQLab's NELAP Certificate

ACCREDITED IN ACCORDANCE WITH nelac
The tests presented herein meet all NELAC requirements
Refer to eqlab certification number E87781 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN PR 00958
PO BOX 11456 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 289-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 10**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab
ENVIRONMENTAL QUALITY LABORATORIES INC

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3476175	Collected Date & Time:	05/25/2021 15:30	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/25/2021 16:47	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06064	Temperature at Arrival:	3.0 °C	Eqlab Rep:	ELAZARO
Folder Number:	305464			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits VRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	18:32	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	18:32	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	22:44	AFNC	06/01/2021	AFNC	EPA 1311
* Barium - Total	EPA 6010B	0.875	mg/L	D	0.050	1.000	100	06/01/2021	22:44	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	22:44	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	22:44	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	22:44	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/01/2021	22:44	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	22:44	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
* Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	JRC	06/01/2021		EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	MTP	05/26/2021		METHOD EXT

SONIA PICHARDO RODRIGUEZ
Química Licenciada
Certified Laboratory Director
LICENCIA NUM. 453

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ionize MDL = Minimum Detection Limit NA = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Practical Reporting Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample
* = Parameter is not accredited under EQLab's NELAP Certificate

nelac
The tests presented herein meet all NELAC requirements
Refer to eqlab certification number PR00014 at www.eqlab.com

PRIDCO Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 11**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc

Sample Number	**3476176**	Collected Date & Time	**05/25/2021** 12:40	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	3.82	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.27	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	05:44	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	05:44	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	11:35	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	11:35	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	11:35	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	11:35	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	11:35	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	11:35	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	11:35	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	11:35	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	11:35	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	11:35	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	11:35	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detectable Limit N/A = Not Applicable
MQL = Monitoring Only MRL = Minimum Reporting Level PRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not yet included under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 11**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab
ENVIRONMENTAL QUALITY LABORATORIES INC

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476176**	Collected Date & Time	**05/25/2021** 12:40	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	1 0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	07:58	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	07:58	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	07:58	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	07:58	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	07:58	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	07:58	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	07:58	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	07:58	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	07:58	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	07:58	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	07:58	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	18:50	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	18:50	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	18:50	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	18:50	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	18:50	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number - PR7785 or www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 11**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	3476176	Collected Date & Time	05/25/2021 12:40	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	EL AZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	18:50	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	18:50	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	22:51	AFNC	06/01/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	0.950	mg/L	D	0.050	1.000	100	06/01/2021	22:51	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	22:51	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	22:51	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	22:51	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/01/2021	22:51	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	22:51	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
* Mercury - Total	EPA 7470A	0.0068	mg/L	--	0.0002	0.0005	0.2	06/03/2021	12:57	JRG	[illegible]		EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	LHT	[illegible]		METHOD EXT

SONIA PICHARDO RODRIGUEZ Químico Licenciado Estado Libre Asociado de Puerto Rico LICENCIA NU 04538

Certified by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Parts in Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

PRDOH Certified
EPA ID PR00014

The results presented herein meet all NELAC requirements
Refer to eqlab certification number F87783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 12**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc

Sample Number	**3476177**	Collected Date & Time	**05/25/2021** 12:35	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	6.21	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.19	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	06:04	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	06:04	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	12:02	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	12:02	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	12:02	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	12:02	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	12:02	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	12:02	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	12:02	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	12:02	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	12:02	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	12:02	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	12:02	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit PQL = Practical Quantitation Limit MDL = Minimum Detection Limit N/A = Not Applicable
MQL = Monitoring Only MRL = Minimum Reporting Level RL = Reporting Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
* = Parameter not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab serial number F47783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 12**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab
ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476177**	Collected Date & Time	**05/25/2021** 12:35	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	07:29	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	07:29	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	07:29	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	07:29	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	07:29	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	07:29	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	07:29	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	07:29	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	07:29	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	07:29	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	07:29	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	19:07	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	19:07	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	19:07	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	19:07	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	19:07	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
EQLab is accredited under number PR00014 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 12**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES INC

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476177**	Collected Date & Time	**05/25/2021** 12:35	Date of Report:	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	19:07	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	19:07	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	22:57	AFNC	06/01/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.07	mg/L	D	0.050	1.000	100	06/01/2021	22:57	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	22:57	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	22:57	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	22:57	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/01/2021	22:57	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	22:57	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	JRC	06/01/2021		EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	[illegible]	[illegible]	LHT	METHOD EXT

SONIA PICHARDO RODRIGUEZ
Químico Licenciado
Estado Libre Asociado de Puerto Rico
LICENCIA NUM. 4538

Certified by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

ACCREDITED IN ACCORDANCE WITH nelac
The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: G..M ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 13**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab
ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3476178**	Collected Date & Time:	05/25/2021 12:20	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/25/2021 16:47	Collected By:	JSANCHEZ-EQLAB05C
Delivery Slip:	2021-06064	Temperature at Arrival:	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number:	305464			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Result	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	2.24	%	--	0.01	0.01	--	05/28/2021	15:00	YVV		--	N/A
Corrosivity, pH	EPA 9045C	7.08	S.U	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	06:24	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	06:24	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	12:58	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	12:58	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	12:58	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	12:58	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	12:58	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	12:58	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	12:58	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	12:58	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	12:58	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	12:58	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	12:58	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

ACCREDITED BY A RECOGNIZED BODY WITH
nelac
The results presented herein meet all NELAC requirements
Refer to eqlab certification number: PR2795-21 www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00958
PO BOX 1448 SANTURCE, PR 00910-1448 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 13**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476178**	Collected Date & Time	**05/25/2021** 12:20	Date of Report	06/15/2021
Work Order:	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	08:27	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	08:27	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	08:27	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	08:27	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	08:27	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	08:27	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	08:27	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	08:27	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	08:27	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	08:27	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	08:27	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	11:45	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	11:45	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	11:45	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	11:45	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	11:45	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DQ = Data Qualifier MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Puerto Rico Practical Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number PR00014 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

For: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 13**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc

Sample Number	**3476178**	Collected Date & Time	**05/25/2021** 12:20	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	11:45	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	11:45	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/09/2021	03:24	YDCV	06/07/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	0.770	mg/L	D	0.050	1.000	100	06/09/2021	03:24	YDCV	06/07/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/09/2021	03:24	YDCV	06/07/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/09/2021	03:24	YDCV	06/07/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/09/2021	03:24	YDCV	06/07/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/09/2021	03:24	YDCV	06/07/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/09/2021	03:24	YDCV	06/07/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	0.0002	mg/L	--	0.0002	0.0005	0.2	06/14/2021	16:56	AFNC	06/[illegible]/2021	AFNC	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	[illegible]	[illegible]/2021	[illegible]	METHOD EXT

SONIA PICHARDO RODRIGUEZ Química Licenciado Asociado de Puerto Rico LICENCIA NUM.

Certified By Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 14**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476179**	Collected Date & Time	**05/25/2021** 12:17	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

	Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
	Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+	Organic Matter	ASTM 2974	4.67	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
	Corrosivity, pH	EPA 9045C	7.03	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
	TCLP HERBICIDES													
	* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	06:44	DCM	06/03/2021	RMR	EPA 1311
	* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	06:44	DCM	06/03/2021	RMR	EPA 1311
	TCLP VOC EPA 8260B													
+	* 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	08:48	DARF	06/02/2021	--	EPA 1311
	* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	08:48	DARF	06/02/2021	--	EPA 1311
	* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	08:48	DARF	06/02/2021	--	EPA 1311
	* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	08:48	DARF	06/02/2021	--	EPA 1311
	* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	08:48	DARF	06/02/2021	--	EPA 1311
	* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	08:48	DARF	06/02/2021	--	EPA 1311
	* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	08:48	DARF	06/02/2021	--	EPA 1311
	* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	08:48	DARF	06/02/2021	--	EPA 1311
	* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	08:48	DARF	06/02/2021	--	EPA 1311
	* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	08:48	DARF	06/02/2021	--	EPA 1311
	* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	08:48	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

PRDOH Certified
FPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMON, PR 00959
PO BOX 1458 SANTURCE, PR 00910-1458 TEL (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GUM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE H**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	3476179	Collected Date & Time	05/25/2021 12:17	Date of Report	06/15/2021
Work Order	1209-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305461			Proposal Number	22365 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	05:35	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	05:35	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	05:35	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	05:35	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	05:35	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	05:35	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	05:35	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	05:35	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	05:35	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	05:35	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	05:35	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	19:25	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	19:25	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	19:25	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	19:25	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	19:25	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MD = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
* = Parameter not covered by EQLab's NELAP Certification

ACCREDITED IN ACCORDANCE WITH nelac
The tests presented herein meet all NELAC requirements
Refer to eqlab certification number PR00014 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11468 SANTURCE, PR 00910-1468 TEL (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLV ENGINEERING COOP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 14**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc

Sample Number	**3476179**	Collected Date & Time	**05/25/2021** 12:17	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	19:25	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	19:25	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	21:56	AFNC	06/01/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.44	mg/L	D	0.050	1.000	100	06/01/2021	21:56	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	0.0030	mg/L	D	0.0025	0.0050	1.0	06/01/2021	21:56	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	21:56	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	21:56	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/01/2021	21:56	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	21:56	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	JR[illegible]	[illegible]	[illegible]	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	[illegible]	[illegible]	[illegible]	METHOD EXT

Certified by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 F STREET, MINILLAS INDUSTRIAL PARK, BAYAMON, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 18**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3476180**	Collected Date & Time:	**05/25/2021** 12:01	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/25/2021 16:47	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06064	Temperature at Arrival:	3.0 °C	Eqlab Rep:	ELAZARO
Folder Number:	305464			Proposal Number:	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	3.41	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.00	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	08:22	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	08:22	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	15:16	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	15:16	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	15:16	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	15:16	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	15:16	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	15:16	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	15:16	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	15:16	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	15:16	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	15:16	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	15:16	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MQ = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab accreditation number PR785 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00958
PO BOX 11458 SANTURCE PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GUM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 18**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476180**	Collected Date & Time	**05/25/2021** 12:01	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	06:03	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	06:03	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	06:03	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	06:03	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	06:03	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	06:03	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	06:03	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	06:03	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	06:03	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	06:03	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	06:03	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	19:42	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	19:42	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	19:42	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	19:42	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	19:42	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number 84703 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
50 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 1458 SANTURCE, PR 00910-1458 TEL (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 18**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476180**	Collected Date & Time	**05/25/2021** 12:01	Date of Report:	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	19:42	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	19:42	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	23:11	AFNC	06/01/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	0.660	mg/L	D,J	0.050	1.000	100	06/01/2021	23:11	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	23:11	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	23:11	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	23:11	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/01/2021	23:11	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	23:11	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	[illegible]	[illegible]	[illegible]	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	[illegible]	[illegible]	[illegible]	METHOD EXT

SONIA PICHARDO RODRIGUEZ
Químico Licenciado
Estado Libre Asociado de Puerto Rico
LICENCIA NUM. 4538

Certified by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

PRDOH Certified
EPA ID PR00014

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
80 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: CLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 19**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3476181	Collected Date & Time:	05/25/2021 11:45	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/25/2021 16:47	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06064	Temperature at Arrival:	2.0 °C	Eqlab Rep:	ELAZARO
Folder Number:	305464			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	4.20	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.23	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	1.0	06/05/2021	07:03	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	07:03	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	13:25	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	13:25	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	13:25	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	13:25	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	13:25	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	13:25	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	13:25	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	13:25	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	13:25	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	13:25	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	13:25	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
+ = Parameter not covered under EQLab's NELAP Certification

The results presented here meet all NELAC requirements
Refer to eqlab certification number E87785 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, M NILLAS INDUSTRIAL PARK, BAYAMON, PR 00958
PO BOX 1448 SANTURCE, PR 00910-1448 TEL (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GEM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 19**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476181**	Collected Date & Time	**05/25/2021** 11:45	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	06:32	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	06:32	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	06:32	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	06:32	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	06:32	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	06:32	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	06:32	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	06:32	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	06:32	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	06:32	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	06:32	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	20:00	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	20:00	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	20:00	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	20:00	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	20:00	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87763 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 19**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc

Sample Number	**3476181**	Collected Date & Time	**05/25/2021** 11:45	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	20:00	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	20:00	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	23:04	AFNC	06/01/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.16	mg/L	D	0.050	1.000	100	06/01/2021	23:04	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	23:04	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	23:04	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	23:04	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/01/2021	23:04	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	23:04	AFNC	[illegible]	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	[illegible]	[illegible]	[illegible]	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	[illegible]	[illegible]	[illegible]	METHOD EXT

SONIA RICHARDO RODRIGUEZ Químico Licenciado Estado Libre Asociado de Puerto Rico LICENCIA NUM. 4538

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample
+ = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAP requirements
Refer to eqlab certification number E87783 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, M NILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11488 SANTURCE, PR 00910-1488 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

Tn: GLM ENGINEERING COOP
P.O. BOX 9324157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 20**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476182**	Collected Date & Time	**05/25/2021** 11:50	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/28/2021	09:00	DSA	05/28/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	4.07	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.07	S.U.	--	1.00	--	<2 - >12.5	05/26/2021	08:10	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	07:23	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	07:23	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	13:53	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	13:53	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	13:53	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	13:53	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	13:53	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	13:53	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	13:53	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	13:53	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	13:53	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	13:53	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	13:53	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number - E87385 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
FPA ID PR00014

To: GLM ENGINEERING COOP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 20**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3476182**	Collected Date & Time	**05/25/2021** 11:50	Date of Report:	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	07:01	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	07:01	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	07:01	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	07:01	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	07:01	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	07:01	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	07:01	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	07:01	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	07:01	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	07:01	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	07:01	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	12:02	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	12:02	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	12:02	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	12:02	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	12:02	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTR = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
* = Parameter is not accredited under EQLab's NELAP Certification.

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 20**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab
ENVIRONMENTAL QUALITY LABORATORIES INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc

Sample Number	**3476182**	Collected Date & Time	**05/25/2021** 11:50	Date of Report	06/15/2021
Work Order	1202-01-08	Received Date & Time	05/25/2021 16:47	Collected By	JSANCHEZ-EQLAB050
Delivery Slip	2021-06064	Temperature at Arrival	3.0 °C	Eqlab Rep	ELAZARO
Folder Number	305464			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	12:02	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	12:02	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/09/2021	03:31	YDCV	06/07/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.12	mg/L	D	0.050	1.000	100	06/09/2021	03:31	YDCV	06/07/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	0.0060	mg/L	D	0.0025	0.0050	1.0	06/09/2021	03:31	YDCV	06/07/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/09/2021	03:31	YDCV	06/07/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/09/2021	03:31	YDCV	06/07/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/09/2021	03:31	YDCV	06/07/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/09/2021	03:31	YDCV	06/07/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	0.0014	mg/L	--	0.0002	0.0005	0.2	06/14/2021	16:56	AFNC	[illegible]	[illegible]	EPA 1311
Releasable Cyanide	SW 846 - 7.3 3	BDL	mg/Kg	U	1.0	1.0	250	05/26/2021	10:00	LHT	05/26/2021	LHT	METHOD EXT

SONIA PICHARDO RODRIGUEZ
Químico Licenciado
Estado Libre Asociado de Puerto Rico
LICENCIA NUM. 5538

Certified by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample
* = Parameter is not accredited under EQLab's NELAP Certification

PRDOH Certified
EPA ID PR00014

ACCREDITED IN ACCORDANCE WITH nelac
The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 1458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

IENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1202-01 W.O. #: 08 SITE: CARRAIZO CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN ELAZARO

). #: G2021-03 PWSID #: FOLDER #: PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
AMPLE #: SEDIMENT IATRIX: SAMPLE 01 OURCE:	DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter N/A J.S
AMPLE #: SEDIMENT IATRIX: SAMPLE 01 OURCE:	DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/TC COLOR AMBER VOLUME 20 PRESERVATIVE Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
AMPLE #: SEDIMENT IATRIX: SAMPLE 01 OURCE:	DATE: 05/25/21 TIME TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Releasable Cyanide, Releasable Sulfide
AMPLE #: SEDIMENT IATRIX: SAMPLE 01 OURCE:	DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 4 PRESERVATIVE Cool 4 °C		TCLP VOC EPA 8260B

USTODY RECORD	SIGNATURE	DATE	TIME
ollected in field by:	J Sanchez	05/25/21	Varias
ixed in field by:	[signature]	05/25/21	Varias
uthorized by:	[signature]	05/25/21	15:40
eceived by EQLF:	[signature]	05/25/21	15:40
eleased to EQLL by:	[signature]	05/25/21	1647
eceived by EQLL:			

SPECIAL INSTRUCTIONS / COMMENTS:

No se pudo colectar

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

CIHR

Arrival Temperature: _____ Signature: _____

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

CLIENT NAME: CLM ENGINEERING CORP. | CLIENT ID: 202-01 | W.O. #: 08 | SITE: CARRAIZO CARRAIZO | CLIENT REP: ENG. JUAN PORTALATIN PLAZARO

P.O. #: GE21-63 | PWSID #: | FOLDER #: | PROJECT: | EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: SEDIMENT MATRIX: SAMPLE 01 SOURCE:	DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury N/A 5.5
SAMPLE #: MATRIX: SEDIMENT SOURCE: SAMPLE 02	DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: MATRIX: SEDIMENT SOURCE: SAMPLE 02	DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: MATRIX: SEDIMENT SOURCE: SAMPLE 02	DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 4 PRESERVATIVE Cool 4 °C		TCLP VOC EPA 8260B

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	varias
Fixed in field by:	[illegible]	05/25/21	Varias
Authorized by:	[illegible]	05/25/21	15:40
Received by EQLF:	[illegible]	05/25/21	15:40
Released to EQLL by:			
Received by EQLL:			

SPECIAL INSTRUCTIONS / COMMENTS:
No se pudo colectar.

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

C1 H2

Arrival Temperature: _____ Signature: _____

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

J021-06064

ENT NAME: GLM ENGINEERING COOP. (2021-03) | CLIENT ID: 1202-01 | W.O. #: DR | SITE: CARRAIZO / CARRAIZO | CLIENT REP: ENG. JUAN PORTALATIN / FLAZARO

#: | PWSID: | FOLDER #: 305464 | PROJECT: | EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
AMPLE #: SEDIMENT IATRIX: SAMPLE 02 OURCE: (1)	DATE: 05/25/21 TIME: Composite TYPE:	TYPE: G/C COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Releasable Cyanide, Releasable Sulfide N/A T.S
AMPLE #: SEDIMENT IATRIX: SAMPLE 02 OURCE: (1)	DATE: 05/25/21 TIME: Composite TYPE:	TYPE: G/C COLOR: AMBER VOLUME: 20 PRESERVATIVE: Cool 4 °C			TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
AMPLE #: 3476135 SEDIMENT ATRIX: OURCE: SAMPLE 03	DATE: 05/25/21 TIME: 1440 Composite TYPE:	TYPE: G/C COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Corrosivity, pH (RCRA), Organic Matter
AMPLE #: 3476135 SEDIMENT IATRIX: OURCE: SAMPLE 03	DATE: 05/25/21 TIME: 1440 Composite TYPE:	TYPE: G/C COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Releasable Cyanide, Releasable Sulfide

USTODY RECORD	SIGNATURE	DATE	TIME
ollected in field by:	JSanchez	05/25/21	Varios
ixed in field by:	[illegible]	05/25/21	Varios
uthorized by:	[illegible]	05/25/21	15:40
eceived by EQLF:	[illegible]	05/25/21	15:40
eleased to EQLL by:	[illegible]	05/25/21	1647
eceived by EQLL:	[illegible]	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:
(1) No se pudo colectar

*EQLF = Eqlab's Field Personne .
*EQLL = Eq ab's Lab-r. Personnel.

Arrival Temperature: 3.0°C Signature: [illegible]

Eqlab's general terms and conditions on reverse side of this document.

PIAR

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

21Y-06064

CLIENT NAME: GLM ENGINEERING CORP. G2021-03 | CLIENT ID: 1202-01 | W.O. #: NR | SITE: CARRAIZO CARRAIZO | CLIENT REP: ENG. JUAN PORTALATIN ELAZARO

P.O. #: | PWSID #: | FOLDER #: 305464 | PROJECT: | EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: 3476135 MATRIX: SEDIMENT SOURCE: SAMPLE 03	DATE: 05/25/21 TIME: 1440 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: 3476135 MATRIX: SEDIMENT SOURCE: SAMPLE 01	DATE: 05/25/21 TIME: 1440 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B
SAMPLE #: 3476135 MATRIX: SEDIMENT SOURCE: SAMPLE 02	DATE: 05/25/21 TIME: 1440 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 2lt PRESERVATIVE: Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3476170 MATRIX: SEDIMENT SOURCE: SAMPLE 04	DATE: 05/25/21 TIME: 1442 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Releasable Cyanide, Releasable Sulfide

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	Varios
Fixed in field by:	Planelly	05/25/21	Varios
Authorized by:		05/25/21	15:40
Received by EQLF:	Planelly	05/25/21	15:40
Released to EQLL by:	Planelly	05/25/21	1647
Received by EQLL:		05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature:

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6423, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

CLIENT NAME: GLM ENGINEERING COOP | CLIENT ID: 1202-01 | W.O. #: 08 | SITE: CARRAIZO / CARRAIZO | CLIENT REP: ENG. JUAN PORTALATIN / ELAZARO

G2021-03

P.O. #: | PWSID #: | FOLDER #: 305464 | PROJECT: | EQLAB REP:

SAMPLE INFORMATION	CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: 3476170 SEDIMENT MATRIX: SAMPLE 04 SOURCE: DATE: 05/25/21 TIME: 1440 Composite TYPE:	TYPE: G/TC COLOR: AMBER VOLUME: 8oz PRESERVATIVE: Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3476170 SEDIMENT MATRIX: SAMPLE 04 SOURCE: DATE: 05/25/21 TIME: 1442 Composite TYPE:	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: 3476170 SEDIMENT MATRIX: SAMPLE 04 SOURCE: DATE: 05/25/21 TIME: 1443 Composite TYPE:	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: 3476170 SEDIMENT MATRIX: SAMPLE 04 SOURCE: DATE: 05/25/21 TIME: 1442 Composite TYPE:	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	Varios
Fixed in field by:	JStanley	05/25/21	Varios
Authorized by:	[signature]	05/25/21	15:40
Received by EQLF:	JStanley	05/25/21	15:40
Released to EQLL by	JStanley	05/25/21	1647
Received by EQLL:	Diego Ocasio	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature: [signature]

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

CLIENT NAME: CEM ENGINEERING COOP. CLIENT ID: 1202-01 W.O. #: 08 SITE: CARRAIZO / CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN / ELAZARO

O. #: G2621-03 PWSID #: FOLDER #: 305464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: 3476171 MATRIX: SEDIMENT SOURCE: SAMPLE 05	DATE: 05/25/21 TIME: 1503 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Relcasable Cyanide, Releasable Sulfide
SAMPLE #: 3476171 MATRIX: SEDIMENT SOURCE: SAMPLE 05	DATE: 05/25/21 TIME: 1503 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 20 PRESERVATIVE: Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3476171 MATRIX: SEDIMENT SOURCE: SAMPLE 05	DATE: 05/25/21 TIME: 1503 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B
SAMPLE #: 3476171 MATRIX: SEDIMENT SOURCE: SAMPLE 05	DATE: 05/25/21 TIME: 1503 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	[signature]	05/25/21	Varios
Fixed in field by:	[signature]	05/25/21	Varios
Authorized by:	[signature]	05/25/21	16:40
Received by EQLF:	[signature]	05/25/21	15:40
Released to EQLL by:	[signature]	05/25/21	1647
Received by EQLL:	[signature]	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-In Personnel.

Arrival Temperature: 3.0°C Signature: [signature]

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

21-060664

ENT NAME: GLM ENGINEERING COOP. G2021-03 | CLIENT ID: 7202-01 | W.O. #: 08 | SITE: CARRAIZO CARRAIZO | CLIENT REP: ENG. JUAN PORTALATIN ELAZARO

I #: | PWSID #: | FOLDER #: 305464 | PROJECT: | EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
AMPLE #: 347 6171 IATRIX: SEDIMENT OURCE: SAMPLE 05	DATE: 05/25/21 TIME: 1503 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
AMPLE #: 347 6172 IATRIX: SEDIMENT OURCE: SAMPLE 06	DATE: 05/25/21 TIME: 1500 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C			TCLP VOC EPA 8260B
AMPLE #: 347 6172 ATRIX: SEDIMENT OURCE: SAMPLE 06	DATE: 05/25/21 TIME: 1500 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 20 PRESERVATIVE: Cool 4 °C			TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
AMPLE #: 347 6172 IATRIX: SEDIMENT OURCE: SAMPLE 06	DATE: 05/25/21 TIME: 1500 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Releasable Cyanide, Releasable Sulfide

USTODY RECORD	SIGNATURE	DATE	TIME
ollected in field by:	JSanchez	05/25/21	Varios
ixed in field by:	Stanley	05/25/21	Varios
uthorized by:		05/25/21	15:40
eceived by EQLF:	Stanley	05/25/21	15:46
eleased to EQLL by:	Stanley	05/25/21	1647
eceived by EQLL:		05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

P/AR

Arrival Temperature: 3.0°C Signature:

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 12272-01 W.O. #: 08 SITE: CARRAIZO CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN PLAZARO

O. #: G3021-03 PWSID: FOLDER #: 305464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
SAMPLE #: 3476172 MATRIX: SEDIMENT SOURCE: SAMPLE 06	DATE: 05/25/21 TIME: 1500 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: 3476172 MATRIX: SEDIMENT SOURCE: SAMPLE 06	DATE: 05/25/21 TIME: 1500 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: 3476173 MATRIX: SEDIMENT SOURCE: SAMPLE 07	DATE: 05/25/21 TIME: 1620 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: 3476173 MATRIX: SEDIMENT SOURCE: SAMPLE 07	DATE: 05/25/21 TIME: 1520 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 10 PRESERVATIVE: Cool 4 °C			TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	J Sanchez	05/25/21	Varios
Fixed in field by:	[illegible]	05/25/21	Varios
Authorized by:	[illegible]	05/26/21	15:40
Received by EQLF:	[illegible]	05/25/21	15:40
Released to EQLL by:	[illegible]	05/25/21	1647
Received by EQLL:	[illegible]	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 30°C Signature: [illegible]

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1202-03 W.O. #: 08 SITE: CARRAIZO CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN ELAZARO

O. #: G2021-03 PWSID #: FOLDER #: 305464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: 3476173 MATRIX: SEDIMENT SOURCE: SAMPLE 07	DATE: 05/25/21 TIME: 1520 TYPE: Composite	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: 3476173 MATRIX: SEDIMENT SOURCE: SAMPLE 07	DATE: 05/25/21 TIME: 1520 TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Releasable Cyanide, Releasable Sulfide
SAMPLE #: 3476173 MATRIX: SEDIMENT SOURCE: SAMPLE 07	DATE: 05/25/21 TIME: 1520 TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 4 PRESERVATIVE Cool 4 °C		TCLP VOC EPA 8260B
SAMPLE #: 3476174 MATRIX: SEDIMENT SOURCE: SAMPLE 08	DATE: 05/25/21 TIME: 1516 TYPE: Composite	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	J Sanchez	05/25/21	Varia S
Fixed in field by:	[signature]	05/25/21	Varia S
Authorized by:	[signature]	05/25/21	15:40
Received by EQLF:	[signature]	05/25/21	15:40
Released to EQLL by:	[signature]	05/25/21	1647
Received by EQLL:	[signature]	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-In Personnel.

Arrival Temperature: 3.0°C Signature: [signature]

Eqlab's general terms and conditions on reverse side of this document.

P/ [signature]

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11459, SAN JUAN, PR 00910-1459 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-060064

LIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1202-01 W.O. #: 08 SITE: CARRAIZO / CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN / ELAZARO

.O. #: 672021-08 PWSID #: FOLDER #: 305464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: 3476174 MATRIX: SEDIMENT SOURCE: SAMPLE 08	DATE: 05/25/21 TIME: 1516 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Releasable Cyanide, Releasable Sulfide
SAMPLE #: 3476174 MATRIX: SEDIMENT SOURCE: SAMPLE 08	DATE: 05/25/21 TIME: 1516 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B
SAMPLE #: 3476174 MATRIX: SEDIMENT SOURCE: SAMPLE 08	DATE: 05/25/21 TIME: 1516 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 70 PRESERVATIVE: Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3476174 MATRIX: SEDIMENT SOURCE: SAMPLE 08	DATE: 05/25/21 TIME: 1516 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	Varios
Fixed in field by:	JSanchez	05/25/21	Varios
Authorized by:	[signature]	05/25/21	15:40
Received by EQLF:	JSanchez	05/25/21	15:40
Released to EQLL by:	JSanchez	05/25/21	1647
Received by EQLL:	[signature]	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eq ab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature: [signature]

Eqlab's general terms and conditions on reverse side of this document.

PWSID

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

CLIENT NAME: GLM ENGINEERING CORP. | CLIENT ID: 1202-01 | W.O. #: 08 | SITE: CARRAIZO / CARRAIZO | CLIENT REP.: ENG. JUAN PORTALATIN / ELAZARO

P.O. #: G2021-03 | PWSID #: | FOLDER #: | PROJECT: | EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
SAMPLE #: SEDIMENT MATRIX: SAMPLE 09 SOURCE:	DATE: 05/25/21 TIME: Composite TYPE:	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Corrosivity, pH (RCRA), Organic Matter J.S
SAMPLE #: SEDIMENT MATRIX: SAMPLE 09 SOURCE:	DATE: 05/25/21 TIME: Composite TYPE:	TYPE: G/TC COLOR: AMBER VOLUME: 80 PRESERVATIVE: Cool 4 °C		N/A	TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: SEDIMENT MATRIX: SAMPLE 09 SOURCE:	DATE: 05/25/21 TIME: Composite TYPE:	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: SEDIMENT MATRIX: SAMPLE 09 SOURCE:	DATE: 05/25/21 TIME: Composite TYPE:	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Releasable Cyanide, Releasable Sulfide

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	Varies
Fixed in field by:	Flanelly	05/25/21	Varies
Authorized by:		05/25/21	
Received by EQLF:	Flanelly	05/25/21	
Released to EQLL by:			
Received by EQLL:			

SPECIAL INSTRUCTIONS / COMMENTS:
NO dio para colector

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

C/HR

Arrival Temperature: _____ Signature: _____

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 17024-01 W.O. #: 08 SITE: CARRAIZO / CARRAIZO CLIENT REP: ENG JUAN PORTALATIN / FLAZARO

P.O. #: 172021-08 PWSID: FOLDER # 305464 PROJECT: EQLAB REP.

SAMPLE INFORMATION	CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: SEDIMENT MATRIX: SOURCE: SAMPLE 09 DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 4 PRESERVATIVE Cool 4 °C		TCLP VOC EPA 8260B
SAMPLE #: 3476175 SEDIMENT MATRIX: SOURCE: SAMPLE 10 DATE: 05/25/21 TIME: 1530 TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 4 PRESERVATIVE Cool 4 °C		TCLP VOC EPA 8260B
SAMPLE #: 3476175 SEDIMENT MATRIX: SOURCE: SAMPLE 10 DATE: 05/25/21 TIME: 1530 TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Releasable Cyanide, Releasable Sulfide
SAMPLE #: 3476175 SEDIMENT MATRIX: SOURCE: SAMPLE 10 DATE: 05/25/21 TIME: 1530 TYPE: Composite	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	[signature]	05/25/21	Varios
Fixed in field by:	[signature]	05/25/21	Varios
Authorized by:	[signature]	05/25/21	15:40
Received by EQLF:	[signature]	05/25/21	15:40
Released to EQLL by:	[signature]	05/25/21	1647
Received by EQLL:	[signature]	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

PKH

Arrival Temperature: 3.0°C Signature: [signature]

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458 SAN JUAN, PR 00910-1458 • TEL. (787) 268-6420, FAX (787) 288-6485, e-mail: info@eqlab.com

2021-06064

IENT NAME: G M ENGINEERING COOP. | CLIENT ID: 12021-01 | W.O. #: 68 | SITE: CARRAIZO CARRAIZO | CLIENT REP: ENG. JUAN PORTALATIN PLAZARO

G12021-03

) #: | PWSID #: | FOLDER #: 305464 | PROJECT: | EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
AMPLE #: 3476175 SEDIMENT IATRIX: SAMPLE 10 OURCE:	DATE: 05/25/21 TIME: 1530 Composite TYPE:	TYPE: GAC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4°C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
AMPLE #: 3476175 SEDIMENT IATRIX: SAMPLE 10 OURCE:	DATE: 05/25/21 TIME: 1530 Composite TYPE:	TYPE: GAC COLOR: AMBER VOLUME: 20 PRESERVATIVE: Cool 4°C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
AMPLE #: #3476175 SEDIMENT IATRIX: SAMPLE 11 OURCE: 3476176	DATE: 05/25/21 TIME: 1240 (1) Composite TYPE:	TYPE: GAC COLOR: AMBER VOLUME: 20 PRESERVATIVE: Cool 4°C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
AMPLE #: #3476175 SEDIMENT IATRIX: SAMPLE 11 OURCE: 3476176	DATE: 05/25/21 TIME: 1240 (1) Composite TYPE:	TYPE: GAC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4°C		TCLP VOC EPA 8260B

CUSTODY RECORD	SIGNATURE	DATE	TIME
ollected in field by:	JSanchez	05/25/21	Varios
ixed in field by:	Stanley	05/25/21	Varios
uthorized by:	Stanley	05/25/21	15:40
eceived by EQLF:	Stanley	05/25/21	15:40
eleased to EQLL by:	Stanley	05/25/21	1647
eceived by EQLL:	Diego Cruz	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS: (1) ~~15:30~~ hora correcta 12:40 amps

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

P/KA

Arrival Temperature: 3.0°C Signature: KA

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

LIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1202-01 W.O. #: 06 SITE: CARRAIZO CARRAIZO CLIENT REP: ENG JUAN PORTALATIN FLAZARO

.O. #: G2021-03 PWSID #: FOLDER #: 305464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: HA 3476175 MATRIX: SEDIMENT SOURCE: SAMPLE 11 3476176	DATE: 05/25/21 TIME: 1240 (1) TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Releasable Cyanide, Releasable Sulfide
SAMPLE #: HA 3476175 MATRIX: SEDIMENT SOURCE: SAMPLE 11 3476176	DATE: 05/25/21 TIME: 1240 (1) TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: HA 3476175 MATRIX: SEDIMENT SOURCE: SAMPLE 11 3476176	DATE: 05/25/21 TIME: 1240 (1) TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: HA 3476176 MATRIX: SEDIMENT SOURCE: SAMPLE 12 3476177	DATE: 05/25/21 TIME: 1235 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	Varios
Fixed in field by:	Flanelly	05/25/21	Varios
Authorized by:		05/25/21	15:40
Received by EQLF:	Flanelly	05/25/21	15:40
Released to EQLL by:	Flanelly	05/25/21	1647
Received by EQLL:		05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:
(1) ~~15:30~~ hora correcta 1240 amps

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature:

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1202-01 W.O. #: 08 SITE: CARRAIZO / CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN / ELAZARO

P.O. #: 672021-03 PWSID #: FOLDER #: 305464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
SAMPLE #: HA 3476176	DATE: 05/25/21	TYPE: G/PC			Releasable Cyanide, Releasable Sulfide
MATRIX: SEDIMENT	TIME: 1235	COLOR: CLEAR			
SOURCE: SAMPLE 12	TYPE: Composite	VOLUME: 8			
3476177		PRESERVATIVE: Cool 4 °C			
SAMPLE #: HA 3476176	DATE: 05/25/21	TYPE: G/PC			Corrosivity, pH (RCRA), Organic Matter
MATRIX: SEDIMENT	TIME: 1235	COLOR: CLEAR			
SOURCE: SAMPLE 12	TYPE: Composite	VOLUME: 8			
3476177		PRESERVATIVE: Cool 4 °C			
SAMPLE #: HA 3476176	DATE: 05/25/21	TYPE: G/PC			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
MATRIX: SEDIMENT	TIME: 1235	COLOR: CLEAR			
SOURCE: SAMPLE 12	TYPE: Composite	VOLUME: 8			
3476177		PRESERVATIVE: Cool 4 °C			
SAMPLE #: HA 3476176	DATE: 05/25/21	TYPE: G/PC			TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
MATRIX: SEDIMENT	TIME: 1235	COLOR: AMBER			
SOURCE: SAMPLE 12	TYPE: Composite	VOLUME: 20			
3476177		PRESERVATIVE: Cool 4 °C			

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	Various
Fixed in field by:	[signature]	05/25/21	Various
Authorized by:	[signature]	05/25/21	15:40
Received by EQLF:	[signature]	05/25/21	15:40
Released to EQLL by:	[signature]	05/25/21	1647
Received by EQLL:	[signature]	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature: [signature]

Eqlab's general terms and conditions on reverse side of this document.

PLAR

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 1458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1202-07 W.O. #: 08 SITE: CARRAIZO / CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN / FLAZARO

O. #: 02021-08 PWSID #: FOLDER #: 325464 PROJECT: EQLAB REP:

SAMPLE INFORMATION	CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: 3476178 SEDIMENT MATRIX: SOURCE: SAMPLE 13 DATE: 05/25/21 TIME: 1220 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Releasable Cyanide, Releasable Sulfide
SAMPLE #: 3476178 SEDIMENT MATRIX: SOURCE: SAMPLE 13 DATE: 05/25/21 TIME: 1220 TYPE: Composite	TYPE: G/PC COLOR: AMBER VOLUME: 1lt PRESERVATIVE: Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3476178 SEDIMENT MATRIX: SOURCE: SAMPLE 13 DATE: 05/25/21 TIME: 1220 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: 3476178 SEDIMENT MATRIX: SOURCE: SAMPLE 13 DATE: 05/25/21 TIME: 1220 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	Varios
Fixed in field by:	Varios	05/25/21	Varios
Authorized by:		05/25/21	15:40
Received by EQLF:		05/25/21	15:40
Released to EQLL by:		05/25/21	1647
Received by EQLL:		05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature:

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

CLIENT NAME: GJM ENGINEERING COOP. CLIENT ID: 2021-01 W.O. #: NA SITE: CARRAIZO CARRAIZO CLIENT REP: ENG JUAN PORTALATIN FLAZARO

P.O. #: 2021-01 PWSID #: FOLDER #: 305464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
SAMPLE #: 3476177 MATRIX: SEDIMENT SOURCE: SAMPLE 13	DATE: 05/25/21 TIME: 1226 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: NA 3476178 MATRIX: SEDIMENT SOURCE: SAMPLE 14 3476179	DATE: 05/25/21 TIME: 1217 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: NA 3476178 MATRIX: SEDIMENT SOURCE: SAMPLE 14 3476179	DATE: 05/25/21 TIME: 1217 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C			TCLP VOC EPA 8260B
SAMPLE #: NA 3476178 MATRIX: SEDIMENT SOURCE: SAMPLE 14 3476179	DATE: 05/25/21 TIME: 1217 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 20 PRESERVATIVE: Cool 4 °C			TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	Varios
Fixed in field by:	Standley	05/25/21	Varios
Authorized by:	Standley	05/25/21	15:40
Received by EQLF:	Standley	05/25/21	15:40
Released to EQLL by:	Standley	05/25/21	1647
Received by EQLL:	Diego Rosa	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature: AR

Eqlab's general terms and conditions on reverse side of this document.

P/AR

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 2012-01 W.O. #: 08 SITE: CARRAIZO CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN ELAZARO

P.O. #: 02021-03 PWSID #: FOLDER #: 305464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: 3476178 MATRIX: SEDIMENT SOURCE: SAMPLE 14 3476179	DATE: 05/25/21 TIME: 1217 TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Releasable Cyanide, Releasable Sulfide
SAMPLE #: 3476178 MATRIX: SEDIMENT SOURCE: SAMPLE 14 3476179	DATE: 05/25/21 TIME: 1217 TYPE: Composite	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: MATRIX: SEDIMENT SOURCE: SAMPLE 15 (1)	DATE: TIME: TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 4 PRESERVATIVE Cool 4 °C		TCLP VOC EPA 8260B N/A
SAMPLE #: MATRIX: SEDIMENT SOURCE: SAMPLE 15 (1)	DATE: TIME: TYPE: Composite	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	J Sanchez	05/25/21	Varias
Fixed in field by:	[signature]	05/25/21	Varias
Authorized by:	[signature]	05/25/21	15:40
Received by EQLF:	[signature]	05/25/21	15:40
Released to EQLL by:	[signature]	05/25/21	1647
Received by EQLL:	[signature]	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

(1) No se pudo colector

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature: [signature]

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1207-01 W.O. #: 08 SITE: CARRAIZO / CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN / FLAZARO

P.O. #: G2021-03 PWSID #: FOLDER #: 305464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
SAMPLE #: 1 MATRIX: SEDIMENT SOURCE: SAMPLE 17	DATE: TIME: TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 4 PRESERVATIVE Cool 4 °C N/A			TCLP VOC EPA 8260B
SAMPLE #: 3476179 MATRIX: SEDIMENT SOURCE: SAMPLE 18 3476180	DATE: 05/25/21 TIME: 1201 TYPE: Composite	TYPE G/TC COLOR AMBER VOLUME 2 PRESERVATIVE Cool 4 °C			TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3476179 MATRIX: SEDIMENT SOURCE: SAMPLE 18 3476180	DATE: 05/25/21 TIME: 1201 TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 4 PRESERVATIVE Cool 4 °C			TCLP VOC EPA 8260B
SAMPLE #: 3476179 MATRIX: SEDIMENT SOURCE: SAMPLE 18 3476180	DATE: 05/25/21 TIME: 1201 TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C			Releasable Cyanide, Releasable Sulfide

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	Varios
Fixed in field by:	Flanders	05/25/21	Varios
Authorized by:		05/25/21	15:40
Received by EQLF:	Flanders	05/25/21	15:40
Released to EQLL by:	Flanders	05/25/21	1647
Received by EQLL:		05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:
① No se pudo colectar

*EQLF = Eqlab's Field Personnel
*EQLL = Eqlab's Log-In Personnel.

P/HR

Arrival Temperature: 3.0°C Signature:

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06064

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1207-07 W.O. #: 08 SITE: CARRAIZO CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN HAZARD

G2021-03

O. #: PWSID #: FOLDER #: 3054464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: ~~3476179~~ SEDIMENT MATRIX: SAMPLE 18 SOURCE: 3476180	DATE: 05/25/21 TIME: 1201 Composite TYPE:	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: ~~3476179~~ SEDIMENT MATRIX: SAMPLE 18 SOURCE: 3476180	DATE: 05/25/21 TIME: 1201 Composite TYPE:	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: ~~3476180~~ SEDIMENT MATRIX: SAMPLE 19 SOURCE: 3476181	DATE: 05/25/21 TIME: 1145 Composite TYPE:	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Releasable Cyanide, Releasable Sulfide
SAMPLE #: ~~3476180~~ SEDIMENT MATRIX: SAMPLE 19 SOURCE: 3476181	DATE: 05/25/21 TIME: 1145 Composite TYPE:	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	Varios
Fixed in field by:	Hanley	05/25/21	Varios
Authorized by:		05/25/21	15:40
Received by EQLF:	Hanley	05/25/21	15:40
Released to EQLL by:	Hanley	05/25/21	1647
Received by EQLL:		05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature:

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

JJ-06064

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 12202-01 W.O. #: NR SITE: CARRAIZO / CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN / ELAZARO

P.O. #: 052021-02 PWSID #: FOLDER #: 305464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: ~~347~~ 346180 MATRIX: SEDIMENT SOURCE: SAMPLE 19 3476181	DATE: 05/25/21 TIME: 1145 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 40 PRESERVATIVE: Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: ~~347~~ 346180 MATRIX: SEDIMENT SOURCE: SAMPLE 19 3476181	DATE: 05/25/21 TIME: 1145 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: ~~347~~ 346181 MATRIX: SEDIMENT SOURCE: SAMPLE 19 3476181	DATE: 05/25/21 TIME: 1145 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B
SAMPLE #: ~~347~~ 346182 MATRIX: SEDIMENT SOURCE: SAMPLE 20	DATE: 05/25/21 TIME: 1150 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Releasable Cyanide, Releasable Sulfide

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/25/21	Varios
Fixed in field by:	[signature]	05/25/21	Varios
Authorized by:	[signature]	05/25/21	15:40
Received by EQLF:	[signature]	05/25/21	15:40
Released to EQLL by:	[signature]	05/25/21	1647
Received by EQLL:	[signature]	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF – Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature: [signature]

Eqlab's general terms and conditions on reverse side of this document.

