

STORMWATER PHASE II PROGRAM

FOR

City of Pass Christian

HARRISON COUNTY, MISSISSIPPI

PREPARED FOR:



MISSISSIPPI DEPARTMENT OF
ENVIRONMENTAL QUALITY

PREPARED BY:



December 2009

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SECTION 1 EXECUTIVE SUMMARY

On behalf of City of Pass Christian is pleased to provide the City of Pass Christian Stormwater Phase II Program to the Mississippi Department of Environmental Quality (MDEQ). Through this plan the city will address water quality impairment due to pollution of stormwater runoff in response to the requirements of Phase II NPDES Regulations for Small MS4's. The firm Neel-Schaffer, Inc., along with city staff, have worked to develop this plan.

The issues to be addressed via the program are as follows:

1. Illegal Dumping and Improper Disposal of Household Hazardous Wastes, Automobile Wastes and Disposal of Litter and Debris
2. Erosion and Sedimentation Associated with Construction and Development
3. Leaking Individual On-site Wastewater Treatment Systems and Sewage Pollution
4. Impaired Waterbodies and TMDL Programs

The Program components include Public Education, Public Involvement, Illicit Discharges Detection and Elimination, Construction Site Runoff Controls, Post-Construction Runoff Controls, and Pollution Prevention/Good Housekeeping.

There are nine Sections in the City of Pass Christian Stormwater Phase II Program. The nine sections are as follows: Section 1 Executive Summary; Section 2 Public Education; Section 3 Public Involvement; Section 4 Illicit Discharge Identification and Elimination; Section 5 Construction Site Runoff Controls; Section 6 Post-Construction Site Runoff Controls; Section 7 Pollution Prevention, and Section 8 Impaired Waterbodies and TMDL.

The single point of contact for the City of Pass Christian BMP's and stormwater runoff management is:

- Gene Peralta unless noted otherwise Code Enforcement Office (228) 452-3316
- Mike Pavlisick: Public Works Director (228) 452-3308
- Willie Davis: Harbor Master (228) 452-5128.

SECTION 2 PUBLIC EDUCATION AND OUTREACH ON STORMWATER IMPACTS

General:

The City of Pass Christian will continue to implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce the pollutants.

Existing education materials will be utilized and distribute to the public. Pass Christian is currently using existing materials available through the *MS Non-Point Source Management Program*, *MDEQ*, *MDMR*, *USGS*, *MSU Cooperative Extension Program*, etc. **See Attachment A** for examples of education materials available.

Pass Christian will utilize the *Non-Point Education for Municipal Officials Project (NEMO)* to educate county officials on managing land use in order to “protect natural resources, community character and long-term economic well-being.” The program will target political officials and educate them on management and prevention of non-point source pollution. **See Attachment B** for details on NEMO.

PE Objective 1: Stormwater Education Program for General Public

Implement Educational Program Targeted for the General Public. Issues to be highlighted via the Educational Program are General Stormwater Management Concepts, Proper Disposal of Household Hazardous Wastes, and Proper Operation and Maintenance of Individual On-site Wastewater Treatment Systems.

BMP	Measurable Goals
<p><i>Distribution of Educational Materials</i></p>	<p>Distribute educational materials, after the storm, that address stormwater quality issues such as harmful impacts of improper disposal of HHW or improper operation and maintenance of individual on-site wastewater treatment systems once a year to all water customers and marinas year-round.</p>
	<p>Provide educational materials in lobbies of Public Buildings (City Hall, Public Works, and City Code Office)</p>
<p><i>Website Links</i></p>	<p>Maintain existing city website to educate people regarding water quality and stormwater management with a link titled “Water quality and stormwater management”. Special attention will be given to issues associated with household hazardous wastes. Website will be updated twice a year.</p>

PE Objective 2: Stormwater Education Program for Targeted Audiences

Implement Educational Program Targeted to Restaurant Owners, Automotive Repair and Maintenance Businesses, and Paint Shops Regarding Impacts of Improper Waste Disposal

BMP	Measurable Goals
<i>Business Owners Education</i>	Distribute educational materials “After the Storm”, once a year to 20 restaurant owners, automotive shops, and paint shops, automotive service facilities, parts stores, paint shops, and contractors. Distribute educational materials to septic system service companies and marina-slip boat owners, installation contractors, etc. once a year.

