

Stormwater Pollution Prevention Plan

for:

Via Verde Pipeline

Route: Peñuelas to San Juan

Contact:

Puerto Rico Electric Power Authority

Contact: Jose Ricardo Marina, P.E.

Telephone: (787) 521-6610

E-mail: jr-marina@prepa.com

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SECTION 1: SITE EVALUATION, ASSESSMENT, AND PLANNING

1.1 Project/Site Information

Project/Site Name: Via Verde Pipeline		
Project Street/Location: The pipeline will run 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.		
City: Peñuelas	State: PR	ZIP Code:
County or Similar Subdivision: See above		

Latitude/Longitude (Coordinates corresponds to the pipeline middle point)		
Latitude:	Longitude:	
18 ° 27 ' 24.17" N (degrees, minutes, seconds)	066 ° 40 ' 15.93" W (degrees, minutes, seconds)	
Method for determining latitude/longitude:		
<input type="checkbox"/> USGS topographic map (specify scale: _____)	EPA Web site	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Other (please specify): _		
Is the project located in Indian country? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
If yes, name of Reservation, or if not part of a Reservation, indicate "not applicable." _		
Is this project considered a federal facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
NPDES project or permit tracking number*: _____		
*(This is the unique identifying number assigned to your project by your permitting authority after you have applied for coverage under the appropriate National Pollutant Discharge Elimination System (NPDES) construction general permit.)		

1.2 Contact Information/Responsible Parties

Description of Roles and Responsibilities:

The following is a description for each of the responsible party's roles and responsibilities:

Construction Company:

Gulf Interstate Engineering (GIE) is the leading construction company responsible for the overall construction and construction management of the project. This includes the installation and maintenance of the erosion and sedimentation control as well as the implementation, inspection and maintenance of this SWPPP. GIE is responsible for any changes and the notification of these changes to the owner, inspectors and designer, to reflect them in the drawings. PREPA will inspect and maintain the control measures installed for sedimentation and erosion control. Please refer to Section 4: Selection of Post Construction BMP's

Operator - Owner:

PREPA is the owner of the project. PREPA will keep the inspection of the project while final SWPP final measures are implemented.

Contact(s) Information:

Operator: Puerto Rico Electric Power Authority
Project Manager
Via Verde Project
Puerto Rico Electric Power Authority-(PREPA)
Tel.(787) 521-6610/, Celular (787) 692-4650
[e-mail- jr-marina@prepa.com](mailto:jr-marina@prepa.com)

Name: Jose Ricardo Marina, P.E
Address: P.O. Box 364267
San Juan, PR 00936-4267
Telephone: (787) 521-6610
E-mail: jr-marina@prepa.com

Site Supervisor(s):

Name: Jose Ricardo Marina, P.E
Address: P.O. Box 364267
San Juan, PR 00936-4267
Telephone: (787) 521-6610
E-mail: jr-marina@prepa.com

SWPPP Contact(s):

Company Name: Puerto Rico Electric Power Authority
Name: José Ricardo Marina
Address: P.O. Box 364267
San Juan, PR 00936-4267
Telephone: (787) 521-6610
E-mail: jr-marina@prepa.com

PREPA SWPPP TEAM

Name	Position	Telephone Numbers
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1.3 Nature and Sequence of Construction Activity

Describe the general scope of the work for the project, major phases of construction, etc

As the Via Verde project, PRPEA proposes to construct and install 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.

Site Location: The pipeline will have a length of approximately 92 miles. The 24-inch pipeline will have a right of way (ROW) of 150 feet during construction and a permanent 50 foot maintenance ROW during operation.

What is the function of the construction activity?

The construction activity is related to the installation of a natural gas pipeline.

Residential Commercial Industrial Road Construction Linear Utility

Other (please specify):

Estimated Project Start Date: January 2011

Estimated Project Completion Date: January 2012

1.4 Soils, Slopes, Vegetation, and Current Drainage Patterns

Soil type(s): Annexes 3.3 and 3.4 in PREPA's Declaraciòn de Impacto Ambientales for the Via Verde Project contain information describing the different soils along the route. The descriptions of the soils were taken from the USDA Soil Conservation Catalogs.

Slopes: (describe current slopes and note any changes due to grading or fill activities): The topography of the project corridor varies from flat to semi-level along the north segment (Mile Marker 40 to Mile Marker 92) to mostly steep in the southern segment (MM 4 to MM 40) that crosses the central range from Arecibo to Peñuelas. Since this project is the installation of an underground pipeline, using HDD at certain crossings, no changes are expected to the slopes of the area. The project consists mainly of the clearing and grubbing of the right-of-way of the area where the pipeline will be installed. The only possible changes to any slopes may occur in the southern segment (MM 4-40) where the central range will be crossed. To avoid any erosion and sedimentation of exposed areas, terraces may be constructed on the slopes. These terraces will help to control the runoff and sediment coming from exposed areas. 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.

Drainage Patterns: (describe current drainage patterns and note any changes due to grading or fill activities): Drainage throughout the project varies due to the wide variety in topography. Since the project consists of the installation of an embedded pipeline, drainage patterns are not expected to change. Nevertheless, various BMP's will be put in place to manage and redirect runoff. This will prevent any erosion and sedimentation events.

Vegetation: A description of the environment along the pipeline route is found in Chapter 3.2 of PREPA's, Via Verde Project, Declaraciòn de Impacto Ambientales.

1.5 Construction Site Estimates

The following are estimates of the construction site.

Total project area:	1,113.8 acres (92 miles X 100 foot construction zone)
Construction site area to be temporarily disturbed :	1,113.8 acres (92 miles X 100 foot construction zone) Less than 500 acres in upland areas (wetland areas will completely re-vegetate)
Construction site area to be maintained:	completely re-vegetate)
Percentage impervious area before construction:	0 %
Runoff coefficient before construction:	Industrial/ Developed Areas: 0.5-0.8

	Mountain Steep Areas: 0.15-0.20
Percentage impervious area after construction:	0 %
Runoff coefficient after construction	Industrial/ Developed Areas: 0.6-0.9 Mountain Steep Areas: 0.10-0.15

1.6 Receiving Waters

Description of receiving waters: All the runoff in the vicinity of the project will ultimately drain to the Caribbean Sea. It is important to mention that the project will not affect any stream reservoirs.

Stream Crossings: The proposed project will cross 100 identified linear surface water bodies. These water bodies range from large rivers, i.e. Arecibo River, to small man-made ditches. Table 5 in the Joint Permit Application for the Via Verde Project identifies these water bodies. Crossings of the larger rivers will be performed using Horizontal Directional Drilling (HDD) technology. This technology allows installation of the pipeline under the stream without affecting the river bed and limiting the exposed areas. Crossings of smaller, intermittent streams will be conducted using 1) a dry flume or, 2) a dry dam and pump method. Wetlands and dry, shallow ditches will be crossed with an open trench that will be backfilled once the pipe is placed. Construction details for all crossings are discussed in Section 4 of the Joint Permit Application for the Via Verde Project.

Description of storm sewer systems: Most of the pipeline corridor/ will run through sites with no storm sewer water systems. The areas where storm water systems are located consist mostly of curbs and underground pipes owned by the Municipalities the pipeline route will run through. The pipeline will be located so as to not interfere in any way with these existing systems.

Description of impaired waters or waters subject to TMDLs: No impaired waters were identified within the project boundary.