PKR2

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

JQI-060064

LIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 12202-01 W.O. #: NR SITE: CARRAIZO CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN ELAZARO

.O. #: 07021-03 PWSID #: FOLDER #: 305464 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
SAMPLE #: 3476182 SEDIMENT MATRIX: SAMPLE 20 SOURCE:	DATE: 05/25/21 TIME: 1150 Composite TYPE:	TYPE G/PC COLOR AMBER VOLUME 4L PRESERVATIVE Cool 4 °C			TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3476182 SEDIMENT MATRIX: SAMPLE 20 SOURCE:	DATE: 05/25/21 TIME: 1150 Composite TYPE:	TYPE G/PC COLOR CLEAR VOLUME 4 PRESERVATIVE Cool 4 °C			TCLP VOC EPA 8260B
SAMPLE #: 3476182 SEDIMENT MATRIX: SAMPLE 20 SOURCE:	DATE: 05/25/21 TIME: 1150 Composite TYPE:	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C			Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: 3476182 SEDIMENT MATRIX: SAMPLE 20 SOURCE:	DATE: 05/25/21 TIME: 1150 Composite TYPE:	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	Sanchez	05/25/21	Varios
Fixed in field by:	Sanchez	05/25/21	Varios
Authorized by:	[signature]	05/25/21	15:40
Received by EQLF:	[signature]	05/25/21	15:40
Released to EQLL by:	[signature]	05/25/21	1647
Received by EQLL:	[signature]	05/25/21	1647

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

PIAR

Arrival Temperature: 3.0°C Signature: [signature]

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

LIENT NAME: GLM ENGINEERING COOP. G2021-03 | CLIENT ID: 1202-01 | W.O. #: 06 | SITE: CARRAIZO CARRAIZO | CLIENT REP: ENG. JUAN PORTALATIN ELAZARO

O. #: | PWSID #: | FOLDER #: | PROJECT: | EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
SAMPLE #: SEDIMENT MATRIX: SAMPLE 15 SOURCE:	DATE: 05/25/21 TIME: TYPE: Composite	TYPE GPC COLOR CLEAR VOLUME PRESERVATIVE Cool 4°C			Releasable Cyanide, Releasable Sulfide 1A
SAMPLE #: SEDIMENT MATRIX: SAMPLE 15 SOURCE:	DATE: 05/25/21 TIME: TYPE: Composite	TYPE GPC COLOR CLEAR VOLUME PRESERVATIVE Cool 4°C			Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: SEDIMENT MATRIX: SAMPLE 15 SOURCE:	DATE: 05/25/21 TIME: TYPE: Composite	TYPE GPC COLOR AMBER VOLUME 2l PRESERVATIVE Cool 4°C			TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: SEDIMENT MATRIX: SAMPLE 16 SOURCE:	DATE: 05/25/21 TIME: TYPE: Composite	TYPE GPC COLOR CLEAR VOLUME PRESERVATIVE Cool 4°C			Corrosivity, pH (RCRA), Organic Matter

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	Sánchez	05/25/21	Varios
Fixed in field by:	Sánchez	05/25/21	Varios
Authorized by:		05/25/21	15:40
Received by EQLF:	Sánchez	05/25/21	15:40
Released to EQLL by:			
Received by EQLL:			

SPECIAL INSTRUCTIONS / COMMENTS:
No se pudo colectar

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

CKR2

Arrival Temperature: _____ Signature: _____

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

CLIENT NAME: GLM ENGINEERING CORP. CLIENT ID: 12107-01 W.O. #: 08 SITE: CARRAIZO / CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN / ELAZARO

P.O. #: 02321-03 PWSID #: FOLDER #: PROJECT: EQLAB REP:

SAMPLE INFORMATION	CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: SEDIMENT MATRIX: SAMPLE 16 SOURCE: DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/TC COLOR AMBER VOLUME 20 PRESERVATIVE Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: MATRIX: SEDIMENT SOURCE: SAMPLE 16 DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 4 PRESERVATIVE Cool 4 °C		TCLP VOC EPA 8260B
SAMPLE #: MATRIX: SEDIMENT SOURCE: SAMPLE 16 DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: MATRIX: SEDIMENT SOURCE: SAMPLE 16 DATE: 05/25/21 TIME: TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Releasable Cyanide, Releasable Sulfide

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	Sanchez	05/25/21	Varios
Fixed in field by:	Stanley	05/25/21	Varios
Authorized by:		05/25/21	15:40
Received by EQLF:	Stanley	05/25/21	15:40
Released to EQLL by:			
Received by EQLL:			

SPECIAL INSTRUCTIONS / COMMENTS:
No se pudo colectar

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

CKH2

Arrival Temperature: _____ Signature: _____

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID 1202-01 W.O. #: 08 SITE: CARRAIZO CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN ELAZARO

O. #: G2021-03 PWSID #: FOLDER #: PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: SEDIMENT MATRIX: SAMPLE 17 SOURCE:	DATE: 05/25/21 TIME: Composite TYPE:	TYPE G/TC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Releasable Cyanide, Releasable Sulfide N/A
SAMPLE #: SEDIMENT MATRIX: SAMPLE 17 SOURCE:	DATE: 05/25/21 TIME: Composite TYPE:	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: SEDIMENT MATRIX: SAMPLE 17 SOURCE:	DATE: 05/25/21 TIME: Composite TYPE:	TYPE G/TC COLOR AMBER VOLUME 20 PRESERVATIVE Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: SEDIMENT MATRIX: SAMPLE 17 SOURCE:	DATE: 05/25/21 TIME: Composite TYPE:	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	J Sanchez	05/25/21	Varios
Fixed in field by:	[signature]	05/25/21	Varios
Authorized by:	[signature]	05/25/21	15:40
Received by EQLF:	[signature]	05/25/21	15:40
Released to EQLL by:			
Received by EQLL:			

SPECIAL INSTRUCTIONS / COMMENTS:
No se pudo colector

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

C/ HR

Arrival Temperature: _____ Signature: _____

Eqlab's general terms and conditions on reverse side of this document.

June 15, 2021

Eng. Juan Portalatin
GLM Engineering Coop.
PO Box 9024157
San Juan, PR 00902-4157

I hereby certify that the results reported for EQ Lab Sample #: 3476924 to 3476927 have been reviewed by me and are correct as presented herein.

Lcda. Sonia Pichardo
Laboratory Director

amps

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 01**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3476924**	Collected Date & Time:	**05/27/2021** 11:55	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/27/2021 13:55	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number:	305512			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	06/02/2021	09:00	DSA	06/02/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	5.01	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	-	--	N/A
Corrosivity, pH	EPA 9045C	7.56	S.U.	--	1.00	--	<2 - >12.5	05/28/2021	08:45	YAO	-	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/13/2021	03:01	DCM	06/10/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/13/2021	03:01	DCM	06/10/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/07/2021	21:51	JASG	06/07/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/07/2021	21:51	JASG	06/07/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/07/2021	21:51	JASG	06/07/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/07/2021	21:51	JASG	06/07/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/07/2021	21:51	JASG	06/07/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/07/2021	21:51	JASG	06/07/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/07/2021	21:51	JASG	06/07/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/07/2021	21:51	JASG	06/07/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/07/2021	21:51	JASG	06/07/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/07/2021	21:51	JASG	06/07/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/07/2021	21:51	JASG	06/07/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to web verification number E87763 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMON, PR 00959
PO BOX 1458 SANTURCE, PR 00910-1458 TEL (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING CORP.
P.O. BOX 5024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 01**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A



Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3476924	Collected Date & Time:	05/27/2021 11:55	Date of Report:	06/15/2021
Work Order:	1203-01-08	Received Date & Time:	05/27/2021 13:55	Collected By	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep:	ELAZARO
Folder Number:	305512			Proposal Number	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	18:05	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	18:05	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	18:05	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	18:05	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	18:05	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	18:05	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	18:05	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	18:05	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	18:05	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	18:05	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	18:05	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/08/2021	18:05	PSR	06/07/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/08/2021	18:05	PSR	06/07/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/08/2021	18:05	PSR	06/07/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/08/2021	18:05	PSR	06/07/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/08/2021	18:05	PSR	06/07/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit NA = Not applicable
MO = Monitoring Only MRL = Minimum Reporting Level PQL = Practical Quantitation Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
* = Parameters not accredited under EQLab's NELAC Certification

The results presented herein meet all NELAC requirements.
Refer to eqlab certification number E87783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, M NILLAS INDUSTRIAL PARK, BAYAMON, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL: (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 01**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3476924**	Collected Date & Time:	**05/27/2021** 11:55	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/27/2021 13:55	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number:	305512			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/08/2021	18:05	PSR	06/07/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/08/2021	18:05	PSR	06/07/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/09/2021	03:37	YDCV	06/07/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.06	mg/L	D	0.050	1.000	100	06/09/2021	03:37	YDCV	06/07/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/09/2021	03:37	YDCV	06/07/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/09/2021	03:37	YDCV	06/07/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/09/2021	03:37	YDCV	06/07/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/09/2021	03:37	YDCV	06/07/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/09/2021	03:37	YDCV	06/07/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	0.0004	mg/L	J	0.0002	0.0005	0.2	06/14/2021	16:56	AFNC	06/07/2021	AFNC	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	06/03/2021	08:30	[illegible]	[illegible] 2021	[illegible]	METHOD EXT

SONIA PICHARDO RODRIGUEZ Químico Licenciado Estado Libre Asociado de Puerto Rico CIENCIA NUM. 45

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

nelac The results presented herein meet all NELAC requirements.
Refer to eqlab certification number ER7783 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 02**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3476925**	Collected Date & Time:	**05/27/2021** 11:50	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/27/2021 13:55	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number:	305512			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	06/02/2021	09:00	DSA	06/02/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	5.18	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.67	S. U.	--	1.00	--	<2 - >12.5	05/28/2021	08:45	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/13/2021	03:20	DCM	06/10/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/13/2021	03:20	DCM	06/10/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/07/2021	20:02	JASG	06/07/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/07/2021	20:02	JASG	06/07/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/07/2021	20:02	JASG	06/07/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	1.94	mg/L	D	0.0300	1.5000	200	06/07/2021	20:02	JASG	06/07/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/07/2021	20:02	JASG	06/07/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/07/2021	20:02	JASG	06/07/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/07/2021	20:02	JASG	06/07/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/07/2021	20:02	JASG	06/07/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/07/2021	20:02	JASG	06/07/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/07/2021	20:02	JASG	06/07/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/07/2021	20:02	JASG	06/07/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented here meet all NELAC requirements.
Refer to eqlab certification number PR00014 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, M NILLAS INDUSTRIAL PARK, BAYAMON, PR 00959
PO BOX 11459 SANTURCE, PR 00910-1459 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP.
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 02**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3476925**	Collected Date & Time:	**05/27/2021** 11:50	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/27/2021 13:55	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number:	305512			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/11/2021	05:11	AADS	06/09/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/11/2021	05:11	AADS	06/09/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/11/2021	05:11	AADS	06/09/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/11/2021	05:11	AADS	06/09/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/11/2021	05:11	AADS	06/09/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/11/2021	05:11	AADS	06/09/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/11/2021	05:11	AADS	06/09/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/11/2021	05:11	AADS	06/09/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/11/2021	05:11	AADS	06/09/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/11/2021	05:11	AADS	06/09/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/11/2021	05:11	AADS	06/09/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/08/2021	18:22	PSR	06/07/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/08/2021	18:22	PSR	06/07/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/08/2021	18:22	PSR	06/07/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/08/2021	18:22	PSR	06/07/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/08/2021	18:22	PSR	06/07/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The test results presented herein * meet all NELAC requirements
Refer to valid certification number E87061 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 02**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3476925**	Collected Date & Time:	**05/27/2021** 11:50	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/27/2021 13:55	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number:	305512			Proposal Number:	22865 - 4

Remarks:

					Limits			Analysis			Prep Method		
Parameter	Method	Results	Units	DQ	MDL	MRL	MCL	Date	Time	By	Date	By	Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/08/2021	18:22	PSR	06/07/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/08/2021	18:22	PSR	06/07/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/09/2021	03:44	YDCV	06/07/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.28	mg/L	D	0.050	1.000	100	06/09/2021	03:44	YDCV	06/07/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	0.0070	mg/L	D	0.0025	0.0050	1.0	06/09/2021	03:44	YDCV	06/07/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/09/2021	03:44	YDCV	06/07/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/09/2021	03:44	YDCV	06/07/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/09/2021	03:44	YDCV	06/07/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/09/2021	03:44	YDCV	06/07/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	0.0005	mg/L	--	0.0002	0.0005	0.2	06/14/2021	16:56	[illegible]	06/11/2021	[illegible]C	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	06/03/2021	08:30	[illegible]	06/03/2021	[illegible]	METHOD EXT

SONIA PICHARDO RODRIGUEZ Química Licenciado Estado Libre Asociado de Puerto Rico LICENCIA NUM. 45[illegible]
Certified by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the [illegible]
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements.
Refer to eqlab certification number ER-178 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 15**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3476926**	Collected Date & Time:	**05/27/2021** 11:32	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/27/2021 13:55	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number:	305512			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Relcasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	06/02/2021	09:00	DSA	06/02/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	4.28	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.82	S.U	--	1.00	--	<2 - >12.5	05/28/2021	08:45	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	07:43	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	07:43	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	14:21	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	14:21	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	14:21	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	14:21	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	14:21	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	14:21	DARF	06/02/2021	--	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	14:21	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	14:21	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	14:21	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	14:21	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	14:21	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit NAF = Non Air Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level TNTC = Too Numerous To Count All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
* = Parameter not accredited under EQLab's NELAC Certification

The results presented herein meet all NELAC requirements.
Refer to certification number E87976 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 1 1458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING CORP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 15**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3476926**	Collected Date & Time:	**05/27/2021** 11:32	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/27/2021 13:55	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number:	305512			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	17:07	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	17:07	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	17:07	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	17:07	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	17:07	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	17:07	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	17:07	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	17:07	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	17:07	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	17:07	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	17:07	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	20:18	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	20:18	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	20:18	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	20:18	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	20:18	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented here meet all NELAC requirements
Refer to eqlab certification number E87983 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, M NILLAS INDUSTRIAL PARK, SAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 15**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3476926**	Collected Date & Time:	**05/27/2021** 11:32	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/27/2021 13:55	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number:	305512			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	20:18	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	20:18	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	21:29	AFNC	06/01/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.40	mg/L	D	0.050	1.000	100	06/01/2021	21:29	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	21:29	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	21:29	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	21:29	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	0.19	mg/L	D	0.15	0.50	1.0	06/01/2021	21:29	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	21:29	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	JRG	[illegible]	[illegible]	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	06/03/2021	08:30	[illegible]	[illegible]	[illegible]	METHOD EXT

SONIA RICHARDO RODRIGUEZ Químico Licenciado Certified Laboratory Director Colegio de Químicos de Puerto Rico LICENCIA NUMERO 453

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

PRFOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E ST REET, MINILLAS INDUSTRIAL PARK, BAYAMON, PR 00959
PO BOX 11468 SANTURCE, PR 00910-1468 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG JUAN PORTALATIN
Source: **SAMPLE 16**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3476927	Collected Date & Time:	05/27/2021 11:30	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/27/2021 13:55	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep.	ELAZARO
Folder Number:	305512			Proposal Number:	22865 - 4

Remarks.

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	05/02/2021	09:00	DSA	06/02/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	4.59	%	--	0.01	0.01	--	05/28/2021	15:00	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	7.89	S. U.	--	1.00	--	<2 - >12.5	05/28/2021	08:45	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	06/05/2021	08:02	DCM	06/03/2021	RMR	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	06/05/2021	08:02	DCM	06/03/2021	RMR	EPA 1311
TCLP VOC EPA 8260B													
* 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	06/05/2021	14:48	DARF	06/02/2021	--	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	06/05/2021	14:48	DARF	06/02/2021	--	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	06/05/2021	14:48	DARF	06/02/2021	--	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	06/05/2021	14:48	DARF	06/02/2021	--	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	14:48	DARF	06/02/2021	--	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	06/05/2021	14:48	DARF	06/02/2021	-	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	06/05/2021	14:48	DARF	06/02/2021	--	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	06/05/2021	14:48	DARF	06/02/2021	--	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	06/05/2021	14:48	DARF	06/02/2021	--	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	06/05/2021	14:48	DARF	06/02/2021	--	EPA 1311
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	06/05/2021	14:48	DARF	06/02/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise noted. A; results relate only to this sample.
* = Parameter not listed within Eqlab's NELAP Certification

The results presented herein meet all NELAC requirements.
Refer to eqlab certification number E87561 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING CORP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 16**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3476927**	Collected Date & Time:	**05/27/2021** 11:30	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/27/2021 13:55	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number:	305512			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	06/09/2021	17:36	AADS	06/04/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	06/09/2021	17:36	AADS	06/04/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	17:36	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	06/09/2021	17:36	AADS	06/04/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	06/09/2021	17:36	AADS	06/04/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	06/09/2021	17:36	AADS	06/04/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	06/09/2021	17:36	AADS	06/04/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	06/09/2021	17:36	AADS	06/04/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	06/09/2021	17:36	AADS	06/04/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	06/09/2021	17:36	AADS	06/04/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	06/09/2021	17:36	AADS	06/04/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	06/07/2021	20:36	PSR	06/04/2021	--	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	06/07/2021	20:36	PSR	06/04/2021	--	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	06/07/2021	20:36	PSR	06/04/2021	--	EPA 1311
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	20:36	PSR	06/04/2021	--	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	06/07/2021	20:36	PSR	06/04/2021	--	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Practical Reporting Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eq lab certification number EX77615 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMON, PR 00959
PO BOX 11458 SANTURCE PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP.
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 16**
LAGO CARRAIZO, PUERTO RICO

Project Name: RCRA
Facility: CARRAIZO
Description: SEDIMENT - Composite
Client Ref. #: N/A

eqlab
ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3476927	Collected Date & Time:	05/27/2021 11:30	Date of Report:	06/15/2021
Work Order:	1202-01-08	Received Date & Time:	05/27/2021 13:55	Collected By:	JSANCHEZ-EQLAB050
Delivery Slip:	2021-06113	Temperature at Arrival:	3.0 °C	Eqlab Rep.:	ELAZARO
Folder Number:	305512			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	06/07/2021	20:36	PSR	06/04/2021	--	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	06/07/2021	20:36	PSR	06/04/2021	--	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	06/01/2021	21:36	AFNC	06/01/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.23	mg/L	D	0.050	1.000	100	06/01/2021	21:36	AFNC	06/01/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	D,U	0.0025	0.0050	1.0	06/01/2021	21:36	AFNC	06/01/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	06/01/2021	21:36	AFNC	06/01/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	06/01/2021	21:36	AFNC	06/01/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	06/01/2021	21:36	AFNC	06/01/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	06/01/2021	21:36	AFNC	06/01/2021	AFNC	EPA 1311
TCLP Mercury													
* Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	06/02/2021	12:57	[illegible]	06/02/2021	[illegible]	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	06/03/2021	08:30	[illegible]	06/03/2021	[illegible]	METHOD EXT

SONIA PICHARDO RODRIGUEZ Químico Licenciado Estado Libre Asociado de Puerto Rico LICENCIA NUM. 4 [illegible]

Certified by Laboratorio Químico

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit NA = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MQ = Monitoring Only MRL = Minimum Reporting Level PTRL = Parcers Reception Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this [illegible]
* = Parameter is not accredited under EQLab's NELAP Certification

ACCREDITED IN ACCORDANCE WITH nelac
The results presented herein met all NELAC requirements
Refer to www.dv.pr.gov/certificacion/cert-DE7743.pdf or www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 1458, SAN JUAN, PR 00910-1458 - TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

221-06113

IENT NAME: GLM ENGINEERING CORP. CLIENT ID: 1202-C W.O. #: 08 SITE: CARRAIZO CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN ELAZARO

G2021-03

) #: PWSID #: FOLDER # 305512 PROJECT: EQLAB REP:

SAMPLE INFORMATION	CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
AMPLE #: 3476924 SEDIMENT #1 IATRIX: OURCE: SAMPLE 2 DATE: 05/27/21 TIME: 1155 TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
AMPLE #: 3476924 SEDIMENT #1 IATRIX: OURCE: SAMPLE 2 DATE: 05/27/21 TIME: 1155 TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
AMPLE #: 3476924 SEDIMENT #1 IATRIX: OURCE: SAMPLE 2 DATE: 05/27/21 TIME: 1155 TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 4 PRESERVATIVE Cool 4 °C		TCLP VOC: EPA 8260B
AMPLE #: 3476924 SEDIMENT #1 IATRIX: OURCE: SAMPLE 2 DATE: 05/27/21 TIME: 1155 TYPE: Composite	TYPE G/TC COLOR AMBER VOLUME 20 PRESERVATIVE Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES

USTODY RECORD	SIGNATURE	DATE	TIME
ollected in field by:	JSanchez	05/27/21	Various
ixed in field by:	[illegible]	05/27/21	Various
uthorized by:	[illegible]	05/27/21	12:00
eceived by EQLF:	[illegible]	05/27/21	12:00
eleased to EQLL by:	[illegible]	05/27/21	1355
eceived by EQLL:	Diego Lopez	05/27/21	1355

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personne.
*EQLL = Eqlab's Log-in Personnel.

PKR2

Arrival Temperature: 3.0°C Signature: [illegible]

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420 FAX (787) 288-6465, e-mail: nfo@eq ab.com

22-0613

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1707-07 W.O. #: 06 SITE: CARRAIZO / CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN / FLAZARO

D #: 03021-03 PWSID #: FOLDER #: 305512 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
SAMPLE #: SEDIMENT MATRIX: SAMPLE #1 SOURCE:	DATE: 05/27/21 TIME: 1152 Composite TYPE:	TYPE: G/C COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Releasable Cyanide, Releasable Sulfide
SAMPLE #: 3476925 SEDIMENT MATRIX: SAMPLE #2 SOURCE:	DATE: 05/27/21 TIME: 1130 Composite TYPE:	TYPE: G/C COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C			TCLP VOC EPA 8260B
SAMPLE #: 3476925 SEDIMENT MATRIX: SAMPLE #2 SOURCE:	DATE: 05/27/21 TIME: 1130 Composite TYPE:	TYPE: G/C COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: 3476952 SS SEDIMENT MATRIX: SAMPLE #3 SOURCE:	DATE: 05/27/21 TIME: 1130 Composite TYPE:	TYPE: G/C COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Releasable Cyanide, Releasable Sulfide

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	JSanchez	05/27/21	Varios
Fixed in field by:	[illegible]	05/27/21	Varios
Authorized by:	[illegible]	05/27/21	12:00
Received by EQLF:	[illegible]	05/27/21	12:00
Released to EQLL by:	[illegible]	05/27/21	1355
Received by EQLL:	[illegible]	05/27/21	1355

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature: [illegible]

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 1458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06113

IENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1202-01 W.O. #: 08 SITE: CARRAIZO CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN FAJARDO

G2021-03

) #: PWSID #: FOLDER # 305517 PROJECT: EQLAB REP:

SAMPLE INFORMATION	CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
AMPLE #: 347695 SEDIMENT #2 IATRIX: OURCE: SAMPLE #2 DATE: 05/27/21 TME: 1150 TYPE: Composite	TYPE: G/C COLOR: Amber VOLUME: 2L PRESERVATIVE: Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
AMPLE #: 347695 SEDIMENT #2 IATRIX: OURCE: SAMPLE #2 DATE: 05/27/21 TME: 1150 TYPE: Composite	TYPE: G/C COLOR: CLEAR VOLUME: 1L PRESERVATIVE: Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
AMPLE #: 347696 SEDIMENT #15 IATRIX: OURCE: SAMPLE #15 DATE: 05/27/21 TME: 1132 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B
AMPLE #: 347696 SEDIMENT #15 IATRIX: OURCE: SAMPLE #15 DATE: 05/27/21 TME: 1132 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Releasable Cyanide, Releasable Sulfide

USTODY RECORD	SIGNATURE	DATE	TIME
ol·ected in field by:	JSanchez	05/27/21	Varies
ixed in field by:	Jandling	05/27/21	Varies
uthorized by:	[illegible]	05/27/21	12:00
eceived by EQLF:	Jandling	05/27/21	12:00
eleased to EQLL by:	Jandling	05/27/21	1355
eceived by EQLL:	[illegible]	05/27/21	1355

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 3.0°C Signature:

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06113

IENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1707-01 W.O. #: 08 SITE: CARRAIZO CARRAIZO CLIENT REP: ENG. JUAN PORTALATIN ELAZARO

G2021-03

D #: PWSID #: FOLDER #: 305512 PROJECT: EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: 3476926 SEDIMENT MATRIX: SAMPLE 23 / #15 SOURCE:	DATE: 05/27/21 TIME: 1132 TYPE: Composite	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: 3476926 SEDIMENT MATRIX: SAMPLE 23 / #15 SOURCE:	DATE: 05/27/21 TIME: 1132 TYPE: Composite	TYPE G/TC COLOR AMBER VOLUME 20 PRESERVATIVE Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3476926 SEDIMENT MATRIX: SAMPLE 23 / #15 SOURCE:	DATE: 05/27/21 TIME: 1132 TYPE: Composite	TYPE G/PC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: 3476927 SEDIMENT MATRIX: SAMPLE 24 / #16 SOURCE:	DATE: 05/27/21 TIME: 1130 TYPE: Composite	TYPE G/TC COLOR CLEAR VOLUME 8 PRESERVATIVE Cool 4 °C		Releasable Cyanide, Releasable Sulfide

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	J Sanchez	05/27/21	Varies
Fixed in field by:	[illegible]	05/27/21	Varies
Authorized by:	[illegible]	05/27/21	12:00
Received by EQLF:	[illegible]	05/27/21	12:00
Released to EQLL by:	[illegible]	05/27/21	1355
Received by EQLL:	[illegible]	05/27/21	1355

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

PMAR

Arrival Temperature: 3.0°C Signature: [illegible]

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

2021-06113

CLIENT NAME: CLM ENGINEERING COOP. (M021-03) | CLIENT ID: 1202-01 | W.O. #: NR | SITE: CARRAIZO CARRAIZO | CLIENT REP: ENG. JUAN PORTALATIN FLAZARO

P.O. #: | PWSID #: | FOLDER #: 345512 | PROJECT: | EQLAB REP:

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
SAMPLE #: 3476927 MATRIX: SEDIMENT SOURCE: SAMPLE 24 / #16	DATE: 05/27/21 TIME: 1130 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: 3476927 MATRIX: SEDIMENT SOURCE: SAMPLE 24 / #16	DATE: 05/27/21 TIME: 1130 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C			TCLP VOC EPA 8260B
SAMPLE #: 3476927 MATRIX: SEDIMENT SOURCE: SAMPLE 24 / #16	DATE: 05/27/21 TIME: 1130 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 20 PRESERVATIVE: Cool 4 °C			TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3476927 MATRIX: SEDIMENT SOURCE: SAMPLE 24 / #16	DATE: 05/27/21 TIME: 1130 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Corrosivity, pH (RCRA), Organic Matter

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	J Sanchez	05/27/21	Varios
Fixed in field by:	Flanelly	05/27/21	Varios
Authorized by:		05/27/21	12:00
Received by EQLF:	Flanelly	05/27/21	12:00
Released to EQLL by:	Flanelly	05/27/21	1355
Received by EQLL:		05/27/21	1355

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

PWS2

Arrival Temperature: 3.0°C Signature:

Eqlab's general terms and conditions on reverse side of this document.

July 16, 2021

Eng. Juan Portalatin
GLM Engineering Coop.
PO Box 9024157
San Juan, PR 00902-4157

Dear Eng. Portalatin:

I hereby certify that the results reported for EQLab Sample #: 3494187 to 3494192 have been reviewed by me and are correct as presented herein.

Sincerely,

Lcda. Sonia Pichardo
Laboratory Director

gjcc

To: GLM ENGINEERING COOP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 21**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	3494187	Collected Date & Time	06/08/2021 10:00	Date of Report	07/16/2021
Work Order	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip	2021-07461	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep.	ELAZARO
Folder Number	306902			Proposal Number	32865 - 4

Remarks:

	Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
	Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	07/06/2021	08:30	DSA	07/06/2021	DSA	METHOD EXT
+	Organic Matter	ASTM 2974	5.58	%	--	0.01	0.01	--	07/06/2021	10:37	YVV	--	--	N/A
	Corrosivity, pH	EPA 9045C	5.80	S.U	Q	1.00	--	<2 - >12.5	07/02/2021	09:30	YAO	--	--	N/A
	TCLP HERBICIDES													
	* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	07/06/2021	20:16	DCM	07/06/2021	DCM	EPA 1311
	* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	07/06/2021	20:16	DCM	07/06/2021	DCM	EPA 1311
	TCLP VOC EPA 8260B													
+	* 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	07/07/2021	04:59	JASG	07/05/2021	RMR	EPA 1311
	* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	07/07/2021	04:59	JASG	07/05/2021	RMR	EPA 1311
	* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	07/07/2021	04:59	JASG	07/05/2021	RMR	EPA 1311
	* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	07/07/2021	04:59	JASG	07/05/2021	RMR	EPA 1311
	* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	07/07/2021	04:59	JASG	07/05/2021	RMR	EPA 1311
	* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	07/07/2021	04:59	JASG	07/05/2021	RMR	EPA 1311
	* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	07/07/2021	04:59	JASG	07/05/2021	RMR	EPA 1311
	* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	07/07/2021	04:59	JASG	07/05/2021	RMR	EPA 1311
	* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	07/07/2021	04:59	JASG	07/05/2021	RMR	EPA 1311
	* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	07/07/2021	04:59	JASG	07/05/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit NA = Not Applicable
MQ = Monitoring Only MRL = Minimum Reporting Level PTBL = Pollutant Tolerance Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not provided under EQLAB's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certificate number E87387 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-8420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 21**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3494187	Collected Date & Time:	06/08/2021 10:00	Date of Report:	07/16/2021
Work Order:	1202-01-08	Received Date & Time:	07/01/2021 15:00	Collected By:	JPORTALATIN
Delivery Slip:	2021-07461	Temperature at Arrival:	ROOM TEMPERATURE	Eqlab Rep:	ELAZARO
Folder Number:	306902			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP VOC EPA 8260B													
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	07/07/2021	04:59	JASG	07/05/2021	RMR	EPA 1311
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	07/06/2021	01:05	AADS	07/05/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	07/06/2021	01:05	AADS	07/05/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	01:05	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	01:05	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	07/06/2021	01:05	AADS	07/05/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	07/06/2021	01:05	AADS	07/05/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	07/06/2021	01:05	AADS	07/05/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	07/06/2021	01:05	AADS	07/05/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	07/06/2021	01:05	AADS	07/05/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	07/06/2021	01:05	AADS	07/05/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	07/06/2021	01:05	AADS	07/05/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	07/08/2021	03:18	AADS	07/07/2021	RMR	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	07/08/2021	03:18	AADS	07/07/2021	RMR	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	07/08/2021	03:18	AADS	07/07/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MQ = Monitoring Only MRL = Minimum Reporting Level PRQL = Practical Quantitation Level All results are calculated on a wet weight basis unless otherwise noted. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certificate.

ACCREDITED IN ACCORDANCE WITH nelac

The results presented herein meet the NELAC requirements
Refer to eqlab certification number ZR743 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 21**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	**3494187**	Collected Date & Time	**06/08/2021** 10:00	Date of Report	07/16/2021
Work Order	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip	2021-07461	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep	ELAZARO
Folder Number	306902			Proposal Number	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	03:18	AADS	07/07/2021	RMR	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	03:18	AADS	07/07/2021	RMR	EPA 1311
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	07/08/2021	03:18	AADS	07/07/2021	RMR	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	07/08/2021	03:18	AADS	07/07/2021	RMR	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	07/05/2021	15:53	AFNC	07/05/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	0.970	mg/L	D,J	0.050	1.000	100	07/05/2021	15:53	AFNC	07/05/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	0.0025	mg/L	D	0.0025	0.0050	1.0	07/05/2021	15:53	AFNC	07/05/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	07/05/2021	15:53	AFNC	07/05/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	07/05/2021	15:53	AFNC	07/05/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	0.16	mg/L	D	0.15	0.50	1.0	07/05/2021	15:53	AFNC	07/05/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	07/05/2021	15:53	AFNC	07/05/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	07/05/2021	16:08	AFNC	07/05/2021	AFNC	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	07/09/2021	14:00	[illegible]	07/09/2021	[illegible]	METHOD EXT

SONIA PICHARDO RODRIGUEZ
Quimico Licenciado
Estado Libre Asociado de Puerto Rico
LICENCIA NUM. 4538

Approved by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignore MDL = Minimum Detection Limit N/A = Not Applicable
MD = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

PRDOH Certified
EPA ID PR00014

ACCREDITED IN ACCORDANCE WITH nelac
The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87393 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 22**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3494188	Collected Date & Time:	06/08/2021 10:00	Date of Report:	07/16/2021
Work Order:	1202-01-08	Received Date & Time:	07/01/2021 15:00	Collected By:	JPORTALATIN
Delivery Slip:	2021-07461	Temperature at Arrival:	ROOM TEMPERATURE	Eqlab Rep:	ELAZARO
Folder Number:	306902			Proposal Number:	22365 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	07/06/2021	08:20	DSA	07/06/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	6.59	%	--	0.01	0.01	--	07/06/2021	10:37	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	6.86	S.U.	Q	1.00	--	<2 - >12.5	07/02/2021	09:20	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	07/06/2021	20:36	DCM	07/06/2021	DCM	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	07/06/2021	20:36	DCM	07/06/2021	DCM	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	07/07/2021	05:29	JASG	07/05/2021	RMR	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	07/07/2021	05:29	JASG	07/05/2021	RMR	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	07/07/2021	05:29	JASG	07/05/2021	RMR	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	07/07/2021	05:29	JASG	07/05/2021	RMR	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	07/07/2021	05:29	JASG	07/05/2021	RMR	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	07/07/2021	05:29	JASG	07/05/2021	RMR	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	100	07/07/2021	05:29	JASG	07/05/2021	RMR	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	07/07/2021	05:29	JASG	07/05/2021	RMR	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	07/07/2021	05:29	JASG	07/05/2021	RMR	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	07/07/2021	05:29	JASG	07/05/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
RD = Reporting Only MRL = Minimum Reporting Level PCRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certificate number E87713 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 269-6420 FAX (787) 269-6455 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 22**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3494188	Collected Date & Time:	06/08/2021 10:00	Date of Report:	07/16/2021
Work Order:	1202-01-08	Received Date & Time:	07/01/2021 15:00	Collected By:	JPORTALATIN
Delivery Slip:	2021-07461	Temperature at Arrival:	ROOM TEMPERATURE	Eqlab Rep:	ELAZARO
Folder Number:	306902			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP VOC EPA 8260B													
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	07/07/2021	05:29	JASG	07/05/2021	RMR	EPA 1311
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	07/06/2021	01:34	AADS	07/05/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	07/06/2021	01:34	AADS	07/05/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	01:34	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	01:34	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	07/06/2021	01:34	AADS	07/05/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	07/06/2021	01:34	AADS	07/05/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	07/06/2021	01:34	AADS	07/05/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	07/06/2021	01:34	AADS	07/05/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	07/06/2021	01:34	AADS	07/05/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	07/06/2021	01:34	AADS	07/05/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	07/06/2021	01:34	AADS	07/05/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	07/08/2021	03:35	AADS	07/07/2021	RMR	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	07/08/2021	03:35	AADS	07/07/2021	RMR	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	07/08/2021	03:35	AADS	07/07/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MD = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless preserving stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87713 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 22**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3494188	Collected Date & Time	06/08/2021 10:00	Date of Report:	07/16/2021
Work Order:	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By:	JPORTALATIN
Delivery Slip:	2021-07461	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep.:	ELAZARO
Folder Number:	306902			Proposal Number:	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	03:35	AADS	07/07/2021	RMR	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	03:35	AADS	07/07/2021	RMR	EPA 1311
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	07/08/2021	03:35	AADS	07/07/2021	RMR	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	07/08/2021	03:35	AADS	07/07/2021	RMR	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	U	0.01	0.10	5.0	07/05/2021	15:59	AFNC	07/05/2021	AFNC	EPA 1311
* Barium - Total	EPA 6010B	0.219	mg/L	--	0.010	0.200	100	07/05/2021	15:59	AFNC	07/05/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	BDL	mg/L	U	0.0005	0.0010	1.0	07/05/2021	15:59	AFNC	07/05/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	U	0.009	0.050	5.0	07/05/2021	15:59	AFNC	07/05/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	U	0.015	0.100	5.0	07/05/2021	15:59	AFNC	07/05/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	0.05	mg/L	J	0.03	0.10	1.0	07/05/2021	15:59	AFNC	07/05/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	U	0.002	0.010	5.0	07/05/2021	15:59	AFNC	07/05/2021	AFNC	EPA 1311
TCLP Mercury													
* Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	07/05/2021	16:08	AFNC	07/05/2021	AFNC	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	07/09/2021	14:00	LHT	07/09/2021	LHT	METHOD EXT

SONIA RICHARDO RODRIGUEZ
Químico Licenciado
Estado Libre Asociado Puerto Rico
LICENCIA NUM. 1525

Certificado Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MRL = Minimum Detection Limit N/A = Not Applicable
MD = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated as a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification.

PRDOH Certified
EPA ID PR00014

ACCREDITED IN ACCORDANCE WITH nelac
The results presented herein meet all NELAC requirements.
Refer to eqlab certification number E87-63 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG JUAN PORTALATIN
Source: **SAMPLE 23**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	3494189	Collected Date & Time	06/08/2021 12:00	Date of Report	07/16/2021
Work Order	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip	2021-07461	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep	ELAZARO
Folder Number	306902			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	07/06/2021	08:30	DSA	07/06/2021	DSA	METHOD EXT
+ Organic Matter	ASTM 2974	3.99	%	--	0.01	0.01	--	07/06/2021	10:37	YVV	--	--	N/A
Corrosivity, pH	EPA 9045C	6.71	S.U.	Q	1.00	--	<2 - >12.5	07/02/2021	09:30	YAO	--	--	N/A
TCLP HERBICIDES													
* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	07/06/2021	20:56	DCM	07/06/2021	DCM	EPA 1311
* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	07/06/2021	20:56	DCM	07/06/2021	DCM	EPA 1311
TCLP VOC EPA 8260B													
+ * 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	07/07/2021	06:27	JASG	07/05/2021	RMR	EPA 1311
* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	07/07/2021	06:27	JASG	07/05/2021	RMR	EPA 1311
* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	07/07/2021	06:27	JASG	07/05/2021	RMR	EPA 1311
* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	07/07/2021	06:27	JASG	07/05/2021	RMR	EPA 1311
* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	07/07/2021	06:27	JASG	07/05/2021	RMR	EPA 1311
* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	07/07/2021	06:27	JASG	07/05/2021	RMR	EPA 1311
* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	07/07/2021	06:27	JASG	07/05/2021	RMR	EPA 1311
* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	07/07/2021	06:27	JASG	07/05/2021	RMR	EPA 1311
* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	07/07/2021	06:27	JASG	07/05/2021	RMR	EPA 1311
* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	07/07/2021	06:27	JASG	07/05/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MD = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a net weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification.

The results presented herein meet all NELAC requirements
Refer to eqlab certification number PA7283 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMON, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG JUAN PORTALATIN
Source: **SAMPLE 23**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	3494189	Collected Date & Time	06/08/2021 12:00	Date of Report	07/16/2021
Work Order	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip	2021-07461	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep	ELAZARO
Folder Number	206902			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits			Analysis			Prep Method		
					MDL	MRL	MCL	Date	Time	By	Date	By	Method
TCLP VOC EPA 8260B													
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	07/07/2021	06:27	JASG	07/05/2021	RMR	EPA 1311
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	07/06/2021	02:02	AADS	07/05/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	07/06/2021	02:02	AADS	07/05/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	02:02	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	02:02	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	07/06/2021	02:02	AADS	07/05/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	07/06/2021	02:02	AADS	07/05/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	07/06/2021	02:02	AADS	07/05/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	07/06/2021	02:02	AADS	07/05/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	07/06/2021	02:02	AADS	07/05/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	07/06/2021	02:02	AADS	07/05/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	07/06/2021	02:02	AADS	07/05/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	07/08/2021	03:52	AADS	07/07/2021	RMR	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	07/08/2021	03:52	AADS	07/07/2021	RMR	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	07/08/2021	03:52	AADS	07/07/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level MDL = Method Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monterey Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87713 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
50 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 23**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3494189	Collected Date & Time:	06/08/2021 12:00	Date of Report:	07/16/2021
Work Order:	1202-01-08	Received Date & Time:	07/01/2021 15:00	Collected By:	JPORTALATIN
Delivery Slip:	2021-07461	Temperature at Arrival:	ROOM TEMPERATURE	Eqlab Rep:	ELAZARO
Folder Number:	306902			Proposal Number:	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	03:52	AADS	07/07/2021	RMR	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	03:52	AADS	07/07/2021	RMR	EPA 1311
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	07/08/2021	03:52	AADS	07/07/2021	RMR	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	07/08/2021	03:52	AADS	07/07/2021	RMR	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	07/05/2021	16:06	AFNC	07/05/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.37	mg/L	D	0.050	1.000	100	07/05/2021	16:06	AFNC	07/05/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	0.0070	mg/L	D	0.0025	0.0050	1.0	07/05/2021	16:06	AFNC	07/05/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	07/05/2021	16:06	AFNC	07/05/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	07/05/2021	16:06	AFNC	07/05/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	07/05/2021	16:06	AFNC	07/05/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	07/05/2021	16:06	AFNC	07/05/2021	AFNC	EPA 1311
TCLP Mercury													
* Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	07/05/2021	16:08	AFNC	07/05/2021	AFNC	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	07/09/2021	14:00	LHT	07/09/2021	LHT	METHOD EXT

SONIA PICHARDO RODRIGUEZ
Químico Licenciado
Colegio Pobre Asociado de Puerto Rico
LICENCIA NUM. 4538

Certified by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limits DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MQ = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number 08/787 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, M NILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GUM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 24**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

eqlab
ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3494190	Collected Date & Time	06/08/2021 12:00	Date of Report	07/16/2021
Work Order:	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip:	2021-07461	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep.	ELAZARO
Folder Number:	306902			Proposal Number:	22865 - 4

Remarks:

	Parameter	Method	Result	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
	Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	07/06/2021	08:30	DSA	07/06/2021	DSA	METHOD EXT
+	Organic Matter	ASTM 2974	5.49	%	--	0.01	0.01	--	07/06/2021	10:37	YVV	--	--	N/A
	Corrosivity, pH	EPA 9045C	6.81	S.U	Q	1.00	--	<2 - >12.5	07/02/2021	09:30	YAO	--	--	N/A
	TCLP HERBICIDES													
	* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	07/06/2021	21:15	DCM	07/06/2021	DCM	EPA 1311
	* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	07/06/2021	21:15	DCM	07/06/2021	DCM	EPA 1311
	TCLP VOC EPA 8260B													
+	* 1,1-Dichloroethene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.7	07/07/2021	05:58	JASG	07/05/2021	RMR	EPA 1311
	* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.5	07/07/2021	05:58	JASG	07/05/2021	RMR	EPA 1311
	* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	7.5	07/07/2021	05:58	JASG	07/05/2021	RMR	EPA 1311
	* 2-Butanone	EPA 8260B	ND	mg/L	D,U	0.0300	1.5000	200	07/07/2021	05:58	JASG	07/05/2021	RMR	EPA 1311
	* Benzene	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	07/07/2021	05:58	JASG	07/05/2021	RMR	EPA 1311
	* Carbon tetrachloride	EPA 8260B	ND	mg/L	D,U	0.0100	0.3000	0.5	07/07/2021	05:58	JASG	07/05/2021	RMR	EPA 1311
	* Chlorobenzene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	100	07/07/2021	05:58	JASG	07/05/2021	RMR	EPA 1311
	* Chloroform	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	6.0	07/07/2021	05:58	JASG	07/05/2021	RMR	EPA 1311
	* Tetrachloroethene	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.7	07/07/2021	05:58	JASG	07/05/2021	RMR	EPA 1311
	* Trichloroethene	EPA 8260B	ND	mg/L	D,U	0.0300	0.3000	0.5	07/07/2021	05:58	JASG	07/05/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DQ = Data Qualifiers MDL = Minimum Detection Limit N/A = Not Applicable
ND = Monitoring Only MRL = Minimum Reporting Level PTRL = Picture Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certificate

ACCREDITED IN ACCORDANCE WITH nelac

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87763 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6455 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 24**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

eqlab
ENVIRONMENTAL QUALITY LABORATORIES, INC

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	3494190	Collected Date & Time	06/08/2021 12:00	Date of Report	07/16/2021
Work Order	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip	2021-07461	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep	ELAZARO
Folder Number	306902			Proposal Number	23865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP VOC EPA 8260B													
* Vinyl chloride	EPA 8260B	ND	mg/L	D,U	0.0200	0.3000	0.2	07/07/2021	05:58	JASG	07/05/2021	RMR	EPA 1311
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	07/06/2021	02:31	AADS	07/05/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	07/06/2021	02:31	AADS	07/05/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	02:31	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	02:31	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	07/06/2021	02:31	AADS	07/05/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	07/06/2021	02:31	AADS	07/05/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	07/06/2021	02:31	AADS	07/05/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	07/06/2021	02:31	AADS	07/05/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	07/06/2021	02:31	AADS	07/05/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	07/06/2021	02:31	AADS	07/05/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	07/06/2021	02:31	AADS	07/05/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	07/08/2021	04:09	AADS	07/07/2021	RMR	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	07/08/2021	04:09	AADS	07/07/2021	RMR	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	07/08/2021	04:09	AADS	07/07/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAP Certification

ACCREDITED IN ACCORDANCE WITH NELAC
The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87567 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 24**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	3494190	Collected Date & Time	06/08/2021 12:00	Date of Report	07/16/2021
Work Order	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip	2021-07461	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep	ELAZARO
Folder Number	306902			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	04:09	AADS	07/07/2021	RMR	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	04:09	AADS	07/07/2021	RMR	EPA 1311
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	07/08/2021	04:09	AADS	07/07/2021	RMR	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	07/08/2021	04:09	AADS	07/07/2021	RMR	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	0.05	mg/L	D,U	0.05	0.50	5.0	07/05/2021	16:13	AFNC	07/05/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.60	mg/L	D	0.050	1.000	100	07/05/2021	16:13	AFNC	07/05/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	0.0090	mg/L	D	0.0025	0.0050	1.0	07/05/2021	16:13	AFNC	07/05/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	07/05/2021	16:13	AFNC	07/05/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	07/05/2021	16:13	AFNC	07/05/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	07/05/2021	16:13	AFNC	07/05/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	07/05/2021	16:13	AFNC	07/05/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	07/05/2021	16:08	AFNC	07/05/2021	AFNC	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	07/09/2021	14:00	LHT	07/09/2021	LHT	METHOD EXT

