U.S. Department of Homeland Security
Region II, Caribbean Area Division
P.O. Box 70105
San Juan, PR 00936-8105

FEMA

Application Package

for

Hazard Mitigation Grant Program

Drainage Channel

Sector La Moca

U.S. Department of Homeland Security
Region II, Caribbean Area Division
P.O. Box 70105
San Juan, PR 00936-8105

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This application package has been developed to assist prospective applicants in the preparation of Hazard Mitigation Grant Program (HMGP) application. The package includes instructions, sample narratives, graphics, and a variety of forms to illustrate the type of information that needs to be included in the application. While utilization of forms contained within this package is encouraged, the applicant may submit the requested information in any format it elects. By providing all of the information requested, the review process at the State and Federal levels will be significantly expedited. Should assistance be required in the preparation of your application, you may wish to contact the GPR Hazard Mitigation Officer at the Governor's Authorized Representative Office.

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Application for Federal Assistance From 424

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I. Applicant Information

HMGP Application #_____ FEMA-_____-DR-_____ Application Date_____

Application Type: ❑ HMGP ❑ HMGP 5% Initiative Application

Application Status: ❑ Initial Submission ❑ Resubmission ❑ Amendment

Organization Type: ❑ State Agency ❑ County/Local Gov't ❑ Private Non-Profit ❑ Other _____

Total Project Cost: $3,000,000.00

Federal Share Requested: $_____

Required consultations sent out: Yes / No

Responses received: Yes / No

Project Type

❑ Acquisition	❑ Elevation
❑ Relocation	❑ Culvert/drainage
❑ Seismic Retrofitting	❑ Bridge replacement/upgrade
❑ Wind Retrofitting	❑ Embankment Stabilization
❑ Stream engineering	❑ Other: Drainage Channel

THIS SECTION FOR STATE USE ONLY

For additional information or to request technical assistance, please contact the GPR Hazard Mitigation Officer at the Governor's Authorized Representative Office, at (787) 725-9420

Applicant (Organization) Hon. Walter Torres Maldonado

Municipality of Peñuelas

FIPS Code _____ Community NFIP ID # _____

Project Title Drainage Channel

Project Location: Bo. Tallaboa Alta, Sector La Moca

Authorized Applicant Agent[1]		*Point of Contact*[2]
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Peñuelas, Puerto Rico	Address 2	Peñuelas, Puerto Rico
00624	City/State/Zip	00624

Prepared by: Signature_____ Date_____

[1] Individual authorized to sign certification in Section V
[2] Individual applicant wishes State/FEMA to contact for additional information

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II. General Project Information