1.7 Site Features and Sensitive Areas to be protected

The new gas pipeline route will extend across thirteen (13) Municipalities and will run through a great variety of natural systems. The most important water systems that could be affected by the project are:

- **Coastal Zone:** At the south end of the project, near the EcoEléctrica LNG Terminal in Peñuelas, Puerto Rico, the pipeline will be located near the Caribbean Sea. From there the route runs north, across the island to Arecibo. From Arecibo the pipeline extends east to San Juan along the north coast but the corridor is located sufficiently inland that no impacts to coastal waters are expected. At Levittown and Punta Salina, the route runs near the beach in uplands along PR-165.

- **Estuaries:** The proposed project will begin near Tallaboa Bay and end near San Juan Bay. No impacts are expected to occur to either system since the actual pipeline will not extend into or run under either water body. A third system is the River Cocal Estuary, between the municipalities of Dorado and Toa Baja. Although the pipeline will cross this water body, there will be no direct impact since the HDD method will be used.
- **Wetlands:** The pipeline corridor will transit through emergent wetland systems located primarily along the north coast. The pipeline will be embedded in a trench in these areas and preconstruction contours will be recreated after the trench is backfilled with the original wetland soils. No permanent fill will remain in any wetland areas and all forested wetland systems will be avoided.

At the border with the municipality of Utuado, the pipeline corridor will pass through the eastern boundary of the Río Abajo Forest in two locations for a total distance of approximately 3.5 miles. The project corridor will additionally pass through approximately 1.54 miles of the Caño Tiburones. A part of the Caño Tiburones natural reserve lies in this municipality, approximately 543 meters north of the project corridor right-of-way, at Mile Marker 51.0 to 51.30. This reserve is the longest herbaceous marsh on the Island, and the second largest in the Caribbean. This coastal wetland plays an important role in quantity and quality of storm water treatment. Cataño has several environmentally sensitive areas of high natural value that will be protected. These areas include: La Esperanza Park, the Laguna Secreta, remnant wetlands from channelizing the Bayamón River, and the historic mouth of the River Bayamón. Remnants of wetlands can also be found along the project construction right-of-way at the Hondo River. The vegetation associated with these estuarine wetlands includes black mangrove (*Avicennia germinans*) and white mangrove (*Laguncularia racemosa*). The Laguna Secreta is located 100 meters north of the project right-of-way. This area is dominated by cattail marsh with several remnants of marshy areas occupied by the black mangrove. The project will not result in any impacts to marine or mangrove forested coastal zone habitats and open water crossings will be directionally drilled, therefore no impacts to those federally listed threatened and endangered species identified as marine/coastal are anticipated. All impacts to herbaceous wetlands will be temporary and all disturbed areas will be restored to natural grade and allowed to naturally revegetate.

- **Natural and Artificial Lakes:** Seven natural and artificial lakes were found near the project:
 - in the Municipality of Peñuelas an artificial water body at Tallaboa Alta Ward, at a distance of 333 meters from the MP 8.8;
 - in the Municipality of Adjuntas: the Adjuntas Lake, in Juan González Ward, approximately 1.5 miles to the west MP 20, Pellejas Lake, in

Pellejas Ward, approximately 350 meters east of MP 20.7, and Garzas Lake, between Garzas and Saltillo Wards, approximately 2.9 miles west of MP 15;

- in the Municipality of Utuado, Dos Bocas Lake at Caniaco Ward, approximately 650 meters east of MP 31;
- in the Municipality of Toa Baja the Matrullas Lagoon at Palo Seco Ward, approximately 337 meters north of PREPA’s Warehouse;
- in the Municipality of Cataño, the Secreta Lagoon at Palmas Ward, approximately 134 meters of MP 89.2.

The project will have no impact on any of these lakes.

- **Rivers:** The pipeline will cross several larger river systems, all utilizing the HDD method to avoid any direct impacts.

These river systems are -

- The Tallaboa River at mile point (MP) 2.7 of the project via HDD.
- The Arecibo River (5 times) at MP 27.4, 29.7, 36.7, 37.8 and 41.7. A smaller tributary to the Arecibo (Tanama Creek) will also be crossed.
- The Manati River (3 times) at MP 54.3, 58.4 and 59.2
- The Indio River at MP 67.8
- The Rio de La Plata at MP 77.7
- The Rio Cocal at MP 82.4 and,
- The pipeline will cross the Hondo River (Bayamon) at MP 85.5

Describe measures to protect these features: The proposed project will implement several mitigation and prevention programs, such as this SWPPP, to prevent the erosion and sedimentation of the water bodies along the project.

1.8 Potential Sources of Pollution

Potential sources of sediment to storm water runoff

Item	Location	Potential Sources of Sediments
1	Roads and Access	Cleared and graded areas
2	Construction Site Entrance	Cleared and graded areas
3	Landscaping	Tree removal, reforestation works and ornamental planting
4	Installation of the pipeline	Areas where open excavation is being performed and where HDD will be used

Potential pollutants and sources, other than sediment, to storm water runoff:

Material	Chemical/Physical Description ¹
Cleaning Solvents	Colorless, blue or yellow-green liquid
Asphalt	Black solid
Concrete, cement	White solid
Paints	Various colored liquid
Wastewater from construction equipment washing	Water
Hydraulic oil/fluids	Brown oily petroleum hydrocarbon
Gasoline	Colorless, pale brown, or pink petroleum hydrocarbon
Diesel Fuel	Clear, blue-green to yellow liquid

1.9 Endangered Species Certification

Are endangered or threatened species and critical habitats on or near the project area?

Yes No

Describe how this determination was made:

A Biological Evaluation (BE) was undertaken to evaluate the effects of the construction of the 24-inch diameter steel natural gas (NG) pipeline. The BE was prepared to assist in consultations with the U. S. Fish and Wildlife Service (USFWS) with respect to Section 7 of the Endangered Species Act (ESA) and developed to accompany the Department of the Army (DA)/ Puerto Rico USACE Joint Permit Application prepared for the proposed project. This document will be used 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 consultation for listed species or designated critical habitats, or conference for proposed species or proposed critical habitats; and

- explore the design or modification of an action to benefit the species.

A total of 36 federally listed plant and animal species (22 plants and 14 animals) have been identified as potentially occurring within the project limits. A species list includes all individual species that are known to exist or have the potential to occur in the pipeline corridor as identified by the USFWS. The lists of protected plants and animals for each municipality were used as a baseline. Subsequent review of the pipeline corridor route by the USFWS in June of 2010 further refined the target species for on-site field reconnaissance. Also a Flora and Fauna Survey was performed Coll Environmental, *Estudio Descriptivo de Flora Y Fauna – Via Verde Pipeline Project, Puerto Rico*, August 2010. A copy of this report is included in the PREPA, Via Verde Project, Declaraciòn de Impacto Ambientales.

If yes, describe the species and/or critical habitat:

- Refer to the Biological Evaluation included with the Joint Permit Application

If yes, describe or refer to documentation that determines the likelihood of an impact on identified species and/or habitat and the steps taken to address that impact. (Note, if species are on or near your project site, EPA strongly recommends that the site operator work closely with the appropriate field office of the U.S. Fish and Wildlife Service or National Marine Fisheries Service. For concerns related to state or tribal listing of species, please contact a state or tribal official.)