SONIA PICHARDO RODRIGUEZ
Químico Licenciado
Estado Libre Asociado de Puerto Rico
LICENCIA NUM. 4538

Certified by Laboratory Director

NB = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limits DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

PRDOH Certified
EPA ID PR00014

ACCREDITED IN ACCORDANCE WITH nelac
The results presented herein meet all NELAC requirements
Refer to eqlab certification number E83785 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 286-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024057
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 25**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	3494191	Collected Date & Time	06/08/2021 14:00	Date of Report	07/16/2021
Work Order	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip	2021-07461	Temperature at Arrival:	ROOM TEMPERATURE	Eqlab Rep.	E. AZARO
Folder Number	306902			Proposal Number	22865 - 4

Remarks

	Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method
	Reactive Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	07/06/2021	08:30	DSA	07/06/2021	DSA	METHOD EXT
+	Organic Matter	ASTM 2974	5.80	%	--	0.01	0.01	--	07/06/2021	10:37	YVV	--	--	N/A
	Corrosivity, pH	EPA 9045C	6.71	S.U.	Q	1.00	--	<2 - >12.5	07/02/2021	09:30	YAO	--	--	N/A
	TCLP HERBICIDES													
	* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	07/06/2021	21:35	DCM	07/06/2021	DCM	EPA 1311
	* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	07/06/2021	21:35	DCM	07/06/2021	DCM	EPA 1311
	TCLP VOC EPA 8260B													
+	* 1,1-Dichloroethene	EPA 8260B	ND	mg/L	U	0.0100	0.3000	0.7	07/10/2021	03:41	JASG	07/05/2021	RMR	EPA 1311
	* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	--	0.0200	0.3000	0.5	07/10/2021	03:41	JASG	07/05/2021	RMR	EPA 1311
	* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	--	0.0300	0.3000	7.5	07/10/2021	03:41	JASG	07/05/2021	RMR	EPA 1311
	* 2-Butanone	EPA 8260B	ND	mg/L	--	0.0300	1.5000	200	07/10/2021	03:41	JASG	07/05/2021	RMR	EPA 1311
	* Benzene	EPA 8260B	ND	mg/L	--	0.0100	0.3000	0.5	07/10/2021	03:41	JASG	07/05/2021	RMR	EPA 1311
	* Carbon tetrachloride	EPA 8260B	ND	mg/L	--	0.0100	0.3000	0.5	07/10/2021	03:41	JASG	07/05/2021	RMR	EPA 1311
	* Chlorobenzene	EPA 8260B	ND	mg/L	--	0.0300	0.3000	100	07/10/2021	03:41	JASG	07/05/2021	RMR	EPA 1311
	* Chloroform	EPA 8260B	ND	mg/L	--	0.0200	0.3000	6.0	07/10/2021	03:41	JASG	07/05/2021	RMR	EPA 1311
	* Tetrachloroethene	EPA 8260B	ND	mg/L	--	0.0200	0.3000	0.7	07/10/2021	03:41	JASG	07/05/2021	RMR	EPA 1311
	* Trichloroethene	EPA 8260B	ND	mg/L	--	0.0300	0.3000	0.5	07/10/2021	03:41	JASG	07/05/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DQ = Data Qualifier MDL = Minimum Detection Limit N/A = Not Applicable
MQ = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
* = Parameter is not contained under EQLab's NELAP Certification

ACCREDITED IN ACCORDANCE WITH nelac
The results presented herein meet the NELAC requirements
Refer to eqlab certification number EA743 at www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

PRDOH Certified
EPA ID PR00014

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 25**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Laboratory Test Report

Sample Number	3494191	Collected Date & Time	06/08/2021 14:00	Date of Report	07/16/2021
Work Order	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip	2021-07461	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep.	ELAZARO
Folder Number	306902			Proposal Number	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP VOC EPA 8260B													
* Vinyl chloride	EPA 8260B	ND	mg/L	--	0.0200	0.3000	0.2	07/10/2021	03:41	JASG	07/05/2021	RMR	EPA 1311
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	07/06/2021	03:00	AADS	07/05/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	07/06/2021	03:00	AADS	07/05/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	03:00	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	03:00	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	07/06/2021	03:00	AADS	07/05/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	07/06/2021	03:00	AADS	07/05/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	07/06/2021	03:00	AADS	07/05/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	07/06/2021	03:00	AADS	07/05/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	07/06/2021	03:00	AADS	07/05/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	07/06/2021	03:00	AADS	07/05/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	07/06/2021	03:00	AADS	07/05/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	07/08/2021	04:27	AADS	07/07/2021	RMR	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	07/08/2021	04:27	AADS	07/07/2021	RMR	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	07/08/2021	04:27	AADS	07/07/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit PPM = Parts Per Million MDL = Minimum Detection Limit N/A = Not Applicable
MD = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
* = Parameter is not accredited under EQLab's NELAC Certification

nelac ACCREDITED IN ACCORDANCE WITH NELAC

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, SAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-8420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P O BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG JUAN PORTALATIN
Source: **SAMPLE 25**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	3494191	Collected Date & Time	06/08/2021 14:00	Date of Report	07/16/2021
Work Order	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip	2021-07461	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep	ELAZARO
Folder Number	306902			Proposal Number	22865 - 4

Remarks

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	04:27	AADS	07/07/2021	RMR	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	04:27	AADS	07/07/2021	RMR	EPA 1311
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	07/08/2021	04:27	AADS	07/07/2021	RMR	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	07/08/2021	04:27	AADS	07/07/2021	RMR	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	07/05/2021	16:19	AFNC	07/05/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	1.58	mg/L	D	0.050	1.000	100	07/05/2021	16:19	AFNC	07/05/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	0.0070	mg/L	D	0.0025	0.0050	1.0	07/05/2021	16:19	AFNC	07/05/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	07/05/2021	16:19	AFNC	07/05/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	07/05/2021	16:19	AFNC	07/05/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	BDL	mg/L	D,U	0.15	0.50	1.0	07/05/2021	16:19	AFNC	07/05/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	07/05/2021	16:19	AFNC	07/05/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	07/05/2021	16:08	AFNC	07/05/2021	AFNC	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	07/09/2021	14:00	LHC	07/09/2021	LHC	METHOD EXT

SONIA RICHARDO RODRIGUEZ
Químico Licenciado
Estado Libre Asociado de Puerto Rico
LICENCIA NUM. 4538

Signed by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level. All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87780 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 26**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	1494192	Collected Date & Time	06/08/2021 14:00	Date of Report	07/16/2021
Work Order	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip	2021-07481	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep.	ELAZARO
Folder Number	306902			Proposal Number	22865 - 4

Remarks

	Parameter	Method	Result	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
	Releasable Sulfide	SW 846 - 7.3.4	BDL	mg/Kg	U	1.0	1.0	500	07/06/2021	08:30	DSA	07/06/2021	DSA	METHOD EXT
+	Organic Matter	ASTM 2974	5.96	%	--	0.01	0.01	--	07/06/2021	10:37	YVV	--	--	N/A
	Corrosivity, pH	EPA 9045C	6.01	S.U	Q	1.00	--	<2 - >12.5	07/02/2021	09:30	YAO	--	--	N/A
	TCLP HERBICIDES													
	* 2,4,5-TP	EPA 8151A	ND	mg/L	D,U	0.01000	0.20000	1.0	07/06/2021	21:54	DCM	07/06/2021	DCM	EPA 1311
	* 2,4-D	EPA 8151A	ND	mg/L	D,U	0.010000	0.200000	10.0	07/06/2021	21:54	DCM	07/06/2021	DCM	EPA 1311
	TCLP VOC EPA 8260B													
+	* 1,1-Dichloroethene	EPA 8260B	ND	mg/L	U	0.0100	0.3000	0.7	07/10/2021	02:42	JASG	07/05/2021	RMR	EPA 1311
	* 1,2-Dichloroethane	EPA 8260B	ND	mg/L	U	0.0200	0.3000	0.5	07/10/2021	02:42	JASG	07/05/2021	RMR	EPA 1311
	* 1,4-Dichlorobenzene	EPA 8260B	ND	mg/L	U	0.0300	0.3000	7.5	07/10/2021	02:42	JASG	07/05/2021	RMR	EPA 1311
	* 2-Butanone	EPA 8260B	ND	mg/L	U	0.0300	1.5000	200	07/10/2021	02:42	JASG	07/05/2021	RMR	EPA 1311
	* Benzene	EPA 8260B	ND	mg/L	U	0.0100	0.3000	0.5	07/10/2021	02:42	JASG	07/05/2021	RMR	EPA 1311
	* Carbon tetrachloride	EPA 8260B	ND	mg/L	U	0.0100	0.3000	0.5	07/10/2021	02:42	JASG	07/05/2021	RMR	EPA 1311
	* Chlorobenzene	EPA 8260B	ND	mg/L	U	0.0300	0.3000	100	07/10/2021	02:42	JASG	07/05/2021	RMR	EPA 1311
	* Chloroform	EPA 8260B	ND	mg/L	U	0.0200	0.3000	6.0	07/10/2021	02:42	JASG	07/05/2021	RMR	EPA 1311
	* Tetrachloroethene	EPA 8260B	ND	mg/L	U	0.0200	0.3000	0.7	07/10/2021	02:42	JASG	07/05/2021	RMR	EPA 1311
	* Trichloromethene	EPA 8260B	ND	mg/L	U	0.0300	0.3000	0.5	07/10/2021	02:42	JASG	07/05/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MQ = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to the sample.
* = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab accreditation number E87782-1 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 269-6420 FAX (787) 288-6465 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 26**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number:	3494192	Collected Date & Time:	06/08/2021 14:00	Date of Report:	07/16/2021
Work Order:	1202-01-08	Received Date & Time:	07/01/2021 15:00	Collected By:	JPORTALATIN
Delivery Slip:	2021-07461	Temperature at Arrival:	ROOM TEMPERATURE	Eqlab Rep.:	ELAZARO
Folder Number:	306902			Proposal Number:	22865 - 4

Remarks:

					Limits			Analysis			Prep Method		
Parameter	Method	Results	Units	DQ	MDL	MRL	MCL	Date	Time	By	Date	By	Method
TCLP VOC EPA 8260B													
* Vinyl chloride	EPA 8260B	ND	mg/L	U	0.0200	0.3000	0.2	07/10/2021	02:42	JASG	07/05/2021	RMR	EPA 1311
TCLP SEMIVOLATILES													
* 2,4,5-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	400	07/06/2021	03:29	AADS	07/05/2021	RMR	EPA 1311
* 2,4,6-Trichlorophenol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	2.0	07/06/2021	03:29	AADS	07/05/2021	RMR	EPA 1311
* 2,4-Dinitrotoluene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	03:29	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobenzene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.13	07/06/2021	03:29	AADS	07/05/2021	RMR	EPA 1311
* Hexachlorobutadiene	EPA 8270C	ND	mg/L	U	0.00400	0.02000	0.50	07/06/2021	03:29	AADS	07/05/2021	RMR	EPA 1311
* Hexachloroethane	EPA 8270C	ND	mg/L	U	0.00400	0.02000	3.0	07/06/2021	03:29	AADS	07/05/2021	RMR	EPA 1311
* Nitrobenzene	EPA 8270C	ND	mg/L	U	0.01700	0.02000	2.0	07/06/2021	03:29	AADS	07/05/2021	RMR	EPA 1311
* Pentachlorophenol	EPA 8270C	ND	mg/L	U	0.02200	0.20000	100	07/06/2021	03:29	AADS	07/05/2021	RMR	EPA 1311
* Pyridine	EPA 8270C	ND	mg/L	U	0.00700	0.02000	5.0	07/06/2021	03:29	AADS	07/05/2021	RMR	EPA 1311
* m,p-Cresol	EPA 8270C	ND	mg/L	U	0.00500	0.02000	200	07/06/2021	03:29	AADS	07/05/2021	RMR	EPA 1311
* o-Cresol	EPA 8270C	ND	mg/L	U	0.00400	0.02000	200	07/06/2021	03:29	AADS	07/05/2021	RMR	EPA 1311
TCLP PESTICIDES													
* Chlordane	EPA 8081A	ND	mg/L	U	0.0010	0.0050	0.03	07/08/2021	04:45	AADS	07/07/2021	RMR	EPA 1311
* Endrin	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.02	07/08/2021	04:45	AADS	07/07/2021	RMR	EPA 1311
* Gamma - BHC	EPA 8081A	ND	mg/L	U	0.0001	0.0005	0.4	07/08/2021	04:45	AADS	07/07/2021	RMR	EPA 1311

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit NA = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated, all results relate only to this sample.
* = Parameters not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87782 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-5465 www.eqlab.com

To: GLM ENGINEERING COOP
P.O. BOX 9024157
SAN JUAN PR 00902-4157

Attn: ENG. JUAN PORTALATIN
Source: **SAMPLE 26**
CAGUAS DREDGING DISPOSAL AREA

Project Name: RCRA
Facility: CAGUAS DREDGING DISPOSAL AREA
Description: SOIL - Composite
Client Ref. #: N/A

eqlab ENVIRONMENTAL QUALITY LABORATORIES, INC.

Laboratory Test Report

This report shall not be reproduced, except in full, without the written consent of Environmental Quality Laboratories, Inc.

Sample Number	**3494192**	Collected Date & Time	**06/08/2021** 14:00	Date of Report	07/16/2021
Work Order	1202-01-08	Received Date & Time	07/01/2021 15:00	Collected By	JPORTALATIN
Delivery Slip	2021-07461	Temperature at Arrival	ROOM TEMPERATURE	Eqlab Rep	ELAZARO
Folder Number	306902			Proposal Number	22865 - 4

Remarks:

Parameter	Method	Results	Units	DQ	Limits MDL	Limits MRL	Limits MCL	Analysis Date	Analysis Time	Analysis By	Prep Method Date	Prep Method By	Prep Method Method
TCLP PESTICIDES													
* Heptachlor	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	04:45	AADS	07/07/2021	RMR	EPA 1311
* Heptachlor epoxide	EPA 8081A	ND	mg/L	U	0.0003	0.0005	0.008	07/08/2021	04:45	AADS	07/07/2021	RMR	EPA 1311
* Methoxychlor	EPA 8081A	ND	mg/L	U	0.0003	0.0008	10.0	07/08/2021	04:45	AADS	07/07/2021	RMR	EPA 1311
* Toxaphene	EPA 8081A	ND	mg/L	U	0.0015	0.0050	0.5	07/08/2021	04:45	AADS	07/07/2021	RMR	EPA 1311
TCLP - ICP 6010 B													
* Arsenic - Total	EPA 6010B	BDL	mg/L	D,U	0.05	0.50	5.0	07/05/2021	16:26	AFNC	07/05/2021	AFNC	EPA 1311
* Barium -Total	EPA 6010B	0.890	mg/L	D,J	0.050	1.000	100	07/05/2021	16:26	AFNC	07/05/2021	AFNC	EPA 1311
* Cadmium - Total	EPA 6010B	0.0030	mg/L	D	0.0025	0.0050	1.0	07/05/2021	16:26	AFNC	07/05/2021	AFNC	EPA 1311
* Chromium - Total	EPA 6010B	BDL	mg/L	D,U	0.045	0.250	5.0	07/05/2021	16:26	AFNC	07/05/2021	AFNC	EPA 1311
* Lead - Total	EPA 6010B	BDL	mg/L	D,U	0.075	0.500	5.0	07/05/2021	16:26	AFNC	07/05/2021	AFNC	EPA 1311
* Selenium - Total	EPA 6010B	0.20	mg/L	D,U	0.15	0.50	1.0	07/05/2021	16:26	AFNC	07/05/2021	AFNC	EPA 1311
* Silver - Total	EPA 6010B	BDL	mg/L	D,U	0.010	0.050	5.0	07/05/2021	16:26	AFNC	07/05/2021	AFNC	EPA 1311
TCLP Mercury													
+ * Mercury - Total	EPA 7470A	BDL	mg/L	U	0.0002	0.0005	0.2	07/05/2021	16:08	AFNC	07/05/2021	AFNC	EPA 1311
Releasable Cyanide	SW 846 - 7.3.3	BDL	mg/Kg	U	1.0	1.0	250	07/09/2021	14:00	LHT	07/09/2021	LHT	METHOD EXT

SONIA PICHARDO RODRIGUEZ
Químico Licenciado
Estado Libre Asociado de Pr
LICENCIA NUM. 453

Certified by Laboratory Director

ND = Not Detected MCL = Maximum Contaminant Level BDL = Below Detection Limit DNI = Does Not Ignite MDL = Minimum Detection Limit N/A = Not Applicable
MO = Monitoring Only MRL = Minimum Reporting Level PTRL = Pattern Recognition Level All results are calculated on a wet weight basis unless otherwise stated. All results relate only to this sample.
+ = Parameter is not accredited under EQLab's NELAP Certification

The results presented herein meet all NELAC requirements
Refer to eqlab certification number E87783 at www.eqlab.com

PRDOH Certified
EPA ID PR00014

ENVIRONMENTAL QUALITY LABORATORIES, INC.
60 E STREET, MINILLAS INDUSTRIAL PARK, BAYAMÓN, PR 00959
PO BOX 11458 SANTURCE, PR 00910-1458 TEL. (787) 288-6420 FAX (787) 288-6465 www.eqlab.com

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

2021-07461

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-5465, e-mail: info@eqlab.com

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1202-01 W.O. #: 08 SITE: CAGUAS DREDGING DISPOSAL AREA CLIENT REP: ENG. JUAN PORTALATIN

O. #: GM2021-03 PWSID #: FOLDER #: 306902 PROJECT: CARRAIZO EQLAB REP: ELAZARO

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: 3494187-1 MATRIX: SOIL SOURCE: SAMPLE 21, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 10:00 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 20 PRESERVATIVE: Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3494187-2 MATRIX: SOIL SOURCE: SAMPLE 21, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 10:00 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: 3494187-3 MATRIX: SOIL SOURCE: SAMPLE 21, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 10:00 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B
SAMPLE #: 3494187-4 MATRIX: SOIL SOURCE: SAMPLE 21, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 10:00 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	J Portalatin	06/08/21	1000
Fixed in field by:	J Portalatin	06/08/21	
Authorized by:	N/A	N/A	
Received by EQLF:			
Released to EQLL by:		6/10/21	1500
Received by EQLL:		6/10/21	1500

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

P/A

Arrival Temperature: RT Signature:

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

2021-07461

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420. FAX (787) 288-6465, e-mail: info@eqlab.com

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1202-01 W.O. #: 08 SITE: CAGUAS DREDGING DISPOSAL AREA CLIENT REP: ENG. JUAN PORTALATIN

O. #: G2021-08 PWSID #: FOLDER #: 306902 PROJECT: CARRAIZO EQLAB REP: ELAZARO

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
SAMPLE #: 3494187-5 MATRIX: SOIL SOURCE: SAMPLE 21, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 10:00 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Releasable Cyanide, Releasable Sulfide
SAMPLE #: 3494188-1 MATRIX: SOIL SOURCE: SAMPLE 22, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 10:00 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: 3494188-2 MATRIX: SOIL SOURCE: SAMPLE 22, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 10:00 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Releasable Cyanide, Releasable Sulfide
SAMPLE #: 3494188-3 MATRIX: SOIL SOURCE: SAMPLE 22, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 10:00 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 20 PRESERVATIVE: Cool 4 °C			TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	J Portalatin	06/08/21	
Fixed in field by:	J Portalatin	06/08/21	1050
Authorized by:	N/A	N/A	
Received by EQLF:			
Released to EQLL by:	[signature]	06/01/21	1500
Received by EQLL:	[signature]	06/01/21	1500

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

PMR

Arrival Temperature: RT Signature: [signature]

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

2021-07461

PO BOX 11458, SAN JUAN, PR 00910-1458 - TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1202-01 W.O. #: 08 SITE: CAGUAS DREDGING DISPOSAL AREA CLIENT REP: ENG. JUAN PORTALATIN

O. #: GZ021-03 PWSID #: FOLDER #: 306902 PROJECT: CARRAIZO EQLAB REP: ELAZARO

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
SAMPLE #: 3494188-4 MATRIX: SOIL SOURCE: SAMPLE 22, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 10:03 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C			TCLP VOC EPA 8260B
SAMPLE #: 3494188-5 MATRIX: SOIL SOURCE: SAMPLE 22, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 10:03 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: 3494189-1 MATRIX: SOIL SOURCE: SAMPLE 23, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 12:00 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
SAMPLE #: 3494189-2 MATRIX: SOIL SOURCE: SAMPLE 23, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 12:00 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C			TCLP VOC EPA 8260B

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	J Portalatin	06/09/21	0945
Fixed in field by:	J Portalatin	06/09/21	0945
Authorized by:	N/A	N/A	
Received by EQLF:			
Released to EQLL by:		06/10/21	1500
Received by EQLL:		06/10/21	1500

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: RT Signature:

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

2021-07461

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

ENT NAME: GLM ENGINEERING COOP. CLIENT ID: 202-01 W.O. #: 08 SITE: CAGUAS DREDGING DISPOSAL AREA CLIENT REP: ENG. JUAN PORTALATIN

. #: G2021-03 PWSID #: FOLDER #: 306902 PROJECT: CARRAIZO EQLAB REP: E. AZARO

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
AMPLE #: 3494189-3 ATRIX: SOIL OURCE: SAMPLE 23, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 12:00 TYPE: Composite	TYPE COLOR VOLUME G/TC AMBER 20 PRESERVATIVE Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
AMPLE #: 3494189-4 ATRIX: SOIL OURCE: SAMPLE 23, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 12:00 TYPE: Composite	TYPE COLOR VOLUME G/PC CLEAR 8 PRESERVATIVE Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
AMPLE #: 3494189-5 ATRIX: SOIL OURCE: SAMPLE 23, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 12:00 TYPE: Composite	TYPE COLOR VOLUME G/TC CLEAR 8 PRESERVATIVE Cool 4 °C		Releasable Cyanide, Releasable Sulfide
AMPLE #: 3494189-1 ATRIX: SOIL OURCE: SAMPLE 24, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 12:00 TYPE: Composite	TYPE COLOR VOLUME G/PC CLEAR 8 PRESERVATIVE Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury

USTODY RECORD	SIGNATURE	DATE	TIME
ollected in field by:	J Portalatin	06/08/21	1200
xed in field by:	J Portalatin	06/08/21	
uthorized by:			
eceived by EQLF:			
eleased to EQLL by:		06/10/21	1500
eceived by EQLL:		06/10/21	1500

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

PIAR

Arrival Temperature: RT Signature:

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

2021-07461

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

CLIENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1202-01 W.O. #: 08 SITE: CAGUAS DREDGING DISPOSAL AREA CLIENT REP: ENG. JUAN PORTALATIN

P.O. #: G2021-03 PWSID #: FOLDER #: 306902 PROJECT: CARRAIZO EQLAB REP: ELAZARO

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: 3494190-2 MATRIX: SOIL SOURCE: SAMPLE 24, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 12:00 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: 3494190-3 MATRIX: SOIL SOURCE: SAMPLE 24, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 12:00 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 20 PRESERVATIVE: Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3494190-4 MATRIX: SOIL SOURCE: SAMPLE 24, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 12:00 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Releasable Cyanide, Releasable Sulfide
SAMPLE #: 3494190-5 MATRIX: SOIL SOURCE: SAMPLE 24, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 12:00 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	J Portalatin	06/08/21	1200
Fixed in field by:	J Portalatin	06/08/21	
Authorized by:	N/A	N/A	
Received by EQLF:			
Released to EQLL by:	[signature]	07/01/21	1500
Received by EQLL:	[signature]	07/01/21	1500

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

PIAR

Arrival Temperature: RT Signature: [signature]

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

2021-07461

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

ENT NAME: GLM ENGINEERING COOP. CLIENT ID: 202-01 W.O. #: 08 SITE: CAGUAS DREDGING DISPOSAL AREA CLIENT REP: ENG JUAN PORTALATIN

. #: G2021-03 PWSID #: FOLDER #: 306902 PROJECT: CARRAIZO EQLAB REP: FLAZARO

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
AMPLE #: 3494191-1 ATRIX: SOIL OURCE: SAMPLE 25, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 14:00 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Releasable Cyanide, Releasable Sulfide
AMPLE #: 3494191-2 ATRIX: SOIL OURCE: SAMPLE 25, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 14:00 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B
AMPLE #: 3494191-3 ATRIX: SOIL OURCE: SAMPLE 25, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 14:00 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag, , TCLP Mercury
AMPLE #: 3494191-4 ATRIX: SOIL OURCE: SAMPLE 25, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 14:00 TYPE: Composite	TYPE: G/PC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter

USTODY RECORD	SIGNATURE	DATE	TIME
ollected in field by:	J Portalatin	06/08/21	
xed in field by:	J Portalatin	06/08/21	1400
uthorized by:	N/A	N/A	
eceived by EQLF:			
eleased to EQLL by:		6/10/21	1500
eceived by EQLL:		6/10/21	1500

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

PLHR

Arrival Temperature: RT Signature:

Eqlab's general terms and conditions on reverse side of this document.

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

2021-07461

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

CLIENT NAME: GLM ENGENEERING COOP. CLIENT ID: 1202-01 W.O. #: 08 SITE: CAGUAS DREDGING DISPOSAL AREA CLIENT REP: ENG. JUAN PORTALATIN

O. #: G7021-03 PWSID #: FOLDER #: 306902 PROJECT: BARRAZO EQLAB REP: HAZARO

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING	ANALYSIS REQUESTED
SAMPLE #: 3494191-3 MATRIX: SOIL SOURCE: SAMPLE 25, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 14:00 TYPE: Composite	TYPE: G/TC COLOR: AMBER VOLUME: 20 PRESERVATIVE: Cool 4 °C		TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
SAMPLE #: 3494192-1 MATRIX: SOIL SOURCE: SAMPLE 26, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 14:00 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Corrosivity, pH (RCRA), Organic Matter
SAMPLE #: 3494192-2 MATRIX: SOIL SOURCE: SAMPLE 26, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 14:00 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 8 PRESERVATIVE: Cool 4 °C		Releasable Cyanide, Releasable Sulfide
SAMPLE #: 3494192-3 MATRIX: SOIL SOURCE: SAMPLE 26, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 14:00 TYPE: Composite	TYPE: G/TC COLOR: CLEAR VOLUME: 4 PRESERVATIVE: Cool 4 °C		TCLP VOC EPA 8260B

CUSTODY RECORD	SIGNATURE	DATE	TIME
Collected in field by:	J Portalatin	06/08/21	1400
Fixed in field by:	J Portalatin	06/08/21	
Authorized by:	N/A	N/A	
Received by EQLF:			
Released to EQLL by:		06/10/21	1500
Received by EQLL:		06/10/21	1500

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel.
*EQLL = Eqlab's Log-in Personnel.

Arrival Temperature: 2°C Signature:

Eqlab's general terms and conditions on reverse side of this document.

Page 6 of 6

ENVIRONMENTAL QUALITY LABORATORIES, INC.

SAMPLE DELIVERY SLIP & CHAIN OF CUSTODY

2021-07461

PO BOX 11458, SAN JUAN, PR 00910-1458 • TEL. (787) 288-6420, FAX (787) 288-6465, e-mail: info@eqlab.com

IENT NAME: GLM ENGINEERING COOP. CLIENT ID: 1702-01 W.O. #: 08 SITE: CAGUAS DREDGING DISPOSAL AREA CLIENT REP: ENG. JUAN PORTALATIN

. #: G2021-03 PWSID #: FOLDER #: 306902 PROJECT: CARRAIZO EQLAB REP: FLAZARO

SAMPLE INFORMATION		CONTAINER INFORMATION	FIELD TESTING		ANALYSIS REQUESTED
AMPLE #: 3494192-4 ATRIX: SOIL OURCE: SAMPLE 26, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 14:00 TYPE: Composite	TYPE COLOR VOLUME G/TC AMBER 20 PRESERVATIVE Cool 4 °C			TCLP HERBICIDES, TCLP PESTICIDES, TCLP SEMIVOLATILES
AMPLE #: 3494192-5 ATRIX: SOIL OURCE: SAMPLE 26, CAGUAS DREDGING DISPOSAL AREA	DATE: 06/08/21 TIME: 14:00 TYPE: Composite	TYPE COLOR VOLUME G/PC CLEAR 8 PRESERVATIVE Cool 4 °C			TCLP - ICP 6010 B: As, Ba, Cd, Cr, Pb, Se, Ag , TCLP Mercury
AMPLE #: ATRIX: OURCE:	DATE: TIME: TYPE:	TYPE COLOR VOLUME PRESERVATIVE			
AMPLE #: ATRIX: OURCE:	DATE: TIME: TYPE:	TYPE COLOR VOLUME PRESERVATIVE			

USTODY RECORD	SIGNATURE	DATE	TIME
ollected in field by:	J. Portalatin	06/08/21	1400
xed in field by:	J. Portalatin	06/08/21	
uthorized by:	N/A	N/A	
eceived by EQLF:			
eleased to EQLL by:		6/10/21	1500
eceived by EQLL:		6/10/21	1500

SPECIAL INSTRUCTIONS / COMMENTS:

*EQLF = Eqlab's Field Personnel
*EQLL = Eqlab's Log-in Personnel.

P/A

Arrival Temperature: RT Signature:

Eqlab's general terms and conditions on reverse side of this document.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

January 19, 2022

Jose A. Alicea-Pou
Unified Federal Review Advisor
Environmental and Historic Preservation (EHP)
Interagency Recovery Coordination (IRC)
Federal Emergency Management Agency

RE: Requests for Comments – Sediment Sampling at Carraízo Reservoir, Puerto Rico, May 2021

Dear Mr. Alicea-Pou,

The U.S. Environmental Protection Agency (EPA) has reviewed the Sediment Sampling Report provided by the Federal Emergency Management Agency (FEMA) to support a Draft Environmental Assessment (EA) that is currently being prepared by FEMA. The scope of work in the forthcoming Draft EA includes dredging of the Carraízo Reservoir in Trujillo Alto, Puerto Rico. EPA was consulted to provide feedback on the overall methodology and results of the report and offers the following comments:

- EPA concurs with the methodology and tests chosen to analyze the dredged material for storage in containment areas or as landfill or slope cover.
- If FEMA decides to relocate the storage of the dredged material for another application, further tests may be necessary.
- EPA requests to understand a little more about the potential uses of the dredged material in order to provide further feedback, and we are open to a discussion during the public comment period once the Draft EA has been published.

Thank you for the opportunity to assist FEMA throughout the scoping process for the Draft EA. We look forward to reviewing the Draft EA and supporting your team throughout the entire NEPA process. Should you have questions on our comments noted above or related to this project, please contact me at (212) 637-3650 or benjamin.arielle@epa.gov.

Sincerely,

Arielle Benjamin, EPA/UFR POC
Environmental Review Team, EPA Region 2

APPENDIX H BEST MANAGEMENT PRACTICES (BMPS)

APPENDIX H BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) refers to a practice, or combination of practices, that are effective and practical preventing or reducing the amount of pollution generated by nonpoint sources. BMPs can be structural (e.g., silt fence, groundcover vegetation) or administrative (e.g., maintenance frequency or fuel requirement).

PRASA is committed to implementing BMPs that will make this project more compatible with the surrounding natural and anthropogenic environment. Specific plans and permits, such as the plans required by the Single Incidental Permit from of Puerto Rico Permit Management Office (PRPMO) and the NPDES Permit from the EPA will include project-specific requirements to be designed at a later stage of this Proposed Action; however, below are some generic BMPs that address the anticipated potential impacts.

1. **Erosion / sedimentation control**

    a. Compliance with the Puerto Rico Erosion and Sediment Control Handbook for Developing Areas

    b. Compliance with NPDES permit requirements acquired from the EPA

    c. Compliance with Single Incidental Operational Permit requirements from PRPMO.

    d. Minimize disturbance to erodible soils and slopes.

    e. Preserve native topsoil with proper separation techniques.

    f. Use turbidity curtains during dredging.

2. **Clean Air Act**

    a. Fugitive dust control – complying with the EPA NPDES Construction General Permit (CGP) in accordance with PRR100000 for the Commonwealth of Puerto Rico.

        i. Water sprinklers or spraying from a truck-mounted tank, frequent washing of trucks carrying material, and covering the trucks that carry material while they are in movement to avoid particulate matter emissions.

        ii. For bare-soil areas that may be eroded by the wind or vehicular traffic, sprinkle water as needed.

    b. Minimize combustible emissions – monitoring air quality, traffic management techniques, barriers such as temporary enclosures for booster pumps, fugitive dust control, proper vehicle maintenance, minimizing vehicle idling time, and complying with the Clean Air Non-Road Diesel Rule by using ultra-low sulfur diesel fuel for all on-road and nonroad project uses

3. **Clean Water Act**

a. SWPPP – required for projects qualifying under the program; implement techniques and equipment necessary to ensure that turbidity and other water quality parameters; requirements outlined in the referred water quality certificate or agreement with PRDOH, or both, are met; turbidity curtains would be used during dredging operations to help control turbidity within the reservoir.

b. SPCC – developed for project sites meeting the guideline thresholds; implement measures to prevent fuel and oil spills within the reservoir during fueling of equipment; oil booms would be used during fueling operations.

   i. Cover from the weather storage of chemicals and supplies.

   ii. Equipment maintenance. Daily inspection of vehicles, machinery and hydraulic equipment for leaks.

   iii. Secondary containment. Establish wherever there is storage of hydrocarbons, other potentially toxic liquids.

   iv. Spill kits. Maintain on site, to contain spills, to collect contaminated materials (soil, rags, etc.) and transfer contaminated materials by licensed contractor.

   v. Install oleophilic booms in areas where spills are likely to occur, such as the temporary dock during fueling operations.

   vi. Fueling operation shall be during daylight hours and during favorable weather conditions. No fueling operations shall be conducted when water chops (not calmed water) overtop the booms.

c. Water quality monitoring program – during dredging activities in accordance with the CWA water quality certificate associated with the USACE Joint Permit Application.

d. Maintain dredging activity at least 1,000 m (3,280 ft) away from the SCWFP potable water supply intake.

4. **Vegetation disturbance and limiting invasive species**

   a. Minimizing the use of off-road areas, erosion control measures, and placing barriers that delineate the limits between impact areas and conservation zones (such as forested areas).

   b. Power wash construction equipment prior to initial transport to the construction sites and prior to changing locations to prevent spread of noxious weeds.

   c. Restore disturbed soils with native, non-invasive species once project activities have been completed.

5. **Wildlife protections**

a. Placing barriers between the disposal, staging areas, and conservation zones.

6. Noise and vibration

a. Maintenance of vehicles and construction equipment according to manufacturers' specifications should be performed.

b. The use of mufflers and sound suppressors, while operating close to residences and quiet zones areas.

c. Traffic management techniques by routing construction traffic through commercial neighborhoods instead of through residential areas.

d. Utilize noise attenuating enclosures for combustion engines such booster pumps.

e. Minimize idling of vehicles and motors not in use.

f. Select the equipment necessary to perform the proposed activities, control working hours, install sound barriers, use enclosures, perform noise monitoring activities, and include specification limits on contract documents.

g. Pile installation activities – vibratory method is preferred over an impact hammer method, limit use of hydraulic jetting devices.

7. Transportation

a. Traffic management techniques, fugitive dust control, proper vehicle maintenance, and minimizing vehicle idling time, among others.

b. Management of traffic plan – would include public notices through traditional and social media regarding traffic changes and detours

c. Compliance with requirements of PRHTA

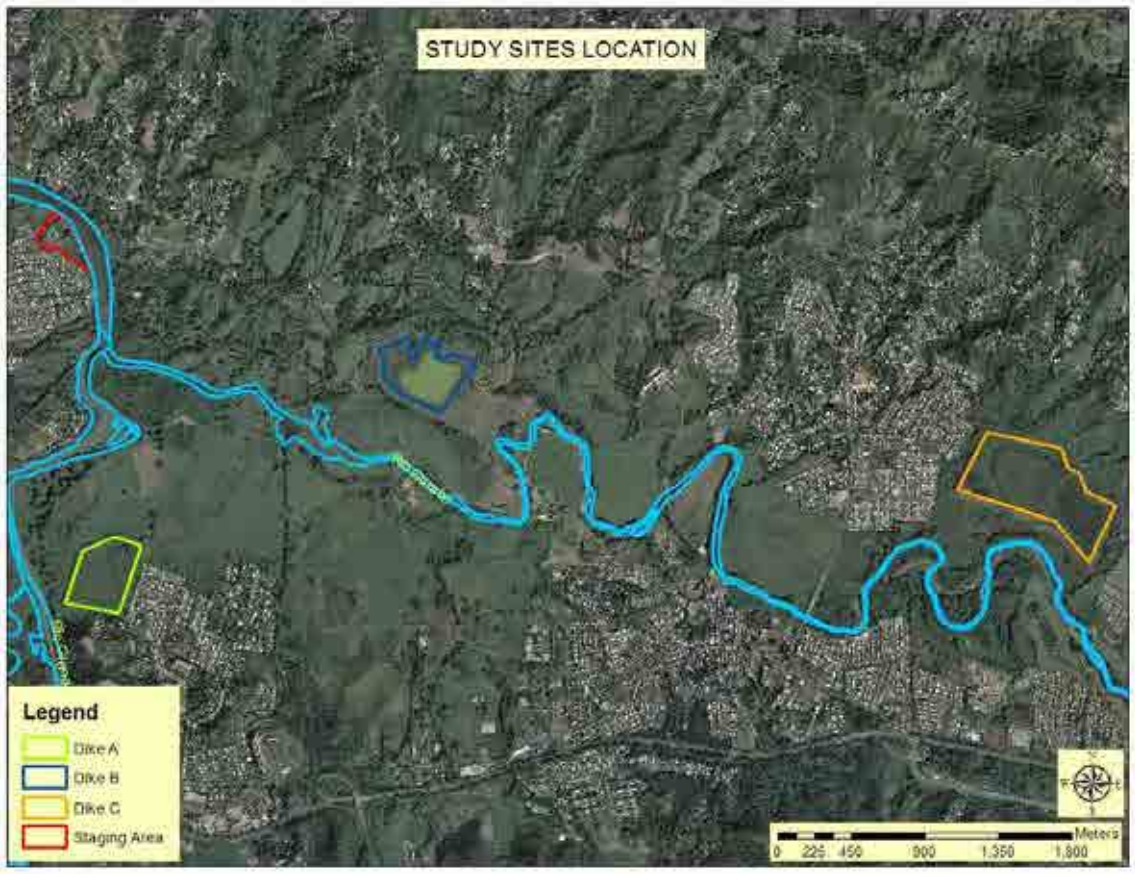
8. Protect non-impact areas

a. Install buoys or other visible markers and signs to protect cultural resources

b. Install orange barriers that clearly delineate the limit between impact areas and conservation zones (such as forested areas).

APPENDIX I WETLANDS STUDIES

Jurisdictional Wetlands and U.S. Waters Determination Study



CARRAÍZO RESERVOIR DREDGING PROJECT
MUNICIPALITIES OF CAGUAS AND GURABO, PUERTO RICO

Prepared for:

PUERTO RICO AQUEDUCT AND SEWER AUTHORITY

Prepared by:

CSA GROUP

SAN JUAN, PR
JULY 2021

Table of Contents

Executive Summary 3
Introduction 5
Study Sites Description 7
Dike A 7
Rainfall 7
Topography 7
Hydrology 7
Soils 8
National Wetland Inventory 10
Dike B 10
Rainfall 10
Topography 10
Hydrology 10
Soils 11
National Wetland Inventory 13
Dike C 13
Rainfall 13
Topography 13
Hydrology 13
Soils 14
National Wetland Inventory 16
Staging Area 16
Rainfall 16
Topography 16
Hydrology 16
Soils 17
National Wetland Inventory 19
Methodology 20
Results and Discussion 22
Dike A 22
Wetland Vegetation 23
Wetland Soils 24
Wetland Hydrology 24

Uplands 24
Dike B 25
Wetland Vegetation 25
Wetland Soils 26
Wetland Hydrology 26
Uplands 27
Dike C 27
Wetland Vegetation 28
Wetland Soils 28
Wetland Hydrology 29
Uplands 29
Staging Area 30
Vegetation 30
Soils 31
Hydrology 31
Conclusions 32
References 34
Appendix A: Figures 36
Figure 1: Site Location Map (1:20,000) 37
Figure 2: Aerial Photograph (1:25,000) 38
Figure 3: Location of Dike A over Aerial Photo 39
Figure 4: Hydrography within the Vicinity of Dike A 40
Figure 5: Soils within Dike A 41
Figure 6: National Wetland Inventory within Dike A 42
Figure 7: Location of Dike B over Aerial Photo 43
Figure 8: Hydrography within the Vicinity of Dike B 44
Figure 9: Soils within Dike B 45
Figure 10: National Wetland Inventory within Dike B 46
Figure 11: Location of Dike C over Aerial Photo 47
Figure 12: Hydrography within the Vicinity of Dike C 48
Figure 13: Soils within Dike C 49
Figure 14: National Wetland Inventory within Dike C 50
Figure 15: Location of the Staging Area over Aerial Photo 51

Figure 16: Hydrography within the Vicinity of the Staging Area 52
Figure 17: Soils within the Staging Area 53
Figure 18: National Wetland Inventory within the Staging Area 54
Figure 19: Topographic Quadrangle of Aguas Buenas (1957) 55
Figure 20: Topographic Quadrangle of Aguas Buenas of 1969 (1972 Edition) 56
Figure 21: Topographic Quadrangle of Aguas Buenas of 1969 (1982 Edition) 57
Figure 22: Dike A Sampling Points Location over an Aerial Photo of 1997 58
Figure 23: Dike A Wetlands and U.S. Waters Jurisdictional Determination Map ... 59
Figure 24: Dike B Sampling Points Location over an Aerial Photo of 1997 60
Figure 25: Dike B Wetlands and U.S. Waters Jurisdictional Determination Map ... 61
Figure 26: Dike C Sampling Points Location over an Aerial Photo of 1997 62
Figure 27: Dike C Wetlands and U.S. Waters Jurisdictional Determination Map ... 63
Figure 28: Staging Area Sampling Points Location over an Aerial Photo of 1997 .. 64
Figure 29: Staging Area Wetlands and U.S. Waters Jurisdictional Determination Map 65
Appendix B: Photographic Documentation of Dike A 66
Appendix C: Photographic Documentation of Dike B 67
Appendix D: Photographic Documentation of Dike C 68
Appendix E: Photographic Documentation of the Staging Area 69
Appendix F: Data Forms of Dike A 70
Appendix G: Data Forms of Dike B 71
Appendix H: Data Forms of Dike C 72
Appendix I: Data Forms of the Staging Area 73

Executive Summary

The Puerto Rico Aqueduct and Sewer Authority (PRASA) proposes the dredging of the Carraízo Reservoir (the Project) to remove the sediments accumulated as a consequence of extreme rains during Hurricane María in September 2017. Dredged material will be pumped to three sites, which have been designated as Dike A, Dike B and Dike C. Also, an area adjacent to the Carraízo Reservoir will be prepared as a staging area. Locations of the four sites are as follows (see **Appendix A, Figures 1** and **2**):

- Dike A: north of State Road PR-9189, west of Paseo de Santa Bárbara Residential Development, Rincón Ward in the Municipality of Gurabo.
- Dike B: north of State Road PR-941, Celada Ward in the Municipality of Gurabo.
- Dike C: south of State Road PR-944, Hato Nuevo Ward in the Municipality of Gurabo.
- Staging Area: north of State Road PR-796, northeast of La Serranía Residential Development, Río Cañas Ward in the Municipality of Caguas.

This document represents the Wetlands and U.S. Waters Jurisdictional Determination Study for the four sites (study sites or study areas). The methodology employed for this study consisted first in a preliminary screening process and background information gathering to determine the potential jurisdictional wetlands within study sites. Then, a detailed screening using Geographic Information System (GIS) and data collected at the field identified those wetlands and other areas that potentially are under the jurisdiction of the United States Army Corps of Engineers (USACE). The **Methodology** section of this report describes the employed methodology in more detail.

Wetlands were found in Dike A, Dike B and Dike C. In Dike B Open Waters were also found; however, their area and volume varies according to seasonal rainfall. No wetlands were found in the Staging Area (see **Figures 23**, **25**, **27** and **29**, **Appendix A**). The areas covered by wetlands within each study site are as follows:

Dike A: 72,301.5 m² (17.8 acres)

Dike B: 40,160.6 m² (9.9 acres) of wetlands and 69,269.7 m² (17.1 acres) of Open Waters
Dike C: 258,339.1 m² (63.8 acres)

The delineated wetlands can be classified as palustrine, emergent, persistent, seasonally flooded (PEM1C) and palustrine, scrub-shrub, broad-leaved evergreen, seasonally flooded (PSS3C).

These dikes are man-made features that were constructed in uplands and do not constitute impoundments of traditional navigable waters or tributaries to traditional navigable waters. Therefore, it is our conclusion that the delineated wetlands within dikes A, B and C are not under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Nevertheless, this conclusion shall be validated by the USACE. For more information regarding this conclusion see the **Conclusions** section below.

