BCPeabody Consulting, P.A.

509 Guisando de Avila, STE 100, Tampa, Florida 33613; www.bcpeabody.com; Phone: 813.961.7300; Fax: 813.961.9300

November 3, 2010

U.S. Army Corps of Engineers
Puerto Rico & U.S. Virgin Islands Permitting Office
Attention: (b) (6)
Stop 7½ Antilles Office
400 Ave Fernandez Juncos
San Juan, PR 00901-3223

RE: Via Verde NG Pipeline, PREPA

Dear Mr. (b) (6)

Please find the enclosed CD's (2) for your use. The discs contain updated versions of the previously submitted Joint Permit Application (JPA) report for the Via Verde NG Pipeline, as well as the updated Wetland/WoUS Impact Maps (Appendix B). These two documents were updated based on your questions and recommendations provided by email to Larry Evans.

Please let me or Larry Evans know if you have any questions. I can be reached at johannawillis@bcpeabody.com and 813-731-4666. Larry Evans can be reached at larryevans@bcpeabody.com and 503-781-7930. Thank you very much.

Best Regards,

Johanna Willis

Johanna Willis
Environmental Scientist
BCPeabody Consulting, P.A.

Table of Contents

Appendices

List of Tables

1. Permit Application and General Information

1.1. Executive Summary

The Via Verde project involves the construction and installation a 24-inch diameter steel natural gas (NG) pipeline for approximately 92 miles from the EcoEléctrica LNG Terminal in Peñuelas north to the Cambalache Termoeléctricas Authority Central electric power plant (PES) in Arecibo, then east to the Palo Seco facility in Toa Baja and the San Juan facility in San Juan. The pipeline will be embedded (buried) for its entire length and will pass through the municipalities of Peñuelas, Adjuntas, Utuado, Arecibo, Barceloneta, Manati, Vega Alta, Vega Baja, Dorado, Toa Baja, Cataño, Bayamón, and Guaynabo. The pipeline route will encompass both private and public lands which include commercial, industrial, and agricultural land uses. The pipeline will be an industrial application, serving only PREPA, and as such will require fewer laterals, metering stations, compressor stations, and access points than a public NG pipeline. This has resulted in significantly fewer impacts, limited right-of-way sizing, and the ability to locate the pipeline outside of population centers and sensitive environmental areas.

An environmental impact document - Declaraciòn de Impacto Ambiental (DIA) - has been prepared by PREPA to meet the requirements of the Commonwealth of Puerto Rico and a biological evaluation document has been prepared to assist in consultations with the U.S. Fish and Wildlife Service (USFWS) with respect to Section 7 of the Endangered Species Act. Both documents have been included as part of the Department of the Army (DA) / Puerto Rico USACE Joint Permit Application prepared for the proposed project. These documents have been prepared to:

- clarify whether and what listed, proposed, and candidate species or designated or proposed critical habitats may be in the action area;
- determine what effect the action may have on these species or critical habitats;
- explain the ways the project has been modified to reduce or remove adverse effects to the species or critical habitats;
- determine the need to enter into formal consultation for listed species or designated critical habitats, or conference for proposed species or proposed critical habitats; and

  document the design modifications and actions to be undertaken to benefit the species.

The Via Verde Pipeline project has been designed to be the least impacting practicable alternative. Environmental impacts have been avoided and minimized to the greatest extent possible and through these efforts the project qualifies for review and authorization under a series U.S. Army Corps of Engineers' (USACE) Nationwide Permits. Four principal Nationwide Permits will be utilized: 1) NWP 12- Utility Line Activities; 2) NWP 18- Minor Discharges; 3) NWP 33- Temporary Construction, Access and Dewatering, and 4) NWP 38- Cleanup of Hazardous and Toxic Waste.

Although there is no Federal or State regulation to establish a distance of clearance from buildings, AEE will establish 150 feet of servitude in any alignment, for purposes of maintenance and upkeep. The easement will be known as "bonded maintenance" and may be reduced or increased in those areas that have space limitations, or particular situations. However, inside of this 150 foot area, a bonded operation of 50 feet will remain free of any building and deep-rooted vegetation. The remaining 100 feet of the easement under the maintenance servitude will revegetate naturally or through some mitigation plan as coordinated with concerned agencies. Maintenance servitude allows use and enjoyment by a proprietor, subject to processing and authorization obtained from AEE to conduct activities that would be developed within the servitude area. The construction and installation of the pipeline will require this initial construction right-of way (ROW) approximately 150 feet wide and the permanently maintained ROW of 50 feet post construction. The total project area encompasses 1,113.8 acres (92 miles X 100 foot ROW).

1.2. COE Permit Application

Under separate Cover as "Attachment A".

1.3. Project Purpose

1.3.1. Basic Purpose (water dependent)

The Authoridad de Energía Eléctrica (AEE), also known as the Puerto Rico Electric Power Authority (PREPA), produces, transmits and distributes the majority of the electric power used in Puerto Rico. Based on the power produced, it is one of the major public electric utility corporations in the United States. As a public corporation, it is the mission of PREPA to provide electric energy services to customers in the most efficient, cost-effective manner possible while

maintaining a sustained compliance with local and federal environmental regulations. To achieve these goals, PREPA proposes to convert existing electrical power generation facilities from oil based fuels to natural gas (NG). The governor of Puerto Rico, the Honorable Luis G. Fortuño, is committed to this project and realizes its implementation will provide one of the tools necessary to meet the commitment of his Government to lower the cost of electrical energy and strengthen the Puerto Rican economy.

The proposed NG Pipeline System will put PREPA on the forefront and clearly aligned with the Department of Energy's edict to decrease the United States' dependence on foreign oil. At the same time, conversion to NG will achieve a 64% reduction in air pollutants released to the environment. Construction of the Via Verde (Greenway project) pipeline will enable PREPA to increase needed power generation in the northern regions of Puerto Rico, improve electric system reliability, reduce operation costs by using cheaper fuel, and maintain a sustained compliance with local and federal environmental regulations. More importantly, the PREPA Strategic Plan reaffirms the public policy of using renewable energy and alternative fuels to the maximum extent possible where their commercial application is technically and economically viable.

The project's basic purpose is to economically construct a pipeline to deliver natural gas to three existing power facilities operated by PREPA.

1.3.2. Overall Project Purpose Description (less damaging alternatives)

Puerto Rico depends almost entirely on petroleum to fuel the plants that produce the island's electricity. In 1992, groups in the Mayaguez area concerned by environmental impacts defeated a project developed by the private company, Cogentrix, to produce electricity using cheap and widely available coal, and sell steam as a byproduct. Both proponents of the plant and the electric authority predicted chronic shortages and black outs by the turn of the century. These predictions have turned out to be true.

Moreover, the environmental impact of the oil-dependent generating plants combined with the instability of the world oil market has brought the energy crises to Puerto Rico. Energy costs per kilowatt hour for electricity which are roughly triple that of the average for the continental United States (9.75 cents per kilowatt hour US vs. 21.63 cents per kilowatt hour Puerto Rico (References: http://www.eia.doe.gov/electricity/epm/table5_6_b.html). The strategic plan approved by PREPA Board of Directors, directs a reduction in dependence on oil used to

produce electricity to below 50% by the year 2014. To comply, PREPA has turned to natural gas and proposes to construct a natural gas pipeline to connect the existing Eco Eléctrica NG import terminal and transfer facility located at the Municipality of Peñuelas north to the Municipality of Arecibo, then east to PREPA's Palo Seco and San Juan Steam Power plants.

Since its inception, PREPA has largely depended on fuels derived from petroleum to generate electric power. A small portion of electricity is generated with hydropower. The uncontrolled and unpredictable increase in the cost of petroleum fuel has increased the cost of electricity in Puerto Rico and greatly affected the industry and trade of the country. We must also emphasize that Puerto Rico is governed by the Federal Clean Air Act, which requires substantial changes in the percent contaminants in order to protect public health and the environment. The cost for these fuels also affects the cost of power production.

In July 2002, through resolution 3024, PREPA adopted a Strategic Plan for development and expansion to control the high cost of electricity and meet requirements under the Clean Air Act. This plan includes the following parameters:

- Diversification of fuels
- Cost reduction
- Geographic diversification of power generation
- Environmental considerations
- Expansion of generation plan
- Diversification of income

To comply with these parameters, the plan required, among other things, increased generating capacity in western Puerto Rico using natural gas as a primary fuel. In addition, the plan contemplated the construction of a gas pipeline from Cambalache at Arecibo, the industrial area of Barceloneta, to the Palo Seco and San Juan stations. Due to a reduction in demand for electricity, the project to increase capacity in the West has been delayed, but the PREPA decided it is still important to diversify fuels used in the Central Cambalache, Palo Seco and San Juan facilities. At the same time, it is important to reduce operating costs and maintain environmental compliance.

The Via Verde project will increase generation in the north area, improve the reliability of the electrical system, reduce the cost of operation by using cheaper fuel, and continue to comply with local and federal environmental regulations. The pipeline will allow PREPA to be flexible and choose parameters to achieve the most efficient and economical electricity generation for its customers.

The project's overall purpose is to reduce PREPA's dependence on oil for the production of electricity by converting electrical power generation facilities along the north coast of Puerto Rico from oil based fuels to natural gas (NG) in the most economical and practical method possible and using available infrastructure wherever possible.

1.4. Project Description

Construct and install a 24-inch diameter steel natural gas pipeline approximately 92 miles from the EcoEléctrica LNG Terminal in Peñuelas north to the Cambalache Termoeléctricas Authority Central Combined Cycle Power Plant (CCPP) in Arecibo, then east to the Palo Seco facility in Toa Baja and the San Juan facility in San Juan. The pipeline will be embedded (buried) for its entire length and will pass through the Municipalities of Peñuelas, Adjuntas, Utuado, Arecibo, Barceloneta, Manati, Vega Alta, Vega Baja, Dorado, Toa Baja, Cataño, Bayamón, and Guaynabo. The pipeline route will encompass both private and public lands which include commercial, industrial, and agricultural land uses. Construction and installation of the pipeline will require an initial construction right-of way (ROW) 150 feet wide and a permanently maintained ROW of 50 feet post construction.

The total project area encompasses 1,113.8 acres (92 miles X 100 foot ROW); 369.3 acres of which are jurisdictional Waters of the United States. The project will not result in any permanent wetland impacts and all disturbed wetlands will be restored to pre-construction grades, stabilized, and re-vegetated. The project qualifies for review and authorization under the U.S. Army Corps of Engineers' (USACE) Nationwide Permits.

1.5. Nationwide Permit Request, List of NWP's

The Via Verde Pipeline project has been designed to be the least impacting practicable alternative. Environmental impacts have been avoided and minimized to the greatest extent possible.

In accordance with the US Army Corps of Engineers' federal regulations, linear projects that cross multiple waterways are eligible for consideration under Nationwide Permit review. Thirty-one (31) tentative "projects" have been proposed along the pipeline route. The pipeline is designed so that each "project" (defined by a project boundary) will use, at most, a combination of four Nationwide Permits (NWP): 1) NWP 12- Utility Line Activities; 2) NWP 18- Minor Discharges; 3) NWP 33- Temporary Construction, Access and Dewatering; and 4) NWP 38- Cleanup of Hazardous and Toxic Waste. The map series in Appendix B breaks the pipeline route into 96 maps where temporary impacts will occur to Waters of the U.S. The maps identify each water body crossing and wetland area. Table 1 (below) in this section lists the NWP authorizations requested for each of the separate projects. Table 1 also identifies water body crossings, i.e. C-1, and wetland areas, i.e. W-4, that fall within each of these tentative project areas. Below is a summary of the four Nationwide Permits and their national and regional conditions. Additionally, an analysis is provided for each NWP detailing how the proposed Via Verde Pipeline Project meets these conditions.

Nationwide Permit 12: Utility Line Activities

NWP 12 Conditions: Activities required for construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the permanent loss of greater than 1/2 acre of waters of the Unites States.

Material resulting from the trench excavation may be temporarily side-cast into waters of the United States for no more than three months.

In the Commonwealth of Puerto Rico and U.S. Virgin Islands, Nationwide Permit 12 is excluded from use in forested wetlands, submerged aquatic vegetation, tidal wetlands, and/or coral assemblages.

Pre-Construction Notification (PCN) in the Commonwealth of Puerto Rico and U.S. Virgin Islands shall be made using the Puerto Rico Joint Permit Application (JPA), and the JPA form must clearly indicate that it is a Nationwide permit PCN (COE).

Project Descriptions: As a result of the regional conditions, only freshwater wetlands (Palustrine Herbaceous Wetland, PEM)[1] and freshwater intermittent or perennial surface waters

[1] USFWS Deepwater Classification

(Riverine, Lower and Upper Perennial, and Intermittent; R2, R3, R4)[2] will be temporarily impacted. Forested wetlands and tidal wetlands will not be impacted.

To comply with the national and regional conditions, only temporary impacts will occur with trenching of the pipeline and clearing activities in the ROW. Clearing activities will only involve cutting or removal of vegetation above the ground, such as mowing, rotary cutting, and chain-sawing, so dredge material associated with incidental fallback is not discharged. Mechanized equipment with front blades such as bulldozers will NOT be used to clear the right-of-way for the pipeline in wetland areas. Materials and soils excavated during the installation/trenching of the pipeline will be temporarily side-cast for a period not to exceed three months. Excess materials and soils will be placed in self-contained upland disposal sites. All affected wetland areas will be restored to pre-construction conditions and will be allowed to naturally recruit native vegetation.

Nationwide Permit 18: Minor Discharges

NWP 18 Conditions: Minor discharges of dredged or fill material into all waters of the United States, provided the activity meets the following criteria: (a) The quantity of discharged material and the volume of area excavated do not exceed 25 cubic yards below the plane of the ordinary high water mark or the high tide line; (b) The discharge will not cause the loss of more than 1/10 acre of waters of the United States; and (c) The discharge is not placed for the purpose of a stream diversion.

In the Commonwealth of Puerto Rico and U.S. Virgin Islands, Nationwide Permit 18 is excluded from use in forested wetlands, submerged aquatic vegetation, tidal wetlands, and/or coral assemblages.

PCN in the Commonwealth of Puerto Rico and U.S. Virgin Islands shall be made using the Puerto Rico Joint Permit Application (JPA), and the JPA form must clearly indicate that it is a Nationwide permit PCN (COE).

Project Descriptions: This Nationwide Permit will be utilized to authorize any unexpected minor discharge that may occur that would result in permanent discharge.

Nationwide Permit 33: Temporary Construction, Access, and Dewatering

[2] Ibid

NWP 33 Conditions: Temporary structures, work and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites, provided the associated primary activity is authorized by the Corps of Engineers or the U.S. Coast Guard. Appropriate measures must be taken to maintain near normal downstream flows and to minimize flooding. Following completion of construction, temporary fill must be entirely removed to upland areas, dredged material must be returned to its original location, and the affected areas must be restored to pre-construction elevations. The affected areas must also be re-vegetated, as appropriate.

In the Commonwealth of Puerto Rico and U.S. Virgin Islands, Nationwide Permit 33 is excluded from use in forested wetlands, submerged aquatic vegetation, tidal wetlands, and/or coral assemblages.

PCN in the Commonwealth of Puerto Rico and U.S. Virgin Islands shall be made using the Puerto Rico Joint Permit Application (JPA), and the JPA form must clearly indicate that it is a Nationwide permit PCN (COE).

Project Descriptions: Temporary construction activities associated with the installation of the pipeline, such as Horizontal Directional Drilling (HDD) sites located in wetlands, that may impact Palustrine non-forested wetlands and Riverine intermittent and perennial surface waters would be authorized through Nationwide Permit 33.

Nationwide Permit 38: Cleanup of Hazardous and Toxic Waste

NWP 38 Conditions: Specific activities required to effect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority.

PCN in the Commonwealth of Puerto Rico and U.S. Virgin Islands shall be made using the Puerto Rico Joint Permit Application (JPA), and the JPA form must clearly indicate that it is a Nationwide permit PCN (COE).

Project Descriptions: In the unlikely event an unexpected release of drilling mud, i.e. a Frac-out, should occur during HDD operation, we are requesting authorization to clean-up any such materials from waters of the U.S. utilizing NWP-38. All necessary precautionary measures will be in place to prevent Frac-outs and a Frac-Out Plan (Appendix I) has been prepared to ensure proper response to any such event.

Table 1: Nationwide Permit Requests

Project	ID	NWP Requests
1	C-1	12, 18, 33, 38
	C-2	12, 18, 33, 38
	C-3	12, 18, 33
	C-4	12, 18, 33
	W-1	12, 18, 33
	W-2	12, 18, 33
	W-3	12, 18, 33
	W-4	12, 18, 33
	W-5	12, 18, 33
	W-6	12, 18, 33, 38
	W-7	12, 18, 33, 38
	W-8	12, 18, 33
2	C-5	12, 18, 33, 38
	W-10	12, 18, 33
	W-9	12, 18, 33
3	C-6	12, 18, 33
	C-7	12, 18, 33
4	C-8	12, 18, 33
5	C-10	12, 18, 33
	C-11	12, 18, 33
	C-9	12, 18, 33
6	C-12	12, 18, 33
7	C-13	12, 18, 33
	C-14	12, 18, 33
	C-15	12, 18, 33
8	C-16	12, 18, 33
	C-17	12, 18, 33
9	C-18	12, 18, 33
	C-19	12, 18, 33
	C-20	12, 18, 33
	W-11	12, 18, 33
10	C-21	12, 18, 33
	C-22	12, 18, 33
11	C-23	12, 18, 33
	C-24	12, 18, 33
	C-25	12, 18, 33
12	C-26	12, 18, 33, 38
	C-27	12, 18, 33
	C-28	12, 18, 33

Project	ID	NWP Requests
	C-29	12, 18, 33
	C-30	12, 18, 33
	W-12	12, 18, 33, 38
	W-13	12, 18, 33, 38
13	C-31	12, 18, 33, 38
	C-32	12, 18, 33
	W-14	12, 18, 33, 38
14	C-33	12, 18, 33
	C-34	12, 18, 33, 38
	W-15	12, 18, 33, 38
15	C-35	12, 18, 33
16	C-36	12, 18, 33, 38
	C-37	12, 18, 33, 38
	C-38	12, 18, 33
	C-39	12, 18, 33, 38
	C-40	12, 18, 33
	W-16	12, 18, 33, 38
	W-17	12, 18, 33
	W-18	12, 18, 33, 38
	W-19	12, 18, 33
	W-20	12, 18, 33
	W-21	12, 18, 33
	W-22	12, 18, 33
	W-23	12, 18, 33, 38
	W-24	12, 18, 33
	W-25	12, 18, 33
	W-26	12, 18, 33
	W-27	12, 18, 33
17	C-41	12, 18, 33
	C-42	12, 18, 33
	C-43	12, 18, 33, 38
	W-28	12, 18, 33
	W-29	12, 18, 33
	W-30	12, 18, 33
	W-31	12, 18, 33, 38
	W-32	12, 18, 33
	W-33	12, 18, 33
18	C-44	12, 18, 33
	C-45	12, 18, 33
	C-46	12, 18, 33