- Refer to the Biological Evaluation included with the Joint Permit Application

1.10 Historic Preservation

Are there any historic sites on or near the construction site?

Yes No

Describe how this determination was made

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

1.11 Applicable Federal, Tribal, State or Local Programs

All construction projects in Puerto Rico with an area greater than 900 m², and that remove more than 40 yd³ of soil and that are adjacent to any water body are subjected to the EQB's Regulation for the Control of Erosion and Sedimentation. This regulation establishes that this kind of project must prepare a plan to control the possible impacts of erosion and sedimentation (CES Plan). This CES Plan then must be submitted to the EQB for its approval.

1.12 Maps

Include the site maps with the SWPPP.

Project maps are included in the PREPA, Via Verde Project, Declaraciòn de Impacto Ambientales.

SECTION 2: EROSION AND SEDIMENT CONTROL BMPS

2.1 Minimize Disturbed Area and Protect Natural Features and Soil

Areas to be disturbed: The project construction right-of-way will consist of no permanent features along the 92 miles of the pipeline. The following table contains the sequence of areas to be clear and the protection methods to be implemented.

Area to be Disturbed	Description of the Area	Action	Protection Methods
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Flat to semi-level along the north segment	MP 40-92	Clear and grade the access area.	<ol style="list-style-type: none"> 1. Silt fences will be installed along the perimeter of the project. 2. Hay bales barriers and sediment filters will be installed along the storm water inlets along the right of way. 3. Only needed ROW will be cleared and graded. All other vegetation will be preserved.
Mountain Area	Steep terrain, MP 4-40	Clear and grade the machinery access areas and the construction right of way	<ol style="list-style-type: none"> 1. Silt fences will be installed along the perimeter of the project. 2. Only needed ROW will be cleared and graded. All other vegetation will be preserved. 3. Geotextiles will be used in various ways for erosion control on construction sites. Also, geotextiles will be used to protect exposed soils immediately and temporarily, such as when active piles of soil are left overnight. They can also be used as a separator between riprap and soil, which prevents the soil from being eroded from beneath the riprap and maintains the riprap's base. This BMP will be used over the Peñuelas – Arecibo Mountain Area, specifically over slopes across the pipeline alignment 4. Straw/ Hay Bale Barriers: Straw or hay bales have historically been used on construction sites for erosion and sediment control as inlet protection, outlet protection, and perimeter control. Hay bales by themselves are not effective to control erosion and sedimentation, nevertheless if the hay bales barriers are used along with geotextiles, filters and other BMP's they can help to prevent minor erosion and sedimentation events. Hay bale barriers will be used in those areas where run off with low velocity and flow could be discharged. 5. Velocity Dissipaters/ Check Dams: Check dams/ Velocity Dissipaters are relatively small, temporary structures constructed across a swale or channel. They are used to slow the velocity of concentrated water flows, a practice that helps reduce erosion. These structures are typically constructed out of gravel, rock, sandbags, logs or treated lumber or straw bales. These structures will be constructed along the pipeline alignment and in the temporary construction access at the mountain area. 6. Drainage Ditches: A drainage ditch is an earthen channel that consists of a dike or a combination dike and channel constructed along the perimeter of and within the disturbed part of a site. It is composed of a ridge of compacted soil, often accompanied by a ditch or swale with a vegetated lining, at the top or base of a sloping disturbed area. These ditches will be provided with velocity dissipaters and check dams. These BMP's will be constructed along the pipeline alignment and access roads in the Peñuelas – Arecibo Mountain area. 7. Sediment Traps: Sediment traps are small impoundments that allow sediment to settle out of construction runoff. They are usually installed in a drainage way or other point of discharge from a disturbed area. Temporary diversions can be used to direct runoff to the sediment trap (USEPA, 1993). Sediment traps detain sediments in storm water runoff to protect receiving streams, lakes, drainage systems, and the surrounding area. The traps are formed by excavating an area or by placing an earthen embankment across a low area or drainage swale.

An outlet or spillway is often constructed using large stones or aggregate to slow the release of runoff (USEPA, 1992). The sediment traps will be located at the beginning of the slopes and at areas where runoff discharges in high quantities. Also, the traps will be located in the valleys between slopes.

8. Rip- Rap Protection: Riprap is a layer of large stones used to protect soil from erosion in areas of concentrated runoff. Riprap can also be used on slopes that are unstable because of seepage problems. These BMP's will be located at the entrance of several temporary pipe outlets installed to redirect runoff from working areas. These BMP's will be constructed using local rocks removed during the excavation.
9. Slope Stabilization (Terraces): Slope stabilization involves reshaping the ground surface to planned grades or terraces as determined by an engineering survey, evaluation, and layout. Slope stabilization provides more suitable topography for buildings, facilities, and other land uses and helps to control surface runoff, soil erosion, and sedimentation during and after construction.

Slope stabilization measures, such as terraces, are applicable to sites with uneven or steep topography or easily erodible soils, because it stabilizes slopes and decreases runoff velocity. Grading activities should maintain existing drainage patterns as much as possible.

This BMP's will be installed at the ends of the pipeline alignment at the Peñuelas – Arecibo Mountain area.

Protection of Non-Disturbed Areas: The areas near and inside the construction right-of-way that will not be disturbed during the installation of the pipeline will be maintained with their respective vegetative cover as a method of protection. Also, they will be isolated using silt fences or hay bale barriers, if necessary.

Protection of Special Areas: The following summarizes the areas of special concern along the pipeline route and the protection methods to be used:

Area	Description	Protection Method
Coastal Zones		Silt fence will be installed along the route of the pipeline as well as around any top soil area.
Estuaries		Silt fence will be installed along the route of the pipeline as well as around any top soil area.
Wetlands		Sediment barriers will be installed at the limits of the wetland using material from the trench. Timber rip rap and equipment mats will be also provided. All top soil storage areas will be provided with silt fences and part of the soil will be use to construct the sediment barrier. Trench will be backfilled once pipe is laid and pre-construction contours re-established Wetland vegetation will be re-established; no permanent fill will remain.
Lagoons		Silt fence will be installed along the right-of –way of the construction and truck washing stations will be provided at the entrance/exit of the different construction areas.
Rivers		Silt fence will be installed along the right-of –way of the construction and truck washing stations will be provided at the entrance/exit of the different construction areas.

		The crossing of larger rivers will be through HDD technologies, avoiding contact with the river bed.
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Protection of Topsoil Storage Areas: Several topsoil storage areas will be placed along the route of the project. The top soil will be used to help establish the vegetative cover at the different areas. These locations will be surrounded by silt fence and hay bales barriers and covered with plastic tarps to prevent contact with runoff.

2.2 Control Storm Water Flowing onto and through the Project

BMP Description: Drainage Ditches: A drainage ditch is an earthen channel that consists of a dike or a combination dike and channel constructed along the perimeter of and within the disturbed part of a site. It is composed of a ridge of compacted soil, often accompanied by a ditch or swale with a vegetated lining, at the top or base of a sloping disturbed area. These ditches will be provided with velocity dissipaters and check dams. These BMP's will be constructed along the pipeline alignment and access roads in the Peñuelas – Arecibo mountain area.