Introduction

The Puerto Rico Aqueduct and Sewer Authority (PRASA) proposes the dredging of the Carraízo Reservoir (the Project) to remove the sediments accumulated as a consequence of extreme rains during Hurricane María in September 2017. Dredged material will be pumped to three sites, which have been designated as Dike A, Dike B and Dike C. Also, an area adjacent to the Carraízo Reservoir will be prepared as a staging area. All these four sites were constructed and used when the Carraízo Reservoir was dredged in 1998. Locations of the four sites are as follows (see **Appendix A, Figures 1** and **2**):

- Dike A: north of State Road PR-9189, west of Paseo de Santa Bárbara Residential Development, Rincón Ward in the Municipality of Gurabo.
- Dike B: north of State Road PR-941, Celada Ward in the Municipality of Gurabo.
- Dike C: south of State Road PR-944, Hato Nuevo Ward in the Municipality of Gurabo.
- Staging Area: north of State Road PR-796, northeast of La Serranía Residential Development, Río Cañas Ward in the Municipality of Caguas.

This document represents the Wetlands and U.S. Waters Jurisdictional Determination Study for the four sites (study sites or study areas). The methodology employed for this study followed the 1987 Corps of Engineers Wetland Delineation Manual, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Caribbean Islands Region (version 2.0) (the Caribbean supplement). It first included a preliminary screening and background information gathering to determine the potential jurisdictional wetlands within the study site. Then, a detailed screening using Geographic Information System (GIS) and data collected at the field identified those wetland areas that are under the jurisdiction of the USACE. The **Methodology** section of this report describes the employed methodology in more detail.

This report is organized into four sections: a site description, methodology, results and discussion, and conclusions. **Appendix A** contains topographic, aerial imagery,

hydrographic, National Wetland Inventory, and soil survey maps. The Jurisdictional Wetlands and U.S Waters delineation figures were overlaid on an aerial image (2010) of the area. Photographic documentation is included in **Appendix B** (Dike A)**, Appendix C** (Dike B)**, Appendix D** (Dike C) **and Appendix E** (Staging Area). Data Forms from the Caribbean supplement are included in **Appendix F** (Dike A), **Appendix G** (Dike B), **Appendix H** (Dike C) and **Appendix I** (Staging Area).

Field work for this JD was performed in June 17, 19 26, 27 and 29, 2021.

Study Sites Description

Dike A

Dike A is located north of the end of State Road PR-9189, west of Paseo de Santa Bárbara Residential Development, Rincón Ward in the Municipality of Gurabo, Puerto Rico (see **Appendix A, Figures 1**, **2** and **3**). Geographic coordinates of the center of Dike A are 18.259051° N, -66.008372° W.

Rainfall

According to the National Climatic Data Center (NCDC), average rainfall for the region is 65.06 inches (1,652.5 mm). The wettest months of the year are from July to November. This data is collected in the Gurabo Substation.

Topography

According to the Topographic Quadrangle of Aguas Buenas (USGS), Dike A is located between 45.0 and 50.0 meters above mean sea level (amsl). **Figure 1** (**Appendix A**) shows the study site over the topographic quadrangles of Aguas Buenas, Caguas, Gurabo and Juncos.

Hydrology

The hydrographic map (**Figure 4**, **Appendix A**) shows a creek within the eastern side of the study site, which does not exist in the present. It is possible that this creek was impacted by the quarry activities (see the **Results and Discussion** section below) that took place within Dike A. In the conceptual design of Dike A that is described in the Final Environmental Impact Statement prepared on December 15, 1995, the headwaters of this creek is shown approximately at 300 meters from the northeastern corner of the study site. The Río Grande de Loíza is found at approximately 145 meters to the southwest corner of Dike A. The Río Grande de Loíza discharges into the Atlantic Ocean.

Soils

According to the U.S. Department of Agriculture's Soil Conservation Service, soils within Dike A are classified as Juncos clay, 12 to 20% slopes (JuD), Mabi clay, 0 to 2% slopes (MaA) and Toa silty clay loam, 0 to 2% slopes (To). **Figure 5** (**Appendix A**) shows the soil map for the study area. **Table 1** includes the description of this soil.

Table 1. Description of soils within Dike A*

Area	Soil Survey Area	Soil	Landform	Slope	Drainage Class	Frequency of Flooding	Frequency of Ponding	Depth to Water Table	Hydric?
Dike A	San Juan Area	Juncos clay, 12 to 20% slopes (JuD)	Hillslopes	12 to 20%	Moderately well drained	None	None	More than 80 inches	No
		Mabi clay, 0 to 2% slopes (MaA)	Alluvial fans, terraces	0 to 2%	Somewhat poorly drained	None	None	About 18 to 36 inches	Yes, if with Bajura components
		Toa silty clay loam, 0 to 2% slopes (To)	Flood plains	0 to 2%	Well drained	Occasional	None	About 39 to 80 inches	Yes, if with Bajura components

*United States Department of Agriculture, Soil Conservation Service.

National Wetland Inventory

The National Wetland Inventory (NWI), prepared by the U.S. Fish and Wildlife Service (USFWS) did not include Dike A region. Therefore, it is classified as "Not Photographed" (NP). **Figure 6** (**Appendix A**) shows the National Wetland Inventory for the study site.

It is important to mention that the NWI was initially performed in the 70's decade. Today, there are wetlands that are not included in the NWI. On the other hand, there are areas classified as wetlands under the NWI that are not wetlands in the present. This study has been updated in year 2018; however, the new edition has not changed from the '70's edition for the study site.

Dike B

Dike B is located north of State Road PR-941, Celada Ward in the Municipality of Gurabo, Puerto Rico (see **Appendix A, Figures 1**, **2** and **7**). Geographic coordinates of the center of Dike A are 18.270354° N, -65.989855° W.

Rainfall

According to the National Climatic Data Center (NCDC), average rainfall for the region is 65.06 inches (1,652.5 mm). The wettest months of the year are from July to November. This data is collected in the Gurabo Substation.

Topography

According to the Topographic Quadrangle of Gurabo (USGS), Dike B is located between 50.0 and 60.0 meters above mean sea level (amsl). **Figure 1** (**Appendix A**) shows the study site over the topographic quadrangles of Aguas Buenas, Caguas, Gurabo and Juncos.

Hydrology

There are no hydrographic features within Dike B (**Figure 8**, **Appendix A**). The closest hydrographic feature is an unnamed creek located approximately 60 meters to the east

side of Dike B. This creek discharges into the Río Gurabo, which discharges into the Río Grande de Loíza. The Río Grande de Loíza discharges into the Atlantic Ocean.

Soils

According to the U.S. Department of Agriculture's Soil Conservation Service, soils within Dike B are classified as Mucara clay, 12 to 20% slopes (MxD), Naranjito silty clay loam, 12 to 20% slopes (NaD2), Rio Arriba clay, 5 to 12% slopes (RoC2) and Toa silty clay loam, 0 to 2% slopes (To). **Figure 9** (**Appendix A**) shows the soil map for the study area. **Table 2** includes the description of this soil.

Table 2. Description of soils within Dike B*

Area	Soil Survey Area	Soil	Landform	Slope	Drainage Class	Frequency of Flooding	Frequency of Ponding	Depth to Water Table	Hydric?
Dike B	San Juan Area	Mucara clay, 12 to 20% slopes (MxD)	Hillslopes, mountain slopes	12 to 20%	Well drained	None	None	More than 80 inches	No
		Naranjito silty clay loam, 12 to 20% slopes (NaD2)	Mountain slopes, ridges	12 to 20%	Well drained	None	None	More than 80 inches	No
		Rio Arriba clay, 5 to 12% slopes (RoC2)	Alluvial fans, terraces	5 to 12%	Moderately well drained	None	None	More than 80 inches	No
		Toa silty clay loam, 0 to 2% slopes (To)	Flood plains	0 to 2%	Well drained	Occassional	None	About 39 to 80 inches	Yes, if with Bajura components

*United States Department of Agriculture, Soil Conservation Service.

National Wetland Inventory

The National Wetland Inventory (NWI), prepared by the U.S. Fish and Wildlife Service (USFWS) did not include Dike B region. Therefore, it is classified as "Not Photographed" (NP). **Figure 10** (**Appendix A**) shows the National Wetland Inventory for the study site.

Dike C

Dike C is located south of State Road PR-944, Hato Nuevo Ward in the Municipality of Gurabo, Puerto Rico (see **Appendix A, Figures 1**, **2** and **11**). Geographic coordinates of the center of Dike C are 18.264122° N, -65.954329° W.

Rainfall

According to the National Climatic Data Center (NCDC), average rainfall for the region is 65.06 inches (1,652.5 mm). The wettest months of the year are from July to November. This data is collected in the Gurabo Substation.

Topography

According to the Topographic Quadrangle of Gurabo (USGS), Dike C is located between 55.0 and 70.0 meters above mean sea level (amsl). **Figure 1** (**Appendix A**) shows the study site over the topographic quadrangles of Aguas Buenas, Caguas, Gurabo and Juncos.

Hydrology

The hydrographic map (**Figure 12**, **Appendix A**) shows two creeks that cross Dike C from north to south. However, according to the conceptual design of Dike C that is described in the Final Environmental Impact Statement prepared on December 15, 1995, these two creeks were deviated to the sides of the study site. The closest existing hydrographic feature is the Río Gurabo located approximately 175 meters to the south side of Dike C, which discharges into the Río Grande de Loíza. The Río Grande de Loíza discharges into the Atlantic Ocean.

Soils

According to the U.S. Department of Agriculture's Soil Conservation Service, soils within Dike C are classified as Mabi clay, 2 to 5% slopes (MaB), Mabi clay, 5 to 12% slopes (MaC), Naranjito silty clay loam, 12 to 20% slopes (NaD2), Rio Arriba clay, 2 to 5% slopes (RoB), Rio Arriba clay, 5 to 12% slopes (RoC2), and Via clay loam, 5 to 12% slopes, eroded (VkC2). **Figure 13** (**Appendix A**) shows the soil map for the study area. **Table 3** includes the description of this soil.

Table 3. Description of soils within Dike C*

Dike C	San Juan Area	Mabi clay, 2 to 5% slopes (MaB)	Alluvial fans, terraces	2 to 5%	Somewhat poorly drained	None	None	About 18 to 36 inches	Yes, if with Bajura components
		Mabi clay, 5 to 12% slopes (MaC)	Alluvial fans, terraces	5 to 12%	Somewhat poorly drained	None	None	About 18 to 36 inches	Yes, if with Bajura components
		Naranjito silty clay loam, 12 to 20% slopes (NaD2)	Mountain slopes, ridges	12 to 20%	Well drained	None	None	More than 80 inches	No
		Rio Arriba clay, 2 to 5% slopes (RoB)	Alluvial fans, terraces	2 to 5%	Moderately well drained	None	None	More than 80 inches	No
		Rio Arriba clay, 5 to 12% slopes (RoC2)	Alluvial fans, terraces	5 to 12%	Moderately well drained	None	None	More than 80 inches	No
		Via clay loam, 5 to 12% slopes, eroded (VkC2)	Alluvial fans	5 to 12%	Well drained	None	None	More than 80 inches	No

*United States Department of Agriculture, Soil Conservation Service.

National Wetland Inventory

The National Wetland Inventory (NWI), prepared by the U.S. Fish and Wildlife Service (USFWS) did not include Dike C region. Therefore, it is classified as "Not Photographed" (NP). **Figure 14** (**Appendix A**) shows the National Wetland Inventory for the study site.

Staging Area

The Staging Area is located north of State Road PR-796, northeast of La Serranía Residential Development, Río Cañas Ward in the Municipality of Caguas, Puerto Rico (see **Appendix A, Figures 1**, **2** and **15**). Geographic coordinates of the center of Dike A are 18.277718° N, -66.010743° W.

Rainfall

According to the National Climatic Data Center (NCDC), average rainfall for the region is 65.06 inches (1,652.5 mm). The wettest months of the year are from July to November. This data is collected in the Gurabo Substation.

Topography

According to the Topographic Quadrangle of Gurabo (USGS), the Staging Area is located around 50.0 meters above mean sea level (amsl). **Figure 1** (**Appendix A**) shows the study site over the topographic quadrangles of Aguas Buenas, Caguas, Gurabo and Juncos.

Hydrology

There are no hydrographic features within the Staging Area (**Figure 16**, **Appendix A**). However, the Carraízo Reservoir (Río Grande de Loíza) is adjacent to the north, northeast, east and southeast sides of the study site. The Río Grande de Loíza discharges into the Atlantic Ocean.

Soils

According to the U.S. Department of Agriculture's Soil Conservation Service, soils within the Staging Area are classified as Canteras and Graveros (GPQ) and Rio Arriba clay, 5 to 12% slopes (RoC2). **Figure 17** (**Appendix A**) shows the soil map for the study area. **Table 4** includes the description of this soil.

Table 4. Description of soils within the Staging Area*

Staging Area	San Juan Area	Canteras and Graveros (GPQ)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rio Arriba clay, 5 to 12% slopes (RoC2)	Alluvial fans, terraces	5 to 12%	Moderately well drained	None	None	More than 80 inches	No

*United States Department of Agriculture, Soil Conservation Service.

National Wetland Inventory

The National Wetland Inventory (NWI), prepared by the U.S. Fish and Wildlife Service (USFWS) did not include the Staging Area region. Therefore, it is classified as "Not Photographed" (NP). **Figure 18** (**Appendix A**) shows the National Wetland Inventory for the study site.

Methodology

The methodology employed during this study followed the Routine Determination with an onsite inspection method, as described in the *1987 Corps of Engineers Wetland Delineation Manual* (the Manual) for areas greater than 5 acres in size, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Caribbean Islands Region (version 2.0) (the Caribbean supplement).

In areas where differences between the Manual and the Caribbean supplement occurred, the Caribbean supplement took precedence. There were areas that determination was difficult, due to past or recent land use, or other reasons. In those cases, determination was based on the best information available, interpreted in light of professional experience and knowledge of the ecology of wetlands in the area, as stated in the Caribbean supplement.

This JD was performed in three phases. Phase 1 of the study was a screening level analysis to identify those areas within the sites that show wetland characteristics. The screening analysis was performed using a Geographical Information System (GIS). This analysis included aerial imagery from different years, soils map, National Wetland Inventory map, hydrographic map, and topographic map. The data gathered from this phase provided specific and important information on the location of possible wetland areas. This phase included two preliminary sites visits to know the environmental conditions of the study sites. It also helped in providing a better understanding of the wetland condition and location in order to develop a fieldwork plan.

Phase II of the study included the delineation field visits to map the jurisdictional wetlands on each site. Each delineation visit consisted on the sampling, collection, and description of the site's hydrology, soils, and dominant vegetation around representative sampling locations on established transects.

The following tasks were carried out during Phase II:

- Visual inspection of the site and identification of landscape features;
- Identification of plant communities;
- Selection of a representative area within each plant community to dig a soil pit;
- Identification of dominant plant species from the various strata;
- Characterization of the soil properties and colors in the soil pit;
- Measure of depth where hydric soil indicators (if any) appeared;
- Description of the hydrology around and within the soil pit;
- Photographic documentation of the site, soil pits or vegetation;
- Geographic Positioning System (GPS) documentation of sampling points; and
- Wetland delineation and documentation of wetland limits.

For the determination of the wetland indicator status of plant species, the 2016 Wetland Plant List was used as reference. Plants that were not included in the 2016 Wetland Plant List (NI or Not Indicated) were considered as UPL (Upland Species).

To determine soil colors (hue, value and chroma), as well as for estimating proportions of redoxiphormic features the Munsell Soil Color Charts (2006) was used as reference.

Phase III of the study comprised the final analysis of the data gathered during Phases I and II. In this analysis, a recent topographic study of each site was used to adjust more accurately the wetland/upland boundary. This method was very important given that dikes A, B and C were used for the disposal of a mix of sediments and water; therefore, water level was at the same topographic elevation within each dike. This phase also include the development of this report.

Results and Discussion

Dikes A, B and C were constructed to dispose of the sediments with water (a slurry) from the dredging activities that occurred within the Carraízo Reservoir. Therefore, the natural conditions that existed on those sites prior to their construction were altered. However, it is considered that "normal circumstances" are present, given that the development of wetlands is expected due to the pond-like characteristics of the dikes. Nevertheless, during strong rain events or storms existing wetlands are flooded and open waters prevail for some time.

According to the information in the Final Environmental Impact Statement prepared on December 15, 1995 (FEIS), dikes B and C were constructed on uplands. Dike A was partially constructed on wetlands (see below).

As suggested in the Caribbean supplement, sampling efforts were concentrated near the wetland edge of dikes A, B and C. Given that soils near the wetland edge of those sites are hydric, it is assumed that soils in the interior areas of these three sites are also hydric. Sampling within the Staging Area followed the routine determination with an onsite inspection method, as described in the *1987 Corps of Engineers Wetland Delineation Manual* (the Manual) for areas greater than 5 acres in size.

Some areas dominated by FAC species also contained OBL species scattered among them. Most of these OBL species are typical of the shores of the Carraízo Reservoir, such as trompetilla (*Hymenachne amplexicaulis*), hierba de jicotea (*Polygonum glabrum*) and Jacinto de agua (*Eichhornia crassipes*).

Dike A

According to the information in the FEIS for the original project, approximately 9.64 acres of man-made wetlands existed in Dike A. These wetlands were formed as the result of the earth crust movement activities that were carried out when Dike A was part of a quarry. No quarry activities appeared within Dike A area by 1957 (see **Figure 19**,

Appendix A, not well georeferenced). Quarry activities around Dike A first appear in the Topographic Quadrangle of Aguas Buenas of 1969, in the edition of 1972 (see **Figure 20**, **Appendix A**, not well georeferenced); however, excavations (ponds) related to quarry activities first appear in the same topographic quadrangle, but in the 1982 edition (see **Figure 21**, **Appendix A**).

17 sampling points were established within Dike A to test for hydrophytic vegetation, hydric soils and wetland hydrology indicators. Most sampling points, with the exception of DA-15 and DA-16 have been flooded at some point in time. However, the area where DA-17 is located was filled with sand material soon after Dike A was constructed. **Figure 22** (**Appendix A**) shows the location of sampling points over an aerial photo of 1997. Google Earth imagery from 2003 to 2021 show Dike B partially flooded intermittently, according to wet seasons during wet years.

Approximately 72,301.5 m² (17.8 acres) of wetlands were found within Dike A study limits. **Figure 23** (**Appendix A**) shows the Wetlands and U.S. Waters Jurisdictional Determination Map for this study site. The delineated wetlands can be classified as palustrine, emergent, persistent, seasonally flooded (PEM1C) and palustrine, scrub-shrub, broad-leaved evergreen, seasonally flooded (PSS3C).

Wetland Vegetation

Most common wetland species within study limits include hierba venezolana (*Paspalum fasciculatum*), hierba de Bermuda (*Cynodon dactylon*), trompetilla (*Hymenachne amplexicaulis*) and *Mimosa pigra* (no common name).

Table 5 includes the dominant plant species within wetlands in Dike A, with their respective indicator.

Table 5. Dominant plant species within wetlands in Dike A

Scientific Name	Common Name	Stratum	Indicator*
Paspalum fasciculatum	Hierba venezolana	Herbaceous	FACW
Cynodon dactylon	Hierba de Bermuda	Herbaceous	FAC

Scientific Name	Common Name	Stratum	Indicator*
Hymenachne amplexicaulis	Trompetilla	Herbaceous	OBL
Mimosa pigra	No common name	Shrub	FAC

* FAC: Facultative species (occurs in wetlands and non-wetlands); FACW: Facultative wetland species (usually occurs in wetlands, but may occur in non-wetlands); OBL: Obligate wetland species (almost always occur in wetlands).

Wetland Soils

The study area has been disturbed by past and present uses, including the construction of the dike. Even though existing soil is not the indigenous one, it has been under anaerobic conditions long enough to develop hydric soil indicators.

7.5YR and 10YR were the most abundant soil hues in the matrix. The most abundant soil color was 10YR 3/2 (very dark grayish brown).

Most common hydric soil indicators were Depleted Below Dark Surface (Hydric Soil Indicator A11) and Depleted Matrix (Hydric Soil Indicator F3). Redoxiphormic features colors were 5YR 4/6 and 10R 4/8, which were found as concentrations and depletions on pore linings and the matrix, respectively.

Wetland Hydrology

Wetland hydrology indicators included Inundation Visible on Aerial Imagery (primary Wetland Hydrology Indicator B7), Oxidized Rhizospheres on Living Roots (primary Wetland Hydrology Indicator C3), Surface Soil Cracks (secondary Wetland Hydrology Indicator B6), Saturation Visible on Aerial Imagery (secondary Wetland Hydrology Indicator C9), Geophormic Position (secondary Wetland Hydrology Indicator D2), and FAC-Neutral Test (secondary Wetland Hydrology Indicator D5).

Uplands

Dominant plant species on uplands were also hierba venezolana (*Paspalum fasciculatum*) and *Mimosa pigra* (no common name).

Upland areas showed no hydric soils indicators or less than 2% redoxiphormic features in low chroma matrices.

Wetland hydrology indicators were absent, or just one secondary wetland hydrology indicator was found (FAC-Neutral Test). However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of sampling points on uplands on a frequent basis.

Photographic documentation is included in **Appendix B**.

The position coordinates of all sampling points on Dike A are found in **Appendix F** (Dike A's sampling points data forms).

Dike B

17 sampling points were established within Dike B to test for hydrophytic vegetation, hydric soils and wetland hydrology indicators. During the Carraízo Reservoir dredging activities within Dike B, all sampling points were flooded at some point. **Figure 24** (**Appendix A**) shows the location of sampling points over an aerial photo of 1997. According to Google Earth imagery from 2003 to 2021, most of Dike B is flooded during those years.

Approximately 40,160.6 m² (9.9 acres) of wetlands and 69,269.7 m² (17.1 acres) of Open Waters were found within Dike B study limits. However, Open Waters area and volume varies according to seasonal rainfall. **Figure 25** (**Appendix A**) shows the Wetlands and U.S. Waters Jurisdictional Determination Map for this study site. The delineated wetlands can be classified as palustrine, emergent, persistent, seasonally flooded (PEM1C) and palustrine, scrub-shrub, broad-leaved evergreen, seasonally flooded (PSS3C).

Wetland Vegetation

Most common wetland species within study limits include hierba venezolana (*Paspalum fasciculatum*), malojillo (*Brachiaria purpurascens*), horquetilla (*Paspalum conjugatum*),

Kyllinga brevifolia (no common name), trompetilla (*Hymenachne amplexicaulis*) and *Mimosa pigra* (no common name).

Table 6 includes the dominant plant species within wetlands in Dike B, with their respective indicator.

Table 6. Dominant plant species within wetlands in Dike B

Scientific Name	Common Name	Stratum	Indicator*
Paspalum fasciculatum	Hierba venezolana	Herbaceous	FACW
Brachiaria purpurascens	Malojillo	Herbaceous	FACW
Kyllinga brevifolia	No common name	Herbaceous	FAC
Hymenachne amplexicaulis	Trompetilla	Herbaceous	OBL
Mimosa pigra	No common name	Shrub	FAC

* FAC: Facultative species (occurs in wetlands and non-wetlands); FACW: Facultative wetland species (usually occurs in wetlands, but may occur in non-wetlands); OBL: Obligate wetland species (almost always occur in wetlands).

Wetland Soils

As stated above, sampling points on Dike B were all flooded at some point in time, when slurry from the Carraízo Reservoir was pumped into it. However, the fringe where upland sampling points are located did not show hydric soil indicators, given that those locations were not flooded frequently enough to develop hydric conditions on the soil.

10YR was the most abundant soil hue in the matrix. The most abundant soil color was 10YR 3/2 (very dark grayish brown).

Most common hydric soil indicators were Depleted Below Dark Surface (Hydric Soil Indicator A11), Loamy Gleyed Matrix (Hydric Soil Indicator F2) and Depleted Matrix (Hydric Soil Indicator F3). Redoxiphormic features color was mainly 2.5 YR 3/6, which was found as concentrations and depletions on pore linings and the matrix, respectively.

Wetland Hydrology

Wetland hydrology indicators included Inundation Visible on Aerial Imagery (primary Wetland Hydrology Indicator B7), Oxidized Rhizospheres on Living Roots (primary

Wetland Hydrology Indicator C3), Surface Soil Cracks (secondary Wetland Hydrology Indicator B6), Saturation Visible on Aerial Imagery (secondary Wetland Hydrology Indicator C9), Geophormic Position (secondary Wetland Hydrology Indicator D2), and FAC-Neutral Test (secondary Wetland Hydrology Indicator D5).

Uplands

Dominant plant species on uplands were hierba venezolana (*Paspalum fasciculatum*), horquetilla (*Paspalum conjugatum*) and *Mimosa pigra* (no common name).

Upland areas showed no hydric soils indicators or less than 2% redoxiphormic features on low chroma matrices.

Wetland hydrology indicators were absent, or just one secondary wetland hydrology indicator was found (FAC-Neutral Test). However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of sampling points on uplands on a frequent basis.

Photographic documentation is included in **Appendix C**.

The position coordinates of all sampling points on Dike B are found in **Appendix G** (Dike B's sampling points data forms).

Dike C

Figure 26 (**Appendix A**) shows Dike C over an aerial photo of 1997. As shown in this figure, Dike C was under an early construction phase, and no slurry from the Carraízo Reservoir was being pumped into it yet.

21 sampling points were established within Dike C to test for hydrophytic vegetation, hydric soils and wetland hydrology indicators. Approximately 258,339.1 m² (63.8 acres) of wetlands were found within Dike C study limits. **Figure 27** (**Appendix A**) shows the Wetlands and U.S. Waters Jurisdictional Determination Map for this study site. The

delineated wetlands can be classified as palustrine, emergent, persistent, seasonally flooded (PEM1C) and palustrine, scrub-shrub, broad-leaved evergreen, seasonally flooded (PSS3C).

Wetland Vegetation

Most common wetland species within study limits include hierba venezolana (*Paspalum fasciculatum*), horquetila (*Paspalum conjugatum*), hierba de Bermuda (*Cynodon dactylon*), trompetilla (*Hymenachne amplexicaulis*) and *Mimosa pigra* (no common name).

Table 7 includes the dominant plant species within wetlands in Dike C, with their respective indicator.

Table 7. Dominant plant species within wetlands in Dike C

Scientific Name	Common Name	Stratum	Indicator*
Paspalum fasciculatum	Hierba venezolana	Herbaceous	FACW
Paspalum conjugatum	Horquetilla	Herbaceous	FAC
Cynodon dactylon	Hierba de Bermuda	Herbaceous	FAC
Hymenachne amplexicaulis	Trompetilla	Herbaceous	OBL
Mimosa pigra	No common name	Shrub	FAC

* FAC: Facultative species (occurs in wetlands and non-wetlands); FACW: Facultative wetland species (usually occurs in wetlands, but may occur in non-wetlands); OBL: Obligate wetland species (almost always occur in wetlands).

Wetland Soils

The study area has been disturbed by past and present uses, including the construction of the dike. Even though existing soil is not the indigenous one, it has been under anaerobic conditions long enough to develop hydric soil indicators.

10YR was the most abundant soil hue in the matrix. The most abundant soil color was 10YR 3/2 (very dark grayish brown).

Most common hydric soil indicators were Depleted Below Dark Surface (Hydric Soil Indicator A11) and Depleted Matrix (Hydric Soil Indicator F3). Presence of hydrogen sulfide (Hydric Soil Indicator A4) was found in some sampling points. Redoxiphormic

features colors were 5YR 4/6 and 10R 4/8, which were found as concentrations and depletions on pore linings and the matrix, respectively.

Wetland Hydrology

Google Earth imagery from 2003 to 2021 show Dike C partially flooded intermittently, according to wet seasons during wet years.

Wetland hydrology indicators included Inundation Visible on Aerial Imagery (primary Wetland Hydrology Indicator B7), Oxidized Rhizospheres on Living Roots (primary Wetland Hydrology Indicator C3), Surface Soil Cracks (secondary Wetland Hydrology Indicator B6), Saturation Visible on Aerial Imagery (secondary Wetland Hydrology Indicator C9), Geophormic Position (secondary Wetland Hydrology Indicator D2), and FAC-Neutral Test (secondary Wetland Hydrology Indicator D5).

Uplands

Dominant plant species on uplands were hierba venezolana (*Paspalum fasciculatum*), *Mimosa pigra* (no common name), palo blanco (*Casearia guianensis*), cafeíllo (*Casearia sylvestris*) and tulipán africano (*Spathodea campanulata*).

Upland areas showed no hydric soils indicators or less than 2% redoxiphormic features in low chroma matrices.

Wetland hydrology indicators were absent, or just one secondary wetland hydrology indicator was found (FAC-Neutral Test). However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of sampling points on uplands on a frequent basis.

Photographic documentation is included in **Appendix D**.

The position coordinates of all sampling points on Dike C are found in **Appendix H** (Dike C's sampling points data forms).

Staging Area

As it is interpreted from the FEIS for the original project, the Staging Area was constructed in uplands. However, it is located adjacent to the Carraízo Reservoir (Río Grande de Loíza); therefore, the north and east sides of this study site are in direct contact with the Carraízo Reservoir.

Figure 28 (**Appendix A**) shows the Staging Area over an aerial photo of 1997. As shown in this figure, the Staging Area was almost completely utilized for the operation of the original project.

13 sampling points were established within the Staging Area to test for hydrophytic vegetation, hydric soils and wetland hydrology indicators. No wetlands or U.S. Waters were found within the Staging Area study limits. **Figure 29** (**Appendix A**) shows the Wetlands and U.S. Waters Jurisdictional Determination Map for this study site.

Vegetation

Most common plant species within study limits include hierba venezolana (*Paspalum fasciculatum*), hierba de elefante (*Cenchrus purpureus*) and hierba de Guinea (*Megathyrsus maximus*).

Table 8 includes the dominant plant species within the Staging Area, with their respective indicator.

Table 8. Dominant plant species within the Staging Area

Scientific Name	Common Name	Stratum	Indicator*
Paspalum fasciculatum	Hierba venezolana	Herbaceous	FACW
Cenchrus purpureus	Horquetilla	Herbaceous	FAC
Megathyrsus maximus	Hierba de Bermuda	Herbaceous	FACU

* FACU: Facultative upland species (usually occurs in non-wetland, but may occur in wetlands); FAC: Facultative species (occurs in wetlands and non-wetlands); FACW: Facultative wetland species (usually occurs in wetlands, but may occur in non-wetlands)

Soils

As stated above, this study site was almost completely modified to serve as the staging area for the equipment, machinery, barges, boats and materials for the dredging operation. Therefore, most of it was filled with foreign material, which includes limestone and construction (concrete) debris. Nevertheless, there is a top layer of silty/clay textured soil between one and two inches deep covering the fill material. Most common color of this surface layer is 10YR 3/2 (very dark grayish brown).

Texture of soils on some sampling points near the Río Grande de Loíza (sampling points SA-3, SA-11 and SA-13) was sand.

No hydric soil indicators were found within the Staging Area.

Hydrology

Google Earth imagery from 2003 to 2021 do not show flood events on the Staging Area. Some images show a faint print of what may be saturation in certain areas; however, these areas are covered with fill material.

Wetland hydrology indicators were absent, or just one secondary wetland hydrology indicator was found (FAC-Neutral Test).

Photographic documentation is included in **Appendix E**.

The position coordinates of all sampling points on the Staging Area are found in **Appendix I** (Staging Area's sampling points data forms).

Conclusions

This Jurisdictional Wetland and U.S Waters Determination Study concludes that the delineated wetlands in dikes A, B and C are not under the jurisdiction of the U. S. Army Corps of Engineers, for the following reasons:

1. The purpose of the construction of the dikes was to receive the dredging material from the Carraízo Reservoir. It was expected that wetland conditions would developed in the dikes from one dredging event to the other.
2. The dikes are man-made features that were constructed in uplands and do not constitute impoundments of jurisdictional waters. Even though Dike A was constructed on man-made wetlands that developed as a result of mining (quarry operations), those wetlands were water-filled depressions constructed or excavated in upland incidental to mining activities.
3. The dikes are not inundated by flooding from jurisdictional waters.
4. In the present, rainwater accumulates inside dikes A, B and C. There is no connection to the tributaries of traditional navigable waters. These tributaries are the Río Grande de Loíza (to the west of Dike A) and the Río Gurabo (south of Dike B and Dike C). The Río Gurabo discharges into the Río Grande de Loíza, which discharges into the Atlantic Ocean. Traditional navigable waters are found upstream from the Río Grande de Loíza river mouth and the Atlantic Ocean.
5. During operation, waters (slurry) from tributaries (Río Gurabo and the Río Turabo) of traditional navigable waters would reach the dikes by mechanical meaning (pumps). Waters from the dikes would return to the tributaries of traditional navigable waters by gravity, but only during project operation. After project operation ceases waters return to those tributaries until the dikes become dry. During storms, accumulated rain water would discharge into those tributaries (provided the spillway system is functioning) only during or in direct response to rainfall. For that reason, the dikes by themselves do not contribute surface water flow to jurisdictional waters.

Therefore, it is our conclusion that the delineated wetlands within dikes A, B and C are not under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Nevertheless, this conclusion shall be validated by the USACE.

References

Acevedo-Rodríguez, P. and Woodbury, R. O. **1985**. *Los bejucos de Puerto Rico.* Volumen 1. General Technical Report S0-85. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. 331 pp.

Boccheciamp, R.A. **1982**. *Soil Survey of San Juan Area of Puerto Rico*. U.S.D.A. Soil Conservation Service. 180 pp. plus appendices.

Department of Natural and Environmental Resources, et al. **2001**. *Guide to Identify Common Wetland Plants in the Caribbean Area: Puerto Rico and the U.S. Virgin Islands*. Editorial de la Universidad de Puerto Rico. 268 pp.

Environmental Laboratory. **1987**. *Corps of Engineers Wetlands Delineation Manual*. U.S. Army Engineer Waterways Experimental Station, Vicksburg, M.S. Tech. Rpt. Y-87-1. 100 pp. plus appendices.

Environmental Laboratory. **2011**. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Caribbean Islands Region (version 2.0).*. U.S. Army Engineer Research and Development Center, Vicksburg, M.S. ERDC/EL TR-09-8. 119 pp. plus appendices.

GretagMacbeth. **2000**. *Munsell Soil Color Charts*. Munsell Color, New Windsor, NY.

Hutchinson, Ian. 1988. *Salinity Tolerance of Plants of Estuarine Wetlands and Associated Uplands*. Washington State Shorelands and Coastal Zone Management Program: Wetlands Section. Report in fulfillment of contract No. C0088137.

Liogier, H. A. **1985**. *Descriptive Flora of Puerto Rico and adjacent islands*. Volumes I-V. Editorial de la Universidad de Puerto Rico, Río Piedras, PR.

Little, E. L. and Wadsworth, F. H. **1964**. *Common Trees of Puerto Rico and the Virgin Islands*. Agricultural Handbook No. 249. U.S. Department of Agriculture, Forest Service. Washington, D.C. 556 pp.

Más, E.G. and García Molinari, O. **1990**. *Guía Ilustrada de Yerbas Comunes en Puerto Rico*. Servicio de Extensión Agrícola, Universidad de Puerto Rico, Recinto Universitario de Mayagüez, Colegio de Ciencias Agrícolas. 103 pp.

Ramey, Víctor. **2001**. *Grasses, Sedges and Rushes of Wetlands*. Identification Deck. With notes about wildlife use. University of Florida. Institute of Food and Agricultural Sciences. 85 pp.

The Navigable Waters Protection Rule: Definition of "Waters of the United States". 77 Fed. Reg. 22, 250 (April 21, 2020).

Tiner, Ralph W. **1999**. *Wetland Indicators: a guide to wetland identification, delineation, classification, and mapping*. CRC Press LLC. 363 pp.

United States Department of Agriculture, Natural Resources Conservation Service. **2008**. Soil Survey of San Germán Area, Puerto Rico. Accessible online at: http://soils.usda.gov/survey/printed_surveys/.

United States Department of Agriculture. Soil Conservation Service. Caribbean Area. San Juan Puerto Rico. **1993**. *Hydric Soils of the Caribbean*. In Cooperation with the National Technical Committee for Hydric Soils.

Appendix A: Figures

Figure 1: Site Location Map (1:20,000)

FIGURE 1: STUDY SITES LOCATION MAP (1:25,000)

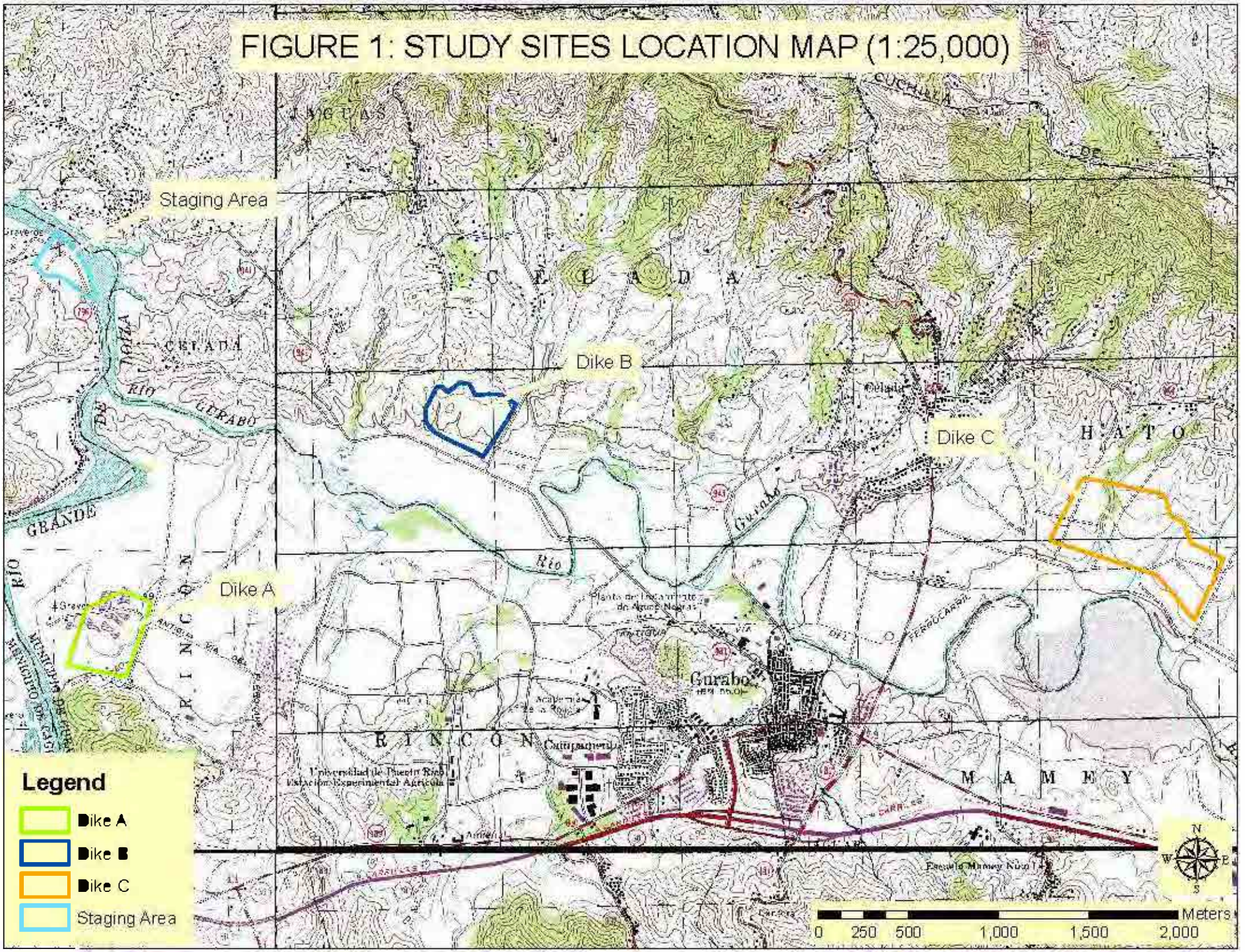


Figure 2: Aerial Photograph (1:25,000)

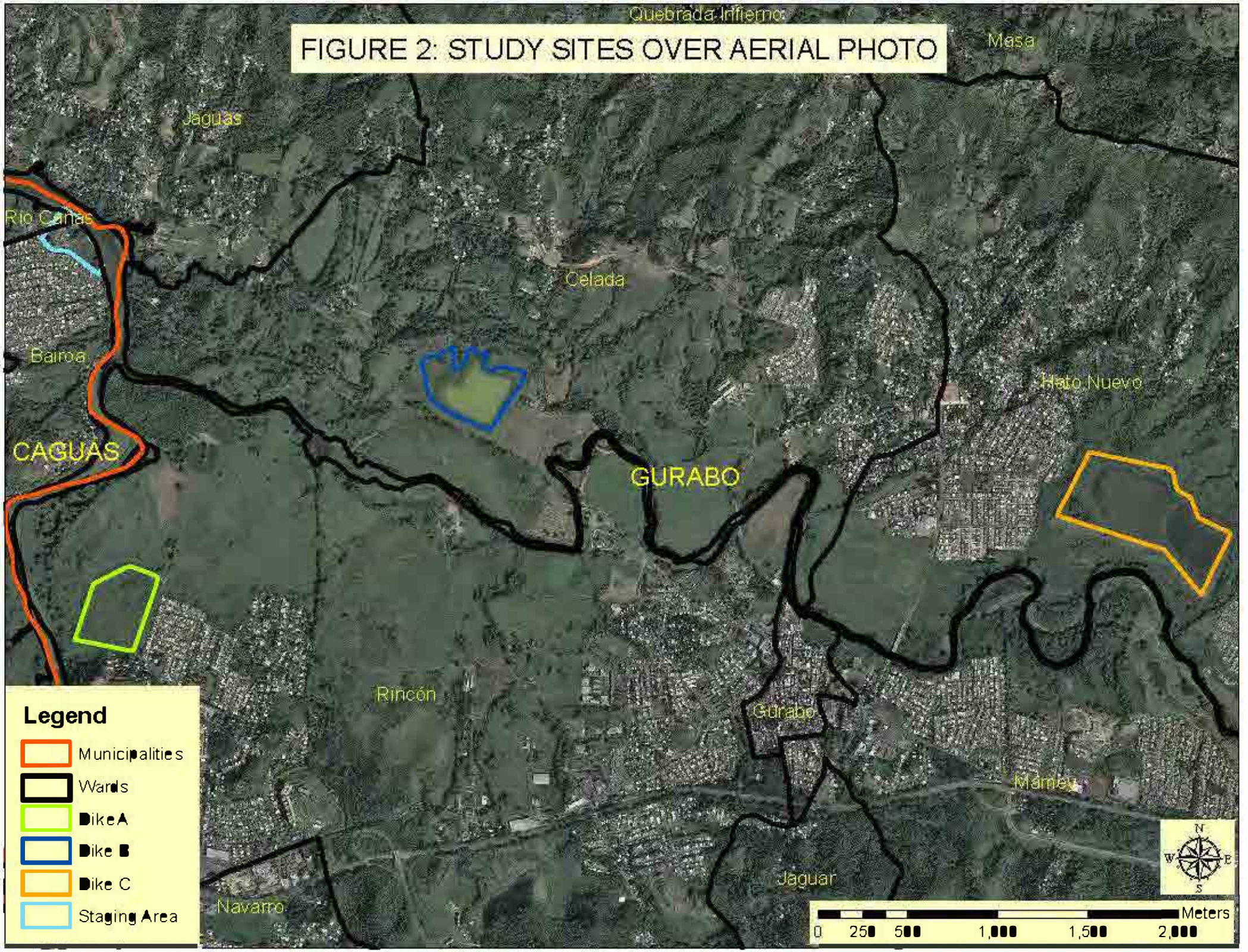


FIGURE 2: STUDY SITES OVER AERIAL PHOTO
Quebrada Infierno
Masa
Jaguas
Rio Cañas
Celada
Bairoa
Hato Nuevo
CAGUAS
GURABO
Rincón
Gurabo
Mamey
Jaguar
Navarro
Legend
Municipalities
Wards
Dike A
Dike B
Dike C
Staging Area
N
W
E
S
Meters
0
250
500
1,000
1,500
2,000

Figure 3: Location of Dike A over Aerial Photo


FIGURE 3: LOCATION OF DIKE A OVER AERIAL PHOTO
Legend
Dike A
N
W
E
S
Meters
0
30
60
120
180
240