PE Objective 3: Stormwater Education Program for Contractors and Developers

Implement Educational Program Targeted to Contractors and Developers on Reducing Erosion and Sediment Transport from Construction Site Runoff and Proper Disposal of Construction Wastes.

BMP	Measurable Goals
<i>Provide Educational Materials to Developers and Contractors</i>	Continue to educate local contractors and developers through site plan review and building permit process. Code office will maintain list of contractors/developers who received training.
	Continue collaboration with CRMP/MDMR to improve educational programs geared towards green development, vegetative practices, the use of structural and nonstructural practices, and smart growth. City staff will attend CRMP meetings twice a year.
	Require each contractor working in Pass Christian to watch a video on EROSION AND SEDIMENT CONTROL ON CONSTRUCTION SITES before receiving building permit.

SECTION 3 PUBLIC INVOLVEMENT/PARTICIPATION

General:

City of Pass Christian will comply with state, tribal, and local public notice requirements when implementing a public involvement/participation program.

City of Pass Christian will utilize programs such as Storm Drain Stenciling Program. Details regarding these programs are located in **Attachment C**.

PI Objective 1: Public Involvement and Participation for General Public

Raise Public Awareness by Encouraging Public Participation and Involvement in Activities Related to Protection of Water Quality and Stormwater Runoff.

BMP	Measurable Goals
<p><i>Continue Collection Programs and Events (Approximately 2 per year)</i></p>	<p>Publicize HHW drop-off locations and collection days and events by placing flyers at City Hall, Library and Code Enforcement Office in conjunction with Harrison County collection days.</p>
	<p>Coordinate with local organizations and agencies to identify sponsors and team leaders to conduct storm drain stenciling and/or tributary signage. Twenty-five storm drains will be stenciled and mapped once a year in March.</p>
<p><i>Continue Participation in Cleanup Events</i></p>	<p>City will publicize location and date of cleanup events by placing flyers at City Hall, Library and Code Enforcement Office.</p>

PI Objective 2: Public Involvement and Participation for Targeted Audiences

Raise Awareness Regarding County Stormwater Management for Key Stakeholders, Selected Businesses and Targeted Audiences Such as Contractors and Developers.

BMP	Measurable Goals
<p><i>Stakeholder Outreach</i></p>	<p>Mail “Facts About Flooding, Flood Insurance and Development in Pass Christian, Mississippi” to citizens and stakeholder once a year in May.</p>
<p><i>Conduct Educational Training for Developers</i></p>	<p>Local contractors and developers will be educated through the building permit and site plan review process. EROSION AND SEDIMENT CONTROL ON CONSTRUCTION SITES must be viewed before a building permit is issued to a contractor or developer.</p>

SECTION 4 ILLICIT DISCHARGES IDENTIFICATION AND ELIMINATION

General:

City of Pass Christian will

- To detect and report illicit discharges. Water meter readers will be trained.
- Continue to maintain storm sewer system map showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls.
- Effectively prohibit, through ordinance or other regulatory mechanism, non-stormwater discharges into the city’s storm sewer system and implement appropriate enforcement procedures and actions.
- Continue to implement a plan to detect and address non-stormwater discharges including illegal dumping to the city’s system.
- Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

ID Objective 1: Storm Sewer Systems and Unsewered Areas

Maintain Map Depicting Storm Sewers, Outfalls, and Names and Locations of all Waters of the United States that Receive Discharges from those Outfalls.

BMP	Measurable Goals
<p><i>Map Storm Sewers and Map Unsewered Communities</i> <i>Mike Pavlisick: Public Works Director</i></p>	<p>Maintain a map of the storm sewer system and a map of all sewered areas in the City of Pass Christian to be used as a resource for targeting education and inspection campaigns for failing individual on-site wastewater treatment systems. Currently no on-site Wastewater Treatment Systems exist in the city limits of Pass Christian.</p>

ID Objective 2 Address Failing Individual On-Site Wastewater Treatment Systems

Support the Mississippi Department of Public Health in their Effort to Identify and Eliminate Failing Individual On-site Wastewater Treatment Systems Including Vessels Leasing or Renting Space in Marinas.