Installation Schedule:	First week.
Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection every 14 days and within 24 hours of the end of a 0.5 inches or greater rainfall event. • Maintenance – When required, to removed any accumulated sediment
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Velocity Dissipaters/ Check Dams: Check dams/ Velocity Dissipaters are relatively small, temporary structures constructed across a swale or channel. They are used to slow the velocity of concentrated water flows, a practice that helps reduce erosion. These structures are typically constructed out of gravel, rock, sandbags, logs or treated lumber or straw bales. These structures will be constructed along the pipeline alignment and in the temporary construction access at the Peñuelas – Arecibo mountain area.

Installation Schedule:	Third week, after construction of diversion ditches.
Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection every 14 days and within 24 hours of the end of a 0.5 inches or greater rainfall event. • Maintenance – When required, to removed any accumulated sediment
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Installation of Silt Fence Barriers – Are used as temporary perimeter controls around

sites where there will be soil disturbance due to construction activities. They consist of length of filter fabric stretched between anchoring post spaced at regular intervals along site perimeter. When installed correctly and inspected frequently, silt fences can be an effective barrier to sediment leaving the site in storm water runoff. The silt fence barriers will be installed along the pipeline alignment and the diversion ditches. Also, silt fence barriers will be used to protect top soil storage areas.

Installation Schedule:	First week, after beginning of soil removal.
Maintenance and Inspection:	<ul style="list-style-type: none"> • Weekly inspection and after each rainfall • Maintenance When required, replace any section that is thorn or broken.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Installation of Hay Bale Barriers – Straw or hay bales have historically been used on construction sites for erosion and sediment control as inlet protection, outlet protection, and perimeter control. Hay bales by themselves are not effective to control erosion and sedimentation, nevertheless if the hay bales barriers are used along with geotextiles, filters and other BMP's they can help to prevent minor erosion and sedimentation events. Hay bale barriers will be used in those areas where run off with low velocity and flow could be discharged.

Installation Schedule:	First week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Weekly inspection and after each rainfall • Maintenance – When required. The maintenance will include replacement of any damage hay bale and removal of accumulated sediment.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Geotextiles: Geotextiles can be used in various ways for erosion control on construction sites. Also, geotextiles can be used to protect exposed soils immediately and temporarily, such as when active piles of soil are left overnight. They can also be used as a separator between riprap and soil, which prevents the soil from being eroded from beneath the riprap and maintains the riprap's base. This BMP will be used over the Peñuelas – Arecibo Mountain Area, specifically over steep slopes across the pipeline alignment.

Installation Schedule:	Second week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection every 14 days and within 24 hours of the end of a 0.5 inch or greater rainfall

	Maintenance – When required, to removed any accumulated sediment
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Installation of truck – tools washing facilities - Truck and tool washing facilities and stabilized entrances will be constructed where appropriate along the pipeline route. The purpose of this area is to reduce and control the amount of soil released from the construction site by vehicles leaving the area.

Installation Schedule:	First week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Weekly inspection and after each rainfall • Maintenance – When required to remove accumulated sediments.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Control of Fugitive Dust – Water trucks will be maintained in place to irrigate the exposed areas. This will control fugitive dust.

Installation Schedule:	First Week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Daily inspection of the exposed areas • Daily watering of the exposed areas.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Installation of sediment barriers near wetland areas – sediment barriers are perimeter sediment control structures constructed of material such as debris left over from site clearing and grubbing. These barriers will be covered with a filter cloth to stabilize the structure and improve barrier efficiency.

Installation Schedule:	First Week, after any soil removal.
Maintenance and Inspection:	<ul style="list-style-type: none"> • Repair any damage silt fence or barriers and substitution of lost barrier materials. • Weekly inspection of the working areas
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

2.3 Stabilize Soils

BMP Description: Interim seeding with native vegetation - Local vegetation growth will be stimulated in those areas inside and near the construction area that will not be affected or use in the construction.

Permanent **Temporary**

Installation Schedule: Last week of soil removal

Maintenance and Inspection:

- Inspection every 14 days and within 24 hours of the end of a 0.5 inch or greater rainfall event.
- Maintenance: Water regularly to ensure quick growth and maintain back up BMP's such as silt fence and hay bale barriers.

Responsible Staff: Name: Jose Ricardo Marina, P.E
E-mail: jr-marina@prepa.com

BMP Description: Geotextiles: Geotextiles can be used in various ways for erosion control on construction sites. Also, geotextiles can be used to protect exposed soils immediately and temporarily, such as when active piles of soil are left overnight. They can also be used as a separator between riprap and soil, which prevents the soil from being eroded from beneath the riprap and maintains the riprap's base. This BMP will be used over the Peñuelas – Arecibo Mountain Area, specifically over steep slopes across the pipeline alignment.

Installation Schedule: Second week

Maintenance and Inspection:

- Inspection every 14 days and within 24 hours of the end of a 0.5 inch or greater rainfall event.
- Maintenance – When required, to removed any accumulated sediment

Responsible Staff: Name: Jose Ricardo Marina, P.E
E-mail: jr-marina@prepa.com

BMP Description: Permanent seeding – Permanent seeding and planting will be performed in those areas where the work is completed.

Permanent **Temporary**

Installation Schedule:	Last week before soil removal
Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection: Weekly • Maintenance: Water regularly to ensure quick growth and maintain back up BMP's such as silt fence and hay bale barriers.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

2.4 Protect Slopes

BMP Description: <u>Geotextiles:</u> Geotextiles can be used in various ways for erosion control on construction sites. Also, geotextiles can be used to protect exposed soils immediately and temporarily, such as when active piles of soil are left overnight. They can also be used as a separator between riprap and soil, which prevents the soil from being eroded from beneath the riprap and maintains the riprap's base. This BMP will be used over the Peñuelas – Arecibo Mountain Area, specifically over steep slopes across the pipeline alignment.	
Installation Schedule:	Second week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection every 14 days and within 24 hours of the end of a 0.5 inch or greater rainfall event. • Maintenance – When required, to removed any accumulated sediment
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: <u>Installation of Silt Fence Barriers</u> – Are used as temporary perimeter controls around sites where there will be soil disturbance due to construction activities. They consist of length of filter fabric stretched between anchoring post spaced at regular intervals along site perimeter. When installed correctly and inspected frequently, silt fences can be an effective barrier to sediment leaving the site in storm water runoff. The silt fence barriers will be installed along the pipeline alignment and the diversion ditches. Also, silt fence barriers will be used to protect top soil storage areas.	
Installation Schedule:	First week, after beginning of soil removal.
Maintenance and Inspection:	<ul style="list-style-type: none"> • Weekly inspection and after each rainfall • Maintenance – When required. Replace any section that is thorn or broken.
Responsible Staff:	Name: Jose Ricardo Marina, P.E

	E-mail: jr-marina@prepa.com
<i>BMP Description: <u>Installation of diversion channels and berms to keep storm water off slopes.</u></i>	
<i>Installation Schedule:</i>	First week, before soil removal
<i>Maintenance and Inspection:</i>	<ul style="list-style-type: none"> • Inspection every 14 days and within 24 hours of the end of a 0.5 inch or greater rainfall event. <p>Maintenance – When required, to removed any accumulated sediment</p>
<i>Responsible Staff:</i>	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

<i>BMP Description: <u>Installation of dissipation mechanisms at the end of the diversion channel to control erosion.</u></i>	
<i>Installation Schedule:</i>	Third week
<i>Maintenance and Inspection:</i>	<ul style="list-style-type: none"> • Inspection every 14 days and within 24 hours of the end of a 0.5 inch or greater rainfall event. <p>Maintenance – When required, to removed any accumulated sediment</p>
<i>Responsible Staff:</i>	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

2.5 Protect Storm Drain Inlets

<i>BMP Description: <u>Installation of Hay Bale Barriers and Filtering covers</u></i> - over storm water inlets to prevent sediment to enter the inlet.	
<i>Installation Schedule:</i>	First week
<i>Maintenance and Inspection:</i>	<ul style="list-style-type: none"> • Inspection: Weekly and within 24 hours of the end of a 0.5 inch or greater rainfall event. • Maintenance: Removed accumulated sediment and replace or repair hay bales and protection. Clean surrounding areas.

Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com
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BMP Description: Rip-raps - Rock or other material filtering bags will be placed in various storm water exits and inlets along the line.

Installation Schedule:	
Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: Removed accumulated sediment from and around the barrier and replace or repair the protection if damage. • Inspection: Inspection every 14 days and within 24 hours of the end of a 0.5 inch or greater rainfall event.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

2.6 Establish Perimeter Controls and Sediment Barriers

BMP Description: Maintenance of natural vegetation in areas around the project construction right of way.

Installation Schedule:	First week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: Water frequently to stimulate growth and maintain a healthy cover. • Inspection: Every 14 days or when needed
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Installation of Silt fences or Fiber Rolls to retain sediment dislodged by runoff.

Installation Schedule:	First week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: Remove sediment when it reaches 1/3 of the height of the fence and replace the silt fence or roll if damage. • Inspection: Weekly or after each rainfall

Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com
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2.7 Retain Sediment On-Site

BMP Description: <u>Sediment Traps:</u> Sediment traps are small impoundments that allow sediment to settle out of construction runoff. They are usually installed in a drainage way or other point of discharge from a disturbed area. Temporary diversions can be used to direct runoff to the sediment trap (USEPA, 1993). Sediment traps detain sediments in storm water runoff to protect receiving streams, lakes, drainage systems, and the surrounding area. The traps are formed by excavating an area or by placing an earthen embankment across a low area or drainage swale. An outlet or spillway is often constructed using large stones or aggregate to slow the release of runoff (USEPA, 1992). The sediment traps will be located at the beginning of the slopes and at areas where runoff discharges in high quantities. Also, the traps will be located in the valleys between slopes.	
Installation Schedule:	Second week, before soil removal
Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection: Inspection every 14 days and within 24 hours of the end of a 0.5 inch or greater rainfall event. • Maintenance: When required, removed accumulated sediment and clean surrounding areas
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

2.8 Establish Stabilized Construction Exits

BMP Description: <u>Installation of 27 truck washing facilities along the pipeline route.</u> The wash will be only limited to tires and parts that were in touch with soil. Maintenance cleanings will be outside of the project area.
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Installation Schedule:	First week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: Replenish or replace aggregate if it becomes clogged with sediment. Sweep street regularly. • Inspection: Weekly or after each rainfall event.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

2.9 Additional BMPs

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

SECTION 3: GOOD HOUSEKEEPING BMPS

3.1 Material Handling and Waste Management

BMP Description: <u>Storage of Hazardous Materials</u> - Any hazardous material generated during the on-site construction will be composed mainly of paints, fuel, sealants and other chemical wastes typical of a construction site. These products and their residues will be stored in special covered areas for disposal by an authorized company and provided with temporary spill controls until collected. All paint containers and curing compounds will be tightly sealed and stored when in use. Excess paint will not be discharged to the storm system, but properly disposed of, according to the manufacturer's instructions.	
Installation Schedule:	Second Week

Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: Depending on the condition of the shack or covered area, replace wood pallets and spill controls if necessary. • Inspection: Inspection every 14 days and within 24 hours of the end of a 0.5 inch or greater rainfall event.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Petroleum/ Oil Products: All petroleum products will be stored in tightly sealed containers, which will be clearly labeled. Any asphalt substances used on site will be applied according to the manufacturer’s recommendations. Refueling and maintenance of construction equipment will be in place, using a specialized truck, provided with spill prevention equipment. No oil or other petroleum material will be stored on-site. Training will be given to construction personnel on how to handle and manage oil products and on spill control and prevention. If an oil spill occurs the following corrective actions will be taken:

- The first worker on the scene that detects an incident will assess the size of the spill and attempt to shut-off the source, if possible. If not knowledgeable of the type of spill and appropriate safety procedures, he/she should immediately contact the supervisor and the facility emergency coordinator rather than taking any specific action. Also he/she will activate the alarm associated with the emergency. Contact will be made by short-wave radio to activate the emergency response team force.
- Equipment will be brought to the location of the spill to start control and clean-up action until the emergency response brigade arrives.
- The spread of the spill will be contained by damming, diking or blocking by means possible of absorbent material. Storm water drains and gutters will be protected.
- Other sources of manpower and equipment will be deployed at the discretion of the emergency coordinator.
 - Where a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302, occurs during a 24-hour period:
 1. you must provide notice to the National Response Center (NRC) (800-424-8802; in the Washington, DC, metropolitan area call 202-267-2675) in accordance with the requirements of 40 CFR Part 110, 40 CFR Part 117 and 40 CFR Part 302 as soon as site staff have knowledge of the discharge; and
 2. you must, within 7 calendar days of knowledge of the release, provide a description of the release, the circumstances leading to the release, and the date of the release. You must also implement measures to prevent the reoccurrence of such releases and to respond to such releases.

Installation Schedule:	Second Week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: If necessary, change equipment or repair equipment. • Inspection; Inspection every 14 days and within 24 hours of the end of a 0.5 inch or greater rainfall event.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Sanitary Wastes - All sanitary wastes will be collected from portable units located in various areas throughout the construction site. These wastes will be collected and disposed off a minimum of two times per week by an authorized company. This company will discharge the water only to an authorized facility.

Installation Schedule:	First week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: If necessary, change equipment or repair equipment. • Inspection: weekly
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Bentonite Management – Bentonite will be brought to the construction area in special tank trucks and containers and placed alongside the HDD equipment. Immediately after an emergency situation is observed, all efforts will be directed towards the control of the situation. Emergency spill response procedures for chemical products, oil and bentonite releases were developed specifically for the project. The procedures for the response for bentonite spill will include the following:

- Keep all clean up and containment materials on site.
- If any spill is detected, an alert signal must be given, all personnel removed from the area and the responsible people notified. A determination of the magnitude and extent of the spill must be completed and control procedures must be put in place.
- All drilling activities must be stopped. Once the drilling activities have been stopped, the area where the fissure has been detected must be surrounded by berms, if the fissure exit is on land. If a major spill occurs, the mud must be pumped to the existing pit to be recycled.

If a bentonite spill occurs the following corrective actions will be followed:

- Once the spill has been detected, the first corrective action step is to stop the rig pumps. By stopping the pumps, the pressure in the hole will quickly bleed off, causing the spill to stop.
- In water bodies, spilled drilling fluids will be pumped back into the fluid collection pit using portable vacuum pumps. Spill containment measures must be in place at the moment of the clean up.

- The entry and exit locations of the construction must be protected by a berm before drilling begins. Hay bales and silt fences will be incorporated into the berm and placed at the waterside of the drilling area. To contain and collect any spilled material, equipment such as portable pumps, sand, hay bales and silt fences must be available at all times. Any drilling fluid will be contained first and isolated using soil berms, hay bales and silt fences. It will be immediately cleaned up and pumped into one of the storage pits. To avoid exposure of drilling mud to the surface, the drilling fluid containing bentonite will be switched to fresh water and will be pumped down the hole until the fluid returns appear clean.