Figure 4: Hydrography within the Vicinity of Dike A

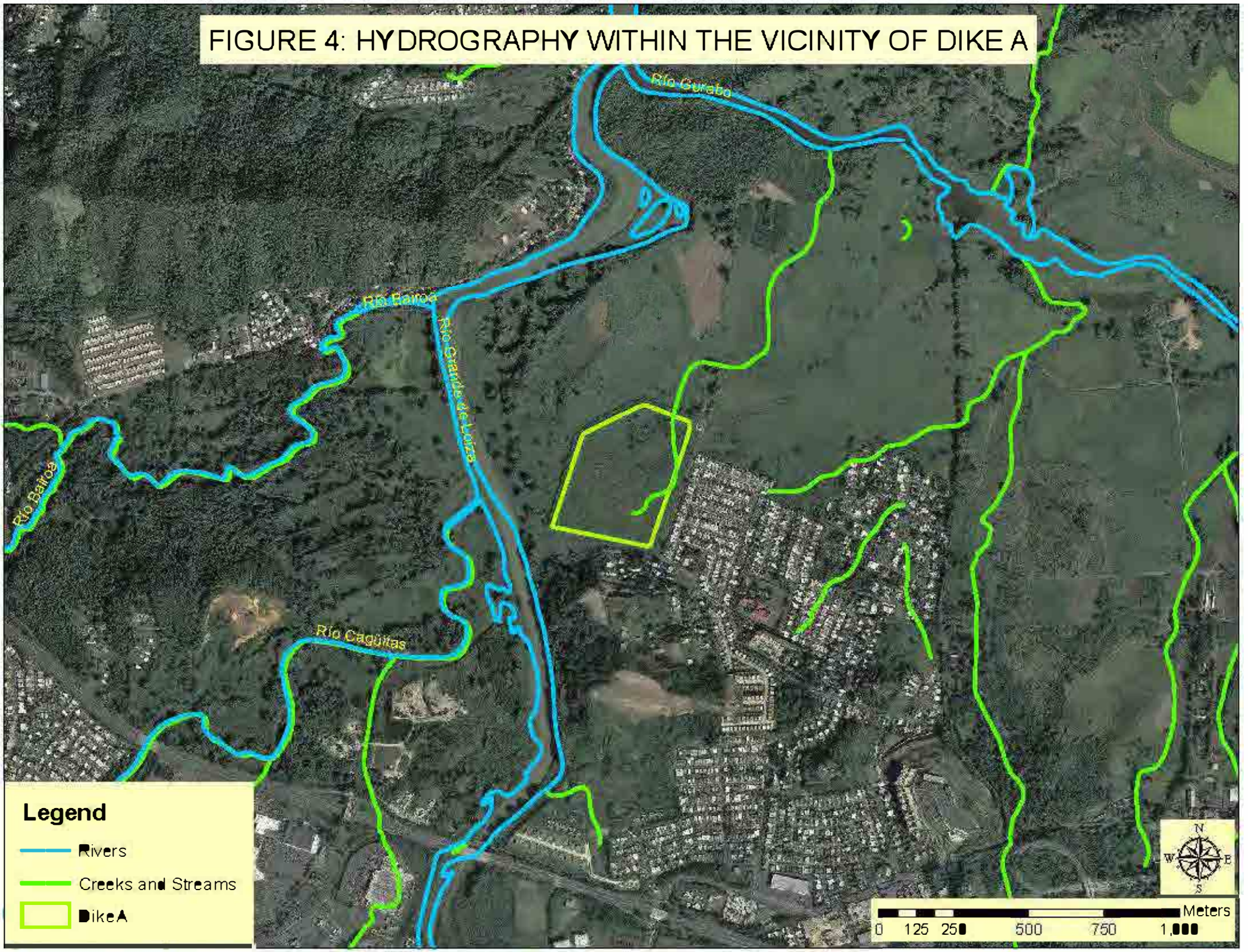


FIGURE 4: HYDROGRAPHY WITHIN THE VICINITY OF DIKE A
Río Gurabo
Río Bairoa
Río Grande de Loíza
Río Bairoa
Río Cagüitas
Legend
Rivers
Creeks and Streams
Dike A
N
W
E
S
Meters
0 125 250 500 750 1,000

Figure 5: Soils within Dike A

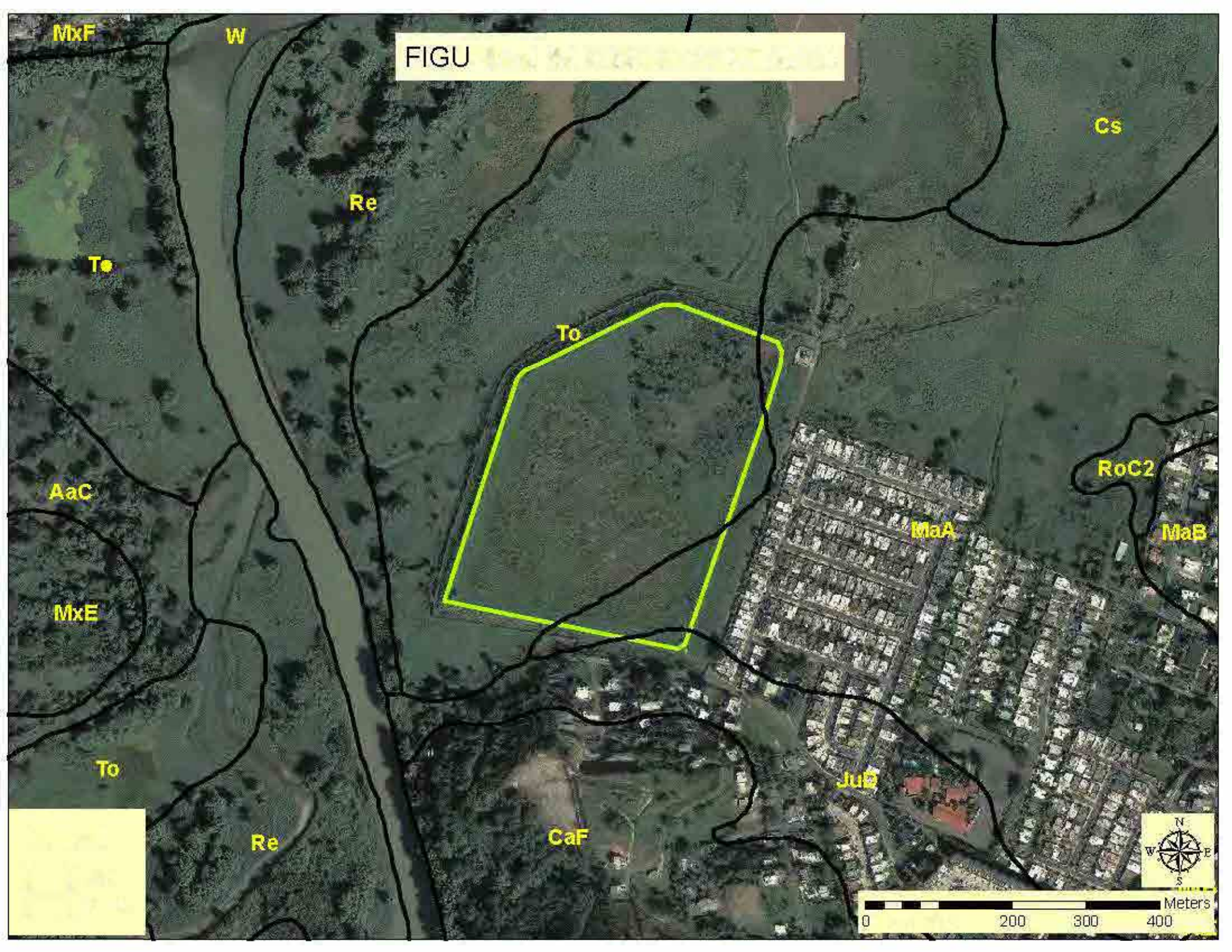

FIGU
MxF
W
Re
Cs
To
To
AaC
RoC2
MaA
MaB
MxE
To
JuD
Re
CaF
N
W
E
S
Meters
0
200
300
400

Figure 6: National Wetland Inventory within Dike A

FIGURE 6: NATIONAL WETLAND INVENTORY WITHIN DIKE A

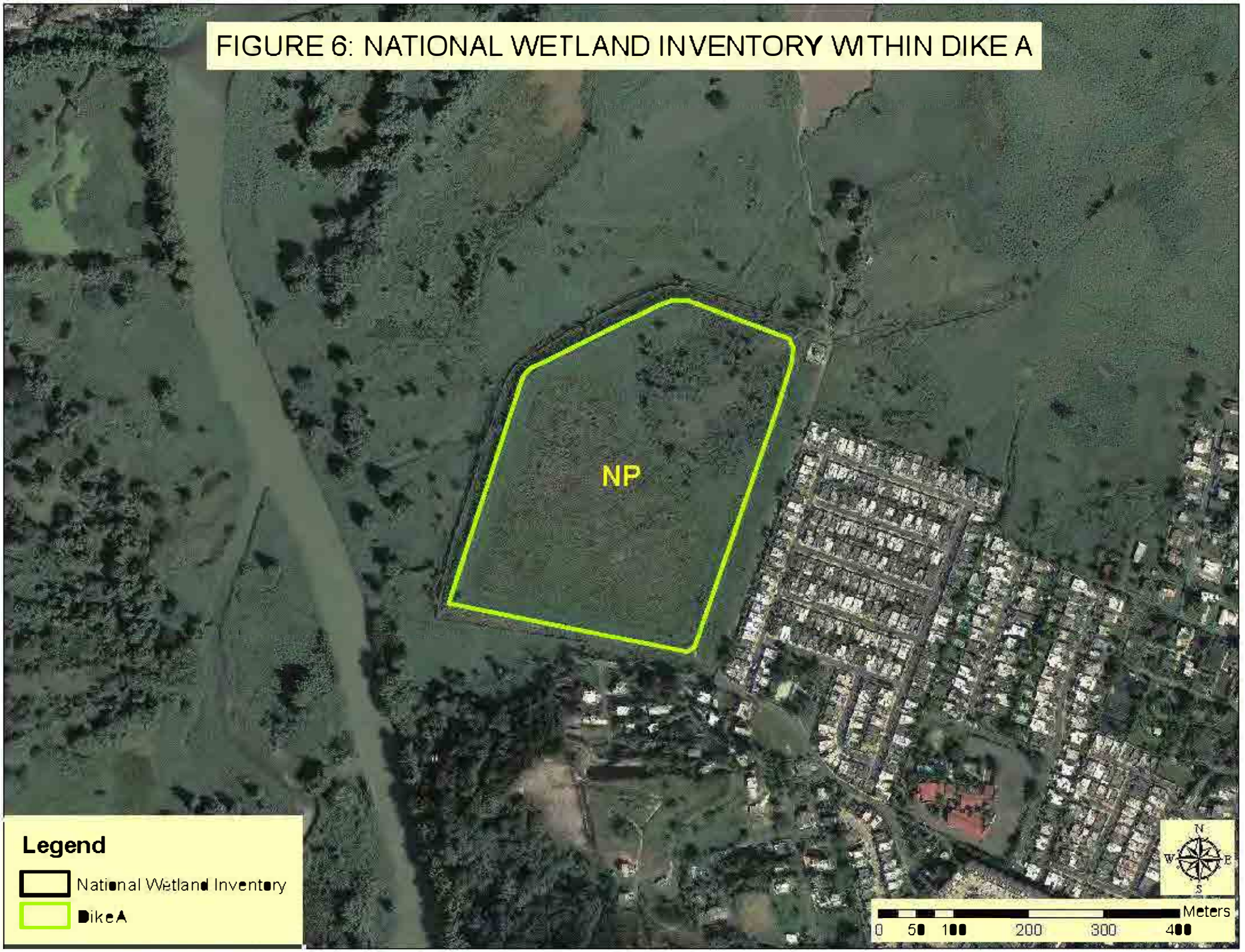


Figure 7: Location of Dike B over Aerial Photo


FIGURE 7: LOCATION OF DIKE B OVER AERIAL PHOTO
Legend
Dike B
N
W
E
S
Meters
0
30
60
120
180
240

Figure 8: Hydrography within the Vicinity of Dike B

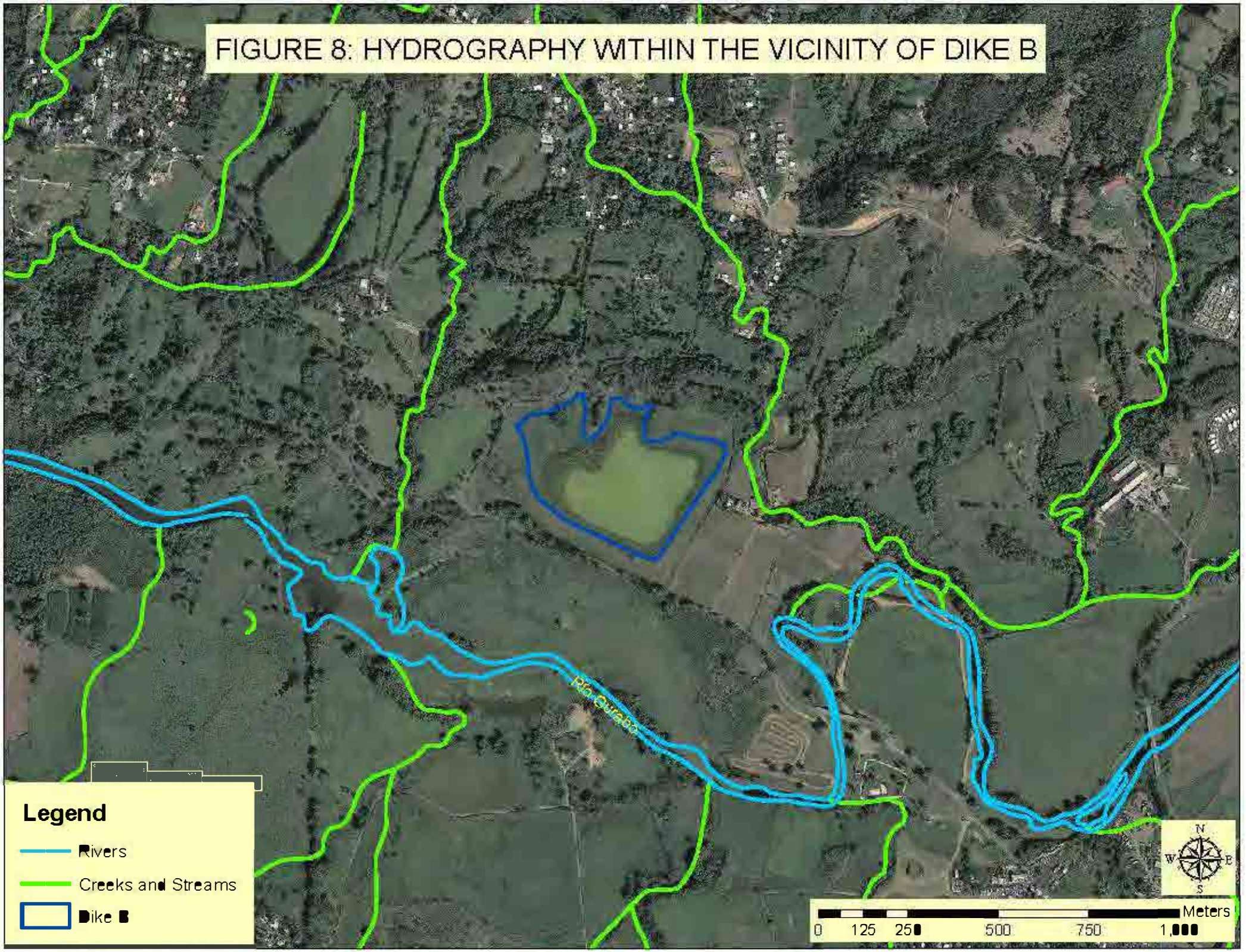


FIGURE 8: HYDROGRAPHY WITHIN THE VICINITY OF DIKE B
Río Curaba
Legend
Rivers
Creeks and Streams
Dike B
N
W
E
S
Meters
0
125
250
500
750
1,000

Figure 9: Soils within Dike B

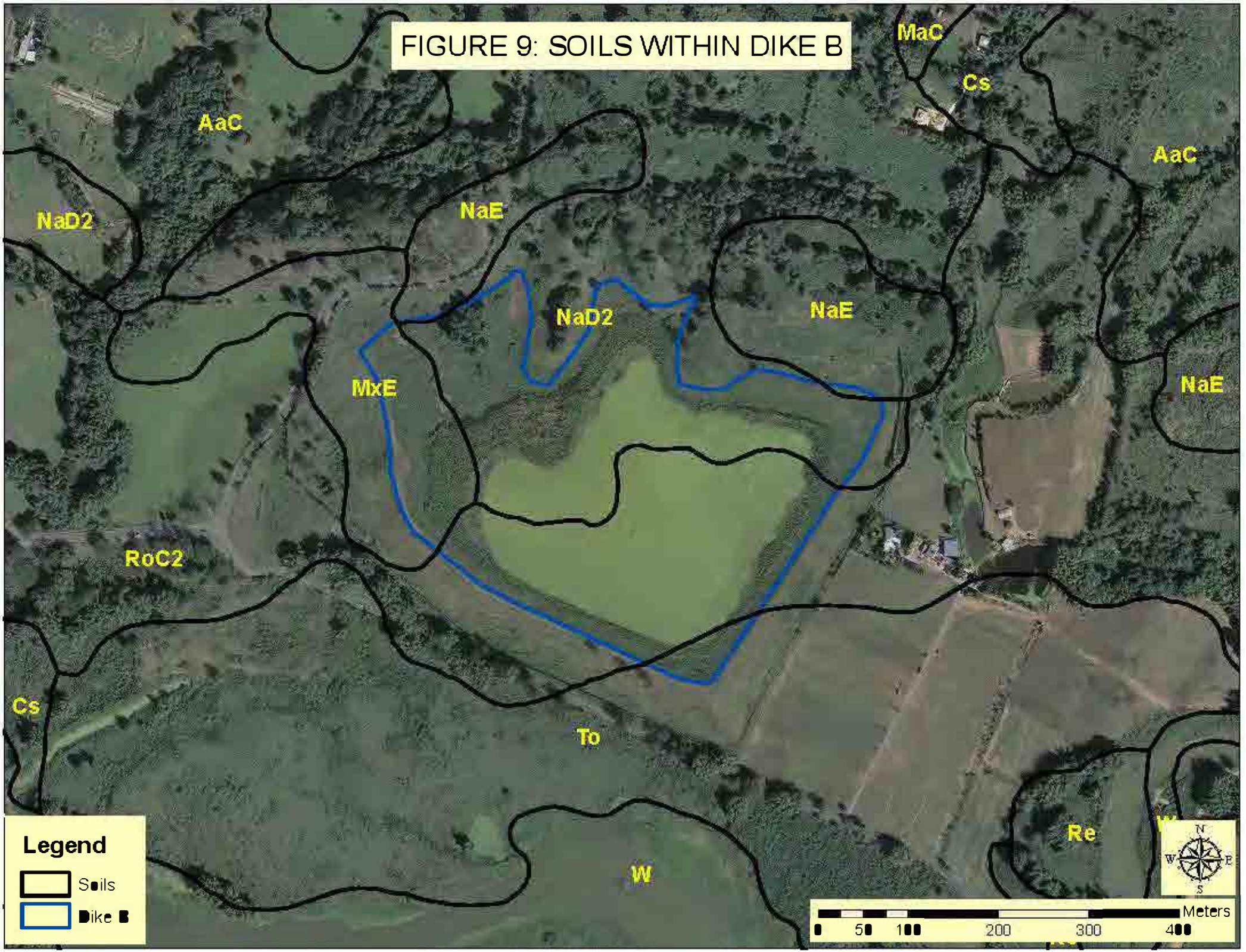


FIGURE 9: SOILS WITHIN DIKE B
MaC
Cs
AaC
AaC
NaD2
NaE
NaD2
NaE
NaE
MxE
RoC2
Cs
To
Re
W
Legend
Soils
Dike B
N
W
E
S
Meters
50
100
200
300
400

Figure 10: National Wetland Inventory within Dike B

FIGURE 10: NATIONAL WETLAND INVENTORY WITHIN DIKE B

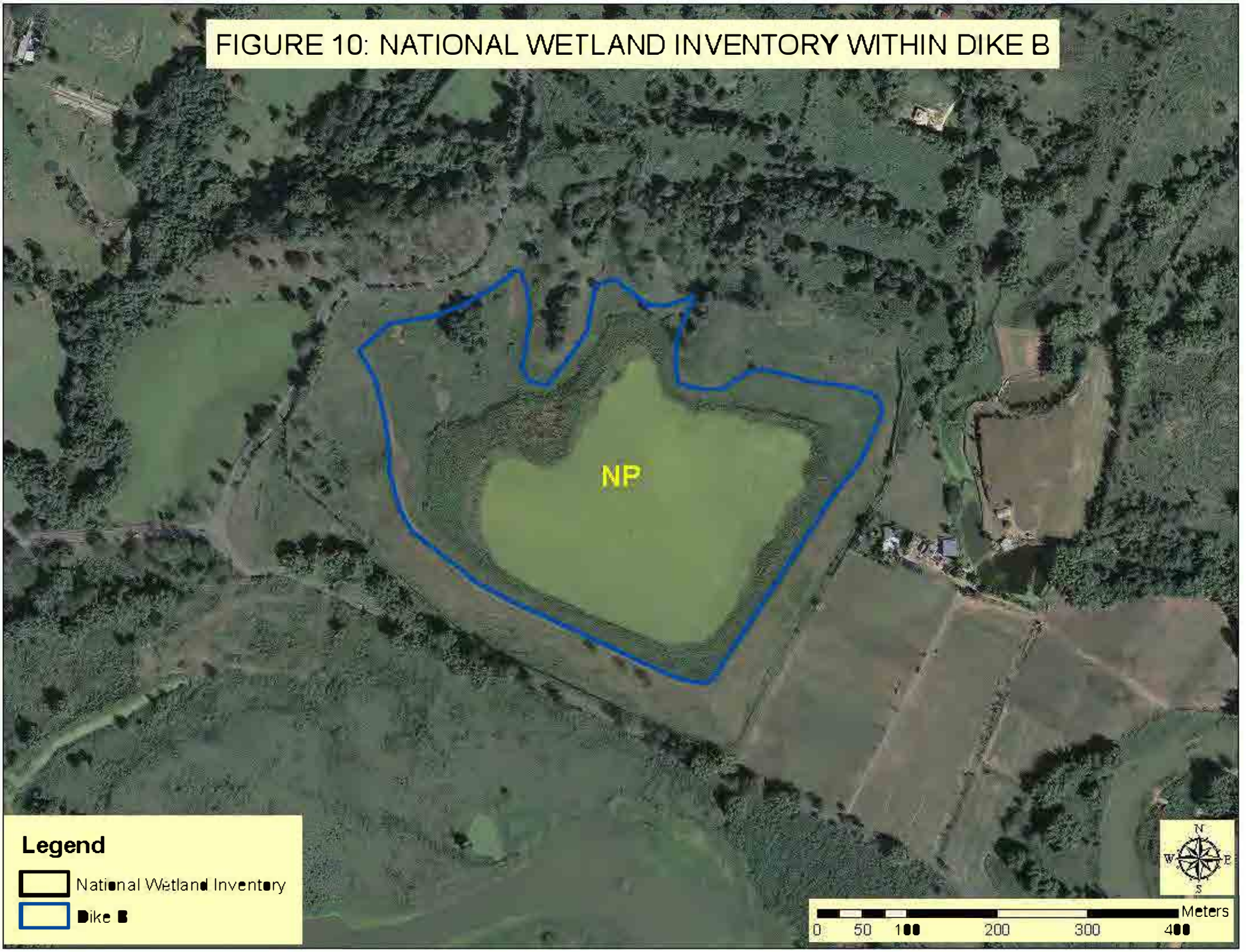


Figure 11: Location of Dike C over Aerial Photo


FIGURE 11: LOCATION OF DIKE C OVER AERIAL PHOTO
Legend
Dike C
N
W
E
S
Meters
0
50
100
200
300
400

Figure 12: Hydrography within the Vicinity of Dike C

FIGURE 12: HYDROGRAPHY WITHIN THE VICINITY OF DIKE C

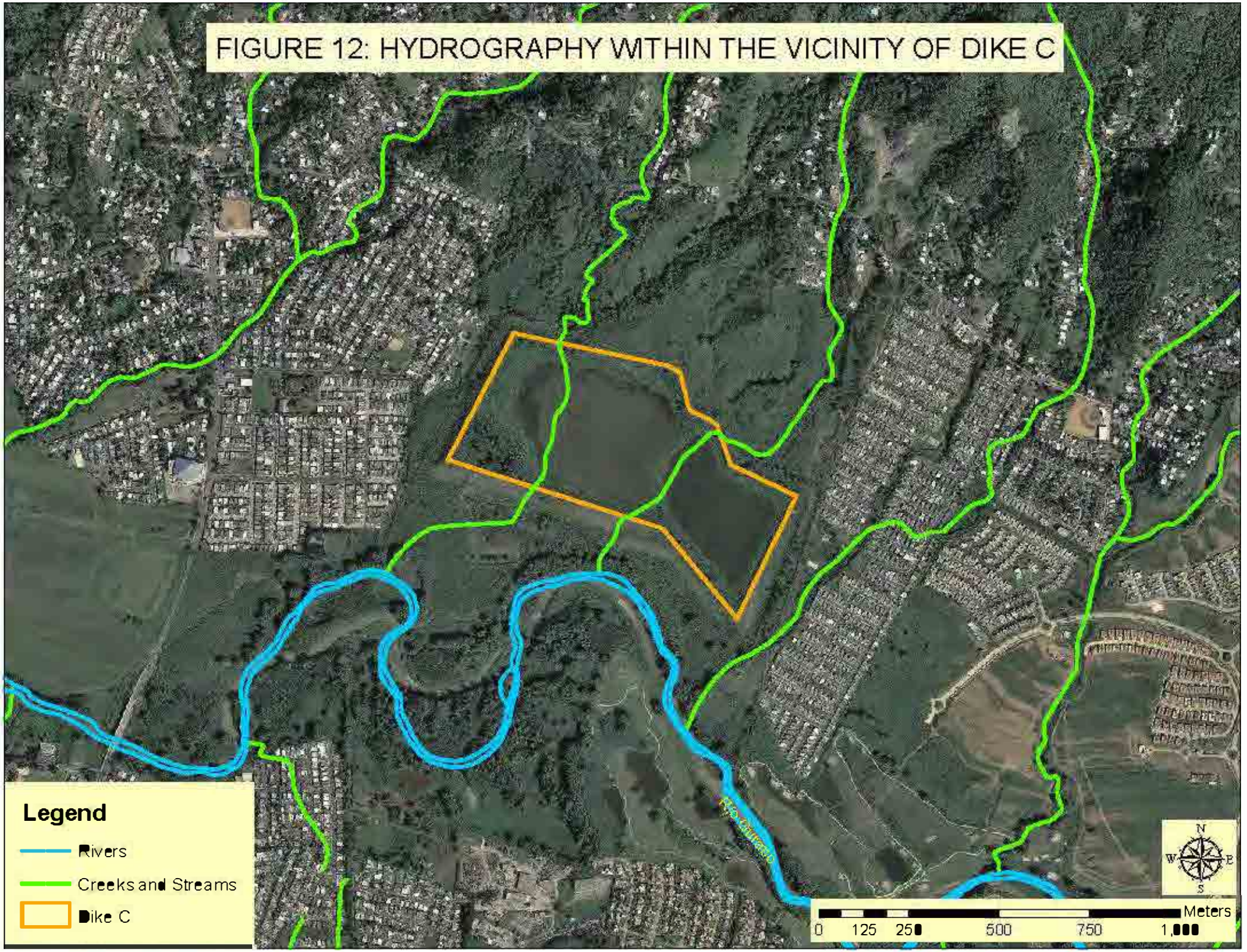


Figure 13: Soils within Dike C

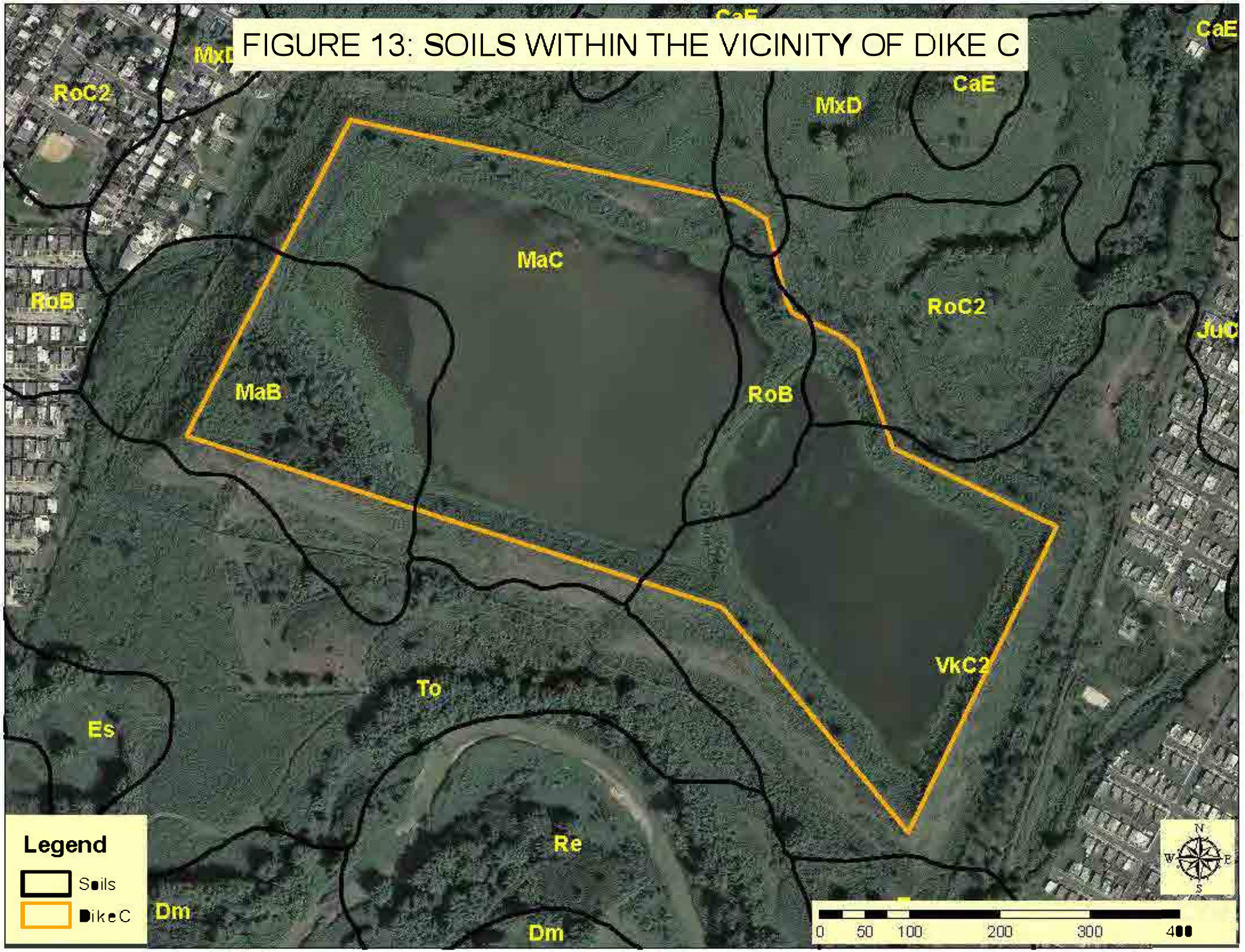


FIGURE 13: SOILS WITHIN THE VICINITY OF DIKE C
CaE
MxD
RoC2
CaE
MxD
MaC
RoB
RoC2
JuC
MaB
RoB
VkC2
To
Es
Re
Dm
Dm
Legend
Soils
Dike C
0
50
100
200
300
400
N
W
E
S

Figure 14: National Wetland Inventory within Dike C

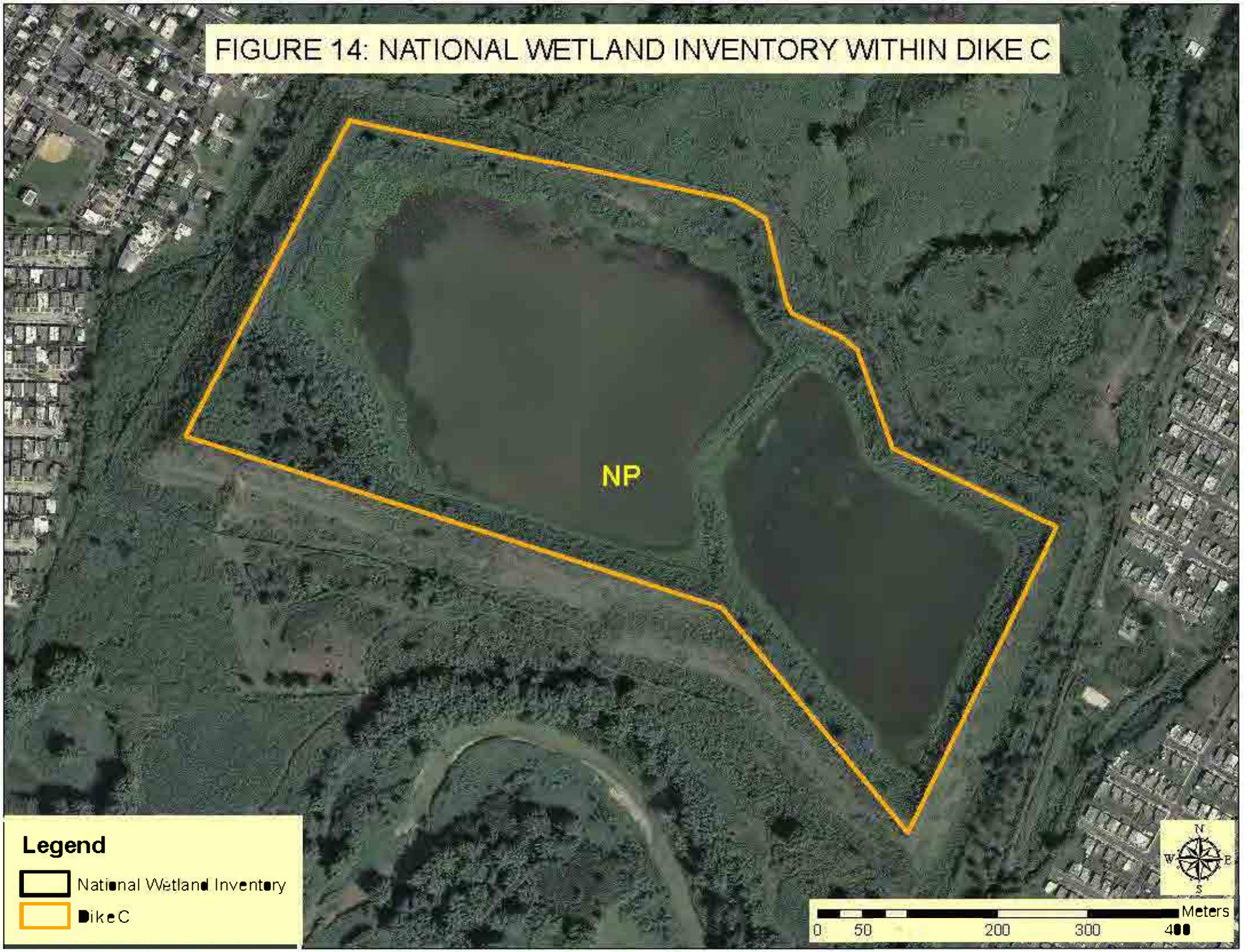


FIGURE 14: NATIONAL WETLAND INVENTORY WITHIN DIKE C
NP
Legend
National Wetland Inventory
Dike C
N
W
E
S
Meters
0
50
200
300
400

Figure 15: Location of the Staging Area over Aerial Photo

FIGURE 15: LOCATION OF THE STAGING AREA OVER AERIAL PHOTO

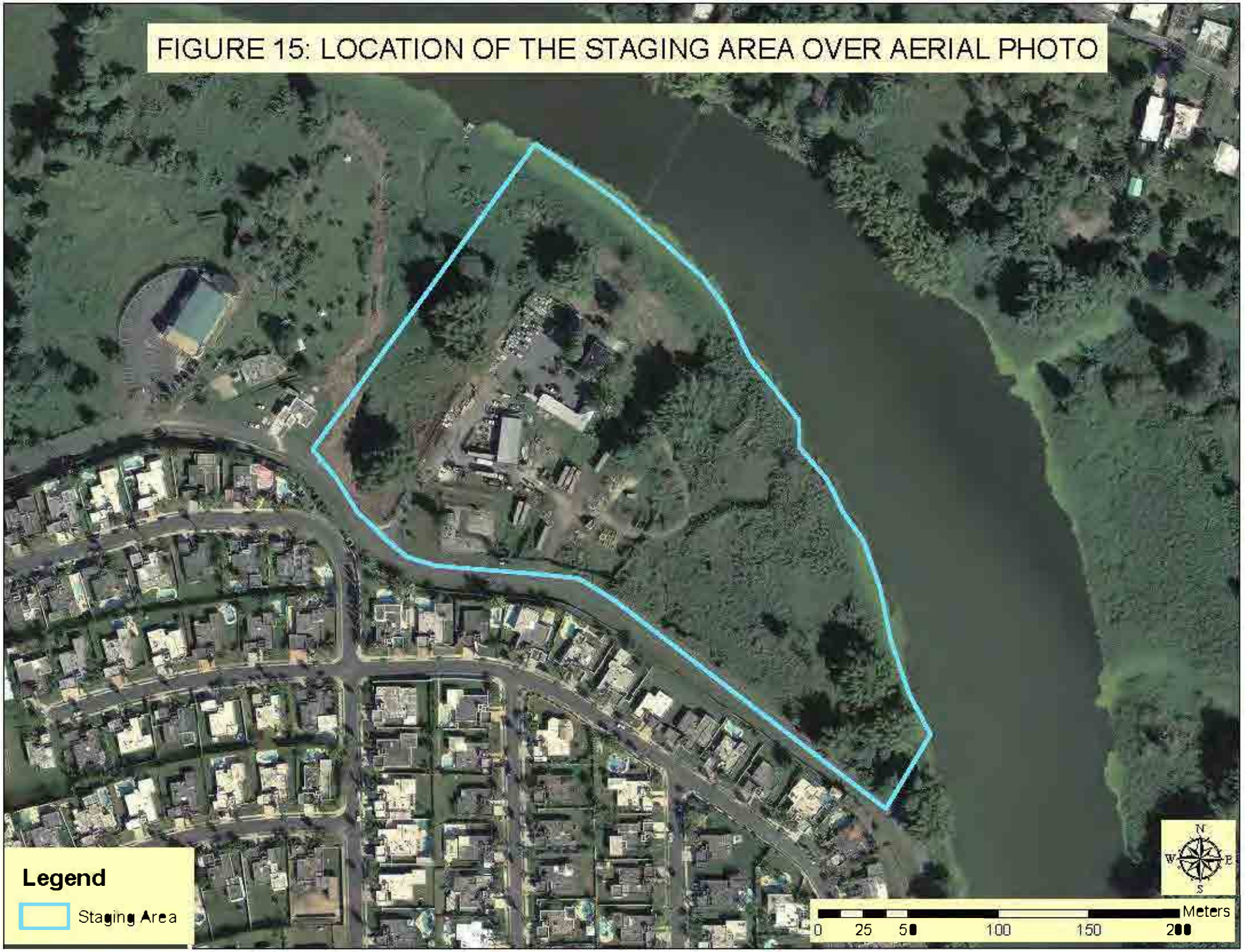


Figure 16: Hydrography within the Vicinity of the Staging Area

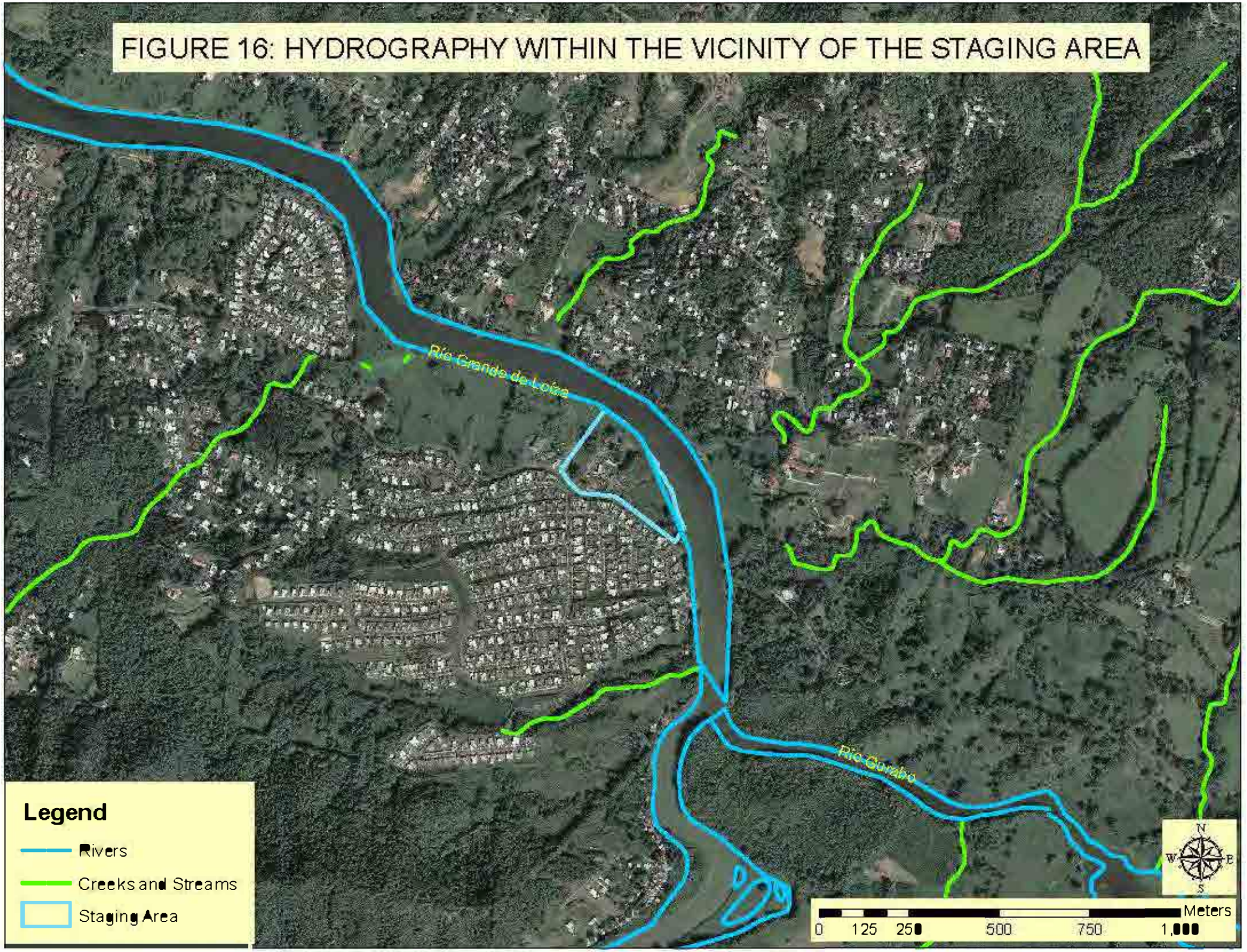


FIGURE 16: HYDROGRAPHY WITHIN THE VICINITY OF THE STAGING AREA
Río Grande de Loíza
Río Gurabo
Legend
Rivers
Creeks and Streams
Staging Area
N
W
E
S
Meters
0
125
250
500
750
1,000

Figure 17: Soils within the Staging Area

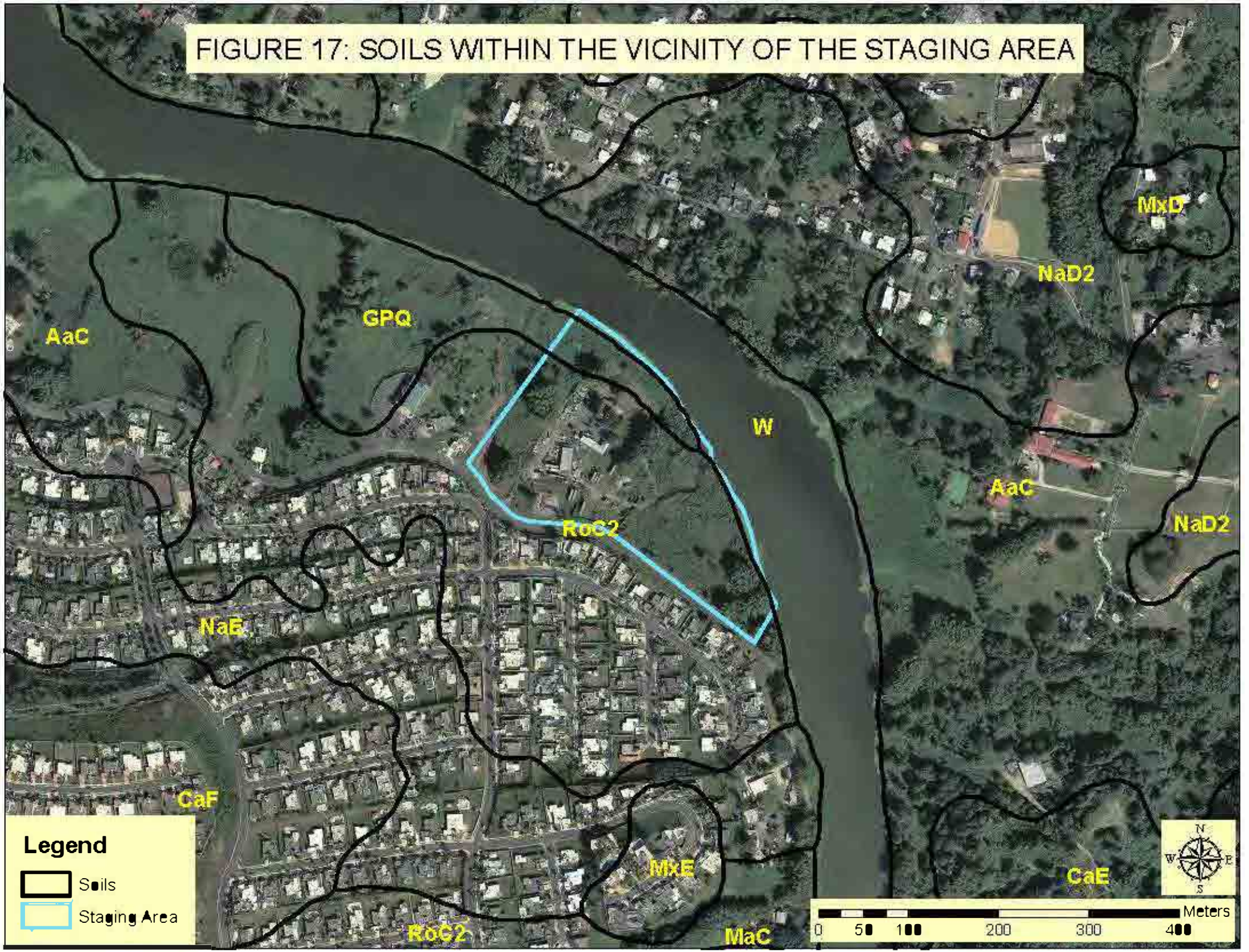


FIGURE 17: SOILS WITHIN THE VICINITY OF THE STAGING AREA
AaC
GPQ
W
RoC2
NaE
CaF
MxE
RoC2
MaC
AaC
NaD2
MxD
NaD2
CaE
Legend
Soils
Staging Area
N
W
E
S
Meters
0
50
100
200
300
400