Project	ID	NWP Requests
	C-47	12, 18, 33
	W-34	12, 18, 33
	W-35	12, 18, 33
	W-36	12, 18, 33
	W-37	12, 18, 33
	W-38	12, 18, 33
	W-39	12, 18, 33
	W-40	12, 18, 33
19	C-48	12, 18, 33
	C-49	12, 18, 33
	C-50	12, 18, 33
	C-51	12, 18, 33
	W-40	12, 18, 33
	W-41	12, 18, 33
	W-42	12, 18, 33
	W-43	12, 18, 33
	W-44	12, 18, 33
	W-45	12, 18, 33
20	C-52	12, 18, 33
	C-53	12, 18, 33
	C-54	12, 18, 33
	C-55	12, 18, 33
	C-56	12, 18, 33
	C-57	12, 18, 33
	C-58	12, 18, 33
	C-59	12, 18, 33
	C-60	12, 18, 33
	C-61	12, 18, 33
	W-45	12, 18, 33
	W-46	12, 18, 33
	W-47	12, 18, 33
	W-48	12, 18, 33
	W-49	12, 18, 33
	W-50	12, 18, 33
	W-51	12, 18, 33
	W-52	12, 18, 33
	W-53	12, 18, 33
	W-54	12, 18, 33
	W-55	12, 18, 33
	W-56	12, 18, 33

Project	ID	NWP Requests
	W-57	12, 18, 33
21	C-62	12, 18, 33
	C-63	12, 18, 33
	W-57	12, 18, 33
	W-58	12, 18, 33
	W-59	12, 18, 33
	W-60	12, 18, 33
22	C-64	12, 18, 33
	C-65	12, 18, 33
	C-66	12, 18, 33, 38
	C-67	12, 18, 33
	C-68	12, 18, 33
	C-69	12, 18, 33
	C-70	12, 18, 33
	C-71	12, 18, 33
	C-72	12, 18, 33, 38
	C-73	12, 18, 33, 38
	W-61	12, 18, 33
	W-62	12, 18, 33
	W-63	12, 18, 33, 38
	W-64	12, 18, 33
	W-65	12, 18, 33
	W-66	12, 18, 33
	W-67	12, 18, 33
	W-68	12, 18, 33
	W-69	12, 18, 33
	W-70	12, 18, 33
	W-71	12, 18, 33
	W-72	12, 18, 33
	W-73	12, 18, 33, 38
	W-74	12, 18, 33
	W-75	12, 18, 33, 38
	W-76	12, 18, 33
	W-77	12, 18, 33
23	C-74	12, 18, 33
	W-78	12, 18, 33
24	C-75	12, 18, 33
	C-76	12, 18, 33
	C-77	12, 18, 33
	C-78	12, 18, 33

Project	ID	NWP Requests
	C-79	12, 18, 33
	W-79	12, 18, 33
	W-80	12, 18, 33
	W-81	12, 18, 33
	W-82	12, 18, 33
	W-83	12, 18, 33
	W-84	12, 18, 33
	W-85	12, 18, 33
25	C-80	12, 18, 33
	C-81	12, 18, 33
	W-86	12, 18, 33
	W-87	12, 18, 33
	W-88	12, 18, 33
	W-89	12, 18, 33
	W-90	12, 18, 33
	W-91	12, 18, 33
26	C-82	12, 18, 33
	W-92	12, 18, 33
	W-93	12, 18, 33
27	C-83	12, 18, 33
	C-84	12, 18, 33
	C-85	12, 18, 33
	C-86	12, 18, 33
	C-87	12, 18, 33
	C-88	12, 18, 33
	C-89	12, 18, 33, 38
	W-100	12, 18, 33
	W-101	12, 18, 33
	W-94	12, 18, 33
	W-95	12, 18, 33
	W-96	12, 18, 33
	W-97	12, 18, 33
	W-98	12, 18, 33
	W-99	12, 18, 33
28	C-90	12, 18, 33, 38
	C-91	12, 18, 33
	C-92	12, 18, 33, 38
	C-93	12, 18, 33, 38
	C-94	12, 18, 33, 38
	W-102	12, 18, 33, 38

Project	ID	NWP Requests
	W-103	12, 18, 33, 38
	W-104	12, 18, 33, 38
	W-105	12, 18, 33
	W-106	12, 18, 33, 38
	W-107	12, 18, 33, 38
	W-108	12, 18, 33, 38
	W-109	12, 18, 33, 38
	W-110	12, 18, 33, 38
	W-111	12, 18, 33, 38
29	C-95	12, 18, 33, 38
	C-96	12, 18, 33, 38
	C-97	12, 18, 33
	W-112	12, 18, 33
	W-113	12, 18, 33
	W-114	12, 18, 33, 38
	W-115	12, 18, 33, 38
	W-116	12, 18, 33
30	W-116	12, 18, 33
	W-117	12, 18, 33
	W-118	12, 18, 33
	W-119	12, 18, 33
31	C-100	12, 18, 33
	C-98	12, 18, 33
	C-99	12, 18, 33
	W-119	12, 18, 33
	W-120	12, 18, 33
	W-121	12, 18, 33
	W-122	12, 18, 33
	W-123	12, 18, 33
	W-124	12, 18, 33
	W-125	12, 18, 33
	W-126	12, 18, 33
	W-127	12, 18, 33
	W-128	12, 18, 33
	W-129	12, 18, 33
	W-130	12, 18, 33
	W-131	12, 18, 33
	W-132	12, 18, 33
	W-133	12, 18, 33
	W-134	N/A

Project	ID	NWP Requests
	W-135	N/A
	W-136	N/A

1.6. ROW, Property Owner Information, Adjacent Owners

Please see Appendix E for the ROW list of property owners and adjacent owners.

1.7. Alternative Analysis

Section 404(b)(1) of the Clean Water Act prohibits the discharge of dredged or fill material into waters of the United States unless the proposed discharge is the least environmentally damaging practicable alternative capable of achieving the project purpose. Alternative routes for the pipeline were evaluated pursuant to 40 CFR 230.10. The National Environmental Policy Act (NEPA) and implementing regulations at 40 CFR 1502.14, together with the Commonwealth Policy Act, require a range of reasonable alternatives including the no action alternative be evaluated. Under these laws and regulations, the no action alternative and action alternatives that meet the project purpose and need of the preferred alternative are considered to be reasonable alternatives. Under the aforementioned laws, these alternatives do not need to be available to the applicant. Though the Corps will evaluate these alternatives, the alternatives selected should be available to the applicant at the time of the permit decision.

The Government of Puerto Rico's 1993 Energy Policy acknowledged the island's high dependency on oil, which at the time was 99%, and the high environmental cost this caused. The policy directs diversification of fuel sources for power generation to reduce the volatility of oil prices and overall power generation costs and to introduce environmental criteria for the selection of new power plants. Following is a detailed discussion of alternatives to the proposed Via Verde project that meet the project purpose and need. Each alternative discussed addresses logistics, technology, cost and environmental consequences and is followed by a statement indicating whether or not we consider the alternative to be practicable. Among alternatives considered were: the construction of a terminal receipt for NG on the north coast of the island, barge and buoys (Deepwater Port) for receipt of NG, storage and re-gasification of NG, and several terrestrial alignments for a natural gas pipeline system. The alternative of no action was also analyzed.

1.7.1. No Action Alternative.

The alternative of no action, although considered, was found not feasible given transcendence, importance, and public welfare that pursue the project.

Preliminary environmental impacts and direct/indirect impacts associated with construction of the pipeline natural gas are considered. If the project is not built the following impacts would be avoided:

- Impacts from moving earth that could result in erosion and sedimentation in bodies of water
- Temporary increases in noise levels
- Impacts to forest reserves
- Temporary impacts to wetlands and other bodies of surface water
- Impacts to farmland
- Temporary impacts to infrastructure such as waterlines, buildings and (possible) phone lines
- Temporary impacts to traffic and roads, i.e. detours
- Potential impacts to archaeological sites
- Acquisition of land by expropriation

However, if the project is built most of these impacts, if not avoided completely, could be minimized and mitigated using engineering design options and support from agencies and municipalities the project would cross through.

No action is not indicative of no impact, since with this alternative AEE will be forced to continue to produce electricity by burning petroleum products that generate greater amount of pollutants emitted to the air. While some of these emissions can be controlled by using technology that requires, in many cases, an investment of millions of dollars, modern emission reduction highlights that the emissions of these derivatives of petroleum would be greater if related to the burning of natural gas. In addition, maintenance of petroleum burning units has to take place more frequently and with higher costs to guarantee optimal operation. Continuing to burn

petroleum derivatives has other implications, such as an increased frequency of deliveries of these fuels to our ports which increases erosion of the seabed and the likelihood of spills. The continued use of fuels derived from petroleum increases the cost of electricity, which negatively impacts the Puerto Rican economy and results in a lower quality of life for its citizens. Finally, liquid fuels expose AEE to fluctuations in the market value creating instability in the costs of energy production and invoices. Recognizing that the Puerto Rico economy is directly linked to the stability of the AEE, it is important for the company to meet its strategic development plans and maintain a fixed cost structure to avoid sudden peaks of variations in the cost of purchased fuel. Compliance with this plan demonstrates vision, stability and commitment to customers, the ability to assess complex situations of world character and the ability to develop strategies to minimize adverse impacts making it easier to expand options to obtain fuels in the future.

After evaluating local and global dynamics, AEE developed a strategic plan to guide future development of the company and Puerto Rico. This plan includes the following parameters:

- Diversification of energy sources
- Reduction in costs
- Geographic diversification of generating electricity
- Environmental considerations
- Expansion of electrical generation
- Diversification of revenue

The Via Verde project is part of the plan to diversify fuels which can make AEE better. In addition, there are important environmental considerations to help AEE to more effectively manage their energy costs.

A significant percent of Puerto Rico's generated electrical power depends on oil. At the moment, AEE uses only No. 2 fuel (light distillate) and No. 6 (bunker C) its generator units and it buys electricity, in turn, from the AES co-generators in the municipality of Guayama (coal) and EcoEléctrica in the municipality of Peñuelas (natural gas). With the introduction of the co-generators AEE began to buy electricity generated from NG or coal but internally AEE still depends exclusively on oil.

The AEE aims to reduce its dependence on the use of oil, which currently is approximately 68%, to approximately 12% by 2014. To do this AEE must identify alternative fuels that can meet their customers demand for power. Lack of action would only aggravate the current dependence on oil, and at a time of seizure or high global demand, Puerto Rico would have no viable alternatives to generate electricity. In addition, no action exposes AEE to sudden changes in the cost of oil which reduces the economic capacity of AEE and, consequently, the Puerto Rican economy. It is important to highlight that AEE is limited by regulations to the type of fuel it can burn. The greatest limitation is the amount of sulphur contained in fuel. Low sulphur fuel is more expensive than fuel with higher sulphur content. If there are shortages in this type of fuel or if AEE cannot set contracts with the suppliers, there are only two options left: reduce the production of electricity, which is not feasible, or burn a cheaper fuel with higher sulphur content in violation of established environmental permits, with subsequent exposure to fines and sanctions from regulatory agencies. The use of natural gas significantly decreases emissions of pollutants to the environment. No action means AEE must expend significant capital to reduce emissions that result from burning oil and to maintain their units, instead of using that capital to develop a more efficient system that uses cleaner fuel with lower maintenance costs.

The No Action Alternative would not meet the project purpose and will not be considered further.

1.7.2. Constructing a New Terminal to Receive Natural Gas (NG) in Central San Juan Alternative

Currently Puerto Rico has the EcoEléctrica Cogeneradora in the municipality of Peñuelas, to receive LNG (and meet AEE needs). Still, the alternative of building a new terminal closer to AEE power facilities was evaluated in consideration of environmental impacts potentially associated with the construction of a delivery pipeline from the EcoElectrica terminal. A location between the three power plants on the northern coast selected to convert to Natural Gas (NG) was identified next to the Central Thermoelectric San Juan (CTSJ) unit. Currently, an existing pier has infrastructure to transport diesel and Bunker C Fuel to two of the three plants, San Juan and Palo Seco.

A new NG import terminal must be able to receive, download, and store up to 3.0 Bcf/d (3 trillion cubic feet) of liquid natural gas imported by sea. In addition, facilities to gasify and handle the natural gas would also need to be built. The construction of the terminal would result in an

environmental impact associated with the different stages of the construction and operation, which include:

- Build, repair, or expand (depending on the case), a pier for receipt of liquid natural gas.
- Increase in the transit of ships.
- Construction of a tank for liquid natural gas storage and gasification - this plant would require an area of approximately 25 acres.
- Constructing navigation channels to support transit tankers, which would mean dredging and disposing dredged material.

Selecting a place to construct a terminal to receive liquid natural gas requires a deep port to minimize the environmental impacts associated with the development and operation of the terminal. In addition, a relatively low population density area with industrial development is necessary.

Three (3) criteria were used to determine whether building close to AEE's installation import terminal was a viable alternative. These were: 1) specific factors at the workplace, 2) maritime operations and, 3) environmental issues.

1) Factors specific to the workplace

Availability of Land: a suitable location must have enough space available to accommodate the proposed installation and all safety components required by the Federal Department of transportation regulations (49 CFR part 193), the U.S. Coast Guard (33 CFR part 127) and the National Fire Protection Association (NFPA). In addition, a site must comply with the regulatory distance required between structures used to gasify LNG and the LNG storage tank. Facilities would need to occupy an area of approximately 25 acres. Structures would include, among other components, a dual containment tank 167 feet in height and diameter with the ability to store 1,000,000 barrels of liquid natural gas at a temperature of minus 260 degrees Fahrenheit and a pressure of 2.0269 psig; vaporization or gasification systems to gasify liquid natural gas, and pipes to transport the natural gas to the power stations. Other factors to be considered would include activities outside and adjacent to the terminal and the distance or separation that you must have between the terminal to occupied areas of activity and/or populated areas (49 CFR parts 193.2055, 193.2057 and 193.2059).

Availability of Coastal Area: a site must have an available maritime quay with facilities for tankers 950 feet long, with PIP cubic meters capacity, and a minimum 40-foot boat anchor area. The criteria used to assess whether a port or dock has the capacity for this type of project are the depth of greater than 40 feet, navigation channels with extension airway passage (greater than 180 feet) and proximity to equipment to conduct storage and gasification of liquid natural gas. The quay must be approximately 30 feet wide by 1,700 long and have, among others: teams to tie up the tanker to the dock; a boat platform with two levels at the end (a 40-foot wide by 100 long lower level and 20 wide and 100 long upper level); and a emergency spill collection system.

Disposal of Dredge Material: any area under consideration must include the requirement to dredge to create a proper shipping channel for the maritime tanker traffic to deliver the liquid natural gas; also a site must be identified for dredged material generated during construction and future maintenance operations required for the channel. Infrastructure: a new import terminal will require adequate infrastructure that includes a source of reliable energy and roads where appropriate, to meet emergencies.

2) Maritime operations

Increase in ships: the transit of tanker ships is subject to more restrictions than general maritime traffic. Federal regulations and restrictions could affect other shipping and increase the risk of affecting other users of the navigation channel.

Access to the navigation channel: the quicker a tanker vessel can arrive at the terminal, unload and return to sea, the more economic the operation is. A shorter channel would reduce possible adverse effects on traffic for other ships from marine transit restrictions. Yaw (amplitude and proximity) area: a typical liquid natural gas tanker ship would require a dock with a minimum turning diameter of 1,200 feet and 40 feet of depth.

3) Environmental issues

Environmental consequences: minimizing environmental impact by using places previously impacted, including the place for dock, and areas zoned for this type of use.

Compatibility with the region: the place must be compatible with future developments on adjacent properties.

Zoning and land use: one of the objectives of the project is to avoid or minimize adverse impacts to the environment due to development. A place must be located within an area acceptable for industrial development to help confine any environmental impact to previously industrialized areas.

Distance to populated areas: the place is labeled depending on of its distance from populated areas or residences. Avoiding populated areas is necessary to comply with the criterion of the THOD (49 CFR 193.2055, 193.2057 and 193.2059), which governs the establishment of an exclusion zone, and any location or area where a terminal cannot be built due to population density. Respecting the distance set in this exclusion zone and minimizing negative public perception about security issues would be difficult with a new liquid natural gas terminal.

The tankers commonly used for transporting liquid natural gas have a capacity ranging from 125,000 to 140,000 cubic meters. Larger boats range from 950 to 1,000 feet long, with a typical draft of 38 to 40 feet. Ensuring that liquid natural gas tankers can arrive without difficulty requires an additional depth of two (2) feet under the keel. This requires tankers maritime access with a wharf and dock yaw in bodies of water that are at least 40 feet deep.

The CTSJ site consists of 32.85 acres. Fossil fuels are received from the pier located on the west side, in the port area of San Juan. This quay is located in the Puerto Nuevo channel east of the Army Terminal. This maritime area was prepared for the navigation of vessels delivering fuel, among others. Currently, barges giving service to AEE unload fuel at the dock on the Puerto Nuevo navigation channel.

According to the bathymetric maps, the current service area has a depth of more than 30 feet. The maximum depth at the Army Terminal is, at only one point, 40 feet. Most of the depths range between 35 and 37 feet. This dock is connected to the channel at the Army Terminal, which leads to the Anegado Channel. This joins the Bar Channel that serves as access to all maritime vessels entering the San Juan Bay.

To prepare the area for receipt of tanker ships the navigation channels would need to be dredged to a depth 40 feet deep and have a minimum width of 300 feet. The disposal of resultant dredged material could present a problem because of the need to identify an appropriate place for the material so it does not result in an adverse environmental impact. Puerto Rico currently does not have approved upland dredged disposal sites with the capacity

to receive or process the amount of material that would be generated from a project of this magnitude. In addition, it has been shown that most upland disposal sites for dredged material are not suitable workplaces for subsequent industrial or commercial development.

The disposal of dredge material could be offshore, in an approved ocean disposal site. This also has several disadvantages. The area would need to be large enough so the amount of material to be discharged would not have an unacceptable adverse impact on the benthic community area. It would also need to be capable of receiving those materials produced from future maintenance dredging operations that would be required to avoid interruption to the delivery of liquid natural gas.

Dredging operations would degrade the quality of the receiving waters due to suspended fine sediments. Effects from the turbidity plume could occur daily during working hours and up to two (2) hours after the discharge of dredged material is completed. This would affect water quality and, consequently, water quality parameters required by environmental permits governing the CTSJ, especially turbidity, sedimentation and suspended solids.

The docks and ports on the Bay of San Juan annually receive 80% of the products imported into Puerto Rico and they play a crucial role in the process of exporting products of all kinds. The Port of San Juan Bay receives an average of 700 cruise ships annually, with 1.3 million tourists visiting San Juan. Thousands of fishermen use the waterway every year, with an average of 350,000 pounds of fresh fish caught from fishing activities. All marine traffic uses the San Juan Bay through the Bar and Anegado channels. In addition, much imported products arriving in the Bay reach the Army Terminal Pier. It is estimated a liquid natural gas import terminal would increase maritime traffic in the area of the Bay of San Juan at the rate of 25 to 60 visits annually, based on the size of the vessels that deliver liquid natural gas. Tanker ships would use the three channels, until they reach the pier at Puerto Nuevo Bay. This represents an increase in marine traffic which would disproportionately affect economy and tourism. One example of an effect would be the increase in maritime traffic restrictions which make it difficult, if not impossible, for others to use the navigation channels simultaneously with LNG tankers.

The Estuary of the Bay of San Juan (EBSJ) is composed of several bodies of water. The EBSJ provides food and shelter to eight species of fauna and 17 species of flora in danger of extinction, such as the Antillean Manatee and several species of turtles, including the hawksbill and tinglar; 160 species of birds, such as the Brown Pelican and the Heron; 19 species of

reptiles and amphibians, such as the coquí and boa of Puerto Rico; 124 species of fish, Tarpon and bass; and 300 species of wetland plants are found on EBSJ.