For possible oil and/ or chemicals spills, the following procedures will be in place:

- If any spill is detected, an alert signal must be given, all personnel removed from the area and the responsible people notified. A determination of the magnitude and extent of the spill must be completed and control procedures must be put in place.
 - All fueling or refueling activities must be stopped, to prevent any other incident.
 - An evaluation of the spill must be performed by the SWPPP/EHS Coordinator to determine the need to notify the appropriate agencies and the actions to be taken.

Installation Schedule:	Second Week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: All equipment and hoses will be changed when necessary. • Inspection: Daily inspection to equipment before beginning daily works.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

3.2 Establish Proper Building Material Staging Areas

BMP Description: Designate areas for material handling and storage: Several material handling areas will be distributed along the route. These areas will be provided with cover sheds and temporary containments such as plastic dikes. The rest of the materials will be stored in a central area, where temporary covered warehouses will be provided as well as temporary containment measures. These materials will be brought daily to the construction area.

Installation Schedule:	First week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: Replacement of any damage containment and equipment or containment. • Inspection: Every 14 days to verify for any possible leak or exposure.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

<u>BMP Description: Train employees and subcontractors in proper handling and storage practices for different materials.</u>	
Installation Schedule:	First week, before soil removal
Maintenance and Inspection:	This training will be held at the beginning of the project and every time a new member is added to the team.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

3.3 Designate Washout Areas

<u>BMP Description: Tool washing facilities will be provided in several points of the pipeline alignment.</u> – These areas will be located at least 50 yards away from any storm drain. They will be provided with washout containers and/ or areas covered with liners. <i>The discharge of any water containing detergents or other chemicals is prohibited. Washing concrete trucks is prohibited in any of these areas</i>	
Installation Schedule:	
Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: Daily cleaning and sediment removal from the area. Replacement of liners and other equipment when necessary. • Inspection: Weekly before beginning of works.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

<u>BMP Description:</u>	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

BMP Description: Proper equipment/ vehicle fueling practices – All maintenance of equipment will be performed in an off-site area. Refueling will be performed on-site using specialized vehicles, provided with spill kits and trained personnel. Clearly designate vehicle/ equipment service areas away from drainage and/or storm water inlets. All personnel must use drip pans, drip cloths or absorbent materials when handling liquids. The spent fluids must be stored in appropriate containers and recycled when possible.

Installation Schedule:	First week
Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: When required, replace equipment and other parts if necessary, depending upon inspection results. • Inspection: Weekly inspection must be performed before commencement of daily works.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

3.5 Control Equipment/Vehicle Washing

BMP Description: Tool washing and vehicles facilities will be provided in several points of the pipeline alignment. – These areas will be located at least 50 yards away from any storm drain. They will be provided with washout containers and/ or areas covered with liners. **The discharge of any water containing detergents or other chemicals is prohibited. Washing concrete trucks is prohibited in any of these areas.**

Installation Schedule:	
Maintenance and Inspection:	<ul style="list-style-type: none"> • Maintenance: Daily cleaning and sediment removal from the area. Replacement of liners and other equipment when necessary. • Inspection: Weekly before beginning of works.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

3.6 Spill Prevention and Control Plan

Immediately after an emergency situation is observed, all efforts will be directed towards the control of the situation. Emergency spill response procedures for chemical products, oil and bentonite releases were developed specifically for the project. The procedures for the response for a bentonite spill will include the following:

- Keep all clean up and containment materials on site.
- If any spill is detected, an alert signal must be given, all personnel removed from the area and the responsible people notified. A determination of the magnitude and extent of the spill must be completed and control procedures must be put in place.
- All drilling activities must be stopped. Once the drilling activities have been stopped, the area where the fissure has been detected must be surrounded by berms, if the fissure exit is on land. If a major spill occurs, the mud must be pumped to the existing pit to be recycled.

If a bentonite spill occurs the following corrective actions will be followed:

- Once the spill has been detected, the first corrective action step is to stop the rig pumps. By stopping the pumps, the pressure in the hole will quickly bleed off, causing the spill to stop.
- In water bodies, spilled drilling fluids will be pumped back into the fluid collection pit using portable vacuum pumps. Spill containment measures must be in place at the moment of the clean up.
- The entry and exit locations of the construction must be protected by a berm before drilling begins. Hay bales and silt fences will be incorporated into the berm and placed at the waterside of the drilling area. To contain and collect any spilled material, equipment such as portable pumps, sand, hay bales and silt fences must be available at all times. Any drilling fluid will be contained and isolated using soil berms, hay bales and silt fences. It will be immediately cleaned up and pumped into one of the storage pits. To avoid exposure of drilling mud to the surface, the drilling fluid containing bentonite will be switched to fresh water and will be pumped down the hole until the fluid returns clean.

For possible oil and/ or chemicals spills, the following procedures will be in place:

- If any spill is detected, an alert signal must be given, all personnel removed from the area and the responsible people notified. A determination of the magnitude and extent of the spill must be completed and control procedures must be put in place.
- All fueling or refueling activities must be stopped, to prevent any other incident.
- An evaluation of the spill must be performed by the SWPPP/EHS Coordinator to determine the necessity to notify concerned agencies and the actions to be taken.

If an oil spill occurs the following corrective actions will be taken:

- The first worker on the scene that detects an incident will assess the size of the spill and attempt to shut off the source, if possible. If not knowledgeable of the type of spill and appropriate safety procedures, he/she should immediately contact the supervisor and the facility emergency coordinator rather than taking any specific action. Also he/she will activate the alarm associated with the emergency. Contact will be made by short-wave radio to activate the emergency response team force.
- Equipment will be brought to the location of the spill to start control and clean-up action until the emergency response brigade arrives.
- The spread of the spill will be contained by damming, diking or blocking with absorbent material. Storm water drains and gutters will be protected.
- If the amount of oil and/or hazardous material contained is substantial, the SWPPP and/ or emergency team member will arrange for immediate removal using the available equipment, vacuum pumps and/or any absorbent materials.
- Other sources of manpower and equipment will be deployed at the discretion of the emergency coordinator.

3.7 Any Additional BMPs

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

BMP Description:	
Installation Schedule:	
Maintenance and Inspection:	
Responsible Staff:	

3.8 Allowable Non-Stormwater Discharge Management

List allowable non-storm water discharges and the measures used to eliminate or reduce them and to prevent them from becoming contaminated:

The following discharges are identified as allowable non-storm water discharges:

- Waters used to wash vehicles where detergents are not used
- Water used to control dust
- Landscape irrigation

As a measure to prevent the contamination of this water, proper building material handling and staging areas will be established to prevent any possible spills and discharges. Also, training will be given to employees and subcontractors on proper handling and storage practices. The project will have designated site areas for storage to provide storage in accordance with secondary containment regulations and provide cover for hazardous materials when necessary. It will be ensure that storage containers are regularly inspected for leaks, corrosion, support or foundation failure, or any other signs of deterioration. Also, when possible, construction material will be reuse and recycle.