Figure 18: National Wetland Inventory within the Staging Area

FIGURE 18: NATIONAL WETLAND INVENTORY WITHIN THE STAGING AREA



Figure 19: Topographic Quadrangle of Aguas Buenas (1957)

FIGURE 19: TOPOGRAPHIC QUADRANGLE OF AGUAS BUENAS (1957)

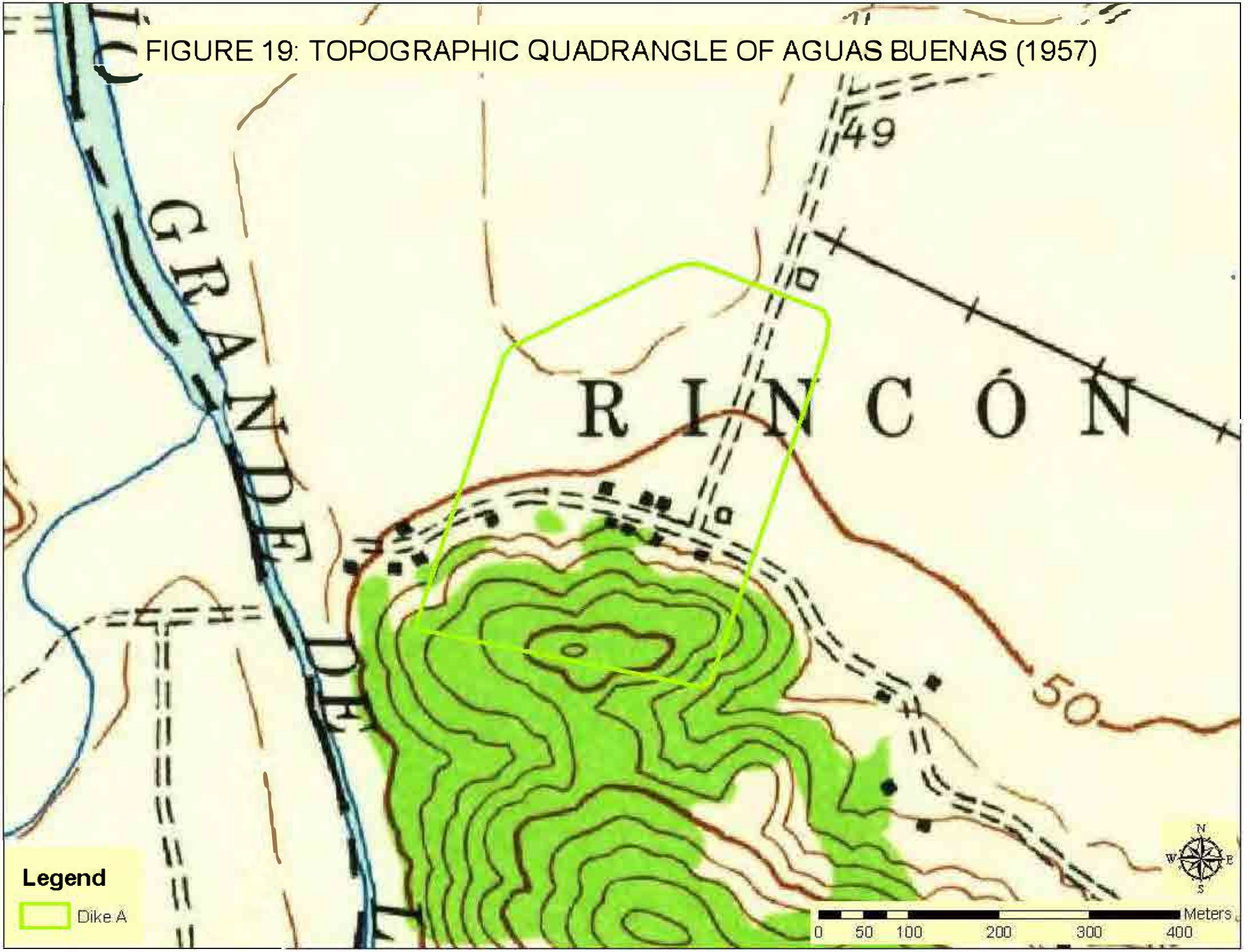


Figure 20: Topographic Quadrangle of Aguas Buenas of 1969 (1972 Edition)

FIGURE 20: TOPOGRAPHIC QUADRANGLE OF AGUAS BUENAS OF 1969 (1972 VERSION)

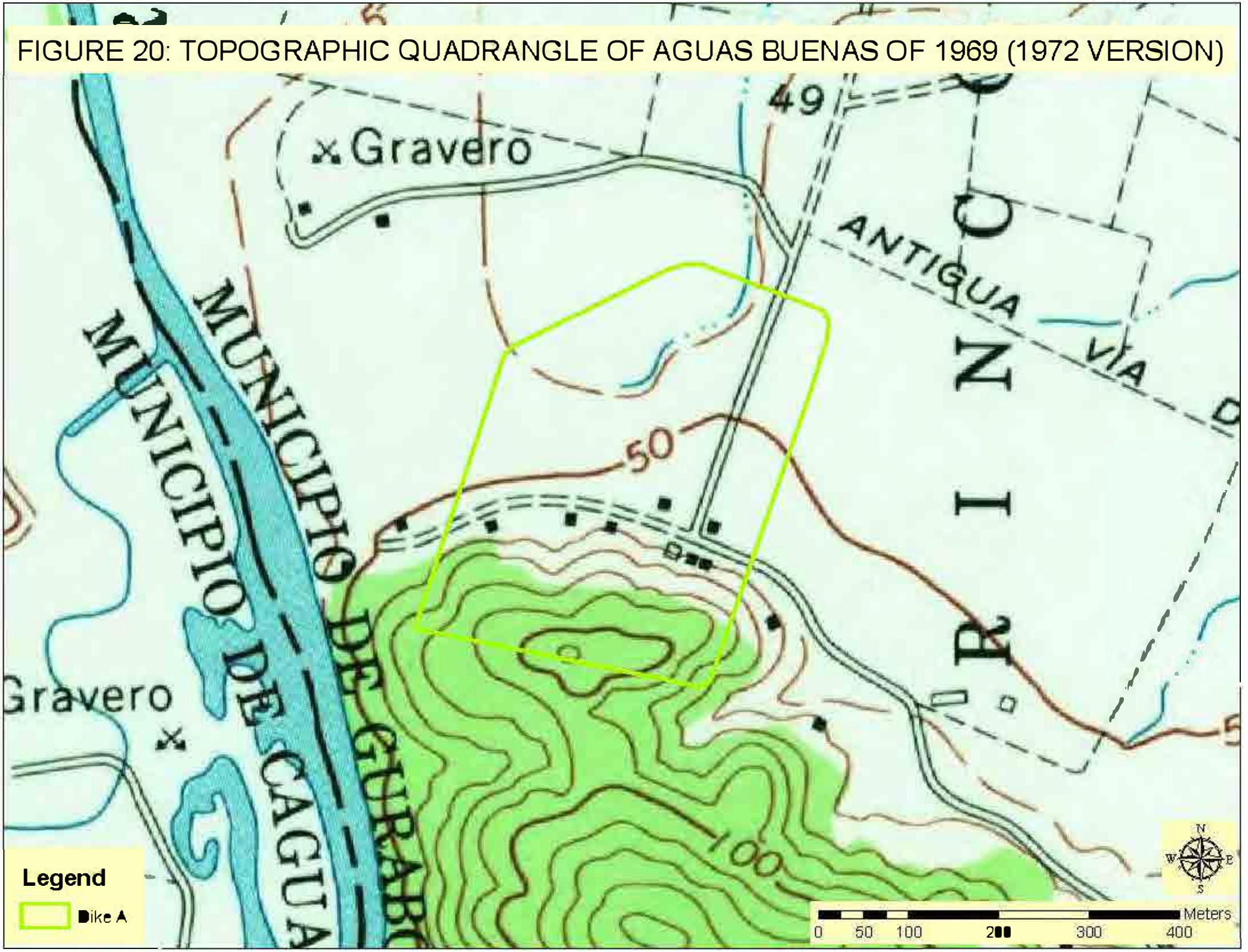


Figure 21: Topographic Quadrangle of Aguas Buenas of 1969 (1982 Edition)

FIGURE 21: TOPOGRAPHIC QUADRANGLE OF AGUAS BUENAS OF 1969 (1982 VERSION)

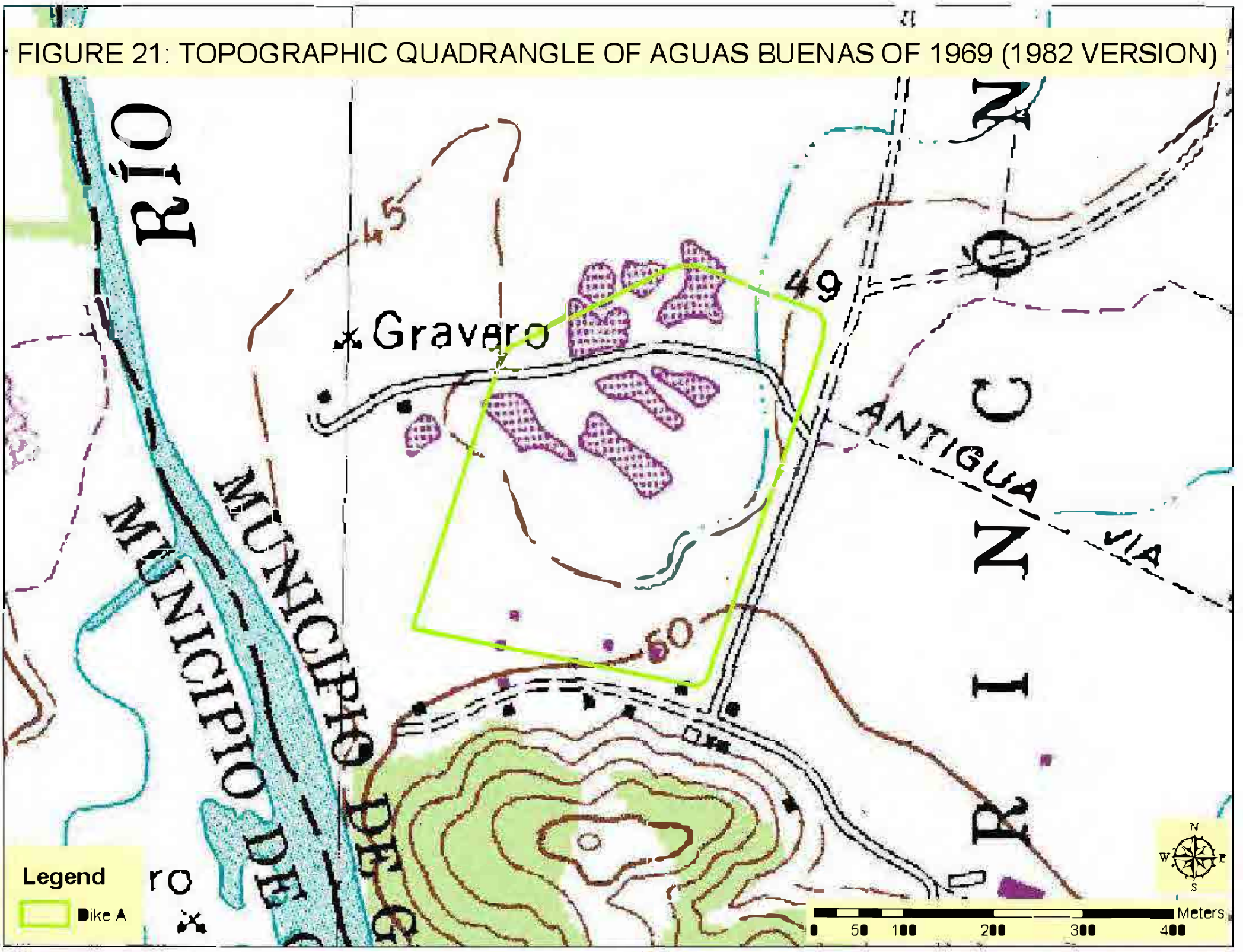


Figure 22: Dike A Sampling Points Location over an Aerial Photo of 1997

FIGURE 22: DIKE A SAMPLING POINTS LOCATION OVER AN AERIAL PHOTO OF 1997



Figure 23: Dike A Wetlands and U.S. Waters Jurisdictional Determination Map

FIGURE 23: DIKE A WETLANDS AND U.S. WATERS JURISDICTIONAL DETERMINATION MAP
Carraízo Reservoir Dredging Project; Puerto Rico Aqueduct and Sewer Authority;
Gurabo, Puerto Rico; June 19, 2021

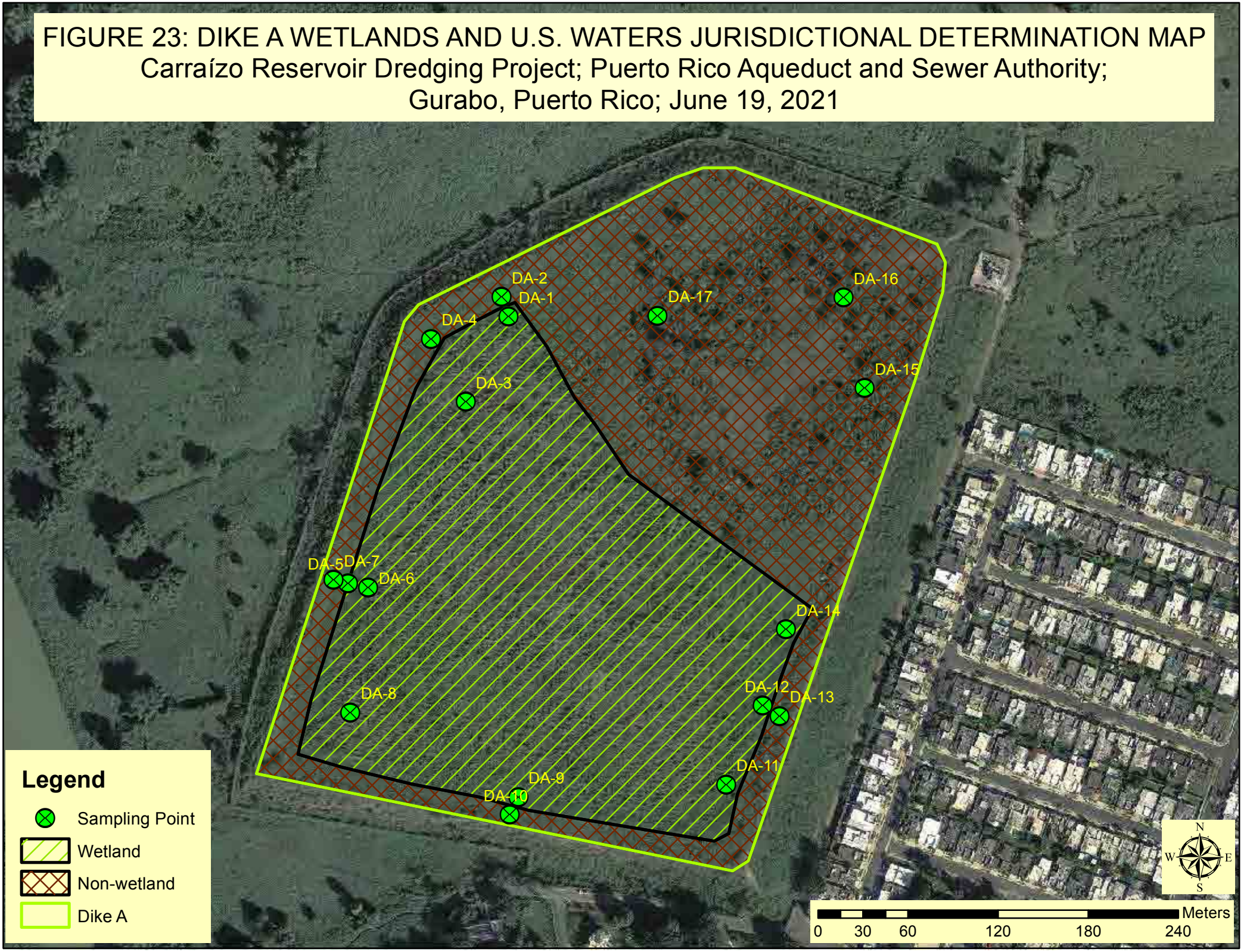


Figure 24: Dike B Sampling Points Location over an Aerial Photo of 1997

FIGURE 24: DIKE B SAMPLING POINTS LOCATION OVER AN AERIAL PHOTO OF 1997

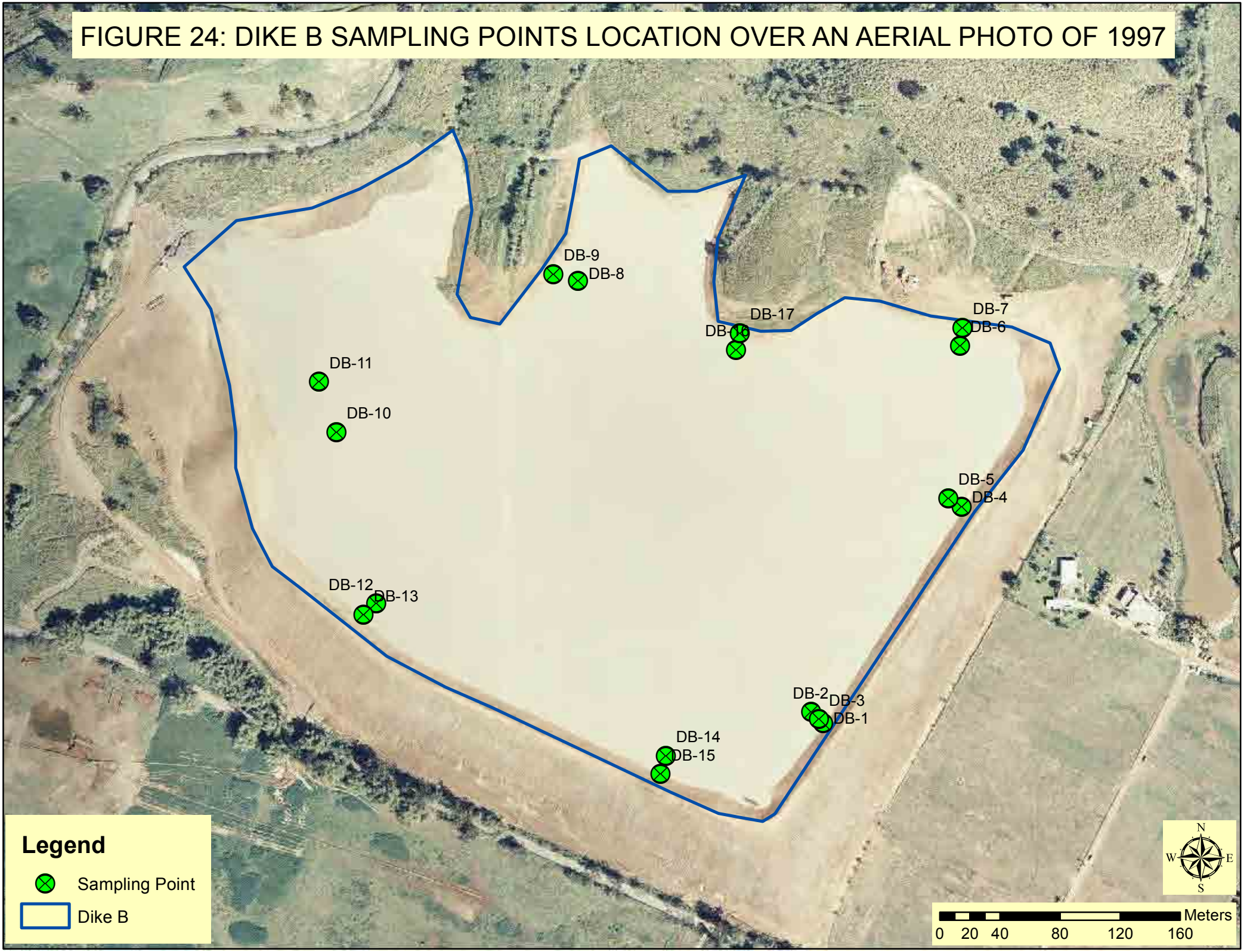


Figure 25: Dike B Wetlands and U.S. Waters Jurisdictional Determination Map

FIGURE 25: DIKE B WETLANDS AND U.S. WATERS JURISDICTIONAL DETERMINATION MAP
Carraízo Reservoir Dredging Project; Puerto Rico Aqueduct and Sewer Authority;
Gurabo, Puerto Rico; June 26, 2021

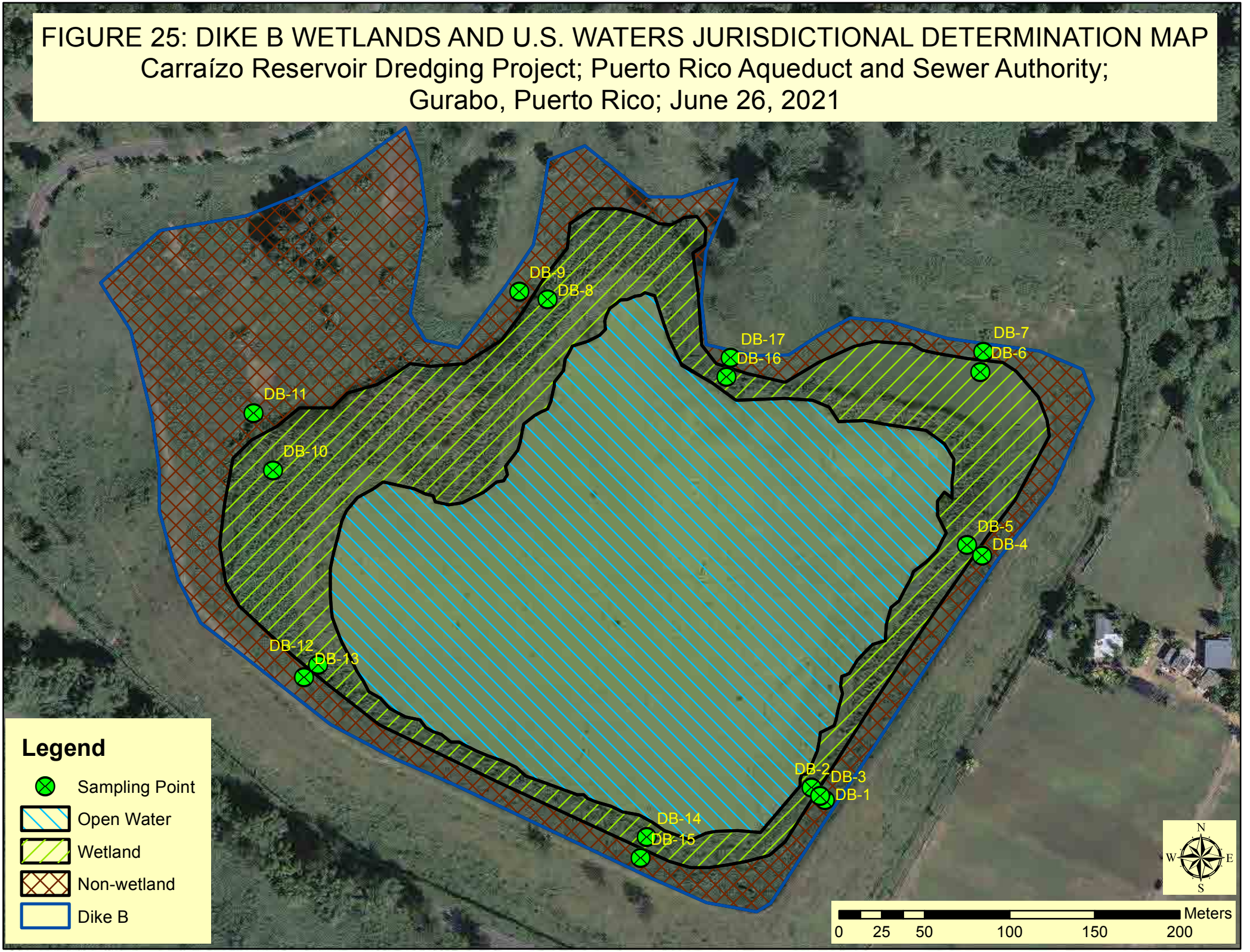


Figure 26: Dike C Sampling Points Location over an Aerial Photo of 1997

FIGURE 26: DIKE C SAMPLING POINTS LOCATION OVER AN AERIAL PHOTO OF 1997

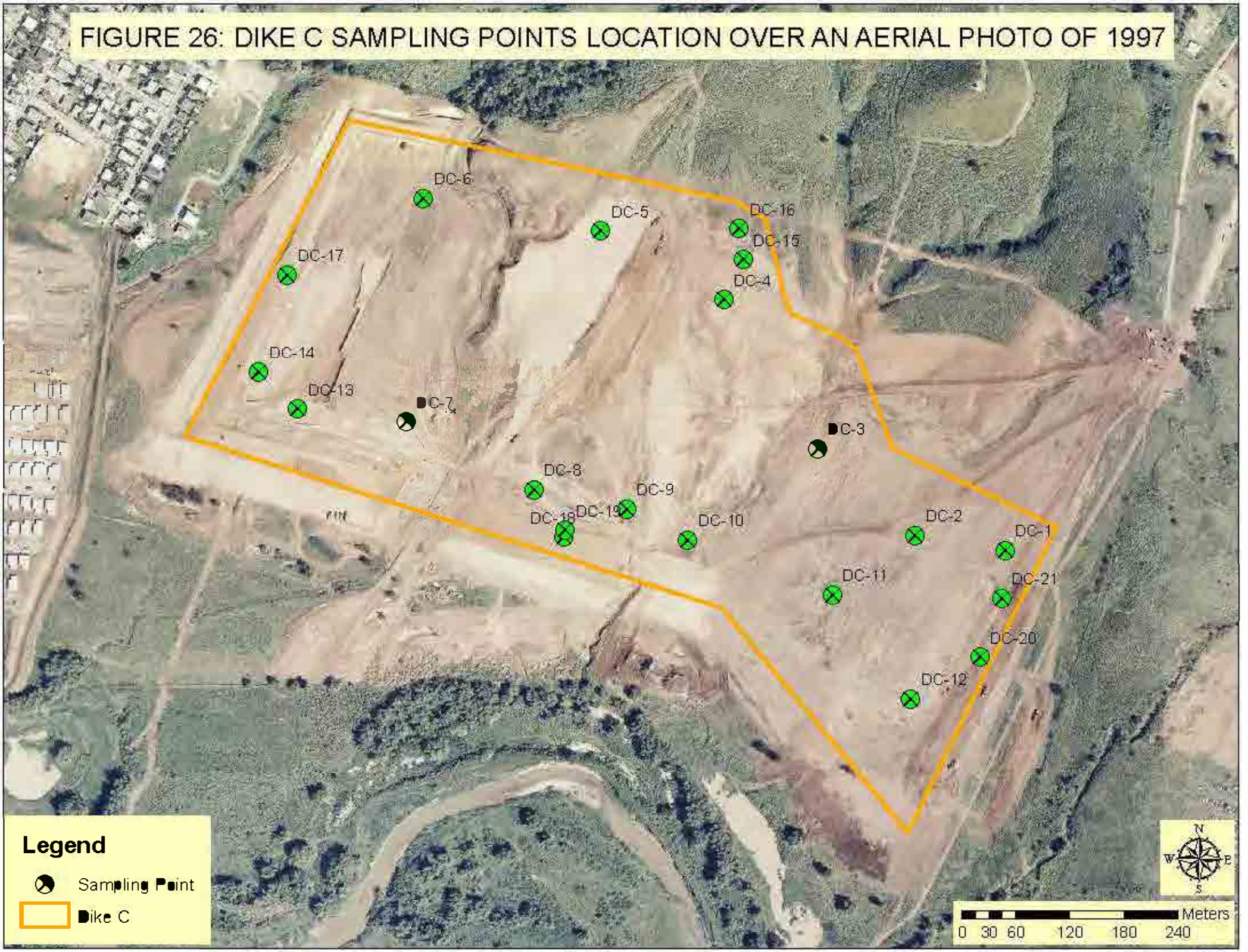


Figure 27: Dike C Wetlands and U.S. Waters Jurisdictional Determination Map

FIGURE 27: DIKE C WETLANDS AND U.S. WATERS JURISDICTIONAL DETERMINATION MAP
Carraizo Reservoir Dredging Project; Puerto Rico Aqueduct and Sewer Authority;
Gurabo, Puerto Rico; June 17, 2021

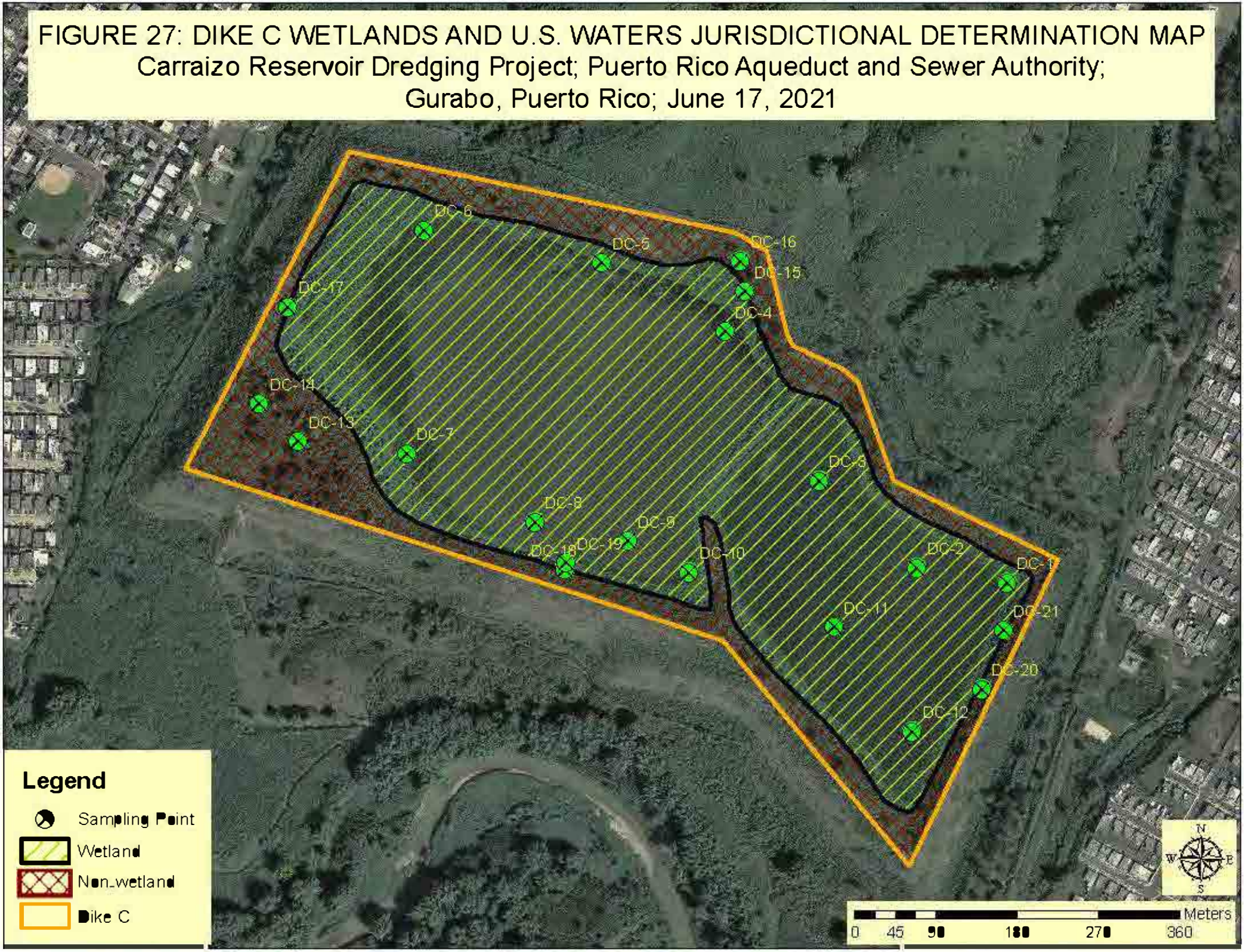


Figure 28: Staging Area Sampling Points Location over an Aerial Photo of 1997

FIGURE 28: STAGING AREA SAMPLING POINTS LOCATION OVER AN AERIAL PHOTO OF 1997

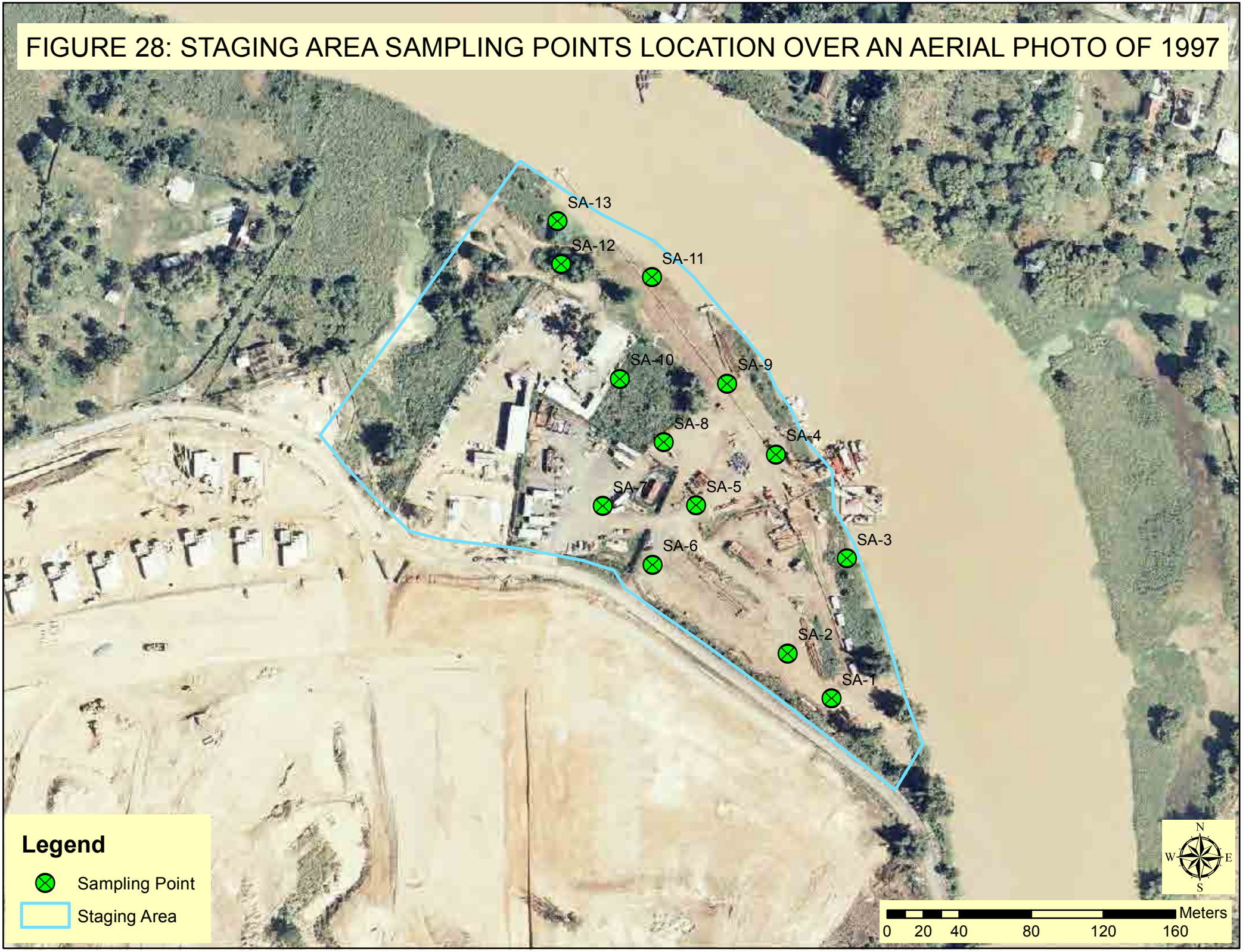


Figure 29: Staging Area Wetlands and U.S. Waters Jurisdictional Determination Map

FIGURE 29: STAGING AREA WETLANDS AND U.S. WATERS JURISDICTIONAL DETERMINATION MAP
Carraízo Reservoir Dredging Project; Puerto Rico Aqueduct and Sewer Authority;
Caguas, Puerto Rico; June 27, 2021



Appendix B: Photographic Documentation of Dike A



Photo 1. General view of the north side of Dike A.



Photo 2. General view toward the east side of Dike A.



Photo 3. General view toward the northeast side of Dike A.



Photo 4. General view toward the northwest side of Dike A.



Photo 5. General view toward the west side of Dike A.



Photo 6. Sampling point DA-1 soil pit.



Photo 7. Sampling point DA-1 soil sample.



Photo 8. Another soil sample from sampling point DA-1.



Photo 9. Sampling point DA-1 general area.



Photo 10. Sampling point DA-2 soil pit.



Photo 11. Sampling point DA-2 soil sample.



Photo 12. Sampling point DA-2 general area.



Photo 13. Sampling point DA-3 soil pit.



Photo 14. Sampling point DA-3 soil sample.



Photo 15. Another soil sample from sampling point DA-3.



Photo 16. Sampling point DA-3 general area.



Photo 17. Sampling point DA-4 soil sample. No soil pit was necessary.



Photo 18. Another soil sample from sampling point DA-4.



Photo 19. Another soil sample from sampling point DA-4.



Photo 20. Sampling point DA-4 general area.



Photo 21. Sampling point DA-5 soil pit.



Photo 22. Sampling point DA-5 soil sample.



Photo 23. Sampling point DA-5 general area.



Photo 24. Sampling point DA-6 soil pit.



Photo 25. Sampling point DA-6 soil sample.



Photo 26. Another soil sample from sampling point DA-6.



Photo 27. Sampling point DA-6 general area.



Photo 28. Sampling point DA-7 soil pit.



Photo 29. Sampling point DA-7 soil sample.



Photo 30. Sampling point DA-7 general area.



Photo 31. Sampling point DA-8 soil pit.



Photo 32. Sampling point DA-8 soil sample.



Photo 33. Another soil sample from sampling point DA-8.



Photo 34. Sampling point DA-8 general area.



Photo 35. Sampling point DA-9 soil pit.



Photo 36. Sampling point DA-9 soil sample.



Photo 37. Another soil sample from sampling point DA-9.



Photo 38. Sampling point DA-9 general area.



Photo 39. Sampling point DA-10 soil pit.



Photo 40. Sampling point DA-10 soil sample.



Photo 41. Sampling point DA-10 general area.



Photo 42. Sampling point DA-11 soil pit.



Photo 43. Sampling point DA-11 soil sample.



Photo 44. Sampling point DA-11 general area.



Photo 45. Sampling point DA-12 soil pit.



Photo 46. Sampling point DA-12 soil sample.



Photo 47. Another soil sample from sampling point DA-12.



Photo 48. Sampling point DA-12 general area.



Photo 49. Sampling point DA-13 soil pit.



Photo 50. Sampling point DA-13 soil sample.



Photo 51. Sampling point DA-13 general area.



Photo 52. Sampling point DA-14 soil pit.



Photo 53. Sampling point DA-14 soil sample.



Photo 54. Another soil sample from sampling point DA-14.



Photo 55. Sampling point DA-14 general area.



Photo 56. Sampling point DA-15 soil pit.



Photo 57. Sampling point DA-15 soil sample.



Photo 58. Sampling point DA-15 general area.



Photo 59. Sampling point DA-16 soil pit.



Photo 60. Sampling point DA-16 general area.



Photo 61. Sampling point DA-17 soil pit.



Photo 62. Sampling point DA-17 general area.

Appendix C: Photographic Documentation of Dike B



Photo 1. General view toward the east side of Dike B.



Photo 2. General view toward the southeast of Dike B.



Photo 3. General view toward the south of Dike B.



Photo 4. General view toward the west of Dike B.



Photo 5. General view toward the north of Dike B.



Photo 6. Sampling point DB-1 soil pit.



Photo 7. Sampling point DB-1 soil sample.



Photo 8. Sampling point DB-1 general area.



Photo 9. Sampling point DB-2 soil pit.



Photo 10. Sampling point DB-2 soil sample.



Photo 11. Sampling point DB-2 general area.



Photo 12. Sampling point DB-3 soil pit.



Photo 13. Sampling point DB-3 soil sample.



Photo 14. Sampling point DB-3 general area.



Photo 15. Sampling point DB-4 soil pit.



Photo 16. Sampling point DB-4 soil sample.



Photo 17. Sampling point DB-4 general area.



Photo 18. Sampling point DB-5 soil pit.



Photo 19. Sampling point DB-5 soil sample.



Photo 20. Sampling point DB-5 general area.



Photo 21. Sampling point DB-6 soil pit.



Photo 22. Sampling point DB-6 soil sample.



Photo 23. Sampling point DB-6 general area.



Photo 24. Sampling point DB-7 soil pit.



Photo 25. Sampling point DB-7 soil sample.



Photo 26. Sampling point DB-7 general area.



Photo 27. Sampling point DB-8 soil pit.



Photo 28. Sampling point DB-8 soil sample.



Photo 29. Sampling point DB-8 general area.



Photo 30. Sampling point DB-9 soil pit.



Photo 31. Sampling point DB-9 soil sample.



Photo 32. Sampling point DB-9 general area.



Photo 33. Sampling point DB-10 soil pit.



Photo 34. Sampling point DB-10 soil sample.



Photo 35. Sampling point DB-10 general area.



Photo 36. Sampling point DB-11 soil pit.



Photo 37. Sampling point DB-11 soil sample inside pit.



Photo 38. Sampling point DB-11 general area.



Photo 39. Sampling point DB-12 soil pit.



Photo 40. Sampling point DB-12 soil sample.



Photo 41. Sampling point DB-12 general area.



Photo 42. Sampling point DB-13 soil pit.



Photo 43. Sampling point DB-13 soil sample inside pit.



Photo 44. Sampling point DB-13 general area.



Photo 45. Sampling point DB-14 soil pit.



Photo 46. Sampling point DB-14 soil sample.



Photo 47. Sampling point DB-14 general area.



Photo 38. Sampling point DB-15 soil pit.



Photo 49. Sampling point DB-15 soil sample.



Photo 50. Sampling point DB-15 general area.



Photo 51. Sampling point DB-16 soil pit.



Photo 52. Sampling point DB-16 soil sample.



Photo 53. Sampling point DB-16 general area.



Photo 54. Sampling point DB-17 soil pit.



Photo 55. Sampling point DB-17 soil sample.



Photo 56. Sampling point DB-17 general area.

Appendix D: Photographic Documentation of Dike C



Photo 1. General view toward the northwest side of Dike C.



Photo 2. General view of the forested area to the west side of Dike C.



Photo 3. General view toward the north side of Dike C.



Photo 4. General view toward the northeast side of Dike C.



Photo 5. Another view toward the northeast side of Dike C.



Photo 6. Sampling point DC-1 soil pit.



Photo 7. Sampling point DC-1 soil sample.



Photo 8. Surface soil cracks within sampling point DC-1.



Photo 9. Sampling point DC-1 general area.



Photo 10. Sampling point DC-2 soil pit.



Photo 11. Sampling point DC-2 soil sample. 10G 5/1 gley is shown.



Photo 12. Another soil sample from sampling point DC-2.



Photo 13. Type of soil on the surface near sampling point DC-2.



Photo 14. Sampling point DC-2 general area.



Photo 15. Sampling point DC-3 soil pit.



Photo 16. Sampling point DC-3 soil sample.



Photo 17. Another soil sample from sampling point DC-3.



Photo 18. Another soil sample from sampling point DC-3.



Photo 19. Sampling point DC-3 general area.



Photo 20. Sampling point DC-4 soil pit.



Photo 21. Sampling point DC-4 soil sample.



Photo 22. Another soil sample from sampling point DC-4.



Photo 23. Sampling point DC-4 general area.



Photo 24. Sampling point DC-5 soil pit.



Photo 25 Sampling point DC-5 soil sample.



Photo 26. Another soil sample from sampling point DC-5.



Photo 27. Sampling point DC-5 general area.



Photo 28. Sampling point DC-6 soil pit.