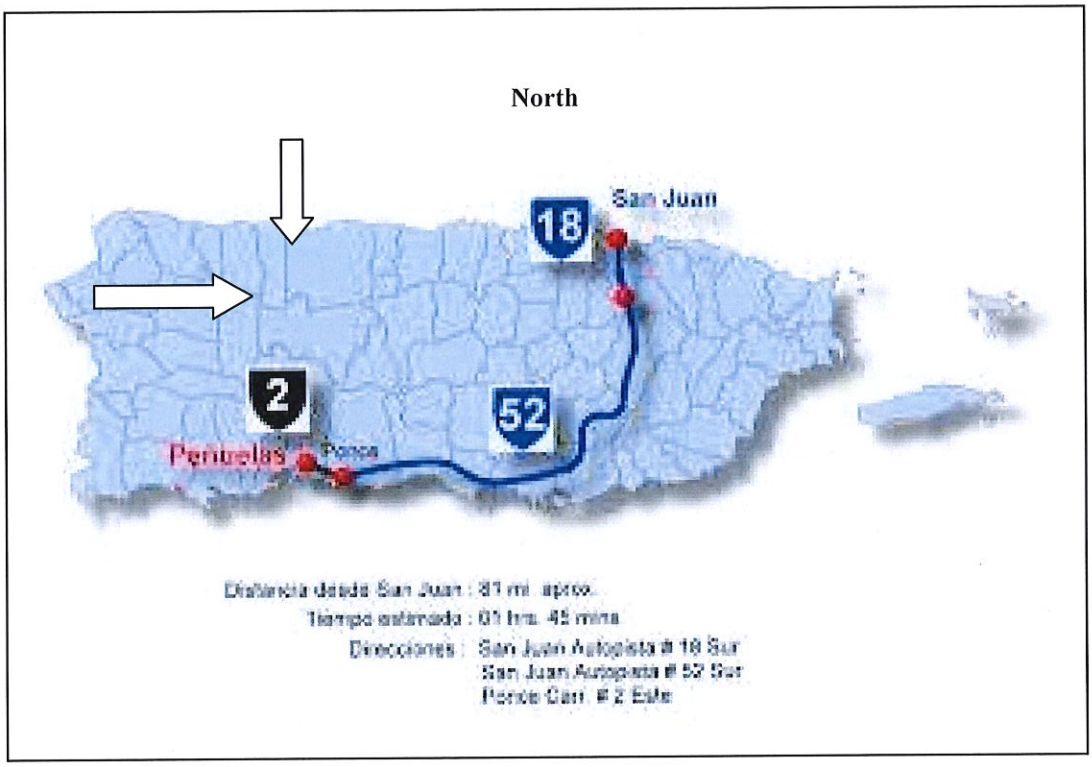
II. General Project Information

A. PROJECT LOCATION

This community, at Sector La Moca, is located on the road number 391 of Peñuelas Specifically in the Tallaboa Alta neighborhood of that town.

North

West



East

South

II. General Project Information

II. General Project Information

B. Description of Existing Conditions

Through the years, this community has been suffering problems from all sedimentation coming from every natural rain and flood, blocking the main entrance bridge endangering the lives of all citizens living in the area. People are also suffering the erosion of their back yards leaving homes unsafe. This is critical because the existing natural drainage is enlarging creating erosion problems.

Also through the PR-391 road you can find an existing bridge that receives the power of that water. This bridge has a 2' diameter pipe and a very small hole, the water does not flow through, creating floods and overflows on the road and surroundings.
Cord. X=172138.0084, y 224703.9130 and Lat: 18.05635256,
Lon: -66.69650229, Panel Floodway 72000C1640, Classification: SU, Cal, R-1.

II. General Project Information

In this neighborhood the new system of storm water drainage consists of 516 m. long. To manage storm water runoff we need to build a channel surrounding all sides with gabions along the existing community and natural channel for a 4-inch rain over a period of 24 hours. Every time, on a rain event, this channel receives 3' tall caudal except on a very heavy rain that it produce erosion on channel sides. The problem has been compounded by the rapid development east of the project site, which has resulted in increased runoff. Flooding occurs at least three or four times a year, affecting approximately 55 residences perpendicular to road PR-391.

II. General Project Information

C. Proposed Project Alternatives

a. Location:

This gabions channel is being constructed along a site located next to Sector La Moca Community. At least the channel will be perpendicular to Tallaboa River and La Moca III Community.

Alternative I

I. Proposed: Storm water Management Improvements

At the beginning of the construction, that receives all the sediments, rocks from all sizes and runoff coming from the higher parts, the construction of gabions is proposed (*Excavation and earthwork will be some of the activities they will realize.*) this gabions will reduce the transport of sediment that cause a plug at the end of the road leaving without communication to all citizens who live nearby and those who use the state road, and also will control erosion from people back yards. (*This project should be designed to meet a 500-year design standard.)*

The first step is to construct a new design bridge that will receive the impact of runoff water. The next step is to construct a retaining wall with gabions surrounded with a slope wall. This channel will reduce in a certain meters to a medium channel, (*a drawing detail is provided for the channels transition*). Open gabions channels have to be design with velocity reducers.

This project has to be evaluated by a Hydrology Engineer, Soil engineer, Environmental Engineer and Civil Engineer, Survey Plans, Topography Plans, Constructions Plans and other details has to be providing with a new finish level design & information. Some mitigation has to be performed during this project. Sector La Moca, existing road has to be redesign, arrange and widen to make safety turns, build new curbs and provide improved pavement street.

Total estimated cost amount for the proposed alternative $3,000,000.00

II. General Project Information

Alternative II

Proposed: Storm water Management Improvements

This project has a critical facility, we have to evaluate and improve the drainage and the existing road of this community.

This alternative consists of a construction of an open channel along the side of Sector La Moca to be connected to an existing bridge; this existing inlet is to reduce to receive all storm water.

This project has to be evaluated by a Hydrology Engineer, Soil engineer, Environmental Engineer and Civil Engineer, Survey Plans, Topography Plans, Constructions Plans and other details has to be providing with a new finish level design & information. Some mitigation has to be performed during this project. Sector Loyola's existing road has to be redesign with a better road and safety turns and with its gutters and asphalt material.