The body of water closest to the CTSJ is Puerto Nuevo Bay, which is part of the Bay of San Juan. Close to Army Terminal dock are communities of macroalgae. Patches of *Gracilaria sp*. are present and, in smaller quantities, *Entermorpha sp*. Associated with these macroalgae is a rich population of invertebrates, which include: tube worms (*Onuphia Sp*.), blue crabs (*Callinectes sp*.) and several bivalves (*Corbula* and *Diplodonta*). There is no evidence of coral reefs in the area of the CTSJ. Slightly farther away from the CTSJ, the area of the Bridge of the Constitution and the entrance to the Martin Peña channel (all part of the EBSJ), are neighboring areas designated as critical coastal areas for wildlife. Mega-invertebrates found here include: *Callinectes sp*., *Micropanope sp*. and pink shrimp (*Penaeus duorarum*). Although studies of fish in the vicinity of the CTSJ have not been made, it is reasonable to expect them to be found in the Bay of San Juan. Among the fish in the Bay of San Juan are: tarpons (*Megalops atlantica*), *Elops saurus*, *Eleotris Pisonis*, hardhead catfish (*Ariopsis felis*) and gafftopsail catfish (*Bargre marinus*).

Studies that cover the coast running from Punta Las Marias to Punta Boca Juana (mouth of the River plate), which includes the San Juan Bay, reference threatened and endangered species, such as: green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*), leatherback turtle (*Dermochelys coriacea*), West Indian Manatee (*Trichechus manatus*), and the brown pelican (*Pelecanus occidentalis*) - recently relisted as a threatened species. These turtles and the manatee have not been sighted in the lagoons, canals or bays in the vicinity of the CTSJ, although the brown pelican is known to be in the vicinity of the CTSJ.

The alternative of building a terminal at or near the CTSJ is not feasible, nor practicable, when comparing potential environmental impacts associated with the construction of a natural gas pipeline to service AEE's power stations. It must be considered that the process of constructing and operating an LNG import terminal is complex. Permits and endorsements are regulated by the Federal Energy Regulatory Commission (FERC). In comparison, the EcoEléctrica studies and permit process to construct an import terminal and start of the operation took between 7 to 10 years. This timeline would not satisfy AEE's need to begin a project to facilitate the transition from oil to a renewable source of energy. The cost of the existing EcoEléctrica terminal fluctuated around $570 million in 1995. Considering inflation, the construction of a similar terminal today would be too onerous as it would be beyond the $1 billion. As a project of the

Government of Puerto Rico, it would require funding through bond issues, limiting savings on electrical bills.

The construction of a terminal import within or close to holdings of the CTSJ as an alternative is not feasible when comparing the physical status of the area with the physical conditions required for this type of terminal. Adverse environmental impacts from such an alternative are expected to be significant. Evaluating the criteria applied to this project concluded deficiencies exist that result in little benefit and make this alternative not practicable. Although an area of maritime use, the CTSJ (as well as the other two stations in the northern area) does not comply with depth criteria or the anchor capacity for the necessary tankers. This alternative lacks a dredged material disposal area and necessary dredging activity would adversely impact the benthic community in the area. Maritime traffic would be highly compromised by existence of only one entrance channel to San Juan Bay. It is believed locating a receiving terminal here would adversely impact the local economy, as well as the tourism industry.

1.7.3. Constructing a System(s) of Barges and Buoy (Deepwater Port) Alternative

As one of the alternatives to the project, the installation and operation of barges and a mono buoy for the receipt, storage and regasification to transport natural gas to each area in the north central system was considered.

This barge and buoy system, which is also known as a Deepwater Port, would involve the construction of a terminal to receive compressed natural gas (CNG) in the vicinity of each of the plants. This terminal would receive gas from a station located outdoors, 5 km off the coast, where a barge is docked to bring the LNG from the point of export (an LNG tanker). The barge will have a regasification system docked to a buoy which keeps afloat lines connecting the barge to pipelines that will be on the seabed. These pipelines will transport compressed gas to a receiving terminal near the central power unit. Terminals that receive methane require a minimum area of approximately 2,500 square meters.

Construction, installation and operation of these systems of barges and buoys are regulated by two leading agencies: the Maritime Administration (MARAD), attached to the Federal Department of Transportation, and the US Coast Guard under its Deepwater Ports Standards Division. Other federal agencies that have jurisdiction over the construction, installation and operation of these systems are: Advisory Council on Historic Preservation (ACHP), Council on Environmental Quality (CEQ), Department of Energy (DOE), Department of State, U.S.

Environmental Protection Agency (EPA), Federal Energy Regulatory Commission (FERC), Minerals Management Service (MMS), National Marine Fisheries Service (NMFS), Department of Commerce under its National Oceanographic and Atmospheric Administration (NOAA), Pipeline and Hazardous Materials Safety Administration (PHMSA), US Army Corps of Engineers (USACE), US Fish and Wildlife Service (FWS), and the White House Energy streamline Task Force. Commonwealth agencies with jurisdiction are: Office of the Governor, Department of Natural Resources and Environment (DRNA), Instituto de Cultura Puertorriqueña (ICP), State Historic Preservation Office (SHPO), Port Authority, Commission on Public Service (CSPs), Board of Environmental Quality (JCA), Board of Urban Planning (JPU) and the Authority of Electrical Energy (AEE).

The AEE would request a private company with expertise in the design, construction, and operating system of a Deepwater Port. This could cost AEE between $70 and $80 million per year, subject to signing a contract with that company for a period of not less than 20 years. At the end of the 20 year period the total cost would be approximately $1.6 billion dollars.

The process of obtaining permits for the construction and operation of these systems begins by filing an application to the MARAD. MARAD was delegated the authority to grant licenses for the construction and operation of systems of barges by the Secretary of Transportation under the Deepwater Port Act, as amended in 2002. Federal Regulation 33 CFR Parts 148, 149 and 150 govern the process of request for license for the construction and operation of these systems.

The license application process begins with a phase of pre-request, during which the applicant discusses the project with the concerned agencies, at both federal and State levels. The application is filed and MARAD has 356 days to issue a Record of Decision (ROD). After the publication of the ROD, the applicant must have its fully operational facility granted the license by MARAD. This process usually takes between two to four years.

Concurrent with the proceedings before the MARAD, the applicant must comply with the requirements of the National Environmental Policy Act (NEPA). During this 240 day period a declaration of environmental impact occurs, involving the other agencies. At the same time, permissions and endorsements are managed at the State level. The Environmental impact Declaration generated under the NEPA process can also be used to satisfy the requirement of the law on State environmental public policy.

One of the most important aspects that MARAD considers to grant the license is the applicant's financial ability to build and operate the system of barges and buoys. Furthermore, the applicant must have the financial ability to pay a deposit which is sufficient to cover the cost of the complete removal of the system, once it is finished or the license is revoked.

In addition, the applicant must demonstrate whether the barges and buoys system is of national interest and is consistent with federal public policies on national security, energy sufficiency and environmental quality, among others. The system should not interfere with international navigation and other reasonable use of the high seas, as defined in the treaties, conventions or customary international law. The authorization of the Governor is required at the State level.

The public has to be kept informed throughout the process through the Federal Register and the publication of all documents related to the Federal Docket Management system: www.regulations.gov. In addition, under NEPA processes, as well as government processes, there is a provision for holding public hearings which ensures public participation.

The AEE assessed the feasibility of the construction of a Deepwater Port system in three areas of San Juan, Toa Baja and Arecibo. The criteria considered in this evaluation were: cost, space, time required for the operation, permissions, security, environmental justice, past experience in Puerto Rico and U.S. experiences.

1.7.3.1. Analysis for Central San Juan

The annual cost per lease would be approximately $70 to $80 million. The plant does not have the space necessary to locate the terminal facility to receive the CNG. The period of time required to put the system into operation, in compliance with all applicable federal and State legislation is estimated between 5 to 8 years. The permissions process is complicated and expensive. Installing a pipe on the seabed toward the central area of San Juan, as a national and international port with intense maritime traffic, would raise issues of safety with Homeland Security. In the central San Juan area there are low-income communities close to the project, which would be affected. After an analysis of environmental impacts the project would not be favored. The Central San Juan area is in the vicinity of CAPECO where on November 23, 2009, a catastrophic explosion affected nearby communities. For all the above, a Deepwater Port was discarded as a construction option.

1.7.3.2. Analysis for Central Palo Seco in Toa Baja

The annual cost per lease would be approximately $70 to $80 million. The plant does not have space to locate the terminal facility to receive the CNG. The period of time required to put the system into operation, in compliance with all applicable federal and State legislation is estimated between 5 to 8 years. The permissions process is a complicated and expensive. In the Central Palo Seco area there are low-income communities close to the project, which would be affected. After an analysis of environmental impacts the project would not be favored. Central Palo Seco is in the vicinity of CAPECO where on November 23, 2009, a catastrophic explosion affected nearby communities. For all the above, a Deepwater Port was discarded as a construction option.

1.7.3.3. Analysis for Central Cambalache at Arecibo

The annual cost per lease would be approximately $70 to $80 million. The plant does not have space to locate the receiving CNG terminal. The period of time required to put the system into operation, in compliance with all applicable federal and State legislation is estimated between 5 to 8 years. The permissions process is a complicated and expensive. In the Central Palo Seco area there are low-income communities close to the project, which would be affected. After an analysis of environmental impacts the project would not be favored.

In summary, it was determined that, when compared with other alternatives considered for this project, the option of constructing Deepwater Ports was neither feasible nor practical when considering cost, technology and long-term operation.

1.7.4. Natural Gas Pipeline Corridor Alternatives

The purpose of this analysis is to select a best route for the Vía Verde project. Various alternatives for the implementation of this project were assessed. The various alternatives considered different terrestrial alignments for a natural gas pipeline. Other works and studies contracted by PREPA were used during the Alternative Routes Selection effort. Part of the study conducted by *Power Technologies Corporation* (PTC) in 2006 was used for this analysis (*Corridor and Alternative Routes Selection Study)*. The PTC study was inclusive since it took into consideration the entire island. Corridors were evaluated every 1,000 meters and used the following criteria for such evaluation; topography, land use, existing corridors, and sensitive areas. Options were refined with other factors such as: individual residences, minor topographic variations, sensitive habitats that were identified during field visits, and

methodology of construction in areas of greatest difficulty, such as: steep slopes, bridges and densely populated areas. Finally, the study selected multiple routes to bring natural gas to various points of the island. These included the PREPA facilities at Arecibo, San Juan and Palo Seco, which are the focal points of this Vía Verde project.

The study carried out by PREPA identified two viable alignments to transport natural gas from EcoEléctrica to Central Cambalache:

1.7.4.1. Alignment South to North "A"

Starting at EcoEléctrica, take a Northeast route overland to Ponce and then follow the State Road 10 road easement. The route follows State Road 10 through Adjuntas and Utuado. At Utuado the pipeline moves away from but parallel to the State Road 10 corridor until it reaches Arecibo. At Arecibo the route follows Northern plains until it reaches Central Cambalache. This route runs a total of 45.1 miles and the study labeled this alignment "*Overland*".

1.7.4.2. Alignment South to North "B"

Starting at EcoEléctrica, take one of two options to get to State Road 10. The first is to follow the right-of-way of the southern gas pipeline to Ponce and the second option is to take the State Road 10 right-of-way from Guayanilla. Both go to the west of Ponce where the pipeline route follows the State Road 10 right-of-way State Road 10 until it reaches Central Cambalache. This route runs a total of 36.8 miles and the study labeled this alignment "*DOT Route".*

The study also identified two viable alignments for the proposed natural gas pipeline, from Central Cambalache to San Juan and Palo Seco.

1.7.4.3. Alignment West to East "A"

From San Juan, in Levittown, take a path west and cross the Municipalities of Toa Baja, Dorado, Vega Alta, Vega Baja, Manati and Barceloneta to Arecibo. This route runs a total of 44.6 miles. The study labeled this alignment "*Overland Corridor".*

1.7.4.4. Alignment West to East "B"

From Cataño, follow the PR-22 right-of-way to Arecibo. This route crosses the Municipalities of Toa Baja, Dorado, Vega Alta, Vega Baja, Manati and Barceloneta. This route would necessitate an investigation to determine if the pipeline would interfere with the right-of-way of the

Superacueducto (Super Aqueduct). This alignment runs a total of 45.6 miles and the study called this alignment "*DOT Corridor".*

1.7.4.5. Alignment "C"

A third alignment, which was not contemplated in any of the previous studies contracted by PREPA, was also considered for the Via Verde project that ran near both of the other two alternative routes but avoided more residential areas.

In summary, three (3) routes were considered for the pipeline corridor from EcoEléctrica to Arecibo and then from Arecibo to San Juan. These were: alignment South-North A (SNA), alignment South-North B (SNB), alignment South-North C (SNC); alignment West-East A (OEA), West-East B (OEB), West-East C (OEC).

The following environmental criteria were used to evaluate the six alignment segments:

- Use of land
- Impacted water bodies
- Forests or nature reserves
- Endangered Species
- Archaeological sites
- Highway crossings
- Zoning
- Topography
- Distances from residential areas

1.7.5. Criteria were assessed in the following manner:

Use of land - The different uses of land were analyzed in each alignment. A route was defined as favorable for pipeline construction if existing land use was currently used for public, industrial, agricultural and commercial applications. A route was defined as not favorable for construction if land was currently in residential use and/or environmentally-sensitive. The percentage of the alignment with favorable uses and then the percentage not favorable were

compared to obtain a final value. The route which had the largest value received the positive (+) value.

Impacted water bodies - The number of crossings of bodies of water increases the difficulty to construct the pipeline. Crossing a large body of water would need special construction methods to avoid adverse impacts. These construction methods increase the cost of the project. All bodies of water which were intercepted by an alignment were counted. The route with the fewest water body crossings received a positive (+) value.

Forests or nature reserves - Forests and nature reserves were areas considered important public resources due to their high ecological value. For selection of a positive (+) value the criteria considered avoidance or minimization of impacts to these areas. The percentage of forested/nature reserves impacted was measured against the total length of each route alternative. The route with the smallest percentage of forests and nature reserves received the positive (+) value.

Endangered Species - This criterion measured the extent of the alignment alternative that was considered protected habitat and/or had listed species present. The route alternative with the smallest percentage of impact in protected habitat received the positive (+) value.

Archaeological sites - All identified architectural and archaeological sites that would be intercepted by an alignment alternative were marked. The route with the fewest sites received the positive (+) value.

Highway crossings - Road crossings increase the difficulty of pipeline construction since special construction methods are needed to avoid affecting the integrity of the infrastructure and vehicle congestion. All roads intercepted by an alignment alternative were identified. The route with the fewest road crossings received the positive (+) value.

Zoning - The different zonings were identified for each alignment alternative. Favorable zonings were considered to be non residential, public, industrial, agricultural, commercial and non-zoned. Not favorable was considered to be areas zoned residential, or areas identified as forests, historical sites and conservation lands. We measured the extent of alignment with terrain for favorable zoning against not-favorable zoning to obtain a final value. The route which had the largest value (favorable vs. not-favorable) received the positive (+) value.

Topography - Puerto Rico has a variety of topographical areas within its limited geographical scope. The Cordillera Central area is characterized by its rugged topography. We analyzed different levels and steepness of topography and types of soils within each alignment. Abrupt changes in the topographic levels were marked. The route which had the smallest number of abrupt topographic changes received the positive (+) value.

Residential areas - Due to its limited geography and high population density, Puerto Rico has abundant residential areas, especially in the coastal plains. Distance from Residential Areas, as part of the general public safety factors was considered to be a very important factor in identifying the best, practicable alternative. For this reason, greater weight was given in the project planning criterion to minimize the number of homes in the vicinity of an alignment. Any residence which would be within 150 feet from the center of an alignment was identified and counted. The route with the fewest number of residences received the positive (++) value.

We compared the three (3) alternatives for the South-North section of the proposed pipeline corridor and three (3) alternatives to the West-East section of the proposed corridor. To do this, the percent of each route or the number of times that the route would affect environmental criterion assessed on an individual basis was compared. The route option with the least impact to each criterion was evaluated and received a positive value (+). Then the total number of positive values for each route alternative were tabulated. The route option with the largest number of criteria in its favor was selected. The analysis is summarized in the Table 2.

After reviewing the matrix with the chosen environmental criteria, the South-North C (SNC) path was the most favorable with nine positive points while path B had three points and path A only one point. Minimal direct impacts to residential areas also favored route SNC. For the section of the pipeline corridor from Central Cambalache at Arecibo to the power plants at Palo Seco in Toa Baja and Central San Juan, the best route is West East C (OEC) with six total points while route B had five points and route A only one point. Again, direct impacts to residences strongly support route OEC since only one residence would be directly impacted while the other two routes potentially directly impact over twenty residences each.

Table 2: Route Selection Matrix

Criteria	South North A		South North B		South North C		West East A		West East B		West East C	
Use of land	3.09		8.68		14.35	+	1.32		14.38		18.89	+
Bodies of water	23		25		20	+	15		12	+	13	
Forests or nature reserves	1.39	+	2.50		3.04		0.59		0.03	+	2.79	
Endangered Species	6.49		11.69		6.01	+	7.03		1.53	+	10.43	
Architectural and archaeological findings	1		0	+	0	+	0	+	0	+	0	+
Highway crossings	40		28		21	+	64		47		30	+
Zoning	24.21		30.61		33.41	+	4.28		0.44		32.42	+
Topography	86		78		59	+	15		12	+	13	
Residences	17		2	+ +	2	++	29		22		1	++
Total Positive criteria		**1**		**3**		**9**		**1**		**5**		**6**

1.8. Avoidance and Minimization

To be the least impacting alternative, the Via Verde pipeline has incorporated all feasible avoidance and minimization techniques. Avoidance and minimization techniques were employed for both the natural and human environment. Much of the avoidance and minimization occurred during the alternatives analysis stage; however, the techniques discussed below were utilized during final siting of the pipeline alignment. Many more of the minimization and avoidance techniques will be used during construction.

During alignment of the pipeline route, every attempt was made to avoid and/or minimize impacts to human environment, including noise impacts, and community cohesion. Impacts to parks, historic site, schools, cemeteries, and other human environment resources were avoided and/or minimized.

Additionally, attempts were made to minimize impacts to the natural environment. Wherever possible, the pipeline alignment will cross natural environmental resources at the narrowest point, which minimizes natural environment fragmentation.

During construction, Best Management Practices (BMP) will be used. Most importantly, all impacts to wetlands and surface water will be temporary.