<i>BMP Description: <u>Washing vehicles in specified trucks washing areas, provided with the necessary controls.</u></i> Washing will be limited to tires and parts that were in touch with soil. Maintenance cleanings will be outside of the project area.	
<i>Installation Schedule:</i>	First Week
<i>Maintenance and Inspection:</i>	<ul style="list-style-type: none"> • Maintenance: Daily • Inspection: Weekly or after a rainfall event
<i>Responsible Staff:</i>	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

<i>BMP Description: <u>Limitation of exposed surfaces to minimize water used to control dust</u></i> – Maintain as much as possible the vegetation of the area as a measure to minimize exposed areas. This will minimize the use of water to control dust.	
<i>Installation Schedule:</i>	First Week
<i>Maintenance and Inspection:</i>	Maintenance: Daily Inspection: Weekly or after a rainfall event
<i>Responsible Staff:</i>	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

SECTION 4: SELECTING POST-CONSTRUCTION BMPs

4.1 Maintenance Activities While Closing Activities Proceed

BMP Description: Drainage Ditches: A drainage ditch is an earthen channel that consists of a dike or a combination dike and channel constructed along the perimeter of and within the disturbed part of a site. It is composed of a ridge of compacted soil, often accompanied by a ditch or swale with a vegetated lining, at the top or base of a sloping disturbed area. These ditches were provided with velocity dissipaters and check dams. These BMP's were constructed along the pipeline alignment and access roads in the Peñuelas – Arecibo Mountain Area.

Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection monthly and within 24 hours of the end of a 0.5 inch or greater rainfall event. • Maintenance – When required, to remove any accumulated sediment
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Velocity Dissipaters/ Check Dams: Check dams/ Velocity Dissipaters are relatively small, temporary structures constructed across a swale or channel. They are used to slow the velocity of concentrated water flows, a practice that helps reduce erosion. These structures are typically constructed out of gravel, rock, sandbags, logs or treated lumber or straw bales. These structures were constructed along the pipeline alignment and in the temporary construction access at the Peñuelas – Arecibo Mountain Area.

Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection monthly and within 24 hours of the end of a 0.5 inch or greater rainfall event. • Maintenance – When required, to remove any accumulated sediment
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Geotextiles: Geotextiles can be used in various ways for erosion control on construction sites. Also, geotextiles can be used to protect exposed soils immediately and temporarily, such as when active piles of soil are left overnight. They can be used as a separator between riprap and soil, which prevents the soil from being eroded from beneath the riprap and maintains the riprap's base. This BMP is used over the Peñuelas – Arecibo Mountain Area, specifically over steep slopes across the pipeline alignment.

Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection monthly and within 24 hours of the end of a 0.5 inch or greater rainfall event. • Maintenance – When required, to remove any accumulated sediment
Responsible Staff:	Name: Jose Ricardo Marina, P.E

E-mail: jr-marina@prepa.com
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BMP Description: Truck – tools washing facilities - The purpose of these areas is to reduce and control the amount of soil releases from the construction site by vehicles leaving the area.

Maintenance and Inspection:	<ul style="list-style-type: none"> • Weekly inspection while executing maintenance or closing activities and after each rainfall. • Maintenance – When required to remove accumulated sediments.
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Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com
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BMP Description: Control of Fugitive Dust – Water trucks will be maintained in place to irrigate the exposed areas. This will control fugitive dust.

Maintenance and Inspection:	<ul style="list-style-type: none"> • Daily inspection of the exposed areas, while maintenance or closing activities are in progress. • Daily watering of the exposed areas while maintenance or closing activities are in progress.
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Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com
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BMP Description: Diversion channels and berms to keep storm water off slopes.

Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection monthly and within 24 hours of the end of a 0.5 inch or greater rainfall event. • Maintenance – When required, to removed any accumulated sediment
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Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com
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BMP Description: <u>Dissipation mechanisms at the end of the diversion channel to control erosion.</u>	
Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection monthly and within 24 hours of the end of a 0.5 inch or greater rainfall event. • Maintenance – When required, to removed any accumulated sediment
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: <u>Rip-raps</u> - Rock or other material filtering bags is placed in various storm water exits and inlets along the line.	
Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection monthly and within 24 hours of the end of a 0.5 inch or greater rainfall event. • Maintenance: Remove accumulated sediment from and around the barrier and replace or repair the protection if damaged.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: <u>Sediment Traps</u> : Sediment traps are small impoundments that allow sediment to settle out of construction runoff. They are usually installed in a drainage way or other point of discharge from a disturbed area. Temporary diversions can be used to direct runoff to the sediment trap (USEPA, 1993). Sediment traps detain sediments in storm water runoff to protect receiving streams, lakes, drainage systems, and the surrounding area. The traps are formed by excavating an area or by placing an earthen embankment across a low area or drainage swale. An outlet or spillway is often constructed using large stones or aggregate to slow the release of runoff (USEPA, 1992). The sediment traps are located at the beginning of the slopes and at areas where runoff discharges in high quantities. Also, the traps are located in the valleys between slopes.	
Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection monthly and within 24 hours of the end of a 0.5 inch or greater rainfall event. • Maintenance: When required, remove accumulated sediment and clean surrounding areas
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Sanitary Wastes - All sanitary wastes will be collected from portable units located in

various areas throughout the construction site. These wastes will be collected and disposed off a minimum of two times per week by an authorized company. This company will discharge the water only to an authorized facility.

Maintenance and Inspection:	<ul style="list-style-type: none"> • Weekly inspection while executing maintenance or closing activities. • Maintenance: If necessary, change equipment or repair equipment.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Non-Hazardous Solid Wastes - All non-hazardous solid wastes will be collected and properly disposed on appropriate bags and/or containers units located in various areas throughout the construction site. These wastes will be collected and disposed-off by an authorized company. Wastes include construction debris and typical day-to-day operation non-hazardous solid wastes.

Maintenance and Inspection:	<ul style="list-style-type: none"> • Weekly inspection while executing maintenance or closing activities • Maintenance: If necessary, change equipment or repair equipment.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

BMP Description: Sediment barriers near wetland areas – sediment barriers are perimeter sediment control structures constructed of material such as debris left over from site clearing and grubbing. These barriers were covered with a filter cloth to stabilize the structure and improve barrier efficiency.

Maintenance and Inspection:	<ul style="list-style-type: none"> • Inspection monthly and within 24 hours of the end of a 0.5 inch or greater rainfall event. • Repair any damage silt fence or barriers and substitution of lost barrier materials.
Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

4.2 Closing Activities

<i>BMP Description: <u>Removal of construction debris</u></i>	
<i>Installation Schedule:</i>	
<i>Maintenance and Inspection:</i>	<ul style="list-style-type: none"> • No maintenance required. • Once removed, no inspection is needed
<i>Responsible Staff:</i>	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

<i>BMP Description: <u>Removal of silt fences and pipe drainage</u></i>	
<i>Installation Schedule:</i>	
<i>Maintenance and Inspection:</i>	<ul style="list-style-type: none"> • No maintenance required. • Once removed, no inspection is needed • Document removal activities
<i>Responsible Staff:</i>	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

<i>BMP Description: <u>Removal of wood mats at Wetland Locations</u></i>	
<i>Installation Schedule:</i>	
<i>Maintenance and Inspection:</i>	<ul style="list-style-type: none"> • No maintenance required. • Once removed, no inspection is needed • Document removal activities
<i>Responsible Staff:</i>	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com

<i>BMP Description: <u>Slope stabilization, Grading and Reforestation of exposed areas</u></i> – The majority of the exposed areas will be replanted with local vegetation.	
<i>Installation Schedule:</i>	
<i>Maintenance and Inspection:</i>	<ul style="list-style-type: none"> • The area will be watered whenever needed. Inspection: Monthly for 12 months or until after vegetation is evident.