- **Total estimated cost amount for the proposed alternative 1,300,000.00**

(We do not consider this alternative because we have to evacuate run off water coming from the mountain and side lot under the existing State Road Bridge. This bridge has no capacity to receive water from any natural event. .) See photos included.

Alternative III

This alternative involves constructing a sediment filter with a retention pond, placing pipe 4' along the side of lots and connecting it to the existing pipe in order to collect all the runoff water. Arrange and widen existing road to improve the turn of cars entering to the community.
Total estimated cost amount for the proposed alternative

This project has to be evaluated by a Hydrology Engineer, Soil engineer, Environmental Engineer and Civil Engineer, Survey Plans, Topography Plans, Constructions Plans and other details has to be providing with a new finish level design & information. Some mitigation has to be performed during this project. Sector Loyola's existing road has to be redesign with a better road and safety turns and with its gutters and asphalt material.

- **Total estimated cost amount for the proposed alternative 1,900,000.00**

(We do not consider this alternative because we have to prepare DEA Manual (Environmental Department Administration System) that has to be approved with some agencies that it will and cause the delay for the construction of this project that needs a fast action.)

II. General Project Information

Alternative IV

No action.

- **Total estimated cost amount for the proposed alternative 3,500,000.00**

This project is located in a critical area it is perpendicular at an existing State Road PR-391,that is the one that receives all the sediments and runoff coming from the higher parts creating a plug where the road is impassable.

If the project is intended to protect a critical facility from flooding, the project should be designed to meet a 100-year design standard.

II. General Project Information

PROJECT PHOTOS

II. General Project Information

II. General Project Information

II. General Project Information

D. Project Drawings

A drawing detailing the proposed project must be included in this application. The drawing should be large enough to show the location of existing structures, proposed structures, and surrounding areas that may be impacted by the project, such as staging areas and temporary access points. Existing and proposed conditions may also be shown on separate drawings. The drawing may be sketched by hand; detailed engineering plans are not necessary, but can be submitted if available.

The following is a list of items that are typically included on project drawings and that should be included in drawings to the extent practicable. Some items may not be applicable for all projects. If exact dimensions or quantities are not known, provide estimates.

An example of a project drawing is provided in **Appendix B**. Include photographs of the proposed project site with your drawings as described later in this section.

1) ***Existing Conditions*** *(existing structures are generally drawn with a dashed line)*

- Waterway name and direction of flow
- Waterway or shoreline boundaries (water's edge)
- Wetland areas
- Right-of-way and property lines
- North arrow
- Existing structures (culverts, catch basins, drainage systems, retention ponds, etc.)
- Special use or preserve areas
- Vegetated or forest areas that would be impacted
- Adjacent roadways
- Existing buildings
- Existing utilities
- Any structure/land feature likely to be impacted by the proposed project

2) ***Proposed Conditions*** *(proposed structures are generally a solid line)*

- Location and dimensions of proposed structures
- Limits of proposed fill (est. quantity) or excavation (est. quantity)
- Project limits
- Limits of encroachment into wetlands or waterbodies
- Limits and dimensions of shoreline stabilization (est. quantity)
- Major clearing of vegetation (est. area)
- Any structure or land feature modified by the proposed project
- Drainage area(s) (attach drainage calculations if available)

E. Scope of Work

General Conditions

100 Hydrology Study
101 Soil Engineer
102 Environmental Engineer
103 Survey Engineer- Survey Plans & Topography Plan
104 Civil Engineer-Construction Plan & Logistic
105 Inspector
106 Municipality & State Permits