Table 3: Summary of Proposed Avoidance and Minimization Measures

Area of Concern	Protection Measures
Geology and Soils	• Using construction best management practices (BMP's)
Water Quality and Resources	• Using BMP's to minimize the impacts of construction activities to water quality
Wetlands and Floodplains	• Using BMP's to minimize erosion and sedimentation to wetlands • restoring temporarily impacted wetlands to pre-existing conditions immediately following pipe installation • Assess and restoring river and stream banks to preconstruction conditions • Restoration efforts will be completed by the contractor immediately following construction activities reducing the temporal functional loss of habitat, and allowing native vegetation to reestablish. • Contractor will segregate and preserve native soils during trenching and the top soil will be restored on-site to conserve the native seed source. • Utilizing HDD when possible to avoid impacts to sensitive habitats
Aquatic Biology	• Maintaining fish passage in rivers and streams throughout construction

Terrestrial Wildlife	• Construction timing will reduce potential disturbance of identified threatened and endangered species • Minimize the areas of disturbance to only those that are necessary, dispose of excavated invasive and noxious weeds to prevent reestablishment, minimize areas of soil exposed to reduce dust that can bury native plans, maintain clean work areas with proper litter control and sanitation to prevent wildlife attraction, dispose of human refuse in containers that can be sealed and protected from wildlife • Species specific impact minimization plans have been prepared for the Puerto Rican Boa and Puerto Rican Nightjar
Vegetation	• Use BMP's to eliminate or minimize effects of erosion, sedimentation and accidental fuel or oil take leaks (Please see Sediment and Erosion Control Plans—Appendix G, and Spill Plans-- Appendix I). • Avoiding impacts to threatened or endangered plants through a replanting procedure
Cultural and Historic Resources	• During construction, identified archeological resources would be avoided to the extent practicable • Contractor will follow all guidance provided by SHPO

1.8.1. Impact Minimization for the Puerto Rican Boa (*Epicrates inornatus*)

Puerto Rican conservation measures proposed for the Puerto Rican boa include educating staff, project studies, pre-construction surveys, and relocation of individuals to protected areas. Conservation measures are as follows:

(1) All construction personnel will be required to attend instructive meetings related to the Puerto Rican boa. Information to be presented at these meetings will include a description of the species, protection measures, penalties for harassing boas, and relocation and capture procedures described below.

(2) During the clearing in the construction right-of-way, two biologists will carry out daily field surveys to detect the presence of Puerto Rican boas in each area of construction and before starting work. Heavy equipment will be checked to see if any boa climbed into it

overnight. Daily changes to work plans shall be considered when planning for surveys. The field survey will take place from 5:00 a.m. to 7:30 a.m., prior to operating heavy machinery.

(3) In the event an individual is detected, the Protocol below to capture and relocate boas will be followed. If construction staff discovers a snake in the workspace, all machinery within 50 feet around the snake shall cease and the Resident Engineer will be notified. An authorized biologist will capture the snake for relocation in accordance with the Protocol that follows. Construction activities can continue once the snake has been removed.

(4) Any captured snake will be relocated to Guajataca or Río Abajo forest, or other public land in an area similar to the capture area Habitat.

(5) Monthly reports will be prepared, summarizing the results of surveys and any capture and relocation activities. These reports will be provided to the USFWS and the Department of Natural Resources and the Environment (DRNA).

Capture and Relocation Protocol for the Puerto Rico Boa

Project biologists are responsible for implementing these procedures in the event a snake is found within the limits of the established ROW during construction. At least one resident biologist will be present during all working hours. The following steps will be taken in the event a snake is observed:

(a) workers up to 50 feet away will stop their work.

(b) a person will keep watch on the snake while another notifies the project engineer and/or biologist.

(c) the project biologist will capture the snake with a snake rod or other appropriate instrument designed not to inflict any damage to the snake. The snake will be placed in a bag or box in a cool, dark place on land waiting for transportation to an approved relocation project.

(d) if the snake is positively identified as a Puerto Rican boa, it will be transported to and released in the forests of Guajataca or Rio Abajo or any other public land in an area with habitat similar to the area where captured. All other species of snake will be released within the established construction ROW at the end of the work day: outside of the limits of existing and/or future construction.

(e) the project biologist who releases a snake will be responsible for ensuring that an incident report is completed and properly filed. This report shall contain the following information:

(1) Exact location of the snake when observed and the circumstances of the observation.

(2) The order and the procedures followed after the observation time.

(3) Personnel involved in every step of the procedure.

(4) The snake's condition at the time of observation and its condition when it is released.

(5) Species of snake, if known.

(6) The time and location where the Snake is released.

(7) Any photograph of the snake that has been taken.

(f) the report shall be signed by the project biologist and included in the monthly report submitted to the USFWS and the DRNA.

(g) in the event an observed snake cannot be captured, work within 50 feet from the snake can only resume once it has left the construction right-of-way.

(h) in the event a dead snake is discovered inside of the construction right-of-way, its body will be placed in a sealed plastic bag and placed on ice or in a freezer until it is positively identified. If the Snake is identified as a Puerto Rican boa, the body will remain frozen and the USFWS and DRNA notified for instructions.

1.8.2. Impact Minimization for the Puerto Rican Nightjar (*Caprimulgus noctitherus*)

To avoid impacts to Puerto Rican nightjars from construction activities,, commencement of any clearing of vegetation required for construction within or adjacent to mature dry forest within nightjar habitat, will occur outside of the April-June nightjar nesting season. However, in emergency situations, if vegetation needs to be cleared during the nesting season, experienced and qualified biologists will survey the area proposed for clearing for night jar nests before any clearing activity is conducted. The designated Fish & Wildlife Service office in Cabo Rojo Puerto Rico will be first notified by phone about any of those potential incidents, followed by a

written report describing the emergency situation and the precautions implemented to avoid any disturbance to the Puerto Rican nightjar. In the event nests are found, the nests will be avoided by reducing or relocating the right-of way, or by delaying the activity until the nightjars fledge their young.

1.8.3. Impact Minimization for the Puerto Rico Toad (*Bufo lemur*) and Baker's worm lizard (*Amphisbaena bakeri*)

The Puerto Rican crested or Concho toad (*Bufo lemur*) is very difficult to detect due to their small size and secret habits. However due to the potential for occurrence of this species in the project corridor right-of-way, the following conservation measures will be implemented: (1) during the initial establishment and clearing of the construction right-of-way, two biologists will conduct daily sampling for detecting the concho toad and the blind Baker or Baker's Worm Lizard (*Amphisbaena bakeri*) in every area of construction before the work. These monitoring activities will be carried out daily, concurrent with the monitoring required for the Puerto Rican boa. Monitoring will be focused on cover areas (cracks in rocks and trees species) that are regularly used by these species. All monitoring events will be incorporated into and will be carried out in coordination with the work plan of the contractor; daily changes to these work plans shall be considered in planning the work. Monitoring events will be carried out between 5:00 a.m. and 7: 30 a.m. on days when major equipment will be in operation within the limits of the construction right-of way. When a species is detected, established capture and relocation protocols (similar to those identified for the boa) will implemented. Data regarding all species identified within the ROW, captured and/or relocated will be incorporated into the daily environmental monitoring logs. All collections, relocations and data transmissions will be coordinated with the appropriate local, state, and federal regulatory agencies.

1.8.4. Impact Minimization for Vegetation

Unless limited by the size (e.g. large trees), all species of plants listed as threatened or endangered found inside the limits of the construction right-of-way to be impacted will be relocated. Potential relocation sites include the Guajataca Forest Reserve (DRNA), Río Abajo Forest Reserve – Utuado (DRNA), and the Combalache Forest Reserve – Arecibo (DNRA); all sites could ensure long-term protection. The area chosen for the transplantation of individual plants will be selected in coordination with the USFWS (for species listed by the federal Government) and/or the DRNA; with concurrent permission from the Manager/Owner of the

forest or place where sowing or transplants will occur. The characteristics of the premises where transplants (soils, geology, associated vegetation, etc.) are carried out shall be similar to the affected location. Relocation methodology could include transplantation, spreading seeds and/or division by vegetative methods. Seeds and cuttings may be taken of all individuals affected to the maximum extent possible. Propagation of seeds and cuttings may be more appropriate for woody species since transplantation of these species often results in limited success.

To avoid any delay in relocation efforts, PREPA will negotiate a Service Contract with the DRNA to allow their technicians to undertake the relocation of any endangered plant. This approach will ensure required protocols are implemented through the use of qualified technicians accepted by both the DRNA and the U.S. Fish & Wildlife Service office. The three preserve areas identified include representative vegetative assemblages which are similar to those found within the pipeline route. Other public properties may also be available which afford suitable critical habitat, land management, and long term protection. In areas where comprehensive flora studies have not been conducted; the applicant will have a qualified professional botanist perform vegetation surveys prior to beginning work within the 150-foot wide corridor. This activity will be conducted as part of the aforementioned Service Contract negotiated between PREPA and the DRNA. The recommended purpose of these studies would be to identify and mark all plants listed by the federal Government and the State for relocation. After these studies, the project owner shall provide the details of the species specific relocation procedures to be undertaken to the USFWS (for species listed by the federal Government) or the DRNA (for species listed by the State Government) for review and approval. The procedures to be utilized will be those accepted and developed by botanical professionals or horticulturists. Methodology of relocation for transplants of trees will be prepared by a professional arborist certified by the International Society of Arboriculture and shall comply with ANSI 300 "Transplanting Standards" (parameters of transplants). Once the relocation procedures are completed, funding will be provided to the DRNA for the long-term maintenance of the population relocation plant monitoring.

1.9. Regulatory Agency Meetings/Correspondence

Regulatory Meetings with USACE and FWS

Table 4: Pre-application Meetings with Regulatory Agencies

Date	Agency	Attendees
June 6, 2010	USFWS, Boqueron Office	Edwin Muniz, Marelisa Rivera
June 8, 2010	USACE, Jacksonville Office	(b) (6)
June 28, 2010	USACE, Antilles Office	(b) (6)
August 2, 2010	USACE, Jacksonville Office	(b) (6)
August 5, 2010	USACE, Antilles Office	(b) (6)

2. Environmental

2.1. Description of Project Area: Action Area (Uplands, Wetlands, Critical Habitat)

The Via Verde Project covers a vast array of lands through the following Municipalities: Peñuelas, Adjuntas, Utuado, Arecibo, Barceloneta, Manati, Vega Baja, Vega Alta, Dorado, Toa Baja, Cataño, Bayamón, and Guaynabo. A description of the Action Area in these Municipalities can be found in Chapter 3 of the Via Verde Project, Declaracion de Impacto Ambiental (Appendix D).

2.2. Describe Physical geography attributes (Topography, Soils, Condition, Trend)

The description of the physical attributes of the Via Verde Project Corridor is found in Coll Environmental Jurisdictional Wetland Report under Project Route Description; found in the PREPA, Via Verde Project, Declaraciòn de Impacto Ambientales (Appendix D).

2.3. Describe Biological Attributes (Habitat Types, Natural Communities, Existing Management Activities, Maps)

A description of the biological attributes of the Via Verde Project Corridor can be found in the Coll Environmental Flora and Fauna Report (Informe Flora y Fauna Via Verde) under Descricion del Area de Estudio; found in the PREPA, Via Verde Project, Declaraciòn de Impacto Ambientales (Appendix D).

2.4. Wetlands

The extent of Waters of the U.S. that are subject to regulatory jurisdiction under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899 for the Project was determined by Jorge Coll (Coll Environmental). The methodology employed for this delineation followed the 1987 Corps of Engineers Wetland Delineation Manual and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Caribbean Islands Region (the Caribbean supplement). In areas where differences between the Manual and the Caribbean supplement occurred, the Caribbean supplement took precedence. There were areas where determination was difficult, due to past or recent change in 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. The field work necessary for this jurisdictional determination (JD) was performed from May to July 2010 and the study area included 100 feet to each side of the centerline of the pipeline route.

This preliminary jurisdictional determination was performed in three phases. Phase 1 of the study was a screening level analysis to identify those areas within the site, constituting jurisdictional wetlands under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. The screening analysis was performed using Geographical Information Systems (GIS). The data gathered from this phase provided specific and important information on the location of potential wetland sites. This phase also included a preliminary site visit to validate the data that were obtained during the GIS analysis. It also helped in providing a better understanding of the wetland condition and location to develop a fieldwork plan.

Phase II of the study included the delineation field visits to delineate the extent of the jurisdictional wetlands on the site. Each delineation visit included the sampling, collection, and description of the site's hydrology, soils, and dominant vegetation around representative sampling locations on established transects. A total of 224 sampling points were established as part of the Phase 2 evaluation. The following tasks were carried out during Phase 2:

- Establishment of the sampling transects;
- 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;
- Description of the hydrology around and within the soil pit;
- Photographic documentation of the site, soil pits or vegetation;
- Collection of soil and plant samples for future reference;
- Geographic Positioning System (GPS) documentation of sampling points; and
- Wetland delineation and documentation of wetland limits.

Phase 3 of the study comprised the final analysis of the data gathered during the delineation visits and the development of a final report. The Coll Environmental Wetlands and U.S. Waters Jurisdictional Determination Study – Via Verde Pipeline Project, Puerto Rico (Wetland JD report) has been included in the PREPA, Via Verde Project, Declaraciòn de Impacto Ambientales (Appendix D) of this Joint Permit Application.

Within the north segment of the Project route (Guaynabo to north Arecibo), the majority of the delineated areas were herbaceous wetlands with some river, creek and channel crossings also present.

The delineated areas within the north to south segment of the project (southern Arecibo to northern Peñuelas) included mostly river, creek and channel crossings. Topography played an important role in the wetland/U.S. Waters ratio.

Delineated wetlands were classified under the following categories:

Palustrine Herbaceous Wetlands - These were Palustrine wetlands dominated by herbaceous species, with no apparent recent anthropogenic use. Many displayed obvious impacts from past human disturbance, but present conditions are somewhat stable and undisturbed. Approximately 306.94 acres of these wetlands were delineated.

Palustrine Herbaceous Wetlands under Present or Recent Agricultural Use - These are Palustrine wetlands that are currently, or have been recently under anthropogenic use. Most of these wetlands show characteristics of some agricultural use, such as cattle

grazing, pasture management (for hay, for example), pineapple or other commercial agricultural crops. Approximately 390.18 acres of these wetlands were delineated.

Estuarine Forested Wetland - These are forested wetlands mainly dominated by mangrove trees. These wetland areas were classified as estuarine based upon the type of dominant vegetation (halophytes). Some of them are relicts of former, larger systems that are encroached by infrastructure, urban, commercial or industrial development. Approximately 27.04 acres of these wetlands were delineated.

Estuarine Forested Canal - This wetland type was limited to a manmade estuarine forested canal located at the southwest Peñuelas end of the pipeline route. The canal is colonized mostly by black mangroves (Avicennia germinans (L.)). This delineated wetland area comprised approximately 1.46 acres.

Estuarine Salt Flat - These wetlands are also located at the Peñuelas end of the route. These wetlands are salt flats dominated by dwarf black mangrove trees. Approximately 1.14 acres of this wetland type were delineated.

Approximately 726.67 acres of jurisdictional wetlands, and 59 U.S. Waters were identified and delineated during environmental field surveys within the 200 foot wide review corridor along the approximately 92 mile project route. Appendix A, Figure 6 contained in the Coll Environmental Wetland JD Report (found in the PREPA, Via Verde Project, Declaraciòn de Impacto Ambientales (Appendix D) identifies these Wetlands and U.S. Jurisdictional waters. The report also identifies dominant plant species, their respective indicator species, and other wetland details for each wetland identified in the report.

Location of Wetlands/Waters of the U.S. along route

A total of 158 waters of the US were identified within the project right-of-way. The total area of waters of the US is 369.3 acres within the 150-foot right-of-way.

2.4.1. Wetland/Water of the US Impact Summary

The project has been carefully designed to meet the regional and general conditions of Nationwide Permits 12, 18, 33 and 38. All grubbing and clearing activities in wetlands will involve only the cutting or removing of vegetation above the ground, such as mowing, rotary cutting, and chain sawing, where the activity would not disturb the root system nor involve

mechanized pushing, dragging, or other similar activities that redeposit any excavated soil material. The contractor will utilize work pads (timber mats or “corduroy roads”) and/or equipment with wide balloon tires designed to operate in hydric soil conditions for all pipe excavation and installation within wetlands. The proposed "footprint" for the purpose of nationwide permit 12 would be limited to the area of the trenching activity and the area where excavated soil is temporarily placed before it is deposited back into the trench. There will be 0.0-acre of permanent fill impact and this acreage falls within the nationwide permit condition limit. Under nationwide permit 33 temporary work pads of fill material will be constructed for horizontal directional drilling sites located in wetland areas. The entry pad will be approximately 100-feet by 250- feet and the exit pad will be 100-feet by 150-feet for a total of 40,000 square feet. The temporary work pads will be removed immediately after the HDD operation is completed. If temporary access roads are required to reach and construct these work pads, these roads will also be immediately removed after the HDD operation is completed.

For the purposes of computing temporary impacts for this permit application, the following terms and parameters were used:

Total Wetland Area – equals the sum total of all jurisdictional wetlands/waters that have been identified within the 150 foot wide project right of way corridor.

Total Temporary Wetland Impact Area – equals the width of the trench plus any additional area required for temporary trench spoil/top soil storage times (X) the length of the wetland crossing. Trench widths for this project will range from 4 to 28 feet depending on the type of excavator used (backhoe, wheel trencher) and the side slope required. A total of width of 50-feet has been allocated for computing temporary impacts to wetlands.

Total Temporary Impact Area for Water Body Crossings – equals the total length of the crossing times (X) the 150 foot wide project right of way corridor.

Total Temporary Impact Area for HDD Wetland Crossings – equals the total area required for the footprint of the entry and exit staging areas unless the staging is entirely in the uplands. This amount has been computed using a fixed value equal to 40,000 square feet per work pad. Both entry and exit areas will be matted. No impacts will be required to the watercourse. Construction drawing Details 1 and 15 illustrate the proposed HDD.

Table 5: Temporary Impacts to Waters of the U.S.