Photo 29. Sampling point DC-6 soil sample.



Photo 30. Another soil sample from sampling point DC-6.



Photo 31. Sampling point DC-6 general area.



Photo 32. Sampling point DC-7 soil pit.



Photo 33. Sampling point DC-7 soil sample.



Photo 34. Another soil sample from sampling point DC-7.



Photo 35. Sampling point DC-7 general area.



Photo 36. Sampling point DC-8 soil pit.



Photo 37. Sampling point DC-8 soil sample.



Photo 38. Another soil sample from sampling point DC-8.



Photo 39. Sampling point DC-8 general area.



Photo 40. Sampling point DC-9 soil pit.



Photo 41. Sampling point DC-9 soil sample.



Photo 42. Another soil sample from sampling point DC-9.



Photo 43. Sampling point DC-9 general area.



Photo 44. Sampling point DC-10 soil pit.



Photo 45. Sampling point DC-10 soil sample.



Photo 46. Another soil sample from sampling point DC-10.



Photo 47. Sampling point DC-10 general area.



Photo 48. Sampling point DC-11 soil pit.



Photo 49. Sampling point DC-11 soil sample.



Photo 50. Another soil sample from sampling point DC-11.



Photo 51. Sampling point DC-11 general area.



Photo 52. Sampling point DC-12 soil pit.



Photo 53. Sampling point DC-12 soil sample.



Photo 54. Another soil sample from sampling point DC-12.



Photo 55. Sampling point DC-12 general area.



Photo 56. Sampling point DC-13 soil pit.



Photo 57. Sampling point DC-13 soil sample.



Photo 58. Sampling point DC-13 general area.



Photo 59. Sampling point DC-14 soil pit.



Photo 60. Sampling point DC-14 soil sample.



Photo 61. Sampling point DC-14 general area.



Photo 62. Sampling point DC-15 soil pit.



Photo 63. Sampling point DC-15 soil sample.



Photo 64. Another sampling point from sampling point DC-15.



Photo 65. Sampling point DC-15 general area.



Photo 66. Sampling point DC-16 soil pit.



Photo 67. Sampling point DC-16 soil sample.



Photo 68. Sampling point DC-16 general area.



Photo 69. Sampling point DC-17 soil pit.



Photo 70. Sampling point DC-17 soil sample.



Photo 71. Sampling point DC-17 general area.



Photo 72. Sampling point DC-18 soil pit.



Photo 73. Sampling point DC-18 soil sample.



Photo 74. Sampling point DC-18 general area.



Photo 75. Sampling point DC-19 soil pit.



Photo 76. Sampling point DC-19 soil sample.



Photo 77. Sampling point DC-19 general area.



Photo 78. Sampling point DC-20 soil pit.



Photo 79. Sampling point DC-20 soil sample.



Photo 80. Sampling point DC-20 general area.



Photo 81. Sampling point DC-21 soil pit.



Photo 82. Sampling point DC-21 soil sample.



Photo 83. Another soil sample from sampling point DC-21.



Photo 84. Sampling point DC-21 general area.

Appendix E: Photographic Documentation of the Staging Area



Photo 1. General view toward the north side of the Staging Area.



Photo 2. General view of the north central area of the Staging Area.



Photo 3. General view of the central area of the Staging Area.



Photo 4. General view toward the south of the Staging Area.



Photo 5. Photo showing garbage and debris within the Staging Area.



Photo 6. Sampling point SA-1 soil pit.



Photo 7. Samplin point SA-1 general area.



Photo 8. Sampling point SA-2 soil pit.



Photo 9. Sampling point SA-2 general area.



Photo 10. Sampling point SA-3 soil pit.



Photo 11. Sampling point SA-3 general area.



Photo 12. Sampling point SA-4 soil pit.



Photo 13. Sampling point SA-4 general area.



Photo 14. Sampling point SA-5 soil pit.



Photo 15. Sampling point SA- general area.



Photo 16. Sampling point SA-6 soil pit.



Photo 17. Sampling point SA-6 general area.



Photo 18. Sampling point SA-7 soil pit.



Photo 19. Sampling point SA-7 general area.



Photo 20. Sampling point SA-8 soil pit.



Photo 21. Sampling point SA-8 general area.



Photo 22. Sampling point SA-9 soil pit.



Photo 23. Sampling point SA-9 general area.



Photo 24. Sampling point SA-10 soil pit.



Photo 25. Sampling point SA-10 general area.



Photo 26. Sampling point SA-11 soil pit.



Photo 27. Sampling point SA-11 general area.



Photo 28. Sampling point SA-12 soil pit.



Photo 29. Sampling point SA-12 general area.



Photo 30. Sampling point SA-13 soil pit.



Photo 31. Sampling point SA-13 general area.

Appendix F: Data Forms of Dike A

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DA-1

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Rincón

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,310.927 Long: 244,861.046 Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of		Multiply by	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 3/2	100%						Dark brown
3-12	10YR 5/2	90%	5YR 4/6	10%	C	PL, M		Grayish brown w/yellowish red redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 10% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DA-2

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10%

Lat: 247.324.347 Long: 244.857.212 Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5YR 2.5/1	100%					Silty/clay	Black
2-14	7.5YR 3/2	100%					Silty/clay	Dark brown

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DA-3

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,254.816 Long: 244,832.539 Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal" given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	40%	Yes	FAC
2.			
3.			
4.			
5.			
	40% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum conjugatum	100%	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

<5% Hymenachne amplexicaulis (OBL). The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100%						Very dark grayish brown.
2-12	10YR 4/2	80%	5YR 4/6	20%	C, D	PL, M		Grayish brown w/yellowish red redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Dark surface layer over low chroma matrix with 20% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DA-4

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,296.684 Long: 244,810.110 Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Cell A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☑ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3 (surface)	10YR 6/2	80%	5YR 4/6	20%	C, D	PL, M	Silty/clay	Light brownish gray w/yellowish red redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 20% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required, check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DA-5

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Rincón

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2-5%

Lat: 247,133.697 Long: 244,754.036 Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	100%	5YR 4/6	<2%	D	M	Silty/clay	Dark brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Less than 2% redoxiphormic features, but matrix does not comply with chroma criterion for a depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project | Municipality/Town: Gurabo | Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority | PR or USVI: PR | Sampling Point: DA-6

Investigator(s): Jorge L. Coll Rivera | Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0-2%

Lat: 247,129.959 | Long: 244,768.242 | Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) | NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	10%	Yes	FAC
2.			
3.			
4.			
5.			
	40% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum conjugatum	90%	Yes	FAC
2. Hymenachne amplexicaulis	10%	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

<5% Polygonum glabrum (OBL). The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	80%	10R 4/8	20%	C, D	PL	Silty/clay	Very dark grayish brown w/red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 20% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project | Municipality/Town: Gurabo | Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority | PR or USVI: PR | Sampling Point: DA-7

Investigator(s): Jorge L. Coll Rivera | Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 5-10%

Lat: 247,135.940 | Long: 244,744.317 | Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) | NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	50%	Yes	FACW
2. Cynodon dactylon	50%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/1	100%						Very dark gray.
3-12	10YR 3/4	95%	5YR 4/6	2-5%	C	M		Dark yellowish brown

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

2 to 5% redoxiphormic features, but matrix does not comply with chroma criterion for a depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DA-8

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,046.970 Long: 244,756.279 Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____, Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Hymenachne amplexicaulis	100%	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	70%	10R 4/8	15%	C	PL	Silty/clay	Very dark grayish brown w/red redox.
			5YR 4/6	15%	C, D	PL, M	Silty/clay	Yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 30% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DA-9

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Rincón

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 246,991.644 Long: 244,867.679 Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____, Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	95%	5YR 4/6	5%	C, D	PL, M	Silty/clay	Very dark grayish brown w/yellowish red redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Organic Bodies (A6)
- [ ] 5 cm Mucky Mineral (A7)
- [ ] Muck Presence (A8)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7)
- [ ] Loamy Gleyed Matrix (F2)
- [x] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- [ ] Stratified Layers (A5)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes [x] No [ ]

Remarks:

Low chroma matrix with 5% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [x] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Fiddler Crab Burrows (C10)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [x] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [x] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [x] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [ ] No [x] Depth (inches):

Water Table Present? Yes [ ] No [x] Depth (inches):

Saturation Present? (includes capillary fringe) Yes [ ] No [x] Depth (inches):

Wetland Hydrology Present? Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project | Municipality/Town: Gurabo | Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority | PR or USVI: PR | Sampling Point: DA-10

Investigator(s): Jorge L. Coll Rivera | Ward/Estate: Rincón

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 5-10%

Lat: 246,979.682 | Long: 244,862.445 | Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 0 to 2% slopes (MaA) | NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (Muck) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal" given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	25%	Yes	FAC
2.			
3.			
4.			
5.			
	25% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	25%	Yes	FACW
2. Cynodon dactylon	75%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	7.5YR 3/3+	100%	5YR 4/6	<2%	D		M	Dark brown

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Less than 2% redoxiphormic features in a high chroma matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required, check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches):

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DA-11

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 246,998.373 Long: 245,006.741 Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 0 to 2% slopes (MaA) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	15%	Yes	FAC
2.			
3.			
4.			
5.			
	15% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of		Multiply by	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100%						Very dark gray.
4-7+	10YR 6/1	70%	5YR 4/6	30%	C, D	PL, M	Clay	Gray w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Dark surface layer over low chroma matrix with 30% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project | Municipality/Town: Gurabo | Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority | PR or USVI: PR | Sampling Point: DA-12

Investigator(s): Jorge L. Coll Rivera | Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0-2%

Lat: 247,052.204 | Long: 245,030.665 | Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 0 to 2% slopes (MaA) | NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	15%	Yes	FAC
2.			
3.			
4.			
5.			
	15% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100%						Very dark grayish brown.
3-14	10YR 3/2	90%	5YR 4/6	10%	C, D	PL, M	Silty/clay	Very dark grayish brown w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Dark surface layer over low chroma matrix with 10% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project | Municipality/Town: Gurabo | Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority | PR or USVI: PR | Sampling Point: DA-13

Investigator(s): Jorge L. Coll Rivera | Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 5-10%

Lat: 247,045.475 | Long: 245,041.880 | Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 0 to 2% slopes (MaA) | NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	25%	Yes	FAC
2.			
3.			
4.			
5.			
	25% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	35%	Yes	FACW
2. Cynodon dactylon	35%	Yes	FAC
3. Kyllinga brevifolia	30%	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/2	100%						Very dark grayish brown
4-12	10YR 3/4+	100%						Dark yellowish brown

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DA-14

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,102.296 Long: 245,046.366 Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100%						Very dark grayish brown
3-14	10YR 3/2	90%	5YR 4/6	10%	C, D	PL, M	Silty/clay	Very dark grayish brown w/yellowish red redox
14+	10YR 6/1	70%	5YR 4/6	30%	C, D	PL, M	Clay	Gray w/yellowish red redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Dark surface layer over low chroma matrix with 10% redoxiphormic features. 30% redoxiphormic features in a low chroma matrix below 14 inches from soil surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DA-15

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Rincón

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,263.040 Long: 245,098.701 Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Casearia sylvestris	25%	Yes	FAC
2.			
3.			
4.			
5.			
	25% = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Cynodon dactylon	20%	Yes	FAC
2. Cissus verticillata	10%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	30% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR 3/3	100%					Sand	Dark brown.
5-13	7.5YR 3/3	100%					Sand	Dark brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Only one secondary wetland hydrology indicator was found at this sampling point. Dike A was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. However, the area where this sampling point is located have never appeared flooded or saturated on aerial images.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project | Municipality/Town: Gurabo | Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority | PR or USVI: PR | Sampling Point: DA-16

Investigator(s): Jorge L. Coll Rivera | Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0-2%

Lat: 247,322.851 | Long: 245,085.244 | Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) | NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Jatropha gossypiifolia	30%	Yes	UPL
2. Solanum viarum	15%	Yes	UPL
3.			
4.			
5.			
	45% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Cynodon dactylon	100%	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	30% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1 =	0
FACW species	0%	x 2 =	0
FAC species	100%	x 3 =	300
FACU species	0	x 4 =	0
UPL species	45%	x 5 =	225
Column Totals:	145 (A)		525 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	7.5YR 3/3	100%					Sand	Dark brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Only one secondary wetland hydrology indicator was found at this sampling point. Dike A was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. However, the area where this sampling point is located have never appeared flooded or saturated on aerial images.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project | Municipality/Town: Gurabo | Sampling Date: June 19, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority | PR or USVI: PR | Sampling Point: DA-17

Investigator(s): Jorge L. Coll Rivera | Ward/Estate: Rincon

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0-2%

Lat: 247,310.889 | Long: 244,961.134 | Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) | NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

Dike A was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	20%	Yes	UPL
2. Cestrum diurnum	15%	Yes	UPL
3.			
4.			
5.			
	45% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Cynodon dactylon	25%	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	30% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1 =	0
FACW species	0%	x 2 =	0
FAC species	25%	x 3 =	75
FACU species	0	x 4 =	0
UPL species	35%	x 5 =	175
Column Totals:	60 (A)		250 (B)

Prevalence Index = B/A = 4.2

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DA-17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	7.5YR 3/3	100%					Sand	Dark brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Only one secondary wetland hydrology indicator was found at this sampling point. Dike A was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir.

Appendix G: Data Forms of Dike B

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraízo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-1

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10%

Lat: 248,238.316 Long: 247,037.837 Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	30%	Yes	FAC
2.			
3.			
4.			
5.			
	30% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	50%	Yes	FACW
2. Brachiaria purpurascens	50%	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/4	100%					Silty/clay	Dark yellowish brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraízo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-2

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 248,245.406 Long: 247,030.103 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Brachiaria purpurascens	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	7.5YR 2.5/1	100%					Clay	Black.
7-12	7.5YR 3/2	65%	2.5YR 3/4	35%				Dark brown w/ dark reddish brown redox.
12+	7.5YR 3/2	40%	5BG 4/1	60%	D	M	Clay/loam	Dark brown. w/dark greenish gray gley.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☑ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Dark surface layer over low chroma matrix with 35% prominent redoxiphormic features. Gleyed matrix starting at 12 inches from soil surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-3

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2-5%

Lat: 248,240.572 Long: 247,034.614 Datum: State Plane, NAD 83

Soil Map Unit Name: Toa silty clay loam, 0 to 2% slopes (To) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	100%	Yes	FAC
2.			
3.			
4.			
5.			
	100% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Brachiaria purpurascens	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/4	95%	10R 3/6	5%	C	PL, M	Silty/clay	Dark yellowish brown w/dark red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

5% of redoxiphormic features; however, matrix does not comply with the low chroma criterion.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-4

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2-5%

Lat: 248,381.717 Long: 247,130.000 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	75%	Yes	FAC
2.			
3.			
4.			
5.			
	75% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Brachiaria purpurascens	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/4	100%					Silty/clay	Dark yellowish brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-5

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 248,387.840 Long: 247,121.299 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	25%	Yes	FAC
2.			
3.			
4.			
5.			
	25% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Brachiaria purpurascens	50%	Yes	FACW
2. Hymenachne amplexicaulis	50%	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 2.5/1+	100%					Clay	Black.
3-7	7.5YR 3/2	80%	2.5YR 3/6	20%	C, D	PL, M	Silty/clay	Very dark grayish brown w/dark red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Dark surface layer over low chroma matrix with 20% prominent redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-6

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 248,488.860 Long: 247,129.033 Datum: State Plane, NAD 83

Soil Map Unit Name: Naranjito silty clay loam, 12 to 20% slopes (NaD2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	90%	Yes	FAC
2.			
3.			
4.			
5.			
	90% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Brachiaria purpurascens	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100%					Clay	Very dark grayish brown.
2-12	7.5YR 3/2	80%	2.5YR 3/6	5%	C, D	PL, M	Silty/clay	Very dark grayish brown w/dark red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Dark surface layer over low chroma matrix with 5% prominent redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-7

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2-5%

Lat: 248,501.560 Long: 247,130.621 Datum: State Plane, NAD 83

Soil Map Unit Name: Naranjito silty clay loam, 12 to 20% slopes (NaD2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	30%	Yes	FAC
2.			
3.			
4.			
5.			
	30% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	20%	Yes	FACW
2. Kyllinga brevifolia	40%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/3	100%	2.5YR 3/6	<2%	C	PL	Silty/clay	Dark brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Matrix does not comply with the chroma criterion for a depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-8

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 248,532.252 Long: 246,875.033 Datum: State Plane, NAD 83

Soil Map Unit Name: Naranjito silty clay loam, 12 to 20% slopes (NaD2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	50%	Yes	FAC
2.			
3.			
4.			
5.			
	50% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	50%	Yes	FACW
2. Hymenachne amplexicaulis	20%	Yes	OBL
3. Paspalum conjugatum	30%	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	70%	2.5YR 3/6	25%	C, D	PL, M	Silty/clay	Very dark grayish brown w/dark red redox.
			10R 4/8	5%	C	M		Red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 30% prominent redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-9

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2-5%

Lat: 248,537.014 Long: 246,857.570 Datum: State Plane, NAD 83

Soil Map Unit Name: Naranjito silty clay loam, 12 to 20% slopes (NaD2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	5%	Yes	FAC
2.			
3.			
4.			
5.			
	5% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/4	100%					Silty/clay	Dark yellowish brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-10

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 248,431.181 Long: 246,714.166 Datum: State Plane, NAD 83

Soil Map Unit Name: Mucara clay, 12 to 20% slopes (MxD) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum conjugatum	60%	Yes	FAC
2. Hymenachne amplexicaulis	40%	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100%					Silty	Very dark brown. Highly organic.
2-12	10YR 3/2	65%	10R 4/8	15%	C, D	M	Silty/clay	Very dark grayish brown w/red redox.
			2.5YR 3/6	20%	C, D	PL, M		dark red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Highly organic dark surface layer over low chroma matrix with 35% prominent redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-11

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2-5%

Lat: 248,465.047 Long: 246,702.524 Datum: State Plane, NAD 83

Soil Map Unit Name: Mucara clay, 12 to 20% slopes (MxD) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/2+	100%					Silty	Very dark grayish brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-12

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 248,317.939 Long: 246,740.492 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum conjugatum	50%	Yes	FAC
2. Hymenachne amplexicaulis	50%	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100%					Silty/clay	Black. Highly organic.
6-8	10YR 3/2	80%	2.5YR 3/6	20%	C, D	PL, M	Silty/clay	Very dark grayish brown w/dark red redox.
8-11	5BG 4/1	60%			D	M	Loam	Dark greenish gray gley

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☑ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Highly organic dark surface layer over low chroma matrix with 20% prominent redoxiphormic features. Gleyed matrix starting at 8 inches from soil surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-13

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10%

Lat: 248,310.398 Long: 246,732.158 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum conjugatum	30%	Yes	FAC
2. Kyllinga brevifolia	50%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	80% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/4	100%					Silty/clay	Dark yellowish brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-14

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 248,216.471 Long: 246,933.241 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Hymenachne amplexicaulis	60%	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	60% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☑ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100%					Silty/clay	Black. Highly organic.
4-11	10YR 3/2	80%	5YR 4/6	20%	C, D	PL, M	Silty/clay	Very dark grayish brown w/dark red redox.
11+	5BG 4/1	60%			D	M	Loam	Dark greenish gray gley

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☑ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Highly organic dark surface layer over low chroma matrix with 20% prominent redoxiphormic features. Gleyed matrix starting at 11 inches from soil surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-15

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10%

Lat: 248,310.398 Long: 246,732.158 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/3	100%					Silty/clay	Dark brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraízo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-16

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 248,487.008 Long: 246,979.544 Datum: State Plane, NAD 83

Soil Map Unit Name: Naranjito silty clay loam, 12 to 20% slopes (NaD2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Hymenachne amplexicaulis	100%	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	70%	2.5YR 3/6	30%	C, D	PL, M	Silty/clay	Very dark grayish brown w/dark red redox.
9-+	5BG 4/1	60%			D	M	Loam	Dark greenish gray gley

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☑ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 30% prominent redoxiphormic features. Gleyed matrix starting at 9 inches from soil surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 26, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DB-17

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Celada

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10%

Lat: 248,498.253 Long: 246,982.189 Datum: State Plane, NAD 83

Soil Map Unit Name: Naranjito silty clay loam, 12 to 20% slopes (NaD2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	30%	Yes	FAC
2.			
3.			
4.			
5.			
	30% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum conjugatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DB-17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 3/4	100%					Silty/clay	Dark yellowish brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike B was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Since then, it functions as a large pond that collects water during rain events. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

Appendix H: Data Forms of Dike C

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-1

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,569.984 Long: 251,061.824 Datum: State Plane, NAD 83

Soil Map Unit Name: Via clay loam, 5 to 12% slopes, eroded (VkC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	100%	Yes	FAC
2.			
3.			
4.			
5.			
	100% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8			
	= Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	60%	10R 5/8	40%	C, D	PL, M	Silty/clay	Dark brown w/red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

40% redoxiphormic features in a low chroma matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraízo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-2

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,587.351 Long: 250,962.588 Datum: State Plane, NAD 83

Soil Map Unit Name: Via clay loam, 5 to 12% slopes, eroded (VkC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	5%	Yes	FAC
2.			
3.			
4.			
5.			
	5% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Hymenachne amplexicaulis	10%	Yes	OBL
2. Eichhornia crassipes	5%	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	15% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	70%	10R 4/8	30%	C	PL, M	Silty/clay	Very dark grayish brown w/red redox.
8-14	10YR 3/2	60%	10R 4/8	35%	C	PL, M	Silty/clay	Very dark grayish brown w/red redox.
			10G 5/1	5%	C	M	Clay	Greenish gray

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Many redoxiphormic features in a low chroma matrix. Presence of gleyed material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-3

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,684.106 Long: 250,853.428 Datum: State Plane, NAD 83

Soil Map Unit Name: Via clay loam, 5 to 12% slopes, eroded (VkC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum conjugatum	90%	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100%						Very dark grayish brown.
8-14	10YR 6/2	70%	10R 4/8	30%	C	PL	Clay	Light brownish gray w/red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Dark surface layer over low chroma matrix with 30% prominent redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-4

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,850.327 Long: 250,749.230 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoB) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	100%	Yes	FAC
2.			
3.			
4.			
5.			
	100% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	75%	10R 4/8	25%	C, D	PL, M	Silty/clay	Very dark grayish brown w/red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 25% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-5

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,925.994 Long: 250,612.780 Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 5 to 12% slopes (MaC) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	100%	Yes	FAC
2.			
3.			
4.			
5.			
	100% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	60%	10R 4/8	40%	C, D	PL, M	Silty/clay	Very dark grayish brown w/red redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 40% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-6

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,961.968 Long: 250,416.788 Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 5 to 12% slopes (MaC) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	100%	Yes	FAC
2.			
3.			
4.			
5.			
	100% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	20%	Yes	FACW
2. Cynodon dactylon	10%	No	FAC
3. Commelina diffusa	50%	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	80% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100%					Silty/clay	Dark brown.
3-10	7.5YR 4/2	80%	5YR 4/6	20%	C, D	PL, M	Silty/clay	Brown w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 40% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-7

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,713.877 Long: 250,398.181 Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 2 to 5% slopes (MaB) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	100%	Yes	FAC
2.			
3.			
4.			
5.			
	100% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	20%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100%					Silty/clay	Dark brown.
4-15	10YR 3/2	95%	5YR 4/6	5%	C, D	PL, M	Silty/clay	Brown w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 40% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-8

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,638.209 Long: 250,538.352 Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 5 to 12% slopes (MaC) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	100%	Yes	FAC
2.			
3.			
4.			
5.			
	100% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	20%	Yes	FACW
2. Vigna luteola	30%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	50% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	80%	10R 4/8	20%	C, D	PL, M	Silty/clay	Dark brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 20% redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-9

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,617.122 Long: 250,641.310 Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 5 to 12% slopes (MaC) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	20%	Yes	FAC
2.			
3.			
4.			
5.			
	20% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Hymenachne amplexicaulis	100%	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100%					Silty/clay	Very dark grayish brown.
6-15	10YR 3/2	80%	5YR 4/6	20%	C, D	PL, M	Silty/clay	Very dark grayish brown w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 20% prominent redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-10

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,582.389 Long: 250,710.775 Datum: State Plane, NAD 83

Soil Map Unit Name: Via clay loam, 5 to 12% slopes, eroded (VkC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	30%	Yes	FAC
2.			
3.			
4.			
5.			
	30% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Cynodon dactylon	35%	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	35% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species N/A	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/2	100%					Silty/clay	Dark grayish brown.
5-14	10YR 3/2	90%	5YR 4/6	10%	C, D	PL, M	Silty/clay	Very dark grayish brown w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Iron concretions (diffuse boundaries) present. Low chroma matrix with 20% prominent redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-11

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,520.366 Long: 250,870.794 Datum: State Plane, NAD 83

Soil Map Unit Name: Via clay loam, 5 to 12% slopes, eroded (VkC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Hymenachne amplexicaulis	25%	Yes	OBL
2. Ludwigia octovalvis	30%	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	55% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	80%	5YR 4/6	20%	C, D	PL, M	Silty/clay	Very dark grayish brown w/yellowish red redox.
12+	10YR 3/2	80%	10G 5/1	20%	D	M	Clay	Greenish gray gley.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 20% prominent redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-12

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,406.244 Long: 250,957.626 Datum: State Plane, NAD 83

Soil Map Unit Name: Via clay loam, 5 to 12% slopes, eroded (VkC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	80%	Yes	FAC
2.			
3.			
4.			
5.			
	80% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Hymenachne amplexicaulis	80%	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	80% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100%					Silty/clay	Very dark grayish brown.
3-8	10YR 3/2	80%	5YR 4/6	25%	C, D	PL, M	Clay	Very dark grayish brown w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 25% prominent redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-13

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,727.522 Long: 250,276.617 Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 2 to 5% slopes (MaB) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Senna siamea	35%	Yes	UPL
2. Bourreria succulenta	10%	Yes	UPL
3. Casearia guianensis	10%	Yes	FAC
4.			
5.			
	55%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 5 feet radius)			
1. Commelina erecta	5%	Yes	FAC
2. Cynodon dactylon	10%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	15%	= Total Cover	
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100%					Sand	Dark brown.
5-15	7.5YR 3/3	100%					Sand	Dark brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Only one secondary wetland hydrology indicator was found at this sampling point. Dike A was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. However, the area where this sampling point is located have never appeared flooded or saturated on aerial images.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-14

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,769.697 Long: 250,233.201 Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 2 to 5% slopes (MaB) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Spathodea campanulata	20%	Yes	FACU
2. Casearia sylvestris	25%	Yes	FAC
3. Casearia guianensis	25%	Yes	FAC
4.			
5.			
	70%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5 feet radius)			
1. Commelina erecta	15%	No	FAC
2. Cynodon dactylon	60%	Yes	FAC
3. Paspalum conjugatum	10%	No	FAC
4.			
5.			
6.			
7.			
8.			
	85%	= Total Cover	

Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100%					Sand	Dark brown.
5-15	7.5YR 3/3	100%					Sand	Dark brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Only one secondary wetland hydrology indicator was found at this sampling point. Dike A was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. However, the area where this sampling point is located have never appeared flooded or saturated on aerial images.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-15

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,892.502 Long: 250,772.798 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 2 to 5% slopes (RoB) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	100%	Yes	FAC
2.			
3.			
4.			
5.			
	100% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/2	100%					Silty/clay	Very dark grayish brown.
2-12	10YR 4/2	80%	10R 4/8	20%	C, D	PL, M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Dark surface layer over low chroma matrix with 20% prominent redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-16

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10%

Lat: 247,925.994 Long: 250,767.836 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 2 to 5% slopes (RoB) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Spathodea campanulata	20%	Yes	FACU
2. Zanthoxylum monophylum	5%	Yes	UPL
3.			
4.			
5.			
	25%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	70%	Yes	FAC
2.			
3.			
4.			
5.			
	70%	= Total Cover	
Herb Stratum (Plot size: 5 feet radius)			
1. Kyllinga brevifolia	15%	Yes	FAC
2. Tournefortia hirsutissima	20%	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	35%	= Total Cover	
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	7.5YR 4/4	95%	5YR 4/6	5%	C, D	PL, M	Silty/clay	Brown w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

5% redoxiphormic features; however, matrix does not comply with chroma criterion for a depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraízo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-17

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2-5%

Lat: 247,876.376 Long: 250,264.212 Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 2 to 5% slopes (MaB) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Casearia guianensis	40%	Yes	FAC
2.			
3.			
4.			
5.			
	40%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	50%	Yes	FAC
2.			
3.			
4.			
5.			
	50%	= Total Cover	
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	10%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10%	= Total Cover	
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	7.5YR 3/2	100%	10R 4/8	<2%	D	M	Silty/clay	Brown w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

<2% redoxiphormic features; however, matrix comply with chroma criterion for a depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-18

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10%

Lat: 247,584.870 Long: 250,571.845 Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 5 to 12% slopes (MaC) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	30%	Yes	FAC
2.			
3.			
4.			
5.			
	30% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	50%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species N/A	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	7.5YR 3/2	100%					Silty/clay	Dark brown.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-19

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10%

Lat: 247,594.793 Long: 250,575.566 Datum: State Plane, NAD 83

Soil Map Unit Name: Mabi clay, 5 to 12% slopes (MaC) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	40%	Yes	FAC
2.			
3.			
4.			
5.			
	40% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	7.5YR 3/2	90%	10R 4/8	5%	C	M	Silty/clay	Dark brown w/red redox.
			5YR 4/6	5%	C, D	PL, M	Silty/clay	Dark brown w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 5% prominent and 5% distinct redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-20

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5-10%

Lat: 247,452.141 Long: 251,033.293 Datum: State Plane, NAD 83

Soil Map Unit Name: Via clay loam, 5 to 12% slopes, eroded (VkC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	50%	Yes	FAC
2.			
3.			
4.			
5.			
	50% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Kyllinga brevifolia	10%	No	FAC
2. D-1	60%	Yes	
3.			
4.			
5.			
6.			
7.			
8.			
	70% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: DC-20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	7.5YR 4/3	100%	5YR 4/6	<2%	D	M	Silty/clay	Brown w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

<2% redoxiphormic features; however, matrix does not comply with chroma criterion for a depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants. However, it is difficult to determine if inundation or saturation that is visible on aerial images reach the topographic elevation of this sampling point on a frequent basis.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 17, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: DC-21

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Hato Nuevo

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 247,517.885 Long: 251,059.343 Datum: State Plane, NAD 83

Soil Map Unit Name: Via clay loam, 5 to 12% slopes, eroded (VkC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraizo Reservoir. Nevertheless, existing circumstances are considered "normal", given that the development of wetlands is expected

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	100%	Yes	FAC
2.			
3.			
4.			
5.			
	100% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

Bare soil (vegetation was removed); however, adjacent vegetation is 100% Mimosa pigra. The 2016 Wetland Plant List was used to determine indicator status

SOIL

Sampling Point: DC-21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 3/2	100%					Silty/clay	Dark brown.
5-12	7.5YR 3/2	95%	5YR 4/6	5%	C	M	Silty/caly	Dark brown w/yellowish red redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Low chroma matrix with 5% distinct redoxiphormic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dike C was constructed to dispose of dredge material (slurry) from the Carraízo Reservoir. This condition has promoted the development of hydric soils and the establishment of wetland plants.

Appendix I: Data Forms of the Staging Area

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-1

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,091.032 Long: 244,793.584 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	20%	Yes	FACW
2. Cenchrus purpureus	10%	Yes	FAC
3. Pueraria phaseoloides	25%	Yes	UPL
4.			
5.			
6.			
7.			
8.			
	55% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100%					Silty/clay	Very dark grayish brown.
1-14	7.5YR 5/8	100%					Silty	Fill Material (limestone)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Fill Material. No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators were found at this sampling point.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-2

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,115.893 Long: 244,769.301 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100%					Silty/clay	Very dark grayish brown.
2+	N/A						N/A	Fill Material (concrete debris)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Fill material. No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Only one secondary wetland hydrology indicator was found at this sampling point.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-3

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,167.927 Long: 244,802.256 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: N/A (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 4/3	100%					Sand	Brown sand.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Only one secondary wetland hydrology indicator was found at this sampling point.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-4

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,225.743 Long: 244,762.942 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	90%	Yes	FACW
2. Cenchrus purpureus	10%	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1 =	0
FACW species	90%	x 2 =	180
FAC species	10%	x 3 =	30
FACU species	0%	x 4 =	0
UPL species	0%	x 5 =	0
Column Totals:	100% (A)		210 (B)

Prevalence Index = B/A = 2.1

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☑ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100%					Silty/clay	Very dark grayish brown.
2-4	N/A						N/A	Fill Material (limestone + concrete debris)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Fill material. No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Only one secondary wetland hydrology indicator was found at this sampling point.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-5

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,197.992 Long: 244,718.423 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	30%	Yes	FACW
2. Cenchrus purpureus	5%	No	FAC
3. Megathyrsus maximus	30%	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	65% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1 =	0
FACW species	30%	x 2 =	60
FAC species	5%	x 3 =	15
FACU species	30%	x 4 =	120
UPL species	0%	x 5 =	0
Column Totals:	65% (A)		195 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☑ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100%					Silty/clay	Very dark grayish brown.
2-11	10YR 4/3	100%					Sand	Brown sand.
11+	N/A						N/A	Fill Material (limestone + concrete debris)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Fill material under 11 inches from soil surface. No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators were found at this sampling point.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-6

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,163.880 Long: 244,695.297 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Megathyrsus maximus	90%	Yes	FACU
2. Cenchrus purpureus	10%	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100%					Silty/clay	Very dark grayish brown.
2+	N/A						N/A	Fill Material (limestone + concrete debris)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Fill material. No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators were found at this sampling point.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-7

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,197.413 Long: 244,666.967 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material. It was raining during field work.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Sporobolus jacquemontii	100%	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100%					Silty/clay	Very dark grayish brown.
2+	N/A						N/A	Fill Material (concrete debris)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Fill material. No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators were found at this sampling point.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-8

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,233.259 Long: 244,700.501 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material. It was raining during field work.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. Mimosa pigra	10%	Yes	FAC
2.			
3.			
4.			
5.			
	10% = Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Megathyrsus maximus	90%	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1 =	
FACW species	0%	x 2 =	
FAC species	10%	x 3 =	30
FACU species	90%	x 4 =	360
UPL species	0%	x 5 =	0
Column Totals:	100% (A)		390 (B)

Prevalence Index = B/A = 3.9

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100%					Silty/clay	Very dark grayish brown.
2+	N/A						N/A	Fill Material (concrete debris)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Fill material. No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators were found at this sampling point.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-9

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,265.058 Long: 244,735.768 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material. It was raining during field work.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. Spathodea campanulata	40%	Yes	FACU
2.			
3.			
4.			
5.			
	40%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 5 feet radius)			
1. Euphorbia heterophylla	15%	No	FACU
2. Commelina diffusa	70%	Yes	FAC
3. Cenchrus purpureus	10%	No	FAC
4. Pueraria phaseoloides	15%	No	UPL
5.			
6.			
7.			
8.			
	110%	= Total Cover	
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1 =	0
FACW species	0%	x 2 =	0
FAC species	80%	x 3 =	240
FACU species	55%	x 4 =	120
UPL species	15%	x 5 =	75
Column Totals:	150% (A)		435 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☑ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-9

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,265.058 Long: 244,735.768 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material. It was raining during field work.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Spathodea campanulata	40%	Yes	FACU
2.			
3.			
4.			
5.			
	40%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: 5 feet radius)			
1. Euphorbia heterophylla	15%	No	FACU
2. Commelina diffusa	70%	Yes	FAC
3. Cenchrus purpureus	10%	No	FAC
4. Pueraria phaseoloides	15%	No	UPL
5.			
6.			
7.			
8.			
	110%	= Total Cover	
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	_____	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1 =	0
FACW species	0%	x 2 =	0
FAC species	80%	x 3 =	240
FACU species	55%	x 4 =	120
UPL species	15%	x 5 =	75
Column Totals:	150% (A)		435 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☑ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraízo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-10

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,268.527 Long: 244,676.796 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraízo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material. It was raining during field work.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Spathodea campanulata	10%	Yes	FACU
2. Spondias dulcis	10%	Yes	UPL
3.			
4.			
5.			
	10%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	10%	Yes	FACW
2.			
3.			
4.			
5.			
6			
7.			
8.			
	10%	= Total Cover	
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	_____	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1 =	0
FACW species	10%	x 2 =	20
FAC species	0%	x 3 =	0
FACU species	10%	x 4 =	40
UPL species	10%	x 5 =	50
Column Totals:	30 (A)		110 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/4	100%					Sand	Brown sand.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators were found at this sampling point.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraízo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-11

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Bairoa

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,324.030 Long: 244,694.141 Datum: State Plane, NAD 83

Soil Map Unit Name: Canteras and Graveros (GPQ) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraízo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material. It was raining during field work.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	60%	Yes	FACW
2. Cenchrus purpureus	30%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/4	100%					Sand	Dark yellowish brown sand.
12+	N/A						N/A	Fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Only one secondary wetland hydrology indicator was found at this sampling point.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-12

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Río Cañas

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,332.124 Long: 244,643.263 Datum: State Plane, NAD 83

Soil Map Unit Name: Rio Arriba clay, 5 to 12% slopes (RoC2) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material. It was raining during field work.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 feet radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Megathyrsus maximus	90%	Yes	FACU
2. Mimosa casta	20%	No	FACW
3. Pueraria phaseoloides	40%	Yes	UPL
4.			
5.			
6.			
7.			
8.			
	150% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1 =	0
FACW species	20%	x 2 =	40
FAC species	0%	x 3 =	0
FACU species	90%	x 4 =	360
UPL species	40%	x 5 =	200
Column Totals:	150% (A)		600 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/4	100%					Silty/clay	Dark yellowish brown sand.
12+	N/A						N/A	Fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators were found at this sampling point.

WETLAND DETERMINATION DATA FORM – Caribbean Islands Region

Project/Site: Carraizo Reservoir Dredging Project Municipality/Town: Gurabo Sampling Date: June 27, 2021

Applicant/Owner: Puerto Rico Aqueduct and Sewer Authority PR or USVI: PR Sampling Point: SA-13

Investigator(s): Jorge L. Coll Rivera Ward/Estate: Rio Cañas

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Lat: 249,356.407 Long: 244,640.950 Datum: State Plane, NAD 83

Soil Map Unit Name: Canteras and Graveros (GPQ) NWI classification: NP

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

The area was prepared as a staging area for the 1998 Carraizo Reservoir dredging project. Once the project was terminated, the staging area was abandoned and vegetation established naturally. Most of the site contains fill material. It was raining during field work.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 feet radius)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 feet radius)			
1. Paspalum fasciculatum	70%	Yes	FACW
2. Cenchrus purpureus	30%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 feet radius)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	N/A	x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

The 2016 Wetland Plant List was used to determine indicator status.

SOIL

Sampling Point: SA-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100%					Sandy/silt	Very dark grayish brown.
2-15	10YR 3/3	100%					Sand	Dark brown sand.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Organic Bodies (A6)
- ☐ 5 cm Mucky Mineral (A7)
- ☐ Muck Presence (A8)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Stratified Layers (A5)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators were found at this sampling point.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Fiddler Crab Burrows (C10)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

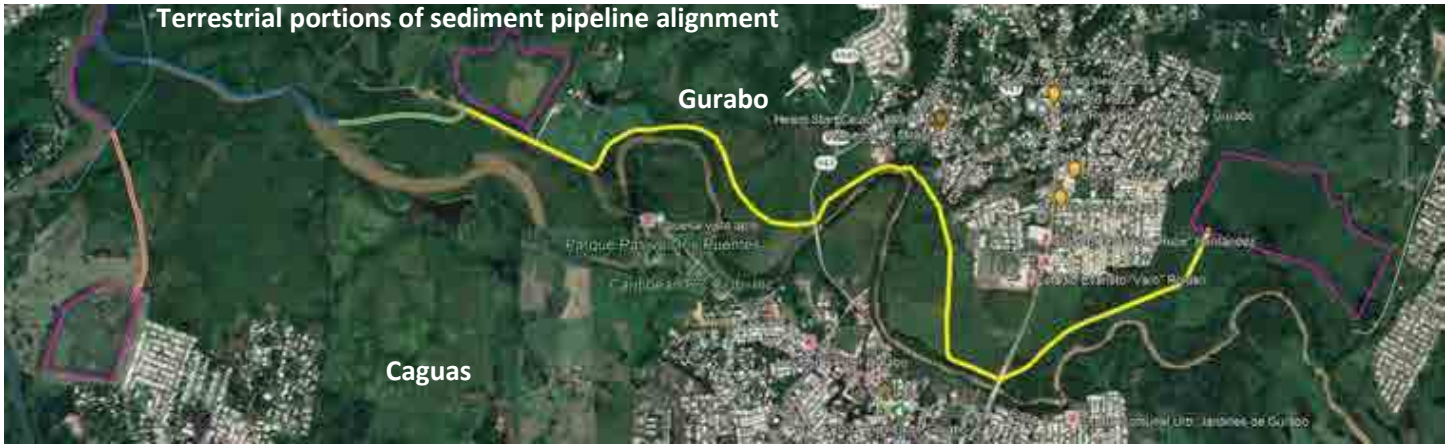
Only one secondary wetland hydrology indicator was found at this sampling point.

Technical Memorandum

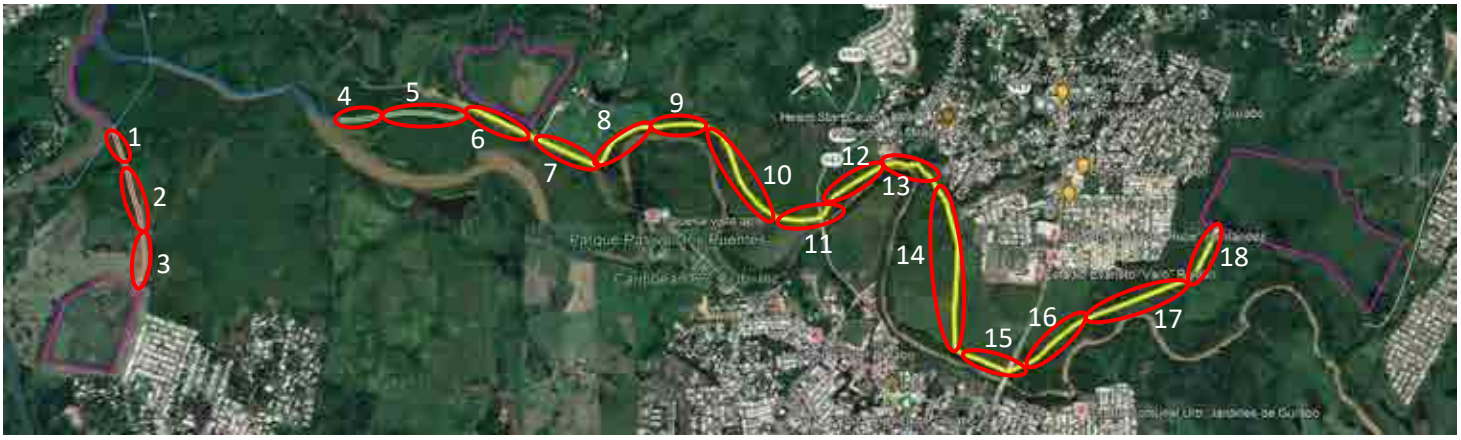
Project Name: PRASA Carraízo Reservoir Dredging | **Project Number:** 20-0261 | **Date:** April 13, 2022

To:	File	**From:**	Francisco J Pérez
Copy to:	Rubén Rivera Rosario	**Subject:**	Site visit notes and drone picture interpretation
Subject:	Reconnaissance-level observations		

On Friday, March 18, 2022, CSA visited the site for the proposed sediment pipeline route to the disposal dikes. The purpose was to conduct a reconnaissance-level evaluation of potential wetland impacts. Flora, fauna and habitat observations were made. The following image shows the approximate areas visited.