Site Work

200 Mobilization
201 Excavation & Earthwork
202 Grading
203 Channel construction

Storm Sewer

300 Catch Basin Construction
301 Pipe Installation
302 New pipe and Existing basin connection

Asphalt Pavement

400 New Street location
401 Concrete curb
402 Concrete gutter
403 Asphalt Pavement
404 Light duty pavement

Cyclone fence & Mitigation

500 Perimeter Security Fence
501 Green Mitigation

Environmental Consecuent

Alternative #1

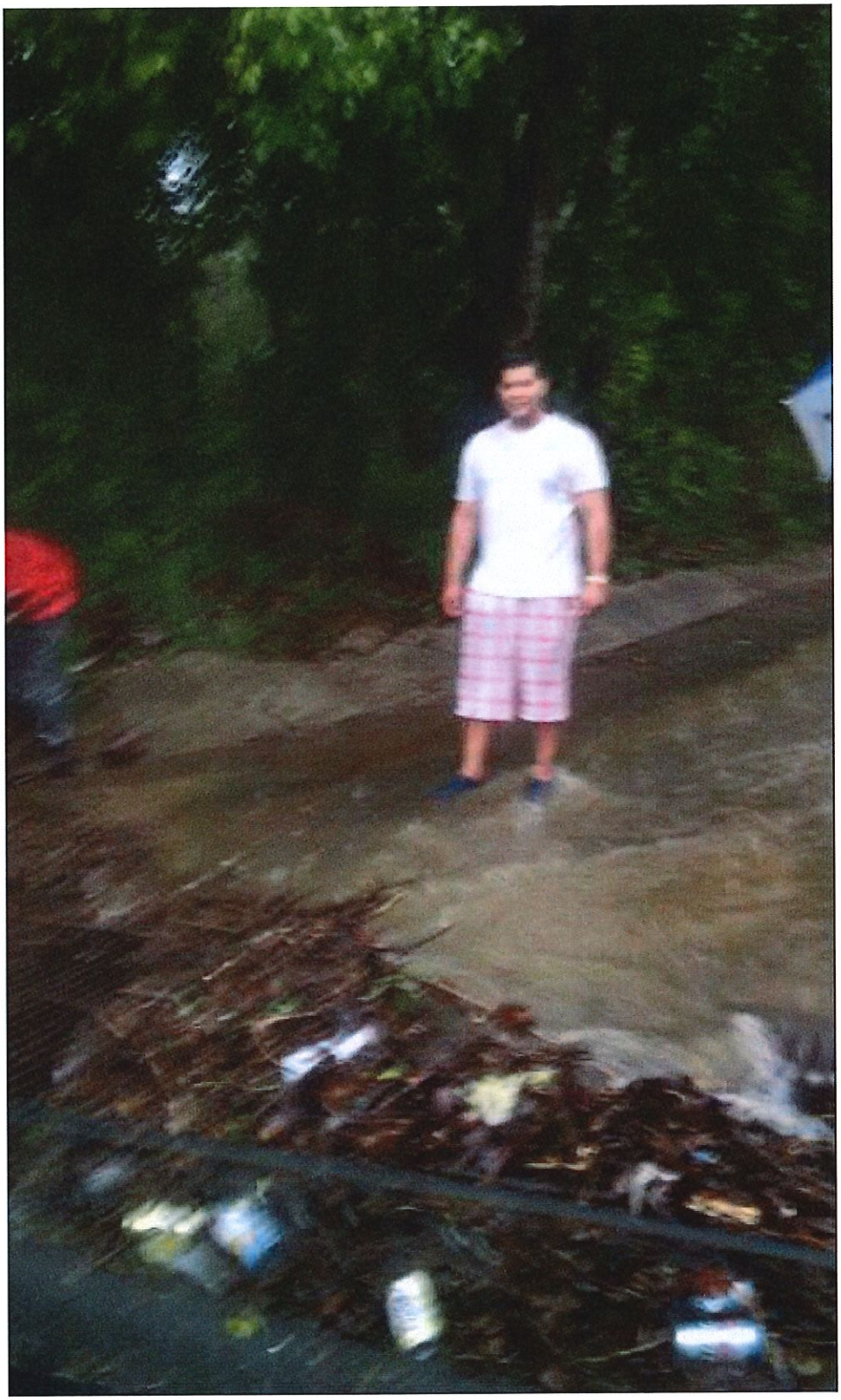
The projected time frame for completion is 2 years after the official date of approval. The following is a list of tasks, duration of each task, and projected end date.

Task	Duration
Engineering Analysis and Design	3 month
Permitting	6 month
Bidding Process	1 weeks
Award Bid	3 weeks
Excavation of basin, riprap placement	3 month
Construction	10 months
Grading, landscaping	1 month
Total estimated time for project completion	**2 years**

Timeline of work schedule measured in weeks *(optional)*

In this picture it can be seen all the sediments that were washed away by rain event at Road PR-132 blocked going from Peñuelas to Guayanilla.

A better view can be seen all the sediments that were washed away by rain event at Road PR-132 blocked going from Peñuelas to Guayanilla.



Another rain event shows flooding from Sector Loyola Main Street.

This portrait may be people in the community trying to grasp the damage occurring during rain event.

Preliminary Expense	50,000.00
Engineering Analysis and Design	100,000.00
Permitting	30,000.00
Excavation of basin, riprap placement	900,000.00
Construction	900,000.00
Grading, Asphalt, landscaping	70,000.00
Total estimated for project completion	**2,050,000**