ID	Waterbody Name or Type	Length (Linear Foot)	Temporary Impact (Acre)
C-1	Mangrove Canal	155	0.00
C-2	Channel	65	0.00
C-3	Canal	10	0.02
C-4	Canal	10	0.02
C-5	RIO TALLABOA RIVER	122	0.00
C-6	UNNAMED CREEK	10	0.02
C-7	UNNAMED CREEK	10	0.02
C-8	UNNAMED CREEK	10	0.02
C-9	UNNAMED CREEK	44	0.10
C-10	UNNAMED CREEK	10	0.02
C-11	UNNAMED CREEK	10	0.02
C-12	UNNAMED CREEK	10	0.02
C-13	UNNAMED CREEK	10	0.02
C-14	UNNAMED CREEK	10	0.02
C-15	UNNAMED CREEK	10	0.02
C-16	UNNAMED CREEK	10	0.02
C-17	UNNAMED CREEK	10	0.02
C-18	UNNAMED CREEK	10	0.02
C-19	UNNAMED CREEK	10	0.02
C-20	RIO PELLEJAS RIVER	102.1	0.23
C-21	UNNAMED CREEK	10	0.02
C-22	UNNAMED CREEK	10	0.02
C-23	ARENAS CREEK	10	0.02
C-24	ARENAS CREEK	10	0.02
C-25	ARENAS CREEK	10	0.02
C-26	RIO GRANDE DE ARECIBO RIVER	423.7	0.00
C-27	UNNAMED CREEK	10	0.02
C-28	UNNAMED CREEK	10	0.02
C-29	UNNAMED CREEK	10	0.02
C-30	UNNAMED CREEK	10	0.02
C-31	RIO GRANDE DE ARECIBO RIVER	175.2	0.00
C-32	UNNAMED CREEK	10	0.02
C-33	UNNAMED CREEK	10	0.02
C-34	RIO GRANDE DE ARECIBO RIVER	114.5	0.00
C-35	JOBOS CREEK	10	0.02
C-36	RIO GRANDE DE ARECIBO RIVER	305.4	0.00
C-37	RIO GRANDE DE ARECIBO RIVER	417.9	0.00

ID	Waterbody Name or Type	Length (Linear Foot)	Temporary Impact (Acre)
C-38	UNNAMED CREEK	30.5	0.07
C-39	RIO TANAMA RIVER	111.5	0.00
C-40	Ditch	See W-25	See W-25
C-41	PERDOMO CHANNEL	39.6	0.09
C-42	Ditch	See W-29	See W-29
C-43	RIO GRANDE DE ARECIBO RIVER	133.4	0.00
C-44	Ditch	See W-34	See W-34
C-45	Ditch	See W-36	See W-36
C-46	Ditch	See W-39	See W-39
C-47	Ditch	10	0.02
C-48	Ditch	See W-40	See W-40
C-49	Ditch	See W-40	See W-40
C-50	Ditch	10	0.02
C-51	Ditch	10	0.02
C-52	Ditch	See W-46	See W-46
C-53	Ditch	See W-50	See W-50
C-54	Ditch	See W-50	See W-50
C-55	Ditch	See W-52	See W-52
C-56	Ditch	See W-54	See W-54
C-57	Ditch	See W-56	See W-56
C-58	Ditch	See W-57	See W-57
C-59	Ditch	See W-57	See W-57
C-60	Ditch	See W-57	See W-57
C-61	Ditch	See W-57	See W-57
C-62	Ditch	See W-57	See W-57
C-63	Canal	73.0	0.17
C-64	Ditch	See W-61	See W-61
C-65	Ditch	See W-61	See W-61
C-66	RIO GRANDE DE MANATI RIVER	218.6	0.00
C-67	Creek	See W-65	See W-65
C-68	Creek	See W-65	See W-65
C-69	CANO DE LOS NACHOS	65.4	0.15
C-70	Ditch	See W-69	See W-69
C-71	Ditch	See W-70	See W-70
C-72	RIO GRANDE DE MANATI RIVER	145.6	0.00
C-73	RIO GRANDE DE MANATI RIVER	350.1	0.00
C-74	RIO INDIO RIVER	39.7	0.09
C-75	RIO INDIO RIVER	56.3	0.13

ID	Waterbody Name or Type	Length (Linear Foot)	Temporary Impact (Acre)
C-76	RIO INDIO RIVER	76	0.17
C-77	RIO INDIO RIVER	56.4	0.13
C-78	UNNAMED CREEK	96.3	0.22
C-79	RIO INDIO RIVER	67.7	0.16
C-80	RIO CIBUCO RIVER	47.1	0.11
C-81	UNNAMED CREEK	10	0.02
C-82	Ditch	See W-93	See W-93
C-83	RIO LA PLATA RIVER	140.1	0.00
C-84	Ditch	See W-97	See W-97
C-85	Ditch	See W-98	See W-98
C-86	Ditch	See W-99	See W-99
C-87	Ditch	See W-100	See W-100
C-88	Ditch	See W-100	See W-100
C-89	RIO COCAL RIVER	25.3	0.06
C-90	RIO COCAL RIVER	877.3	0.00
C-91	Creek	See W-105	See W-105
C-92	Canal/Rio Cocal	611.3	0.00
C-93	RIO COCAL RIVER	2611.9	0.00
C-94	RIO COCAL RIVER	811.1	0.00
C-95	RIO BAYAMON RIVER	229.4	0.00
C-96	RIO BAYAMON RIVER	346.6	0.00
C-97	Ditch	10	0.02
C-98	DIEGO CREEK	See W-119	See W-119
C-99	LAS LAJAS CREEK	See W-120	See W-120
C-100	SANTA CATALINA CREEK	32.5	0.07

Table 6: Temporary Impacts to Wetlands

ID	Wetland Type	Length (Linear Feet)	Temporary Impact (acre)
W-1	Estuarine- Saltflat, Mangrove	12.30	0.01
W-2	Estuarine- Saltflat, Mangrove	No Impact	0.00
W-3	Estuarine- Saltflat, Mangrove	No Impact	0.00
W-4	Estuarine- Saltflat, Mangrove	478.79	0.55
W-5	Mangrove Canal	No Impact	0.00
W-6	Mangrove Canal	See C-1	See C-1
W-7	Canals	See C-2	See C-2

ID	Wetland Type	Length (Linear Feet)	Temporary Impact (acre)
W-8	Canals	See C-3	See C-3
W-9	Canals	See C-3	See C-3
W-10	Palustrine- Man-Altered Herbaceous	479.47	0.55
W-11	Canals	See C-20	See C-20
W-12	Canals	See C-26	See C-26
W-13	Palustrine- Herbaceous	See C-26	See C-26
W-14	Canals	See C-31	See C-31
W-15	Canals	See C-34	See C-34
W-16	Canals	See C-36	See C-36
W-17	Palustrine- Herbaceous	3,327.38	3.82
W-18	Canals	See C-37	See C-37
W-19	Palustrine- Man-Altered Herbaceous	3,266.48	3.75
W-20	Canals	See C-38	See C-38
W-21	Palustrine- Man-Altered Herbaceous	2,755.68	3.16
W-22	Palustrine- Man-Altered Herbaceous	855.67	0.98
W-23	Canals	See C-39	See C-39
W-24	Palustrine- Man-Altered Herbaceous	8,516.42	9.78
W-25	Canals	29.30	0.03
W-26	Palustrine- Man-Altered Herbaceous	1,525.95	1.75
W-27	Canals	79.98	0.09
W-28	Canals	See C-41	See C-41
W-29	Canals	33.98	0.04
W-30	Palustrine- Herbaceous	1,347.03	1.55
W-31	Canals	See C-43	See C-43
W-32	Palustrine- Herbaceous	632.43	0.73
W-33	Palustrine- Herbaceous	714.92	0.82
W-34	Palustrine- Man-Altered Herbaceous	3,792.28	4.35
W-35	Palustrine- Man-Altered Herbaceous	4,230.47	4.86
W-36	Canals	66.95	0.08
W-37	Palustrine- Man-Altered Herbaceous	1,750.97	2.01
W-38	Palustrine- Man-Altered Herbaceous	1,007.69	1.16
W-39	Palustrine- Herbaceous	4,267.40	4.90
W-40	Palustrine- Herbaceous	9,641.34	11.07
W-41	Palustrine- Herbaceous	359.10	0.41
W-42	Palustrine- Herbaceous	1,511.99	1.74
W-43	Palustrine- Herbaceous	453.93	0.52
W-44	Palustrine- Man-Altered Herbaceous	211.90	0.24
W-45	Palustrine- Man-Altered Herbaceous	10,156.56	11.66

ID	Wetland Type	Length (Linear Feet)	Temporary Impact (acre)
W-46	Palustrine- Man-Altered Herbaceous	1,425.56	1.64
W-47	Palustrine- Man-Altered Herbaceous	300.32	0.34
W-48	Palustrine- Man-Altered Herbaceous	339.37	0.39
W-49	Palustrine- Herbaceous	21.35	0.02
W-50	Palustrine- Herbaceous	444.01	0.51
W-51	Palustrine- Herbaceous	No Impact	0.00
W-52	Palustrine- Herbaceous	1,670.09	1.92
W-53	Palustrine- Herbaceous	141.95	0.16
W-54	Palustrine- Herbaceous	101.63	0.12
W-55	Palustrine- Man-Altered Herbaceous	588.44	0.68
W-56	Palustrine- Herbaceous	182.90	0.21
W-57	Palustrine- Herbaceous	8,127.68	9.33
W-58	Palustrine- Herbaceous	2,663.84	3.06
W-59	Canals	See C-63	See C-63
W-60	Palustrine- Herbaceous	73.80	0.08
W-61	Palustrine- Man-Altered Herbaceous	2,469.28	2.83
W-62	Palustrine- Herbaceous	880.99	1.01
W-63	Canals	See C-66	See C-66
W-64	Palustrine- Herbaceous	3,265.17	3.75
W-65	Palustrine- Man-Altered Herbaceous	2,483.51	2.85
W-66	Palustrine- Man-Altered Herbaceous	904.40	1.04
W-67	Palustrine- Man-Altered Herbaceous	729.84	0.84
W-68	Canals	See C-69	See C-69
W-69	Palustrine- Man-Altered Herbaceous	2,867.11	3.29
W-70	Palustrine- Man-Altered Herbaceous	4,941.97	5.67
W-71	Palustrine- Man-Altered Herbaceous	2,344.56	2.69
W-72	Palustrine- Herbaceous	2,785.85	3.20
W-73	Canals	See C-72	See C-72
W-74	Palustrine- Herbaceous	3,938.84	4.52
W-75	Canals	See C-73	See C-73
W-76	Palustrine- Herbaceous	76.16	0.09
W-77	Palustrine- Man-Altered Herbaceous	No Impact	0.00
W-78	Canals	See C-74	See C-74
W-79	Canals	See C-75	See C-75
W-80	Canals	See C-76	See C-76
W-81	Canals	No Impact	0.00
W-82	Palustrine- Herbaceous	876.33	1.01
W-83	Palustrine- Herbaceous	1,261.28	1.45

ID	Wetland Type	Length (Linear Feet)	Temporary Impact (acre)
W-84	Canals	See C-79	See C-79
W-85	Palustrine- Herbaceous	7,420.03	8.52
W-86	Canals	See C-80	See C-80
W-87	Palustrine- Herbaceous	776.65	0.89
W-88	Palustrine- Herbaceous	779.93	0.90
W-89	Palustrine- Man-Altered Herbaceous	2,410.57	2.77
W-90	Palustrine- Man-Altered Herbaceous	524.45	0.60
W-91	Palustrine- Herbaceous	637.47	0.73
W-92	Palustrine- Man-Altered Herbaceous	2,326.72	2.67
W-93	Palustrine- Man-Altered Herbaceous	1,382.65	1.59
W-94	Palustrine- Man-Altered Herbaceous	61.18	0.07
W-95	Palustrine- Man-Altered Herbaceous	2,921.95	3.35
W-96	Canals	See C-83	See C-83
W-97	Palustrine- Man-Altered Herbaceous	897.44	1.03
W-98	Palustrine- Man-Altered Herbaceous	1,602.12	1.84
W-99	Palustrine- Man-Altered Herbaceous	6,908.46	7.93
W-100	Palustrine- Man-Altered Herbaceous	8,454.44	9.70
W-101	Canals	25.23	0.03
W-102	Estuarine- Forested	See C-90	See C-90
W-103	Estuarine- Forested	See C-90	See C-90
W-104	Canals	See C-90	See C-90
W-105	Palustrine- Man-Altered Herbaceous	3,316.79	3.81
W-106	Estuarine- Forested	See C-92	See C-92
W-107	Canals	See C-93	See C-93
W-108	Estuarine- Forested	See C-93	See C-93
W-109	Canals	See C-94	See C-94
W-110	Estuarine- Forested	See C-94	See C-94
W-111	Palustrine- Forested	770	0.00
W-112	Canals	163.15	0.19
W-113	Palustrine- Herbaceous	574.78	0.66
W-114	Canals	See C-95	See C-95
W-115	Canals	See C-96	See C-96
W-116	Palustrine- Herbaceous	800.09	0.92
W-117	Palustrine- Herbaceous	7,005.42	8.04
W-118	Palustrine- Herbaceous	877.68	1.01
W-119	Palustrine- Herbaceous	327.61	0.38
W-120	Palustrine- Herbaceous	474.47	0.54
W-121	Canals	See C-100	See C-100

ID	Wetland Type	Length (Linear Feet)	Temporary Impact (acre)
W-122	Canals	No Impact	0.00
W-123	Palustrine- Herbaceous	No Impact	0.00
W-124	Estuarine- Forested	No Impact	0.00
W-125	Estuarine- Forested	No Impact	0.00
W-126	Estuarine- Forested	No Impact	0.00
W-127	Estuarine- Forested	No Impact	0.00
W-128	Canals	No Impact	0.00
W-129	Estuarine- Forested	No Impact	0.00
W-130	Palustrine- Herbaceous	No Impact	0.00
W-131	Palustrine- Herbaceous	No Impact	0.00
W-132	Palustrine- Herbaceous	585.10	0.67
W-133	Palustrine- Herbaceous	No Impact	0.00
W-134	Canals	No Impact	0.00
W-135	Canals	No Impact	0.00
W-136	Canals	No Impact	0.00

2.4.2. Analysis of Wetland Impacts

The project has been carefully designed to comply with the requirements of the national and regional conditions of NWP 12, NWP 33 and NWP 38. No fill impacts will occur in forested or tidal wetlands. Additionally, there will be no net loss of waters of the U.S.

There are approximately 143.92 acres of temporary wetland impacts. There are approximately 7.84 acres of temporary impacts associated with streams, rivers, creeks, and other surface waters. The total temporary impacts associated with the Via Verde pipeline is 151.76 acres.

2.4.3. Wetland Mitigation

As compensation for construction of the pipeline the applicant will incur the costs of horizontal directional drilling under all medium to large waterbodies, i.e. any rivers and embayments, to avoid a discharge of dredged or fill material into waters of the U.S. Furthermore, the applicant has designed the construction of the pipeline to incorporate the use of vertical wall trenching whenever possible during placement of the pipe, to minimize the width of excavation and impacts in wetlands. If vertical trenching construction method is not practicable, standard ditch excavation with sloped walls will be utilized. Regardless of the method used, the project has

been designed to avoid permanent impact and ALL wetland impacts will be temporary in nature. There will be NO dredged or fill material placed permanently in waters of the U.S. All excess fill or dredged material will be removed and preconstruction wetland elevations will be re-established. Wetland organic topsoil will be separated during trench excavation and stockpiled in a separate area. This material will be used so that the top 6- inches of wetlands restored after the pipe is placed will be 100% organic material. All stream embankments where trenching occurs will be restored and covered with matting to prevent erosion until local wetland plant communities are reestablished.

Clearing activities in waters of the U.S. will not incorporate mechanized equipment and mats will be used wherever possible to avoid the need for temporary fill. In situations where temporary roads are needed to construct HDD work pads in wetland areas, these roads and the work pads will be immediately removed after the HDD operation is completed at each crossing. Wetland conditions will be immediately reestablished at each crossing as the project moves forward.

The US Army Corps of Engineers may make a determination that some type of additional compensatory mitigation is required to offset the minimal temporal impacts that will occur as the pipeline is constructed. If this occurs, the applicant is prepared to identify upland areas along the edges of existing wetland sites that will be crossed where the uplands can be lowered in elevation (scraped down) and additional herbaceous wetland habitat can be established on an agreed upon acreage ratio. Given the temporary nature of impacts expected to occur from construction, the applicant expects any such mitigation required by the Corps to be at or below 0.01 acres of compensatory mitigation per 1 acre of temporary wetland impacts.

2.5. Biological Evaluation

A Biological Evaluation has been completed for the Via Verde Pipeline, found in Appendix C.

3. SHPO

The PREPA Via Verde Pipeline project has been reviewed with respect to potential impacts to properties listed, or eligible for listing, in the National Register of Historic Places in accordance with the requirements of the National Historic Preservation Act (NHPA). Assistance regarding information on the location of, or potential for, the presence of historic resources, including but not limited to archeological sites and historic properties, has been sought from the State Historic Preservation Officer (SHPO) and the National Register of Historic Places in accordance with the

requirements set forth in 33 CFR 330.4(g)). The efforts conducted to date include: background research, consultation, oral history interviews, review of prior field investigation, and field surveys.

A Phase 1A archeological research study was conducted over the project area in June 2010. The study was conducted by state certified archeologists Marisol Rodriguez Miranda and Carlos Ayez Suarez. Additional research and field evaluations were conducted by archeologists Rosa Martinez Montero and Federico Freytes. The study methodology included the following objectives:

1. Identify the presence of archaeological resources known within the pipeline corridor and/or within the periphery of the study area;

2. Evaluate the possibility of discovering additional archaeological resources within the limits or on the periphery of the study area;

3. Define any impacts to known or potential archeological resources that lie within or in the periphery of the project corridor; and

4. Offer duly endorsed recommendations for additional studies which may be required to identify sites and/or to make recommendations to minimize impacts to archaeological areas that could be affected by the installation and propose alternatives for preservation of the same.

A detailed written report which documents the historical research of all records available and a preliminary inspection of the pipeline corridor route has been included in the PREPA, Via Verde Project, Declaraciòn de Impacto Ambientales (Appendix D).

Based on the information submitted, and these efforts, the applicant respectfully requests that the district engineer determine whether the proposed activity has the potential to cause an effect on the historic properties pursuant to 36 CFR §800.3(a)) or that consultation under Section 106 of the NHPA has been completed. It is understood that the district engineer will notify the prospective permittee within 45 days of receipt of the aforementioned supporting materials whether NHPA Section 106 consultation is required.

4. Construction Details

4.1. General Construction Methods

Construction activities associated with the Project would include installing pipelines; conducting Horizontal Directional Drilling (HDD); building temporary access roads, temporary pipe storage yards, and construction wareyards; and installing four (4) metering stations.

To the extent practicable, construction would generally be conducted six days a week (Monday through Saturday), 10 hours per day during daylight hours. However, in some cases, various construction crews would work on Sundays and before and/or after daylight hours; for example, if an HDD pullback is in process, it is prudent to complete the pullback. Similarly, timing restrictions may be associated with crossing a water body that may require work outside of daylight hours.

4.1.1 General Pipeline Construction

The build-out of the 24-inch-diameter natural gas pipeline is proposed to be done in an approximately one-year period. Construction is scheduled to begin as soon as possible after receipt of all regulatory approvals, with a pipeline in-service date of January 2012.

Installation of the mainline and laterals would employ conventional overland construction techniques. In general, a 150-foot-wide construction ROW would be needed for the construction of the proposed mainline and laterals. Pipeline construction would be typical of other pipeline projects in terms of schedule, equipment used, mode of operation, length of time the equipment is in use, and amount of equipment used simultaneously. Construction equipment would be operated on an as-needed basis, mostly during daylight hours, and would be maintained to manufacturers' specifications to reduce potential noise impacts.

As is typical of a pipeline construction scenario, the construction spreads are proposed to proceed along the pipeline ROW in one continuous operation beginning at the Eco Electrica LNG Terminal in Penuelas (Mile Post 0). Each spread (pipeline layout) would involve the completion of various activities, including ROW clearing and grading; trenching; pipeline stringing, bending, welding, joint coating, and lowering-in; backfilling; compaction of backfill; and cleanup. As the spread moves along, construction at any single point along the pipeline from initial surveying and clearing to backfilling and finish grading, would be in accordance with the time frames established in Nationwide Permit 12. Pipeline construction would cause temporary

increases in ambient noise levels in the immediate vicinity of the construction sites. Onsite construction noise would occur mainly from heavy-duty construction equipment, e.g., trucks, backhoes, excavators, loaders, cranes, and drill rigs.

4.1.1.1 Horizontal Directional Drilling

HDD will be used to cross large or sensitive waterbodies, environmentally sensitive areas, and/or major transportation corridors. HDD is proposed for the natural gas transmission pipeline crossings at certain water body and highway locations.

4.1.1.2 Temporary Access Road Construction

Construction phases would consist of ROW clearing, access road construction, and ROW restoration. Construction phases generally would be performed sequentially along the ROW such that any disturbance created by the activities in any one area would be short-term.

4.1.1.3 Temporary Pipe Storage Yards and Construction Wareyards

Construction wareyards and pipe storage yards would be used to stage equipment and materials and to locate temporary trailers used for jobsite office space. The associated temporary increase in traffic volume and activity at these sites may result in a minor noise impact in the Project area. Efforts will be made to locate these facilities in disturbed uplands outside of populated areas.

4.1.1.4 NG Metering Station Construction

Construction of the metering stations would involve clearing and grading, placement of fill, and excavation for foundations for the unit packages, ancillary equipment, piping, and structures. Construction of the metering stations is planned to commence after receipt of regulatory approvals, and would last about nine months. A completion year of 2011 is anticipated for all required metering stations. The locations of the metering stations are at or adjacent to the EcoElectrica, Cambilache, Palo Seco, and San Juan facilities. Noise associated with construction of the metering stations will be temporary and it is expected to occur during the daylight hours.