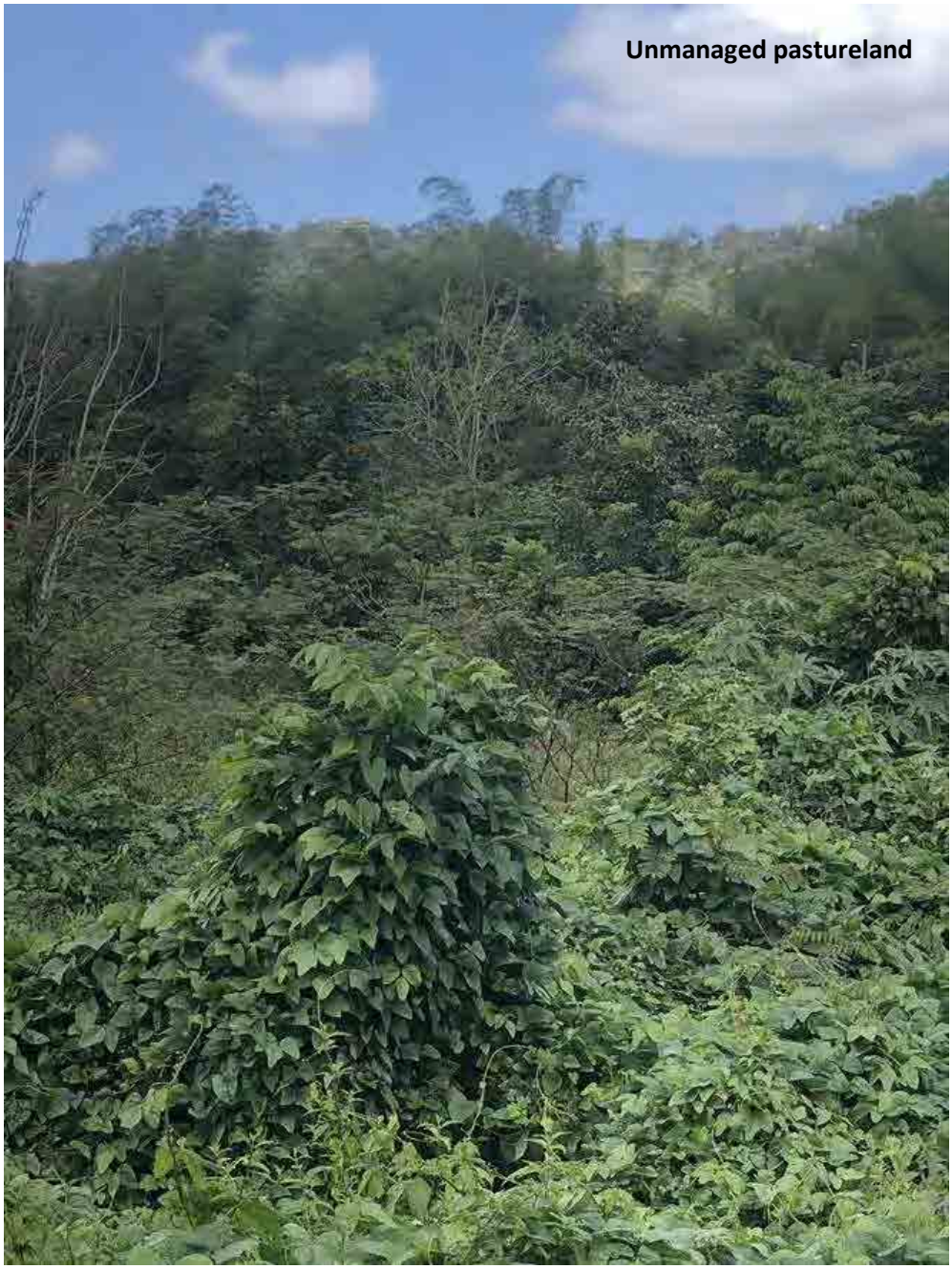
Weather conditions for this day were sunny and warm; rainfall so far in March was 2.59 inches[i], which appears to be above-average for the month and the region; monthly 1981-2010 normal precipitation for March in Gurabo is 2.59 inches[ii]. March ended with a total of 2.91 inches of rain. Most of the parcels visited were fenced, so access was limited; however, we had the opportunity to enter many areas that were accessible from the roads and observed others from the property line. Some of the conclusions in this document are based on evaluation of the drone pictures[iii]. The figure below shows numbered segments represented by the pictures and text throughout the document.



Habitats

The main habitats observed were unmanaged and managed pasture lands, and dense bamboo strips along riparian borders and, apparently, as property dividers. Tilled cropland was observed east of disposal dike B. A stretch of the pipeline route along the bottom of the outer slope of sediment disposal dike B is unique in that many trees were apparently planted, and others were allowed to grow, giving it a secondary forest appearance; PRASA is committed to avoid tree impacts along the proposed sediment pipeline alignment. Another singular habitat encountered along the route is water crossings: all of the ones observed were carved into the clay soil, leaving the creek, brook or ditch a few to several feet below the adjoining upland surface. What follows is a pictorial and depiction of these.

Unmanaged pasturelands were the most common habitat observed along the pipeline route. Area grasslands are dominated by Venezuelan grass (*Paspalum fasciculatum*), sour paspalum (*Paspalum conjugatum*) with dominant succession by various *Mimosa* species, mainly the catclaw mimosa (*Mimosa pellita*) the giant sensitive tree (*M. pigra*), and various other shrubs, such as bellyache bush (*Jatropha gossypiifolia*), and vines, such as Bejuco de Puerco (*Ipomea setifera*). Various trees were also present in the areas with more advanced stages of succession, such as the *African tulip tree* (*Spathodea campanulata*), tall albizia (*Albizia procera*) *Guyanese wild coffee* (*Casearia guianensis*), and crackopen (*Casearia sylvestris*). The bamboo (*Bambusa vulgaris*) was mainly found at the edge of the reservoir. Visual wetland hydrology indicators were absent, except along the water crossings, and the dominant soils were clays. Representative of segments 5, 6, 10, 11, 14 and 16.



Unmanaged pastureland


Unmanaged pastureland



Unmanaged pastureland

Managed pasturelands were the second most observed habitat within the site and were in use by cattle and horses. Dominated by the Venezuelan grass (*Paspalum fasciculatum*), sour paspalum (P. conjugatum) and also frequently invaded by the giant sensitive tree (*Mimosa pigra*). Visual wetland hydrology indicators were absent, except in the water crossings, and the dominant soils were clays.
Representative of segments 11, 12, 13, 15, 17 and 18.



Managed pastureland


Managed pastureland



Managed pastureland

Dense bamboo strips line the reservoir shores, many of the water crossings, and were also observed along the margins of grasslands, likely planted as property boundaries. They form an abrupt boundary, and the pipeline route avoids them for the most part. They are ubiquitous throughout the pipeline route. Visual wetland hydrology indicators were absent, except in the few water crossings, and the dominant soils were clays.



Dense bamboo strips





Outer slope of sediment disposal dike B has the greatest diversity of trees and plants in general, including: the tall albicia (*Albizia procera*), bamboo (*Bambusa vulgaris*), *Guyanese wild coffee* (*C. guianensis*), wild honeytree (*Casearia decandra*), royal palm (*Roystonea borinquena*), corky passionflower (*Passiflora suberosa*), florida fiddlewood (*Citharexylum spinosum*), Australian pine (*Casuarina equisetifolia*), African tulip tree (*Spathodea campanulata*), and zarza (*Mimosa spp.*). It is a small stretch, covering approximately 340 meters. Most trees are against the property fence, adjacent to PR-941, or on the slope properly, whereas the pipeline will lay on the depression between them. Visual wetland hydrology indicators were absent, and the dominant soils were fill.



Water crossings. The following water crossings are present:

- Drainage crossing PR-941, at the eastern end of segment 5.
- Brook, in the middle of segment 9.
- A creek in segment 13. Existing concrete and steel structure may support the pipe, pictured below.
- A drainage ditch in segment 13, pictured in the next page.
- A drainage ditch in segment 15.



Water crossings


Water crossings

Tilled cropland east of disposal dike B. - These areas show soil preparation for farming activities. Visual wetland hydrology indicators were absent, except in the few water crossings, and the dominant soils were clays.





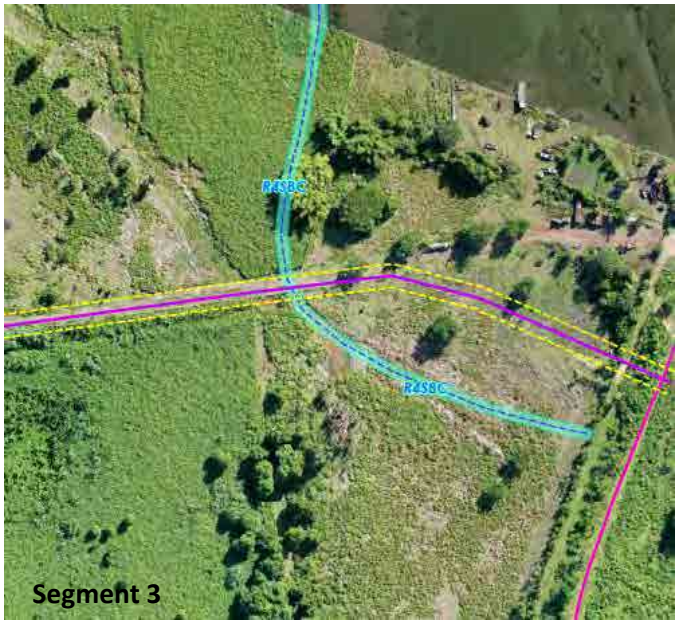
Wetlands.

The National Wetland Inventory (NWI)[iv] is a planning and assessment tool that indicates the probability of wetlands presence in a location. It may be helpful in determining whether wetland-related permits may be needed for activities in a specific location. An assessment was made using drone images, overlaid with information from the NWI maps. Changes in the water features morphology layer might lead to inaccurate determination of wetland areas. The following potential wetland impacts have not been definitively confirmed during the site visit. A formal wetland delineation will be conducted for the required US Army Corp of Engineers permitting process. However no fill has been proposed along the sediment pipeline alignment, the pipeline would be layered on top of the existing ground and secured with a bracing system. The representation of booster pump locations is approximate and these have been proposed to be located in areas considered as upland.

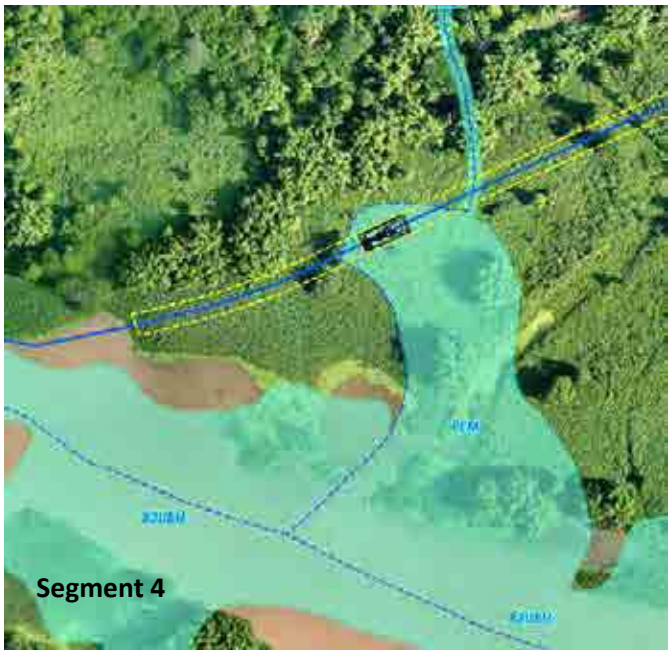
Segment 1. This 153-meter (m) section of pipe has been proposed on an area classified as R2UBH (Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded). Within the 12-m easement width, this comes to an approximate area of 1,833 square meters (m^2).

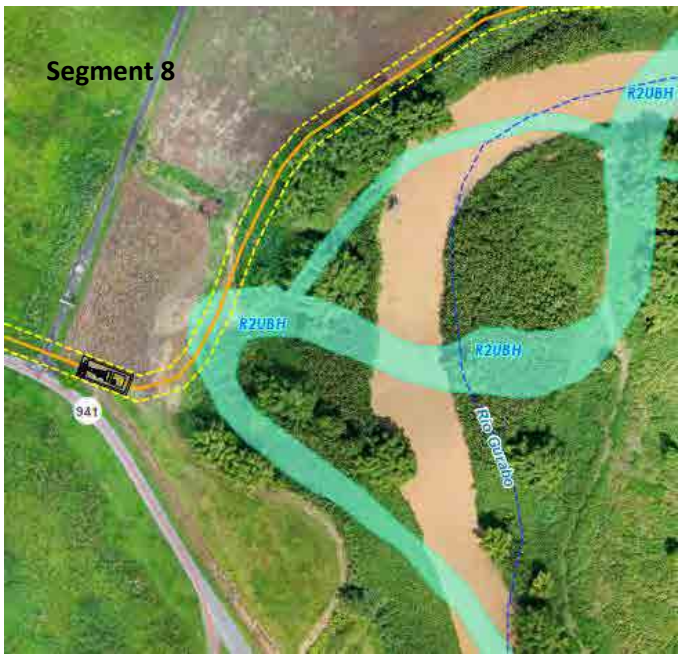


Segment 3. This 8-m section of pipe will be laid over the existing road a small area shown as R4SBC (Riverine, Intermittent, Streambed, Seasonally Flooded) has been included. The pipeline would be installed on top of the dirt road, therefore no impact has been identified.

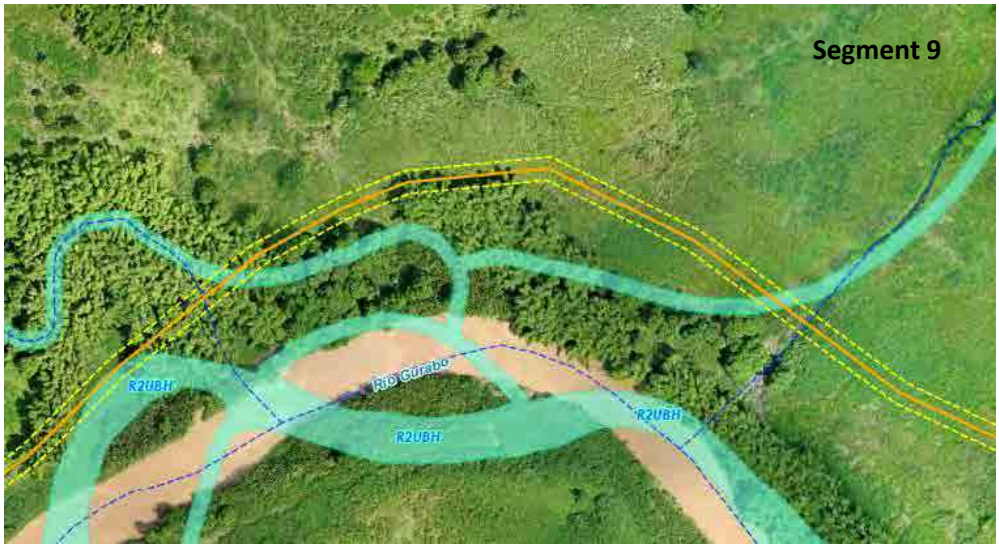


Segment 4. A 69-m section of pipe has been identified over areas shown as PEM (Palustrine, Emergent) and an 8-m section over areas shown as R5UBH (Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded). With the 12-m easement width, this comes to an approximate area of 933 m^2.





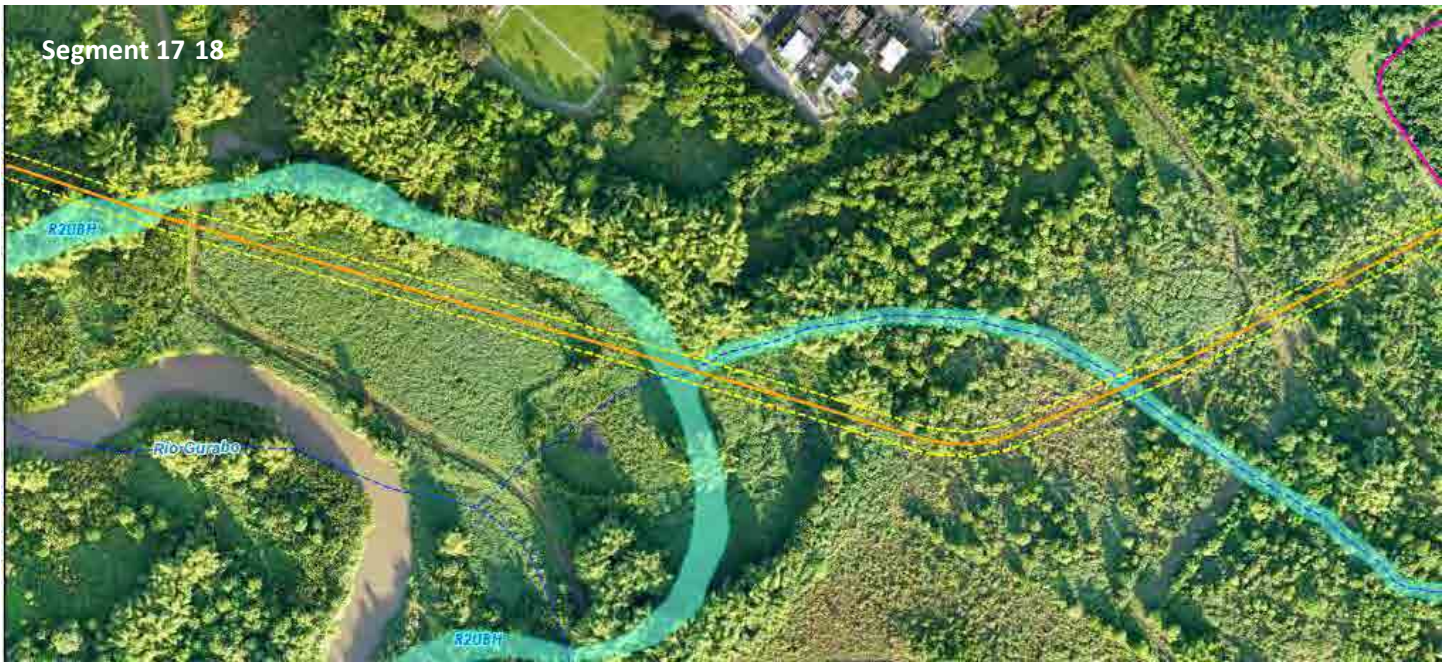
Segment 8. This 44-m section of pipe has been identified over areas shown as R2UBH. With the 12-m easement width, this comes to an approximate area of 533 m^2.Notice the change in water feature morphology.



Segment 9. Two 8-m sections of pipe have been identified over areas shown as R5UBH. With the 12-m easement width, this comes to an approximate area of 200 m^2. Notice the change in water feature morphology.

Segment 14. An 8-m sections of pipe has been identified over areas shown as R5UBH. With the 12-m easement width, this comes to an approximate area of 100 m^2. Notice the change in water feature morphology.





Segments 17-18. Three sections of pipe have been identified over areas shown as R2UBH: two 28-m sections and an 8-m section. With the 12-m easement width, this comes to an approximate area of 766 m^2. Notice the change in water feature morphology.

As indicated earlier, many of these crossings were visited, and we observed that the pipeline could span over these areas with no likely impact to wetlands.

These potential wetland areas were in some of the most inaccessible portions of the route. From the time the pipeline route was finalized, PRASA has initiated the process of notifications to the private property owners to seek access to conduct a complete wetland jurisdictional delineation, which must be completed prior to submitting the required US Army Corp of Engineers permitting.

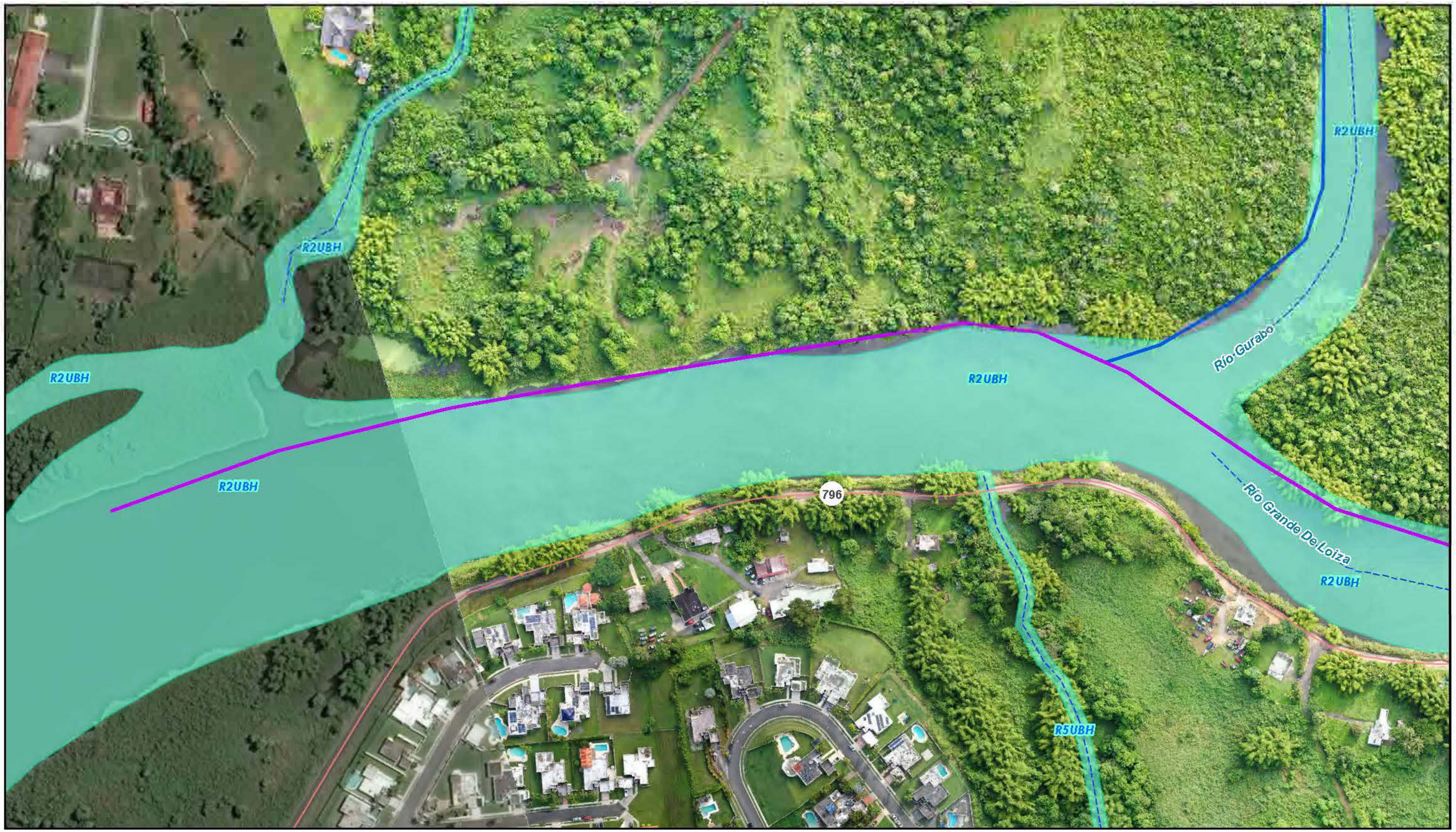
fjp

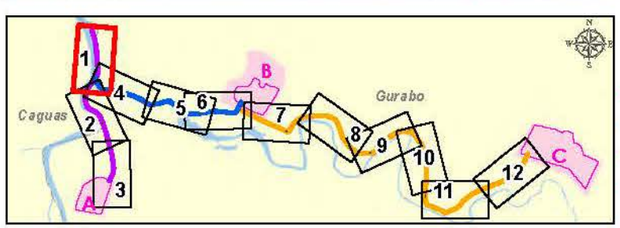
[i] Wunderground.com, Station ID: IGUARB11, located 2.8 miles south of pipeline ROW, 18.221° N, 65.996° W

[ii] https://www.usclimatedata.com/climate/gurabo/puerto-rico/united-states/uspr0042

[iii] GLM Drone Photography 2021-12-9 (georeferenced images by CSA Group)

[iv] Service Layer Credits (source): Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.





- Const. Easement 12 mts
- Booster Pump
- Pipeline A
- Pipeline B
- Pipeline C
- Dike
- Samp Staging Area to Dike A
- State Road[1]
- USGS NHD Hydrography[2]
- NWI Wetland[3]

Scale 1:2,200

0 25 50 100 Meters

CSAGROUP

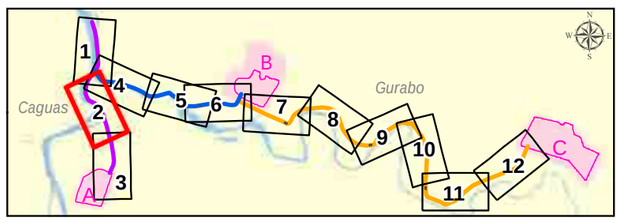
Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM 2021-129 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Coordinate System: State Plane NAD83 2011
Puerto Rico & Virgin Islands FIPS 5200 (Meters)

Field Map

Carraízo Dredging Project
CIP 1-01-9000

"REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CSA GROUP PUERTO RICO, INC. AND CSA GROUP NY, ARCHITECTS AND ENGINEERS, P.C. AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CSA."



- Const. Easement 12 mts
- Booster Pump
- Pipeline A
- Pipeline B
- Pipeline C
- Dike
- Samp Staging Area to Dike A
- State Road[1]
- USGS NHD Hydrography[2]
- NWI Wetland[3]

Scale 1:2,200

0 25 50 100 Meters

CSA GROUP EST·1956

Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM 2021-12-9 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

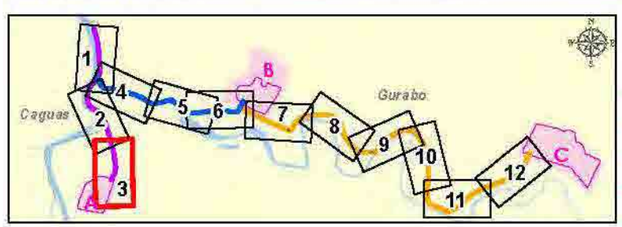
Coordinate System: State Plane NAD83 2011 Puerto Rico & Virgin Islands FIPS 5200 (Meters)

Field Map

Carraízo Dredging Project
CIP 1-01-9000

Path: C:\Users\evazquez\OneDrive - CSA Group\Desktop\evazquez\20-0261\CIP1019000\06TechnicalIX-GIS\mxd\Pipeline_Route_Eval\Pipeline_RouteEval_NWI_DronePhoto_11x17_Mapbook_20220413.mxd
csa\gis evazquez 4/13/2022 11x17





- Const. Easement 12 mts
- Booster Pump
- Pipeline A
- Pipeline B
- Pipeline C
- Dike
- Samp Staging Area to Dike A
- State Road[1]
- USGS NHD Hydrography[2]
- NWI Wetland[3]

Scale 1:2,200

0 25 50 100 Meters

CSAGROUP

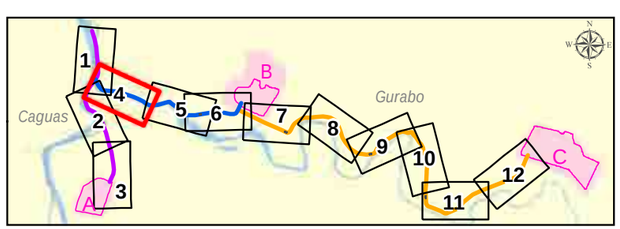
Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM 2021-129 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Coordinate System: State Plane NAD83 2011
Puerto Rico & Virgin Islands FIPS 5200 (Meters)

Field Map

Carraízo Dredging Project
CIP 1-01-9000

"REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CSA GROUP NY ARCHITECTS AND ENGINEERS, P.C. AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CSA."



- Const. Easement 12 mts
- Booster Pump
- Pipeline A
- Pipeline B
- Pipeline C
- Dike
- Samp Staging Area to Dike A
- State Road[1]
- USGS NHD Hydrography[2]
- NWI Wetland[3]

Scale 1:2,200

0 25 50 100 Meters

CSA GROUP EST·1956

Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM 2021-12-9 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

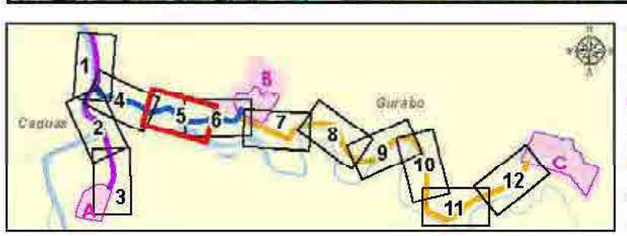
Coordinate System: State Plane NAD83 2011 Puerto Rico & Virgin Islands FIPS 5200 (Meters)

Field Map

Carraízo Dredging Project
CIP 1-01-9000

Path: C:\Users\evazquez\OneDrive - CSA Group\Desktop\evazquez\20-0261\QP1019000\06Technical\X-GIS\mxd\Pipeline_Route_Eval\Pipeline_RouteEval_NWI_DronePhoto_11x17_Mapbook_20220413.mxd
csagis evazquez 4/13/2022 11x17





Const. Easement 12 mts
Booster Pump
Pipeline A
Pipeline B
Pipeline C
Dike
Samp Staging Area to Dike A
State Road[1]
USGS NHD Hydrography[2]
NWI Wetland[3]

N E S W

Scale 1:2,200

0 25 50 100 Meters

CSAGROUP

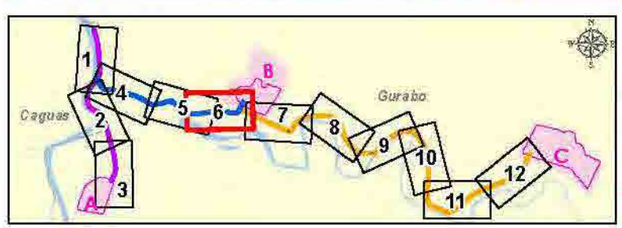
Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM 2021-129 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Coordinate System: State Plane NAD83 2011
Puerto Rico & Virgin Islands FIPS 5200 (Meters)

Field Map

Carraízo Dredging Project
CIP 1-01-9000





- Const. Easement 12 mts
- Booster Pump
- Pipeline A
- Pipeline B
- Pipeline C
- Dike
- Samp Staging Area to Dike A
- State Road[1]
- USGS NHD Hydrography[2]
- NWI Wetland[3]

N W E S

Scale 1:2,200

0 25 50 100 Meters

CSAGROUP

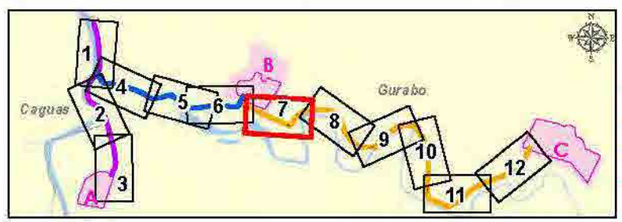
Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM 2021-129 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Coordinate System: State Plane NAD83 2011
Puerto Rico & Virgin Islands FIPS 5200 (Meters)

Field Map

Carraízo Dredging Project
CIP 1-01-9000

"PEER OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CSA GROUP PUERTO RICO, INC. AND CSA GROUP NY ARCHITECTS AND ENGINEERS, PC, AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CSA."



- Const. Easement 12 mts
- Booster Pump
- Pipeline A
- Pipeline B
- Pipeline C
- Dike
- Samp Staging Area to Dike A
- State Road[1]
- USGS NHD Hydrography[2]
- NWI Wetland[3]

Scale 1:2,200

0 25 50 100 Meters

CSAGROUP EST. 1965

Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM2021-125 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Coordinate System: State Plane NAD83 2011 Puerto Rico & Virgin Islands FIPS 5200 (Meters)

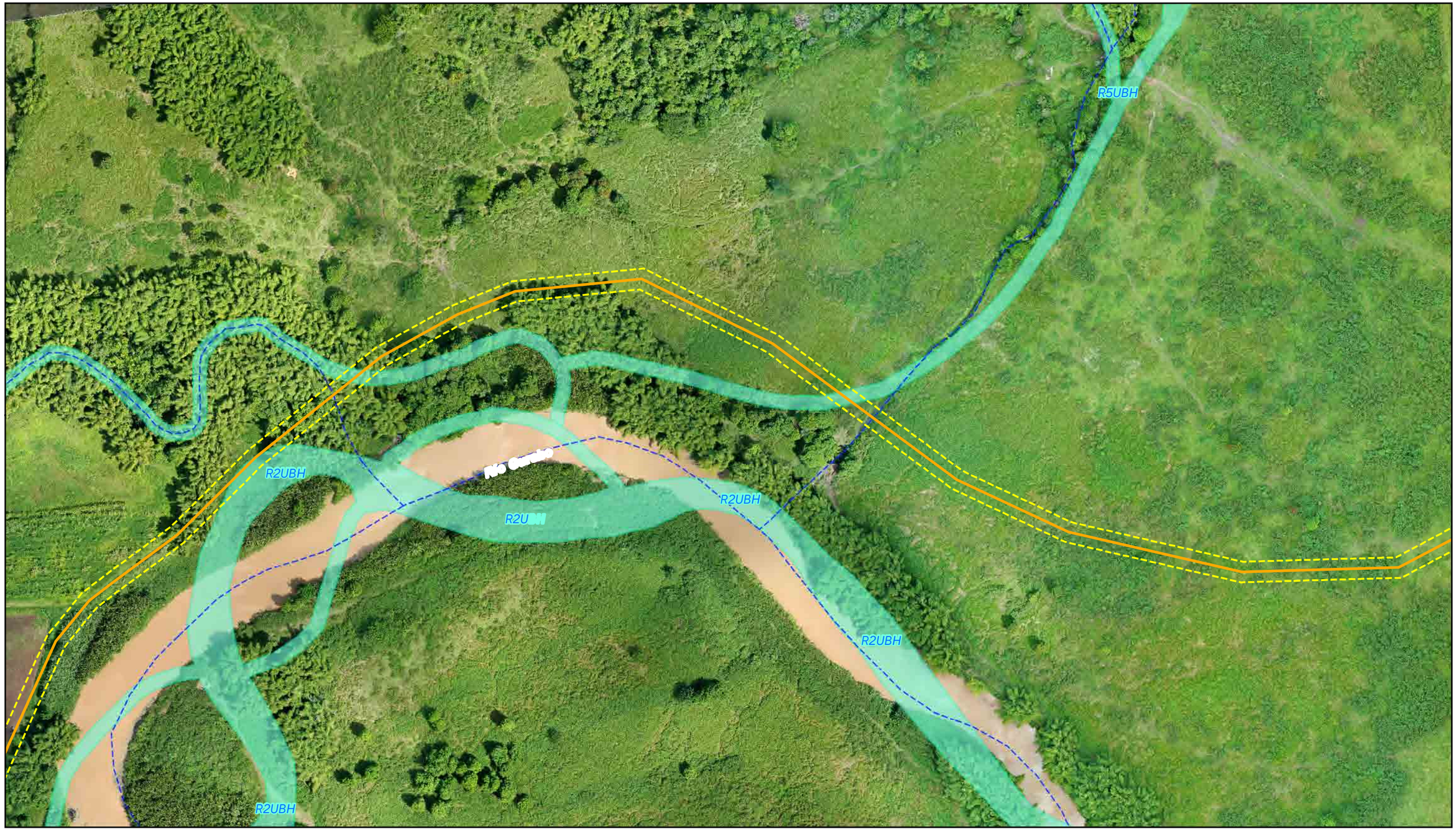
Field Map

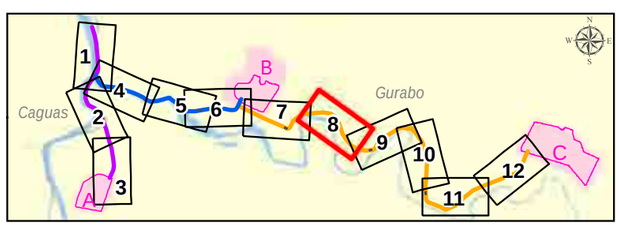
Carraizo Dredging Project
CIP 1-01-9000

Path: C:\Users\eazquez\OneDrive - CSA Group\Desktop\eazquez\20-0267\CIP1010009067\Technical\GIS\mxd\Pipeline_Route_Eval\Pipeline_RouteEval_NWI_DronePhoto_11x17_Mapbook_20220913.mxd
eazquez 9/13/2022 11:17

"REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CSA GROUP NY ARCHITECTS AND ENGINEERS, P.C. AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CSA."

Path: C:\Users\evazquez\OneDrive - CSA Group\Desktop\evazquez\20-0261\CIP1019000\06TechnicalIX-GIS\mxd\Pipeline_Route_Eval\Pipeline_RouteEval_NWI_DronePhoto_11x17_Mapbook_20220413.mxd
csagis evazquez 4/13/2022 11x17





- Const. Easement 12 mts
- Booster Pump
- Pipeline A
- Pipeline B
- Pipeline C
- Dike
- Samp Staging Area to Dike A
- State Road[1]
- USGS NHD Hydrography[2]
- NWI Wetland[3]

Scale 1:2,200

0 25 50 100 Meters

CSA GROUP EST. 1956

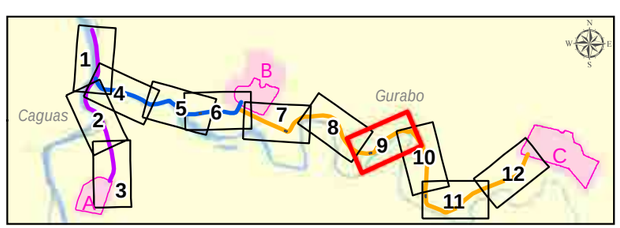
Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM 2021-12-9 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Coordinate System: State Plane NAD83 2011
Puerto Rico & Virgin Islands FIPS 5200 (Meters)

Field Map

Carraízo Dredging Project
CIP 1-01-9000





- Const. Easement 12 mts
- Booster Pump
- Pipeline A
- Pipeline B
- Pipeline C
- Dike
- Samp Staging Area to Dike A
- State Road[1]
- USGS NHD Hydrography[2]
- NWI Wetland[3]

Scale 1:2,200

0 25 50 100 Meters

CSAGROUP EST. 1956

Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM 2021-12-9 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

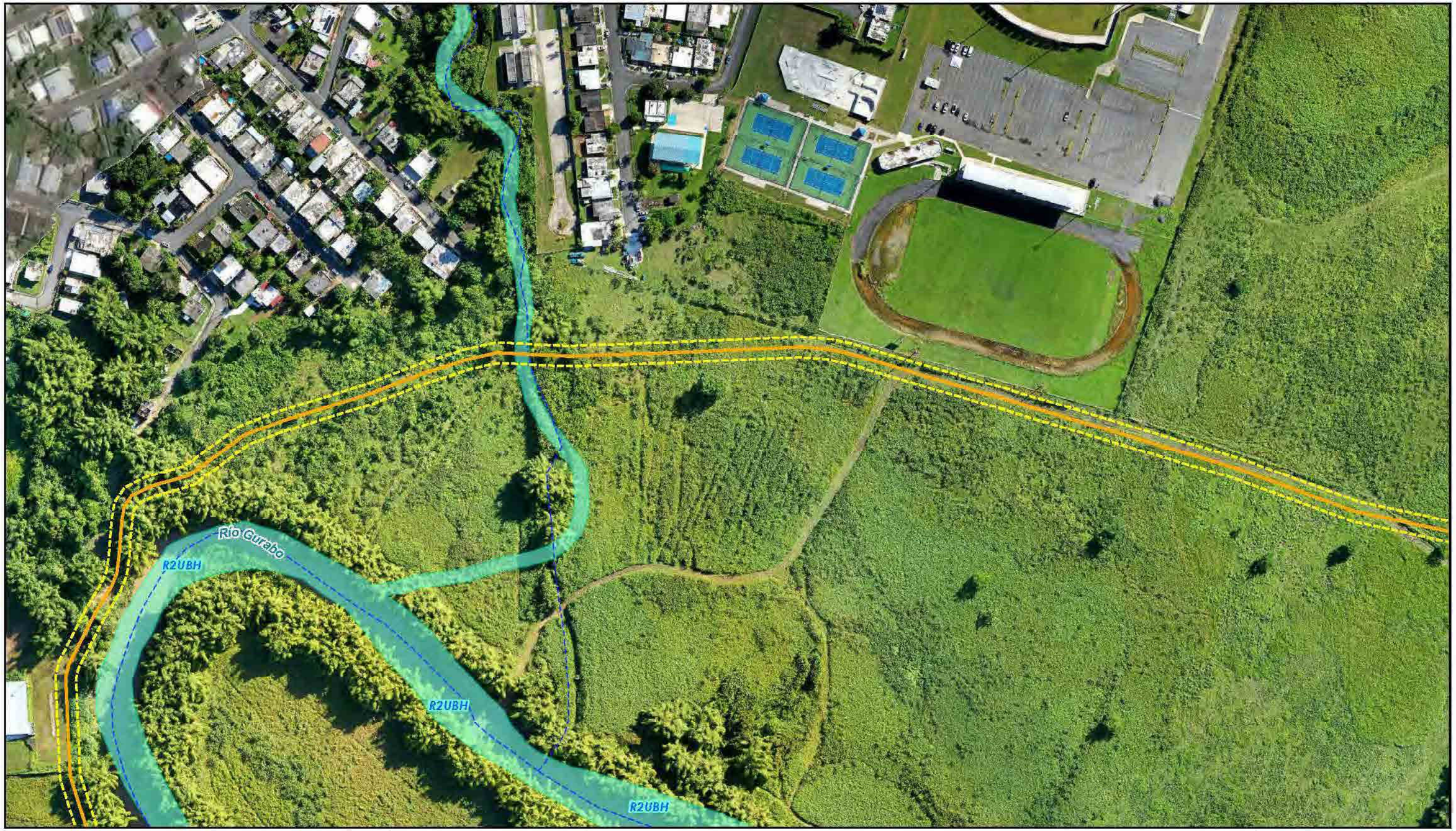
Coordinate System: State Plane NAD83 2011
Puerto Rico & Virgin Islands FIPS 5200 (Meters)

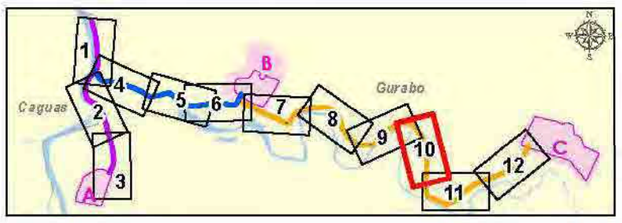
Field Map

Carraízo Dredging Project
CIP 1-01-9000

"REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CSA ARCHITECTS & ENGINEERS, LLP/CSA CENTRAL, INC./CSA GROUP NY ARCHITECTS AND ENGINEERS, PC AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CSA."

Path: C:\Users\evazquez\OneDrive - CSA Group\Desktop\evazquez\20-0261\CIP1019000\06Technical\X-GIS\mxd\Pipeline_Route_Eval\Pipeline_RouteEval_NWI_DronePhoto_11x17_Mapbook_20220413.mxd
csagis evazquez 4/13/2022 11x17





- Const. Easement 12 mts
- Booster Pump
- Pipeline A
- Pipeline B
- Pipeline C
- Dike
- Samp Staging Area to Dike A
- State Road[1]
- USGS NHD Hydrography[2]
- NWI Wetland[3]

Scale 1:2,200

0 25 50 100 Meters

CSAGROUP

Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM2021-129 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

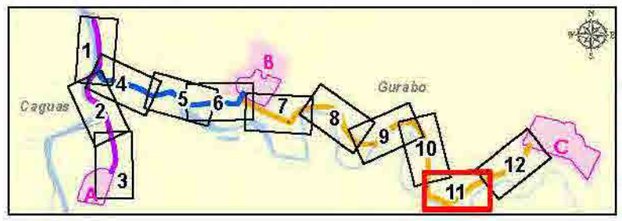
Coordinate System: State Plane NAD83 2011
Puerto Rico & Virgin Islands FIPS 5200 (Meters)

Field Map

Carraízo Dredging Project
CIP 1-01-9000

"PEER OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CSA GROUP NY ARCHITECTS AND ENGINEERS, PC, AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CSA."





- Const. Easement 12 mts
- Booster Pump
- Pipeline A
- Pipeline B
- Pipeline C
- Dike
- Samp Staging Area to Dike A
- State Road[1]
- USGS NHD Hydrography[2]
- NWI Wetland[3]

Scale 1:2,200

0 25 50 100 Meters

CSAGROUP EST. 1965

Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM 2021-129 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

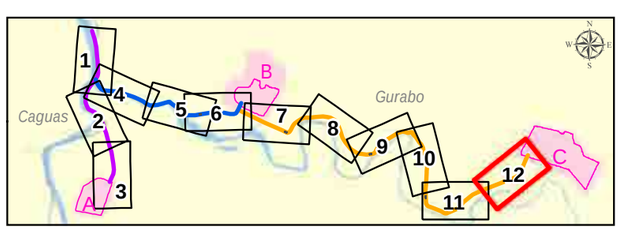
Coordinate System: State Plane NAD83 2011 Puerto Rico & Virgin Islands FIPS 5200 (Meters)

Field Map

Carraízo Dredging Project
CIP 1-01-9000

Path: C:\Users\exazquez\OneDrive - CSA Group\Desktop\exazquez\20\02\61\CIP 1010000061\Technical\K-9\Simv4\Pipeline_Route_Eval\Pipeline_RouteEval_NWI_DronePhoto_11x17_Mapbook_20220413.mxd
calgle exazquez 4/13/2022 11:17

"REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CSA GROUP (CSA) AND IS NOT TO BE USED IN WHOLE OR IN PART, FOR ANY OTHER PROJECT. NY ARCHITECTS AND ENGINEERS, P.C. AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CSA."



- Const. Easement 12 mts
- Booster Pump
- Pipeline A
- Pipeline B
- Pipeline C
- Dike
- Samp Staging Area to Dike A
- State Road[1]
- USGS NHD Hydrography[2]
- NWI Wetland[3]

Scale 1:2,200

0 25 50 100 Meters

CSA GROUP EST·1956

Sources:
1. Puerto Rico Highways and Transportation Authority (PRHTA), 2020.
2. Modified from USGS National Hydrography Dataset, 2020.
3. Modified from U. S. Fish and Wildlife Service, National Wetlands Inventory, 2020.
4. Drone Photography, GLM 2021-12-9 (georeferenced images by CSA Group).
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Coordinate System: State Plane NAD83 2011 Puerto Rico & Virgin Islands FIPS 5200 (Meters)

Field Map

Carraízo Dredging Project
CIP 1-01-9000

Path: C:\Users\evazquez\OneDrive - CSA Group\Desktop\evazquez\20-0261\CIP 1019000\06Technical\X-GIS\mxd\Pipeline_Route_Eval\Pipeline_RouteEval_NWI_DronePhoto_11x17_Mapbook_20220413.mxd
csagis evazquez 4/13/2022 11x17