<p><i>Volunteer Self Inspection Program for Individual on-site wastewater treatment systems and Illicit Discharges</i></p>	<p>The City of Pass Christian has a Sewer Treatment System that collects all the households in the city limits. No septic systems are located within city limits.</p>
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<p>Visual Inspections for Failing Individual on-site wastewater treatment systems and Illicit Discharges Mike Pavlisick: Public Works Director</p>	<p>The City of Pass Christian has a Sewer Treatment System that collects all the households in the city limits. No septic systems are located within city limits.</p>
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ID Objective 3 Identify and Eliminate Illicit Discharges

Develop a program to identify and eliminate illicit discharges such as illegal dumping, illegal cross connections, etc.

<p>Implement an Inspection and Enforcement Program Mike Pavlisick: Public Works Director</p>	<p>A dry weather screening program has been developed to Eliminate Illicit Discharges. During the cities scheduled ditch cleaning employees will monitor for illicit discharges. Three to four miles of ditch will be cleaned annually and noted on a city map.</p>
<p>Continue to Train City Employees Mike Pavlisick: Public Works Director</p>	<p>Train city employees on how to identify illicit discharges such as oil and grease from restaurants, oil and automotive fluids from auto shops, illegal cross connections, and improper disposal of household hazardous wastes. Train city employees on proper response to complaints and proper procedures of notification of violation and action required. Training should be provided to all new city and employees and a refresher training course should be provided once per month.</p>

ID Objective 4 Ordinance

Review and revise as necessary, current ordinances regarding illicit discharges.

<p>Ordinances to Allow Inspections and Penalize Violations</p>	<p>Enforce City ordinance to outlaw all illicit discharges and establish private property access for inspections of on-site sewage treatment measures, and sewer & storm drain connections. Establish a requirement for an inspection of individual on-site wastewater treatment system inspection on new developments before utilities are turned on. Ordinance will be revised in First Quarter of 2010.</p> <p>Maintain ordinance and enforce regulations with penalties to include repair of problems, monetary fines, restitution, and publishing names of violators. (Revised First Quarter of 2010)</p>
<p>Construction Plan Review and Construction Site Inspection in Ordinance</p>	<p>Continue process for conducting site plan review and construction site inspections to assure proper sewer and storm drain connections.</p>

SECTION 5 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

General:

Through the City of Pass Christian's Land Development Ordinance (LDO) all land disturbing activities are required to be approved by the City of Pass Christian before any work commences. This provides the City an opportunity to implement erosion and sediment control BMP's for all land disturbing activities regardless of the size, as needed, which reduces stormwater runoff pollutants in land disturbance activities. The City has developed requirements through the LDO, standard details and City policy checklists for land disturbance activities either require a review by the city engineer to ensure:

1. Construction site operators implement appropriate erosion and sediment control BMPs.
2. Construction site operators control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.
3. Engineers, Architects and Designers incorporate Stormwater Pollution Prevention Plans in construction drawings.
4. Implement procedures for site inspection and enforcement of control measures.

Site Inspection and Enforcement Process:

Runoff from construction sites has been identified as a major issue concerning stormwater runoff and water quality. Along with an available training program, requiring review and approval of written Erosion and Sediment Control plans, and self-inspection and reporting, the program raises awareness of construction site stormwater runoff management. Enforcing Erosion and Sediment Control standards will be accomplished by the following process:

- The site plan reviews will be conducted by the City Engineer. City Engineer and staff will make sure that adequate and proper construction and post-construction BMP's are to be implemented on the site plan.
- Copies of all necessary outside agency permits will be required to be submitted to the Code Enforcement Office prior to issuance of building permit or approval to begin work. This includes, but is not limited to, MDEQ and Army Corps of Engineers.
- A Small or Large Construction General Permit submission will also be required prior to a site plan being approved. All lots within a Large Construction General Permit will be required to submit a Registration Form for Residential Lot Coverage prior to receiving a building permit.
- All contactors and developers will be required to watch a training video prior to issuance of a building permit.
- A building code enforcement officer will conduct inspections of erosion and sediment controls on construction sites during their normal routine inspections to identify if proper BMP's have been implemented and properly maintained. The contractor will be required to call in to code office and request a BMP inspection prior to starting construction. The code officer will sign-off if BMP's are installed correctly.