4.1.1.5 Trench Dewatering

During the course of construction activities, the open pipeline trench will, on occasion, accumulate water, either from groundwater intrusion or precipitation. The trench may be periodically dewatered, as necessary to prevent sedimentation of perennial waterbodies or rivers and allow for proper construction. Generally, a pump will be placed alongside the trench with an intake hose suspended into the water-filled trench. In areas with a very high water table and soils prone to sloughing, a well point system may have to be installed. Water may be pumped from the trench into vegetated upland areas within the ROW to prevent sediment-laden water from flowing directly into any water body. All dewatering areas will include suitable temporary turbidity and erosion controls. If adequately vegetated areas are too far removed from the dewatering site, the water may be discharged into straw bale or sediment fence containment areas, or into sediment bags.

The Contractor shall preserve as much vegetation as possible along the water body banks while allowing for safe equipment operation. Clearing and grubbing for temporary vehicle access and equipment crossings shall be carefully controlled to minimize sediment entering the water body from the construction right-of-way. Clearing and grading shall be performed on both sides of the water body prior to initiating any trenching work. All trees shall be felled away from watercourses.

Plant debris or soil inadvertently deposited within the high water mark of waterbodies shall be promptly removed in a manner that minimizes disturbance of the water body bed and bank. Excess floatable debris shall be removed above the high water mark from areas immediately above crossings.

Vegetation adjacent to waterbodies where HDD or boring methods will be installed or utilized, shall not be disturbed except by hand clearing as necessary for drilling operations.

4.1.1.6 Grading

The construction right-of-way in uplands adjacent to a water body shall be graded so that soil is pushed away from the water body rather than towards it when possible. To minimize disturbance to woody riparian vegetation within extra workspaces adjacent to the construction right-of-way at water body crossings, the Contractor shall minimize grading and grubbing of water body banks. Grubbing shall be limited to the ditch line plus an appropriate width to accommodate the safe installation of vehicle access and the crossing to the extent practicable.

4.1.1.7 Temporary Erosion and Sediment Control

The Contractor shall install sediment barriers across the entire construction right-of-way at all flowing water body crossings. The Contractor shall install sediment barriers immediately after initial disturbance of the water body or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete.

Where waterbodies are adjacent to the construction right-of-way, the Contractor shall install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way as delineated in the Sediment and Erosions Plan to be developed for this project.

4.1.1.8 Trenching

The following requirements apply to all water body crossings except those being installed by the non-flowing open cut crossing method. All equipment and materials shall be on site before trenching in the active channel of all minor waterbodies containing state designated fisheries, and in intermediate and major waterbodies. All activities shall proceed in an orderly manner without delays until the trench is backfilled and the stream banks stabilized. The Contractor shall not begin in-stream activity until the in-stream pipe section is complete and ready to be installed in the water body. The Contractor shall use trench plugs at the end of the excavated trench to prevent the diversion of water into upland portions of the pipeline trench and to keep any accumulated upland trench water out of the water body. Trench plugs must be of sufficient size to withstand upslope water pressure.

The Contractor shall conduct as many in-stream activities as possible from the banks of the waterbodies. The Contractor shall limit the use of equipment operating in waterbodies to that needed to construct each crossing.

The Contractor shall place all spoil from minor and intermediate water body crossings, and upland spoil from major water body crossings in the construction right-of-way at least 10 feet from the water's edge or in additional extra work areas. No trench spoil, including spoil from the portion of the trench across the stream channel, shall be stored within a water body unless the crossing cannot be reasonably completed without doing so.

The Contractor shall install and maintain sediment barriers around spoil piles to prevent the flow of spoil into the water body. Spoil removed during ditching shall be used to backfill the trench usually with a backhoe, clamshell or a dragline working from the water body bank. Sand, gravel, rock shield, or fill padding shall be placed around the pipe where rock is present in the channel bottom.

4.1.1.9 Pipe Installation

The following requirements apply to all water body crossings except those being installed by the non-flowing open cut crossing method. A "free stress" pipe profile shall be used at all minor, intermediate, and major waterbodies with gradually sloping stream banks. The "box bend" pipe profile shall be used for intermittent and major waterbodies with steep stream banks. The trench shall be closely inspected to confirm that the specified cover and that adequate bottom support can be achieved, and shall require construction inspection and on-site approval prior to the pipe being installed. Such inspections shall be performed by visual inspection and/or measurement by PREPA and/or by its designated construction manager. In rock trench, the ditch shall be adequately padded with clean granular material to provide continuous support for the pipe. The pipe shall be pulled into position or lowered into the trench and shall, where necessary, be held down by weights, as-built recorded and backfilled immediately to prevent the pipe from floating.

The Contractor shall provide sufficient approved lifting equipment to perform the pipe installation in a safe and efficient manner. As the coated pipe is lowered in, it shall be prevented from swinging or rubbing against the sides of the trench. Only properly manufactured slings, belts and cradles suitable for handling coated pipe shall be used. All pipes shall be inspected for coating flaws and/or damage as it is being lowered into the trench. Any damage to the pipe and/or coating shall be repaired.

4.1.1.10 Backfilling

The following requirements apply to all water body crossings except those being installed by the non-flowing open cut crossing method. Trench spoil excavated from waterbodies shall be used to backfill the trench across waterbodies. After lowering-in has been completed, but before backfilling, the line shall be re-inspected to ensure that no skids, brush, stumps, trees, boulders or other debris is in the trench. If discovered, such materials or debris shall be removed from the trench prior to backfilling.

For each major water body crossed, the Contractor shall install a trench breaker at the base of slopes near the water body unless otherwise directed by PREPA based on site specific conditions. The base of slopes at intermittent waterbodies shall be assessed on-site and trench breakers installed only where necessary. Slurred muck or debris shall not be used for backfill. At locations where the excavated native material is not acceptable for backfill or must be supplemented, the Contractor shall provide granular material approved by PREPA.

If specified in the Construction Drawings, the top of the backfill in the stream shall be armored with rock riprap or bio-stabilization materials as appropriate.

4.1.1.11 Stabilization and Restoration of Stream Banks and Slopes

The stream bank contour shall be re-established. All debris shall be removed from the streambed and banks. Stream banks shall be stabilized and temporary sediment barriers shall be installed within 24 hours of completing the crossing if practicable. Approach slopes shall be graded to an acceptable slope for the particular soil type and surface run off controlled by installation of permanent slope breakers. Where considered necessary, the integrity of the slope breakers shall be ensured by lining with erosion control blankets. Immediately following reconstruction of the stream banks, the Contractor shall install seed and flexible channel liners on water body banks.

If the original stream bank is excessively steep and unstable and/or flow conditions are severe or if specified on the Construction Drawings, the banks shall be stabilized with rock riprap, gabions, stabilizing cribs, or bio-stabilization measures to protect backfill prior to reestablishing vegetation. Stream bank riprap structures, if required, shall consist of a layer of stone, underlain with approved filter fabric or a gravel filter blanket. Riprap shall extend from the stabilized streambed to the top of the stream bank, where practicable, native rock shall be utilized.

4.1.1.12 Increased Traffic for Supplies, Materials, and Work Crews

The temporary increase in traffic volume associated with the Project would likely result in a minor noise impact in the Project area. This component of construction noise would come mainly from vehicles traveling to the staging areas and from a wide range of truck trips for delivery and recovery materials at the work sites along the pipeline ROW. The procedures for bringing personnel, materials, and equipment to each work site would vary along the alignment. Truck trips would also be required to deliver heavy construction equipment, pipe, aggregate, and other materials.

4.2 Wetland and Water body Crossings Types and Construction Methods

The construction methods and Best Management Practices (BMPs) utilized for a particular water body crossing will be compatible with the environmental sensitivity of the water body and the type of bottom or bank sediments. These detailed plans will be used by the construction contractor to reduce potential impacts associated with construction.

The extent of potential construction impacts to water resources depends on various factors: water body type, water body bank and sediment bed composition/grain-size distribution, and the method of construction. Features, such as water body width, bottom composition, special water body classifications, the presence of any federally listed species, and/or sensitive fishery resources, have been considered when determining the appropriate construction crossing method. The subsections below provide detailed descriptions of each crossing method.

Construction methods pertinent to water body crossings are presented below. Selection of the most appropriate method at each crossing shall be identified on the project drawings but may be amended or changed based on site specific conditions (i.e., environmental sensitivity of the water body, depth and rate of flow, subsurface soil conditions, site specific construction considerations, and the expected time and duration of construction) at the time of crossing. Table 7 details the crossing locations, crossing types, and method proposed. Each water body crossing shall be accomplished using one of the following construction methods (found in Appendix F):

- Non-flowing Open Cut Crossing Method - Sheet 2 of 7 (identical to Wetland Crossings)
- Flowing Open Cut Crossing Method – Minor or Intermediate Water body - Sheet 5, 6 of 7
- Flowing Open Cut Crossing – Dry Flume Method - Sheet 5 of 7
- Flowing Open Cut Crossing – Dry Dam and Pump Method - Sheet 6, 7 of 7
- Horizontal Directional Drill Crossing - Sheet 1 of 7, and Detail 15
- Wetland Crossing - Sheet 2 of 7

For purposes of this project, water body crossings have been split into three groupings; labeled Type 1, Type 2, and Type 3. Crossing types have been defined based upon the width of the water body at water's edge or the type of wetland community to be crossed. Table 7 provides details for each identified project crossing. A brief description of each crossing type is included below.

4.2.1 Type 1 Crossing

Type 1 Crossing – Major Water body and associated wetlands: Includes major rivers and waterways wider than 100 feet at water's edge at the time of construction or Forested Wetlands where impacts are prohibited under NWP regional conditions. All Type 1 Crossings will be completed via horizontal direction drilling (HDD). HDD crossings will include both land based and wetland based points of entry and exits. Details of a typical HDD have been included with the design details (see Appendix F). Eighteen (18) crossings involving Type 1 waterbodies were identified. These 18 crossings incorporate twenty (20) separate waterways (some with associated wetlands on one or both banks) and one (1) independent Forested Wetland system (W-111). Table 7 identifies the waterbodies along the propose pipeline corridor and their "types". Those with a "C" designation are linear surface systems with open water and incised channels, i.e. streams, ditches, etc. Those with a "W" are vegetated wetlands contiguous to surface waterbodies or wetlands located separately in the landscape.

4.2.1.1 Construction Methods for Type 1 Crossing

The Horizontal Directional Drilling (HDD) method, which avoids disturbances to the streambed and banks, is more complex than other methods. Use of HDD is very limited and is dependent on the crossing length, burial depth, subsurface conditions, sediment composition, bank conditions, and access. This method requires large additional temporary workspace (ATWS) for drilling equipment and pipeline assembly. The natural gas pipeline will be located a minimum of 5-feet below a streambed/channel bottom or 5-feet below the maximum design dredge depth for any Federal projects. Sheet 1 and Detail 15 (Appendix F) illustrate a typical cross-section of this construction technique.

HDD consists of drilling a tunnel under the water body with multiple passes. The first pass (coming from the "drill side") of the drill is usually one-half the diameter of the pipe. During this first pass, the hole is charged with bentonite drilling mud to avoid a collapse or cave-in of the hole. Once this first drill has reached the opposite side of the water body, the original drill head

is removed and a larger diameter drill head is installed. One or more reaming passes through the hole, with drill heads of increasing diameter, are performed until the hole is large enough for the pipeline segment to be pulled back through it. The pipeline segment would be assembled on the opposite side, or "laydown side", and after the final ream pass is completed the pipeline segment would be pulled back through the tunnel to complete the HDD crossing.

HDD water body crossings for the Project's preferred corridor are preliminarily proposed at 18 locations. All proposed HDD crossings are subject to verification based on engineering and geologic review during post-certification.

Where stipulated, the horizontal directional drill method as shown on Detail 15 (Appendix F) shall be utilized for designated major and sensitive water body crossings. The Contractor shall construct each directional drill water body crossing in accordance with a Site Specific Plan as shown in the Construction Drawings.

Drilling fluids and additives utilized during implementation of a directional drill shall be non-toxic to the aquatic environment. A Frac-out contingency plan has been prepared and is available for review in Appendix I. The plan shall include instructions for monitoring during the directional drill and mitigation in the event that there is a release of drilling fluids. Additionally, the water body shall be monitored downstream by the Contractor for any signs of drilling fluid.

The Contractor shall dispose of all drill cuttings and drilling mud at a landfill site. Disposal options will be limited to hauling all drilling cuts and drilling mud to a licensed landfill, or other site identified by PREPA.

4.2.2 Type 2 Crossing

Type 2 Crossing – Intermediate Water body: Includes open surface water bodies (minor rivers and streams) greater than 10 feet wide to less than 100 feet wide at water's edge at the time of construction. Type 2 crossings will be completed using either the flumed crossing and/or dam and pump method. Seven (7) intermediate water body crossings were identified along the approximately 92 mile project length.

4.2.2.1 Construction Methods for Type 2 Crossings: Flume-Pipe Method

Flume-Pipe Crossing.

The flume-pipe crossing method (flowing open-cut method) may be used for minor waterbodies (TYPE 2 crossings - typically less than 75 feet wide). Prior to any excavation, a flume pipe(s) of sufficient size would be placed into the water body across its entire width. Dams would then be erected at the upstream and downstream portions of the flume to divert water through the flume. Any water left in the crossing would be pumped out to the downstream side. Once the water body has been diverted and the crossing is dry, a land-based backhoe or similar type of equipment would be used to excavate a trench under the flume and across the water body. The excavated material would be temporarily stored and then used to backfill the trench once the pipeline segment has been placed. The flume pipes and associated dams would be removed once the pipeline segment is installed. Restoration of the water body crossing would then be completed. Sheet 5 of 7 shows a typical view of this water body crossing method.

This method will typically be limited to waterbodies with flows (including anticipated flood stages) that can be transported by a maximum of three 36-inch-diameter flume pipes (approximately 40 cubic feet per second or less) and in waterbodies that are relatively free of large rocks and bedrock at the trench line. This method will not be used at larger crossings, high flow velocities, or deeper waterbodies.

Where required, the Contractor shall utilize the Flowing Open Cut Crossing – Dry Flume Method as shown on Sheet 5 of 7 with the following "dry ditch" techniques:

• flume pipe shall be installed in water body prior to any trenching;

• sand bag or sand bag and plastic sheeting diversion structure or equivalent shall be used to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required to achieve an effective seal);

• flume pipe(s) shall be aligned to prevent bank erosion and streambed scour;

• flume pipe shall not be removed during trenching, pipe laying, or backfilling activities, or initial streambed restoration efforts; and

• all flume pipes and dams that are not also part of the equipment bridge shall be removed as soon as final cleanup of the stream bed and bank is complete

4.2.2.2 Construction Methods for Type 2 Crossing: Dam and Pump Crossing

Dam and Pump Crossing. The dam and pump method (flowing open-cut crossing) may be used for smaller waterbodies with low flows, and meandering channels. As shown on Sheet 6 of 7, in this method, dams would be placed across the water body both upstream and downstream of the crossing. Water upstream of the crossing would be pumped through hoses downstream. This method is limited by the pump capacity since the pumps must convey the stream flow during construction activities. Pumps would be sized to be greater than the anticipated stream flow at the water body crossing. Intake screens would be placed to prevent entrainment of fish or other debris into the pumps. Once the water has been successfully diverted, the trench would be excavated and the pipeline installed. BMPs such as silt fence or fences would be used to contain spoil materials and prevent downstream sedimentation from upland areas. Prior to backfilling and removal of the dams, the trench would be dewatered using BMPs to prevent erosion and sedimentation. Upon installation of the pipeline, the trench would be backfilled and re-stabilized. The dams would then be removed and the water body returned to its natural condition.

Where specified in the construction drawings, the Contractor shall utilize the Flowing Open Cut Crossing – Dry Dam and Pump Method as shown on Sheet 6 of 7. The dam and pump crossing method shall meet the following performance criteria:

- sufficient pumps shall be used to maintain 1.5 times the flow present in the stream at the time of construction;
- at least one back up pump must be available on site;
- dams shall be constructed with materials that prevent sediment and other pollutants from entering the water body (e.g., sandbags or clean gravel with plastic liner);
- screen pump intakes shall be installed;
- streambed scour shall be prevented at pump discharge; and dam and pumps shall be monitored to ensure proper operation throughout the water body crossing.

4.2.3 Type 3 Crossing

Type 3 Crossings – Minor Water body: Includes waterbodies less than or equal to 10 feet wide at the water's edge at the time of construction. These waterbodies typically include intermittent

streams, expanded agricultural ditches, and braided streams. Type 3 crossings will be completed using the open cut method. Seventy-three (73) of these minor water body crossing were identified along project corridor.

Open-Cut Method. The open-cut method is expected to be used for most minor (Type 3) water body crossings. In-stream trenching and filling operations for this type of crossing will be constructed within 24 hours for streams less than 10 feet in width and within 48 hours for crossings greater than 10 feet, unless site-specific conditions dictate otherwise or unforeseen conditions arise.

This construction method involves installing the pipeline in the water. Depending on the water body size, the trench would be excavated with land-based or amphibious equipment. The entire pipeline segment would be placed in the trench using draglines to pull it across the water body. Sheet 4 of 7 shows a typical cross-section of the open-cut method. The pipe would be buried at a minimum of 5 feet beneath the bed of the water body.

Spoils would be placed upland from the water body bank edge. BMPs such as silt fence and/or straw bales would be installed to reduce the potential for sediment to flow off the construction ROW or back into the water body. Once the pipeline is installed, the trench would be backfilled in the water. Based on field conditions, trench plugs may be placed on either side of the crossing so that the water body does not divert into the upland trench and to keep accumulated water in the upland trench from flowing into the water body.

4.2.4 Wetland Crossing

Pipeline construction across wetlands will be similar to typical conventional upland cross-country construction procedures, with several modifications and limitations to reduce the potential for pipeline construction to affect wetland hydrology and soil structure. Whenever possible, the width of construction right-of-way through wetlands will be minimized. Additional temporary workspace areas where required will be placed on the upland sides of wetlands to stage construction, fabricate the pipeline, and store materials. In addition to the surface water crossings, i.e. rivers, streams, ditches, etc., ninety (90) additional wetland crossings were identified along the project length where the pipeline will be placed in a trench. These wetland areas vary in size (acres) but will all be crossed using the open ditch method with only temporary impacts to waters of the U.S.

Construction equipment working in wetlands will be limited to that essential for right-of-way clearing, excavating the trench, fabricating and installing the pipeline, backfilling the trench, and restoring the right-of-way. In areas where there is no reasonable access to the right-of-way except through wetlands, non-essential equipment will be allowed to travel through wetlands only if the ground is firm enough or has been stabilized to avoid rutting. Wooden mats will be the preferred method to preclude rutting. Any fill used for temporary access will comply with the terms and conditions of Nationwide Permit 12, with all fill areas being completely removed and restored to pre-construction grades. Otherwise, non-essential equipment will be allowed to travel through wetlands only once.

Clearing of vegetation in wetlands will be limited to herbaceous vegetation and shrubs, which will be cut flush with the surface of the ground and removed from the wetland. To avoid excessive disruption of wetland soils and the native seed and rootstock within the wetland soils, grading, topsoil segregation, and excavation will be limited to the area immediately over the trench line. Topsoil segregation over the trench line will be utilized to minimize natural vegetation recruitment time and to insure that pre/post wetland soil profiles are comparable.