Responsible Staff:	Name: Jose Ricardo Marina, P.E E-mail: jr-marina@prepa.com
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4.3 Spill Prevention and Control Plan

Immediately after an emergency situation is observed, all efforts will be directed towards the control of the situation.

For possible oil and/ or chemicals spills, the following procedures will be in place:

- If any spill is detected, an alert signal must be given, all personnel removed from the area and the responsible people notified. A determination of the magnitude and extent of the spill must be completed and control procedures must be put in place.
- All fueling or refueling activities must be stopped, to prevent any other incident.
- An evaluation of the spill must be performed by the SWPPP/EHS Coordinator to determine the necessity to notify the concern agencies and the actions to be taken.

If an oil spill occurs the following corrective actions will be taken:

- The first worker on the scene that detects an incident will assess the size of the spill and attempt to shut-off the source, if possible. If not knowledgeable of the type of spill and appropriate safety procedures, he/she should immediately contact the supervisor and the facility emergency coordinator rather than taking any specific action. Also he/she will activate the alarm associated with the emergency. Contact will be made by short-wave radio to activate the emergency response team force.
- Equipment will be brought to the location of the spill to start control and clean-up action until the emergency response brigade arrives.
- The spread of the spill will be contained by damming, diking or blocking by of absorbent material. Storm water drains and gutters will be protected.
- If the amount of oil and/or hazardous material contained is substantial, the SWPPP and/ or emergency team member will arrange for immediate removal using the available equipment, vacuum pumps and/or any absorbent materials.
- Other sources of manpower and equipment will be deployed at the discretion of the emergency coordinator.

SECTION 5: INSPECTIONS

5.1 Inspections

1. *Inspection Personnel: Identify the person(s) who will be responsible for conducting inspections and describe their qualifications:*

Name: Jose Ricardo Marina, P.E

E-mail: jr-marina@prepa.com

• ***Inspection Schedule and Procedures:***

Describe the inspection schedules and procedures you have developed for your site (include frequency of inspections for each BMP or group of BMPs, indicate when you will inspect, e.g., before/during/and after rain events, spot inspections):

Visual inspections of all cleared and graded areas of the construction site will be performed as specified in the abovementioned BMP's in Section 4.

The inspection will verify that the structural BMP's described in this document are in good condition and are minimizing erosion. The inspection will also verify that the procedures are effective. The following inspection and maintenance practices will be used to maintain erosion and sediment controls:

- Built up sediment will be removed from silt fencing when it has reached one-third of the fence.
- Silt fences will be inspected for depth of sediments, for tears, to see if the fabric is securely attached to the fence posts and to see that the fence posts are firmly in the ground.
- Temporary and permanent seeding will be inspected for bare spots, washouts, and healthy growth.
- The stabilized construction entrance will be inspected for sediment tracked on the road, for clean gravel, and to ensure that all vehicles and heavy equipment use the stabilized entrance, when leaving the site.

A maintenance inspection report will be made after each inspection. A copy of the report form is provided in **Appendix A** of this SWPPP. Completed forms will be maintained on-site during the entire construction project. Following construction, the completed forms will be retained at the general contractor's office for a minimum of 3-year. If construction activities or design modifications are made to the site plan, which could impact storm water, this SWPPP will be amended appropriately. The amended SWPPP will have a description of the new activities that contribute to the increased pollutant loading and the planned control activities.

Describe the general procedures for correcting problems when they are identified. Include responsible staff and time frames for making corrections:

Immediately after a problem is identified by the inspector or any worker it must be reported to the SWPPP Team Director to initiate the response. The SWWP Team will evaluate the situation and decide on the corrective measure applicable. These changes will be noted in the Plan log and the SWPPP will be amended to reflect any

changes. Attach a copy of the inspection report you will use for your site. **Appendix B** contains copy of the Corrective Action Forms.

5.2 Delegation of Authority

Duly Authorized Representative(s) or Position(s):

Company Name: PREPA

Name

Position:

Address:

Telephone Number:

E-mail:

Attach a copy of the signed delegation of authority form in Appendix G.

5.3 Corrective Action Log

Corrective Action Log:

See **Appendix B**.

SECTION 6: RECORDKEEPING AND TRAINING

6.1 Recordkeeping

Records will be retained for a minimum period of at least 3 years after the permit is terminated.

Date(s) when major grading activities occur

See Appendix E – Major Grading Schedule

Date(s) when construction activities temporarily or permanently cease on a portion of the site:

See Appendix E.

Date(s) when an area is either temporarily or permanently stabilized:

See Appendix E -

6.2 Log of Changes to the SWPPP

Log of changes and updates to the SWPPP

See Appendix C – Amendment Logs

6.3 Training

Individual(s) Responsible for Training:

Describe Training Conducted: See Appendix F.

- General stormwater and BMP awareness training for staff and subcontractors.
- Detailed training for staff and subcontractors with specific storm water responsibilities,

SECTION 7: CERTIFICATION AND NOTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name:

Title:

Signature:

Date:

Name:

Title:

Signature:

Date:

SWPPP APPENDICES

Attach the following documentation to the SWPPP:

Appendix A – Inspection Reports

Appendix B – Corrective Action Log

Appendix C – SWPPP Amendment Log

Appendix D – Subcontractor Certifications/Agreements

Appendix E – Grading and Stabilization Activities Log

Appendix F – Training Log

Appendix G – Delegation of Authority

Appendix A – Inspection Reports

Appendix D –Subcontractor Certifications/Agreements

SUBCONTRACTOR CERTIFICATION STORMWATER POLLUTION PREVENTION PLAN

Project Number: _____

Project Title: _

Operator(s): _

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the BMPs and practices described in the SWPPP.

This certification is hereby signed in reference to the above named project:

Company: _

Address: _

Telephone Number: _

Type of construction service to be provided:

Signature: _

Title: _

Date: _

Appendix F–SWPPP Training Log

Stormwater Pollution Prevention Training Log

Project Name:

Project Location:

Instructor's Name(s):

Instructor's Title(s):

Course Location: _ Date: _

Course Length (hours): _

Stormwater Training Topic: *(check as appropriate)*

<input type="checkbox"/>	Erosion Control BMPs	<input type="checkbox"/>	Emergency Procedures
<input type="checkbox"/>	Sediment Control BMPs	<input type="checkbox"/>	Good Housekeeping BMPs
<input type="checkbox"/>	Non-Stormwater BMPs		

Specific Training Objective: _

Attendee Roster: *(attach additional pages as necessary)*

No.	Name of Attendee	Company
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Appendix G –Delegation of Authority Form

Delegation of Authority

I, Daniel Maldonado (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Construction General Permit, at the "Via Verde" construction site. The designee is authorized to sign any reports, storm water pollution prevention plans and all other documents required by the permit.

_____ (name of person or position)

_____ (company)

_____ (address)

_____ (city, state, zip)

_____ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in _____ (Reference State Permit), and that the designee above meets the definition of a "duly authorized representative" as set forth in _____ (Reference State Permit).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: _____

Company: _____

Title: _____

Date: _____