During clearing, sediment barriers, such as silt fence and staked straw bales, will be installed and maintained adjacent to wetlands and within additional temporary workspace areas as necessary to minimize the potential for sediment runoff. Sediment barriers will be installed across the full width of the construction right-of-way at the base of slopes adjacent to wetland boundaries. Silt fence and/or straw bales installed across the working side of the right-of-way will be removed during the day when vehicle traffic is present and will be replaced each night. Sediment barriers will also be installed within wetlands along the edge of the right-of-way, where necessary, to minimize the potential for sediment to run off the construction right-of-way and into wetland areas outside the work area. If temporary trench dewatering is necessary in wetlands, silt-laden trench water will be discharged into an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale structure, to minimize the potential for erosion and sedimentation.

The method of pipeline construction used in wetlands will depend largely on the stability of the soils at the time of construction. If wetland soils are not excessively saturated at the time of construction and can support construction equipment on equipment mats, timber riprap, or straw mats, construction will occur in a manner similar to conventional upland cross-country

construction techniques and will utilize a wheel trencher to minimize the initial impact area, excavated trench width, and area to be restored.

Where wetland soils are saturated and/or inundated, the pipeline may be installed using the push-pull technique. The push-pull technique will involve stringing and welding the pipeline outside of the wetland and excavating and backfilling the trench using a backhoe supported by equipment mats or timber riprap. The prefabricated pipeline will be installed in the wetland by equipping it with buoys and pushing or pulling it across the water-filled trench. After the pipeline is floated into place, the floats will be removed and the pipeline will sink into place. Most pipe installed in saturated wetlands will be coated with concrete or equipped with set-on weights to provide negative buoyancy.

Because little or no grading will occur in wetlands, restoration of contours will be accomplished during backfilling. Prior to backfilling, trench breakers will be installed where necessary to prevent the subsurface drainage of water from wetlands. Where topsoil has been segregated from subsoil, the subsoil will be backfilled first, followed by the topsoil. Topsoil will be replaced to the original ground level leaving no crown over the trench line. In some areas where wetlands overlie rocky soils, the pipe will be padded with rock-free soil or sand before backfilling with native bedrock and soil. Equipment mats, timber riprap, gravel fill, geotextile fabric, and/or straw mats will be removed from wetlands following backfilling.

Table 7: Wetland and WoUS Crossing Type

ID	Water body Name or Type	Crossing
C-1	Canal	Type 3
C-2	Channel	Type 1
C-3	Canal	Type 3
C-4	Canal	Type 3
C-5	RIO TALLABOA RIVER	Type 1
C-6	UNNAMED CREEK	Type 3
C-7	UNNAMED CREEK	Type 3
C-8	UNNAMED CREEK	Type 3
C-9	UNNAMED CREEK	Type 3
C-10	UNNAMED CREEK	Type 3
C-11	UNNAMED CREEK	Type 3
C-12	UNNAMED CREEK	Type 3
C-13	UNNAMED CREEK	Type 3
C-14	UNNAMED CREEK	Type 3
C-15	UNNAMED CREEK	Type 3

ID	Water body Name or Type	Crossing
C-16	UNNAMED CREEK	Type 3
C-17	UNNAMED CREEK	Type 3
C-18	UNNAMED CREEK	Type 3
C-19	UNNAMED CREEK	Type 3
C-20	RIO PELLEJAS RIVER	Type 2
C-21	UNNAMED CREEK	Type 3
C-22	UNNAMED CREEK	Type 3
C-23	ARENAS CREEK	Type 3
C-24	ARENAS CREEK	Type 3
C-25	ARENAS CREEK	Type 3
C-26	RIO GRANDE DE ARECIBO RIVER	Type 1
C-27	UNNAMED CREEK	Type 3
C-28	UNNAMED CREEK	Type 3
C-29	UNNAMED CREEK	Type 3
C-30	UNNAMED CREEK	Type 3
C-31	RIO GRANDE DE ARECIBO RIVER	Type 1
C-32	UNNAMED CREEK	Type 3
C-33	UNNAMED CREEK	Type 3
C-34	RIO GRANDE DE ARECIBO RIVER	Type 1
C-35	JOBOS CREEK	Type 3
C-36	RIO GRANDE DE ARECIBO RIVER	Type 1
C-37	RIO GRANDE DE ARECIBO RIVER	Type 1
C-38	UNNAMED CREEK	Type 3
C-39	RIO TANAMA RIVER	Type 1
C-40	Ditch	Type 3
C-41	PERDOMO CHANNEL	Type 3
C-42	Ditch	Type 3
C-43	RIO GRANDE DE ARECIBO RIVER	Type 1
C-44	Ditch	Type 3
C-45	Ditch	Type 3
C-46	Ditch	Type 3
C-47	Ditch	Type 3
C-48	Ditch	Type 3
C-49	Ditch	Type 3
C-50	Ditch	Type 3
C-51	Ditch	Type 3
C-52	Ditch	Type 3
C-53	Ditch	Type 3
C-54	Ditch	Type 3
C-55	Ditch	Type 3
C-56	Ditch	Type 3
C-57	Ditch	Type 3
C-58	Ditch	Type 3

ID	Water body Name or Type	Crossing
C-59	Ditch	Type 3
C-60	Ditch	Type 3
C-61	Ditch	Type 3
C-62	Ditch	Type 3
C-63	Canal	Type 3
C-64	Ditch	Type 3
C-65	Ditch	Type 3
C-66	RIO GRANDE DE MANATI RIVER	Type 1
C-67	Creek	Type 3
C-68	Creek	Type 3
C-69	CANO DE LOS NACHOS	Type 3
C-70	Ditch	Type 3
C-71	Ditch	Type 3
C-72	RIO GRANDE DE MANATI RIVER	Type 1
C-73	RIO GRANDE DE MANATI RIVER	Type 1
C-74	RIO INDIO RIVER	Type 2
C-75	RIO INDIO RIVER	Type 2
C-76	RIO INDIO RIVER	Type 2
C-77	RIO INDIO RIVER	Type 2
C-78	UNNAMED CREEK	Type 3
C-79	RIO INDIO RIVER	Type 2
C-80	RIO CIBUCO RIVER	Type 2
C-81	UNNAMED CREEK	Type 3
C-82	Ditch	Type 3
C-83	RIO LA PLATA RIVER	Type 1
C-84	Ditch	Type 3
C-85	Ditch	Type 3
C-86	Ditch	Type 3
C-87	Ditch	Type 3
C-88	Ditch	Type 3
C-89	RIO COCAL RIVER	Type 3
C-90	RIO COCAL RIVER	Type 1
C-91	Creek	Type 3
C-92	Canal/Rio Cocal	Type 1
C-93	RIO COCAL RIVER	Type 1
C-94	RIO COCAL RIVER	Type 1
C-95	RIO BAYAMON RIVER	Type 1
C-96	RIO BAYAMON RIVER	Type 1
C-97	Ditch	Type 3
C-98	DIEGO CREEK	Type 3
C-99	LAS LAJAS CREEK	Type 3
C-100	SANTA CATALINA CREEK	Type 3
W-1	Estuarine- Saltflat, Mangrove	No Impact

ID	Water body Name or Type	Crossing
W-2	Estuarine- Saltflat, Mangrove	No Impact
W-3	Estuarine- Saltflat, Mangrove	No Impact
W-4	Estuarine- Saltflat, Mangrove	No Impact
W-5	Mangrove Canal	No Impact
W-6	Mangrove Canal	Type 1
W-7	Canals	Type 1
W-8	Canals	Type 3
W-9	Canals	Type 3
W-10	Palustrine- Man-Altered Herbaceous	Wetland
W-11	Canals	Type 2
W-12	Canals	Type 1
W-13	Palustrine- Herbaceous	Type 1
W-14	Canals	Type 1
W-15	Canals	Type 1
W-16	Canals	Type 1
W-17	Palustrine- Herbaceous	Wetland
W-18	Canals	Type 1
W-19	Palustrine- Man-Altered Herbaceous	Wetland
W-20	Canals	Type 3
W-21	Palustrine- Man-Altered Herbaceous	Wetland
W-22	Palustrine- Man-Altered Herbaceous	Wetland
W-23	Canals	Type 1
W-24	Palustrine- Man-Altered Herbaceous	Wetland
W-25	Canals	Wetland
W-26	Palustrine- Man-Altered Herbaceous	Wetland
W-27	Canals	Wetland
W-28	Canals	Type 3
W-29	Canals	Wetland
W-30	Palustrine- Herbaceous	Wetland
W-31	Canals	Type 1
W-32	Palustrine- Herbaceous	Wetland
W-33	Palustrine- Herbaceous	Wetland
W-34	Palustrine- Man-Altered Herbaceous	Wetland
W-35	Palustrine- Man-Altered Herbaceous	Wetland
W-36	Canals	Wetland
W-37	Palustrine- Man-Altered Herbaceous	Wetland
W-38	Palustrine- Man-Altered Herbaceous	Wetland
W-39	Palustrine- Herbaceous	Wetland
W-40	Palustrine- Herbaceous	Wetland
W-41	Palustrine- Herbaceous	Wetland
W-42	Palustrine- Herbaceous	Wetland
W-43	Palustrine- Herbaceous	Wetland
W-44	Palustrine- Man-Altered Herbaceous	Wetland

ID	Water body Name or Type	Crossing
W-45	Palustrine- Man-Altered Herbaceous	Wetland
W-46	Palustrine- Man-Altered Herbaceous	Wetland
W-47	Palustrine- Man-Altered Herbaceous	Wetland
W-48	Palustrine- Man-Altered Herbaceous	Wetland
W-49	Palustrine- Herbaceous	Wetland
W-50	Palustrine- Herbaceous	Wetland
W-51	Palustrine- Herbaceous	Wetland
W-52	Palustrine- Herbaceous	Wetland
W-53	Palustrine- Herbaceous	Wetland
W-54	Palustrine- Herbaceous	Wetland
W-55	Palustrine- Man-Altered Herbaceous	Wetland
W-56	Palustrine- Herbaceous	Wetland
W-57	Palustrine- Herbaceous	Wetland
W-58	Palustrine- Herbaceous	Wetland
W-59	Canals	Type 3
W-60	Palustrine- Herbaceous	Wetland
W-61	Palustrine- Man-Altered Herbaceous	Wetland
W-62	Palustrine- Herbaceous	Wetland
W-63	Canals	Type 1
W-64	Palustrine- Herbaceous	Wetland
W-65	Palustrine- Man-Altered Herbaceous	Wetland
W-66	Palustrine- Man-Altered Herbaceous	Wetland
W-67	Palustrine- Man-Altered Herbaceous	Wetland
W-68	Canals	Type 3
W-69	Palustrine- Man-Altered Herbaceous	Wetland
W-70	Palustrine- Man-Altered Herbaceous	Wetland
W-71	Palustrine- Man-Altered Herbaceous	Wetland
W-72	Palustrine- Herbaceous	Wetland
W-73	Canals	Type 1
W-74	Palustrine- Herbaceous	Wetland
W-75	Canals	Type 1
W-76	Palustrine- Herbaceous	Wetland
W-77	Palustrine- Man-Altered Herbaceous	Wetland
W-78	Canals	Type 2
W-79	Canals	Type 2
W-80	Canals	Type 2
W-81	Canals	Wetland
W-82	Palustrine- Herbaceous	Wetland
W-83	Palustrine- Herbaceous	Wetland
W-84	Canals	Type 2
W-85	Palustrine- Herbaceous	Wetland
W-86	Canals	Type 2
W-87	Palustrine- Herbaceous	Wetland

ID	Water body Name or Type	Crossing
W-88	Palustrine- Herbaceous	Wetland
W-89	Palustrine- Man-Altered Herbaceous	Wetland
W-90	Palustrine- Man-Altered Herbaceous	Wetland
W-91	Palustrine- Herbaceous	Wetland
W-92	Palustrine- Man-Altered Herbaceous	Wetland
W-93	Palustrine- Man-Altered Herbaceous	Wetland
W-94	Palustrine- Man-Altered Herbaceous	Wetland
W-95	Palustrine- Man-Altered Herbaceous	Wetland
W-96	Canals	Type 3
W-97	Palustrine- Man-Altered Herbaceous	Wetland
W-98	Palustrine- Man-Altered Herbaceous	Wetland
W-99	Palustrine- Man-Altered Herbaceous	Wetland
W-100	Palustrine- Man-Altered Herbaceous	Wetland
W-101	Canals	Wetland
W-102	Estuarine- Forested	Type 1
W-103	Estuarine- Forested	Type 1
W-104	Canals	Type 1
W-105	Palustrine- Man-Altered Herbaceous	Wetland
W-106	Estuarine- Forested	Type 1
W-107	Canals	Type 1
W-108	Estuarine- Forested	Type 1
W-109	Canals	Type 1
W-110	Estuarine- Forested	Type 1
W-111	Palustrine- Forested	Type 1
W-112	Canals	Wetland
W-113	Palustrine- Herbaceous	Wetland
W-114	Canals	Type 1
W-115	Canals	Type 1
W-116	Palustrine- Herbaceous	Wetland
W-117	Palustrine- Herbaceous	Wetland
W-118	Palustrine- Herbaceous	Wetland
W-119	Palustrine- Herbaceous	Wetland
W-120	Palustrine- Herbaceous	Wetland
W-121	Canals	Type 3
W-122	Canals	Wetland
W-123	Palustrine- Herbaceous	Wetland
W-124	Estuarine- Forested	Wetland
W-125	Estuarine- Forested	Wetland
W-126	Estuarine- Forested	Wetland
W-127	Estuarine- Forested	Wetland
W-128	Canals	Wetland
W-129	Estuarine- Forested	Wetland
W-130	Palustrine- Herbaceous	Wetland

ID	Water body Name or Type	Crossing
W-131	Palustrine- Herbaceous	Wetland
W-132	Palustrine- Herbaceous	Wetland
W-133	Palustrine- Herbaceous	Wetland
W-134	Canals	No Impact
W-135	Canals	No Impact
W-136	Canals	No Impact

4.2.5 Crossing Impact Minimization

The Contractor shall ensure that temporary culverts and flumes are sized and installed of sufficient diameter to accommodate the existing flow of water and those that may potentially be created by sudden increased runoffs from seasonal rainfall events. Flumes shall be installed with the inlet and outlet at natural grade if possible.

Where bridges, culverts or flumes are installed across the working area, the Contractor shall be responsible for maintaining them (e.g. preventing collapse, clogging or tilting). All flumes and culverts shall be removed as soon as possible upon completion of construction. All disturbed bottoms shall be restored to pre-construction grades.

The width of the temporary access road across culverts and flumes and the design of the approaches and ramps shall be adequate for the size of vehicle and equipment access required. The ramps shall be of sufficient depth and constructed to prevent collapse of the flumes, and the approaches on both sides of the flume shall be feathered.

Where culverts are installed for access and a water body is expected or possibly shall be constructed by the dry flume method, the culvert shall be of sufficient length to convey the stream flow through the construction zone.

The Contractor shall maintain temporary equipment bridges to minimize soil from entering the water body.

Except where rock is encountered and at non flowing open cut crossings, all necessary equipment and materials for pipe installation must be on-site and assembled prior to commencing trenching in a water body. All staging areas for materials and equipment shall be located at least 10 feet from the water body edge. The Contractor shall preserve as much vegetation as possible along the wetland edge.

4.3 HYDROSTATIC TESTING

4.3.1 Testing Equipment Location

The Contractor shall provide for the safety of all pipeline construction personnel and the general public during hydrostatic test operations by placing warning signs in populated areas. The Contractor shall locate hydrostatic test manifolds 100 feet outside wetlands and riparian areas to the maximum extent practicable and shall implement those sediment and erosion control measures identified in the Project Turbidity and Sediment Control Plan.

4.3.2 Test Water Source and Discharge Locations

PREPA and/or its designated pipeline contractor will be responsible for acquiring all permits required by federal, state and local agencies for procurement of water and for the discharge of water used in the hydrostatic testing operation. Pipeline contractor must be supplied with a copy of the appropriate withdrawal/discharge permit for hydrostatic test water if required. The Contractor shall keep the water withdrawal/discharge permit on site at all times during testing operations.

Any water obtained or discharged shall be in compliance with permit notice requirements and with sufficient notice for the designated project Testing Inspector to make water sample arrangements prior to obtaining or discharging water. In some instances sufficient quantities of water may not be available from the permitted water sources at the time of testing. Withdrawal rates may be limited as stated by the permit. Under no circumstances shall an alternate water source be used without prior authorization unless specifically addressed in project permits.

The Contractor shall be responsible for obtaining any required water analyses from each source to be used in sufficient time to have a lab analysis performed prior to any filling operations. The sample bottle shall be sterilized prior to filling with the water sample. The analysis shall determine the pH value and total suspended solids. Each bottle shall be marked with:

- Source of water with pipeline station number
- Date taken
- Laboratory order number

4.4 Typical Environmental Engineering Plan View and Cross-Section Drawings

Please See Appendix F For Drawings

4.5 Erosion and Sediment Control Plan

Please See Appendix G For Erosion and Sediment Control Plan

4.6 SWPPP

Please See Appendix H for Stormwater Pollution Prevention Plan for Via Verde Pipeline.

4.7 Frac-Out Plan

Please See Appendix I for Spill Control Plan (Frac-Out Plan).

5. References

Acevedo-Rodríguez, P. and Woodbury, R. O. 1985. *Los bejucos de Puerto Rico.* Volume 1. General Technical Report S0-85. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. 331 pp.

Birdlife International. 2000. America's Endangered Birds (Libro Rojo de CIPA/IUCN). Oficina Regional para las Américas, Quito, Ecuador.

Boccheciamp, R.A. 1978. *Soil Survey of San Juan Area of Puerto Rico*. U.S.D.A. Soil Conservation Service. 141 pp. plus appendices.

Boccheciamp, R.A. 1982. *Soil Survey of Arecibo Area of Puerto Rico*. U.S.D.A. Soil Conservation Service. 180 pp. plus appendices.

Boccheciamp, R.A. 1979. *Soil Survey of Ponce Area of Puerto Rico*. U.S.D.A. Soil Conservation Service. 88 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*. Published by the University of Puerto Rico. 268 pp.

Department of Natural and Environmental Resources. 2004 Regulation to govern the Chase in the Commonwealth of Puerto Rico, exotic species, the wildlife management and conservation. Regulation No. 6765

Dominguez Christopher, Carlos, 2000. Forestry historical panorama of Puerto Rico. Published by the University of Puerto Rico, Rio Piedras, P.R. 680pp.

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. 2009. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Caribbean Islands Region.* U.S. Army Engineer Research and Development Center, Vicksburg, M.S. ERDC/EL TR-09-8. 119 pp. plus appendices.

Ewel, J. J. and J. L. Whitmore. 1973. *The Ecological Life Zones of Puerto Rico and the United States Virgin Islands*. Research Paper ITF-18. U. S. Department of Agriculture, Forest Service, Institute of Tropical Forestry, Río Piedras, P.R.

Gould, W., et al. 2007. Puerto Rico Gap Analysis Project – Final Report. USGS, Moscow, ID and the USDA Forest Service International Institute of Tropical Forestry, Río Piedras, PR. 159pp. plus appendices.

Gretag Macbeth. 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.

Hilton-Taylor, C. (compiler) 2000. *2000 IUCN Red List of Threatened Species*. IUCN, Gland, Switzerland Cambridge, UK.xviii. 61pp.

Liogier, H. A. 1985. *Descriptive Flora of Puerto Rico and Adjacent Islands*. Vol. I. Editorial Universitaria de Puerto Rico, Río Piedras, P.R. 357 pp.

Liogier, H. A. 1988. *Descriptive Flora of Puerto Rico and Adjacent Islands*. Vol. II. Editorial Universitaria de Puerto Rico, Río Piedras, P.R. 481 pp.

Liogier, H. A. 1991. *Descriptive Flora of Puerto Rico and Adjacent Islands*. Vol. III. Editorial Universitaria de Puerto Rico, Río Piedras, P.R. 461 pp.

Liogier, H. A. 1985. *Descriptive Flora of Puerto Rico and adjacent islands*. Vol. IV. Published by the University of Puerto Rico, Río Piedras, PR.

Liogier, H. A. 1997. *Descriptive Flora of Puerto Rico and Adjacent Islands*. Vol.VI. Editorial Universitaria de Puerto Rico, Río Piedras, P.R. 436 pp.

Liogier, H. H. y L. F. Martorell. 1999. *Flora of Puerto Rico and Adjacent Islands: a Systematic Synopsis*. 2nd Ed. Editorial Universitaria de Puerto Rico, Río Piedras, P.R. 382 pp.

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.

Little, E. L. y R. O. Woodbury. 1974. *Trees of Puerto Rico and the Virgin Islands*. Second Volume. U. S. Department of Agriculture Handbook No. 449-S. Río Piedras, P. R. 1024 pp.

Little, E. L. y F. H. Wadsworth. 1999. *Common Trees of Puerto Rico and the Virgin Islands*. A private reprinting by the authors from Forest Service. U.S. Department of Agriculture Handbook No. 249. Río Piedras, P. R. 556 pp.

Más, E.G. and García Molinari, O. 1990. *Guía Ilustrada de Yerbas Comunes en Puerto Rico*. Agricultural Extension Service, University of Puerto Rico, Recinto Universitario de Mayagüez, Colegio de Ciencias Agrícolas, McGraw Hill Publishing Company, New York, NY. 103 pp.

Murphy, P.G. and A.E. Lugo. 1986. *Structure and Biomass of a Subtropical Dry Forest in Puerto Rico.* Biotropica, Vol. 18(2). Pp. 89-96.

Opler, P. A. and V. Malikul. 1992. *Eastern Butterflies*. Peterson Field Guides. Houghton Mifflin Company, New York, NY. 396 pp.

Raffaele, H. A., J. Wiley, O. Garrido, A. Keith and J. Raffaele. 1998. *A guide to the birds of the West Indies.* Princetown University Press, Princetown, New Jersey. 411 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.

Rivero, J. 1998. *The amphibians and reptiles of Puerto Rico*. Second Edition Revised. Published by the University of Puerto Rico, Río Piedras, P.R. 510 pp.

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. 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.

U.S. Fish and Wildlife Service. 2000. *Endangered Species List (Puerto Rico/Virgin Islands)*. Division of Endangered Species. U.S. Fish and Wildlife Service. 2007. Caribbean Endangered Species Map. Ecological Services in the Caribbean.

Oficina de Patrimonio Natural de Puerto Rico. 2000. *Lista de Elementos Críticos de la División de Patrimonio Natural.* Departamento de Recursos Naturales y Ambientales. San Juan, P.R

US Army Corps
of Engineers

FEDERAL AND COMMONWEALTH JOINT PERMIT APPLICATION FOR WATER RESOURCE ALTERATIONS IN WATERS, INCLUDING WETLANDS, OF PUERTO RICO

Effective Date of Implementation: October 1, 1999

GOVERNMENT OF PUERTO RICO
OFFICE OF THE GOVERNOR
PLANNING BOARD

Attachment A.

FEDERAL AND COMMONWEALTH JOINT PERMIT APPLICATION FORM FOR WATER RESOURCE ALTERATIONS IN WATERS, INCLUDING WETLANDS, OF PUERTO RICO

FOR AGENCY USE ONLY

USACE Application # _____ Date Application Received _____
PRPB CZM Application # _____ Date Application Received _____
EQB WQC Application # _____ Date Application Received _____
DNER SLUC Application # _____ Date Application Received _____
DNER WF Application # _____ Date Application Received _____
DNER WC&WI Application # _____ Date Application Received _____
DNER ECEFP Application # _____ Date Application Received _____
Government Agency Acting as Sponsor in accordance with Section 4C of Law: _____

1. Type of Permit or Certification Requested (check all that apply):

- [x] U.S. Army Corps of Engineers Permit to place Fill in Waters of the U.S. (Section 404), Work in Navigable Waters of the U.S. (Section 10) and/or Transport Dredged Material for Ocean Disposal (Section 103)
- [x] CZM Certification
- [x] Water Quality Certification
- [ ] Submerged Land Use Concession
- [ ] Water Franchises
- [ ] Well Construction and Water Intakes
- [ ] Earth Crust Extraction Formal Permit - include information requested in Enclosure A

2. Type of activity for which you are applying (check all that apply)

- [x] New construction or work including dredging or filling in, on or over waters of the U.S., including wetlands, navigable waters and/or other surface waters.
- [ ] Alteration or operation of an existing work, construction or system which was not previously permitted.
- [ ] Modification of previously permitted project. Provide previous permit numbers.
- [ ] Removal, Extraction, Excavation and dredging of earth crust components.
- [ ] Extraction of water

3. Applicant's Name and Address

Name Autoridad de Energia Electrica (Attn: Eng. Francisco E. Lopez)

Last Name, First Name (if individual). Corporate Name. Name of Government Agency

Address P.O. Box 364267

Municipality San Juan, Zip 00936-4267

Telephone 787-521-4959 Fax 787-521-4880

Name of the Property Owner (If different from applicant): See Appendix E

(If applicant not the owner, explain contractual relationships. Include Owner's address):

4. Agent's Name and Address

Name

Address

Municipality Zip

Telephone Fax

5. Name of Waterway at Work Site

6. Name of project, including phase if applicable:

Is this application a part of a multi-phase project? ☐ Yes ☑ No

Project location (Indicate Wards, Municipality, etc. Use additional sheets, if needed);

Please see Section 1.4 Project Description, including location and Appendix D for a location Map.

Ward and Municipality (ies) Please See Section 1.4

"Finca"

Road , Km. , Hm.

Street address, road, or other location

Coordinates in Center of Project: Latitude: 18°27'24.17"N

Longitude: 66°40'15.93"W

Lambert Coordinates: X

Y

Directions to locate Site:

Due to the size of the project, directions will be made available upon request.

7. If there have been any pre-application meetings, including at the project site, with regulatory staff, please list the date(s), location(s), and names of key staff and project representatives.

(b) (6)
(b) (6)
(b) (6)
(b) (6)

8. Please identify by number any Commonwealth and/or Federal permit pending, issued or denied for projects at the location, and any related enforcement actions. (Provide Copies)

Agency	Date	No.\Type of Application	Action Taken

9. Please provide the names, addresses and zip codes of property owners whose property directly adjoins the project (excluding applicant). Please attach a plan view showing the owner's names and adjoining property lines. Attach additional sheets if necessary.

a.

b.

c.

d.

e.

f.

g.

h.

10. Proposed Use (Check one or more as applicable) ☐ Private ☑ Public ☐ Commercial ☑ Industrial ☐ Agricultural

Explain:

11. Description of Work (Be specific, use additional sheets as necessary; Include Purpose and Need of the Project

12. Total Extent of Work in USACE Jurisdictional Open Waters or Wetlands: (Use additional sheets and provide complete breakdown of each category if more space is needed)

- Fill: _____ acres _____cuerdas _____cubic yards _____cubic meters
- Excavation:_____ acres _____cuerdas _____ cubic yards _____ cubic meters
- Dredging: _____ acres _____cuerdas _____ cubic yards _____ cubic meters
- Docks, Piers, and Over Water Structures:

  Dimensions_____

_____

- Total Number of Slips_____Total Number of Mooring Pilings_____
- Total area of structure over water and wetlands/seagrasses _____

_____

- Seawall length_____ ft (mts) Seawall material _____
- Riprap lenght_____ ft (mts) Type of riprap material_____

_____

13. Proposed Submerged Land Use:

Submerged Land _____sf _____sm Maritime Zone _____sf _____sm

Length of use requested (months, years, ect.):_____

_____

14. Proposed Mining: ☐Sand ☐Gravel ☐Stone ☐Fill ☐Other_____

Excavation: N/A cuerdas/acres Rate: _____ m^3 __day __ week __ month

Total amount:: _____m^3 Duration: ____ years Slope: _____V:_____H Depth:_____mts

Equipment: _____

_____

15. Water Extraction:

Amount of proposed extraction: N/A MGD _____GPD

_____hrs/day _____days/week _____weeks/year

Safe Yield (Q 99): _____MGD

Method of extraction: Surface Water:_____ pipe diameter (in)_____pump capacity(gpm)

Source: ___ River ___ Sea ___Stream

Name of the Source:_____ Number of people served: _____

Other Water extractions located upstream and downstream from proposed intake:

15. (Continued)

Water Discharges/Outfalls located upstream and downstream from proposed intake:_____

_____

_____

_____

Proposed use of Water: ☐Domestic ☐Government ☐Fisheries ☐Commercial ☐Institutional ☐Industrial ☐ Agricultural ☐Recreational ☐ Other

Brief Description of the proposed use of the water. Specify as applicable the type of crop, acreage number of animals, products, merchandize, number of dwellings, number of employees, etc:

For water intakes include the following information:

Intake Dimensions: Height_____(ft) Width_____(ft)

Pipe Diameter _____(inches)

Type of Structure: ☐Dam ☐Gallery ☐Other_____

Note (Hydraulic - Hydrology Study (H&H): For intake structures, dam or gallery, etc, which alters the natural water level, the applicant should submit an H&H study describing the actual water level and the projected change in water levels after the work is completed.

_____

16. Indicate the zoning of the project site:_____

_____

Indicate the current land use of the project site:_____

_____

Indicate the current floodzone classification of the project site:_____

_____

Specify if the proposed project is in compliance with the Puerto Rico Planning Board Regulation Number 13:_____

_____

17. Indicate the proponent Agency with respect to compliance with Article 4(c) of Law #9 of June 18, 1970:_____

(Please provide evidence of compliance with Article 4(c) to expedite the process)

18. Indicate if any of the following natural or artificial systems are locate within the proposed project site or in the sites adjacent to the project (Use Additional Sheets as necessary):

System	Location (Indicate distance from proposed project)
Rivers and streams with continuous flow	
Rivers and/or streams with intermittent flow	
Maritime Zone/ Submerged Lands	
Lakes or Lagoons	
State and Federal Natural Reserves	
Coral Reefs	
Mangroves and Salt Flats	
Seagrasses	
Other Wetlands (Swamps, bogs, marshes)	
Mudflats, riffles, pools	
Wildlife Refuges	
Areas of Special Interest	
Springs	
Estuaries	
Artificial ponds	
Irrigation Systems	
Dams	
Bridges	
Cultural Resources	
Coastal Dunes/Barriers	
Other:	

Describe those systems identified that are located within the proposed project site or adjacent to the project site (Use additional sheets as Necessary):

By signing this application form, I am applying, or I am applying on behalf of the applicant, for the permit and any proprietary authorizations identified above, according to the supporting data and other incidental information filed with this application. I am familiar with the information contained in this application and represent that such information is true, complete and accurate. I understand this is an application and not a permit, and that work prior to approval is a violation. I understand that this application and any permit issued or proprietary authorization issued pursuant thereto, does not relieve me of any obligation for obtaining any other required Federal or Commonwealth permit prior to commencement of construction. I agree, or I agree on behalf of my corporation, to operate and maintain the permitted system unless the permitting agency authorizes transfer of the permit to a responsible operation entity. I understand that knowingly making any false statement or representation in this application is a violation of 18 U.S.C. Section 1001.

_____

Typed/Printed Name of Applicant (If no Agent is used) or Agent (If one is so authorized below)

_____

Signature of Applicant/Agent Date

_____

(Corporate Title if applicable)

AN AGENT MAY SIGN ABOVE ONLY IF THE APPLICANT COMPLETES THE FOLLOWING:

I hereby designate and authorize the agent listed above to act on my behalf, or on behalf of my corporation, as the agent in the processing of this application for the permit and/or proprietary authorization indicated above; and to furnish, on request, supplemental information in support of the application. In addition, I authorize the above-listed agent to bind me, or my corporation, to perform any requirement which may be necessary to procure the permit or authorization indicated above. I understand that knowingly making any false statement or representation in this application is a violation of 18 U.S.C. Section 1001.

_____

Typed/Printed Name of Applicant Signature of Applicant Date

_____

(Corporate Title if applicable)

CERTIFICATION OF CONSISTENCY WITH THE PUERTO RICO COASTAL ZONE MANAGEMENT PROGRAM

I certify that the proposed activity complies with the enforceable policies of the Puerto Rico approved coastal management program and will be conducted in a manner consistent with such program.

_____

Typed/Printed Name of Applicant

_____

Signature of Applicant/Agent Date

_____

(Corporate Title if applicable)

Please note: The applicant's original signature (not a copy) is required above.

PERSON AUTHORIZING ACCESS TO THE PROPERTY MUST COMPLETE THE FOLLOWING:

I either own the property described in this application or I have legal authority to allow access to the property, and I consent, after receiving prior notification, to any site visit on the property by agents or personnel from the PRPB, EQB, DNER, and the USACE necessary for the review and inspection of the proposed project specified in this application. I authorize these agents or personnel to enter the property as many times as may be necessary to make such review and inspection. Further, I agree to provide entry to the project site for such agents or personnel to monitor permitted work if a permit is granted.

_____

Typed/Printed Name

_____

Signature Date

_____

Corporate Title (If applicable)

Gobierno de Puerto Rico
Departamento de Recursos
Naturales y Ambientales

P.O Box 9066600
Pta. de Tierra Station
n Juan P.R. 00906-6600
Tel. (787) 724-8774
Fax (787) 723-4255

REQUISITOS PARA SOLICITUD DE PERMISOS CONJUNTA DE EXTRACCION DE MATERIALES DE LA CORTEZA TERRESTRE

La Ley Número 132 del 25 de junio de 1968, según enmendada, conocida como "Ley de Arena, Grava y Piedra", confiere jurisdicción al Secretario del Departamento de Recursos Naturales para reglamentar el otorgamiento de permisos para la extracción, excavación, remoción y dragado de los componentes de la corteza terrestre que no esté reglamentado como mineral económico en terrenos públicos y privados, dentro de los límites geográficos del Estado Libre Asociado de Puerto Rico. Para comenzar el trámite de su solicitud de permiso de extracción deberá cumplir con la radicación de los documentos que apliquen, que se enumeran a continuación. Los mismos deben someterse en la Oficina de Secretaría personalmente, ubicada en el primer piso de la sede del Departamento de Recursos Naturales y Ambientales, Parada 3 ½, Avenida Muñoz Rivera, Puerta de Tierra, San Juan o por correo al Box 9066600, Puerta de Tierra Station, San Juan, PR 00906-6600.

Toda solicitud que no venga acompañada de los documentos correspondientes será devuelta y se entenderá que no ha sido presentada ante este Departamento, según lo establece la Ley Número 170 conocida como "Ley de Procedimiento Administrativo Uniforme" y el reglamento promulgado a su amparo (formularios con encasillados en blancos serán devueltos). Para culquier información adicional, pueden comunicarse con la Oficina de Secretaría a través del 724-8774 extensiones 4010, 4011.

Toda solicitud de permiso debe cumplir con los siguientes requisitos para radicarse;

REQUISITOS PARA RADICAR UNA SOLICITUD DE PERMISO BAJO SOLICITUD CONJUNTA

1. ___Llenar en todas sus partes del formulario "Joint Permit". Radicar 13 copias.

2. ___Cheque certificado o giro postal por la cantidad de $250 a favor del Secretario de Hacienda.

ENCLOSURE A

3. ___Cinco (5) copias del sector correspondiente del cuadrángulo topográfico del USGS (escala 1:20,000). Habiendo resaltado clara y exactamente el sitio propuesto en cada una de las copias. Favor de identificar el nombre del cuadrángulo de referencia. El mismo puede ser adquirido en la Autoridad de Carreteras.

4. ___Evaluación Ambiental que cumpla con las disposiciones de la Sección 3 del Reglamento sobre Declaraciones de Impacto Ambiental, de 1 de junio de 1984 de la Junta de Calidad Ambiental o una DIA cuando el caso lo amerita.

5. ___En caso de que el área dónde se propone la extracción sea adyacente a las aguas costaneras se incluirá una carta marina del área indicando el deslinde marítimo terrestre, las elevaciones del terreno sumergido, configuraciones de las costas adyacentes, localización de arrecifes, dirección de las corrientes marinas, estructuras costeras adyacentes, días de navegación y facilidades portuarias.

6. ___Croquis detallado indicando elevaciones del área a excavarse, estructuras cercanas o colindantes, perfiles de ríos o de aguas sumergidas, localización exacta de la maquinaria a utilizarse, áreas de almacenaje, áreas de distribución o cualesquiera otras facilidades requeridas para la operación, tales como: instalación de tuberías, muelles, caminos, accesos, tomas de agua, pozos, desagues, depósitos de desperdicios.

7. ___Si el área de extracción colinda con la zona marítimo terrestre deberá acompañar plano indicando el deslinde de la zona marítimo terrestre.

8. ___Si la extracción propuesta es en ríos deberá acompañar plano de deslinde que incluya:

   a. un punto bien monumentado (BM) como referencia vertical en el proyecto.

   b. deberá marcar debidamente los perfiles transversales en sus extremos para ser revisados en cualquier momento.

9. ____De ser el proponente una corporación deberá acompañar lo siguiente:

   a. facultades corporativas o certificación de incorporación.

b. Nombre, dirección postal y seguro social de todos y cada uno de los directores y accionistas de la corporación peticionaria.

c. Certificación de vigencia de la corporación emitida por el Secretario de Estado referente a la existencia y al cumplimiento de haber radicado los informes corporativos anuales. La misma no podrá tener más de treinta (30) días de haber sido expedida. Este documento es mejor conocido como "Good Standing".

10.____Si la extracción propuesta es en río deberá someter documento notarizado del dueño de la finca que servirá de acceso, autorizando el mismo.

11.____De ser el proponente una sociedad deberá acompañar lo siguiente:

a. Documento donde informe nombre, dirección postal y seguro social de todos y cada uno de los miembros de la sociedad.

b. Copia certificada de la escritura pública mediante la cual se creó la sociedad peticionaria.

c. Certificación del Departamento de Hacienda sobre radicación de planilla contributiva.

12.____Memorial explicativo indicando lo siguiente:

a. Descripción de las áreas destinadas a almacenaje, procesamiento y distribución de los componentes de la corteza terrestre que sean removidos, excavados y/o dragados. Si hubiese áreas alternas deberán incluirse.

De ser la solicitud una renovación deberá acompañar los documentos enumerados en los incisos número 1, 2, 4, 9C. El inciso 3, deberá ser actualizado.

De no existir cambios en los demás incisos deberá acompañar Declaración Jurada que así lo exprese.

En caso de renovación de permiso en ríos las transversales deberán ser trazados (dibujados sobre las transversales del pasado año y referidas al mismo "DATUM". Este requisito debe ser certificado por un agrimensor y/o ingeniero admitido a ejercer la agrimensura en Puerto Rico (deberá presentar evidencia de ésto).