CS Objective 1 Control Erosion and Sedimentation Associated with Construction Sites

Implement Construction Site Runoff Control Program to Reduce Erosion and Sedimentation at Construction Sites Between One and Five Acres.

BMP	Measurable Goals
<i>Continue Current Practices</i>	Currently requires contractor to provide vegetative cover within three months of land disturbance activities.
<i>Construction Site ESC Ordinance</i>	Current City Ordinance will be revised in first Quarter of 2010.
<i>Enforce Program to Require ESC Plan</i>	Enforce program to require submittal of a written ESC plan for 1-5 acres construction sites. Plan should outline site drainage patterns, plans for proper handling and disposal of all construction debris, and proposed controls.
<i>Construction Site Inspections</i>	Enforce program for construction site inspections of all construction sites 1-5 acres will occur during regular building code inspections.

SECTION 6 POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

General:

City of Pass Christian will

- Implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into your MS4. The program will ensure that controls are in place that would prevent or minimize water quality impacts.
- Implement strategies that include a combination of structural and/or nonstructural BMPs appropriate for the City of Pass Christian.
- Use city ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under state, tribal, or local law.
- Ensure adequate short-term and long-term operation and maintenance of BMP's for transfer of responsibility.

Verification shall include one or more of the following as applicable:

- The developer's signed statement accepting responsibility for maintenance until the maintenance responsibility is legally transferred to another party; and/or
- Written conditions in the sales or lease agreement that require the recipient to assume responsibility for maintenance; and/or
- Written conditions in project conditions, covenants and restrictions for residential properties assigning maintenance responsibilities to a home owners' association, or other appropriate group, for maintenance of structural and treatment control management practices; and/or
- Any other legally enforceable agreement that assigns permanent responsibility for maintenance of structural or treatment control management practices.

PC Objective 1: Control Stormwater Runoff Post-Construction Areas and Re-Developed Areas.

Implement a Program that Addresses Stormwater Management for Redevelopment and Post-Construction Designs

BMP	Measurable Goals
<i>Continue Current Practices</i>	By requiring contractor to provide vegetative cover within three months of land disturbance activities.

<p><i>Review Existing Ordinances</i></p>	<p>Current City Ordinance will be revised in first Quarter of 2010.</p>
<p><i>Stormwater Management Plan Review</i> <i>Bob Escher: City Engineer</i></p>	<p>Review the required post-construction stormwater management plan that identifies the responsible agencies, the standard review process and schedule, and emphasizes the use of vegetative measures, minimization of impervious area, and low-impact development. Enforce a final checklist for developers to complete as to what post-construction best management practices are to be used.</p>
<p><i>Runoff Management Standards for Post-Construction</i></p>	<p>Post-construction stormwater runoff management will be included in the revised city Stormwater Ordinance.</p>
<p><i>Scheduled Inspections</i></p>	<p>Implement and maintain a program with schedules, locations, and responsible parties for conduction inspections of all stormwater runoff measures in the city.</p>
	<p>Implement inspection program to conduct at least semi-annual inspections and reporting of observations and recommendations.</p>

SECTION 7 POLLUTION PREVENTION & GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

General:

City of Pass Christian will

- Implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. Using training materials that are available from EPA, your state, tribe, or other organizations, your program must include employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance.

PP Objective 1: Ensure Good Housekeeping Procedures are in Place

Implement Programs to Reduce Stormwater Runoff Impacts from Municipal Operations and Ensure Proper Operation and Maintenance of Stormwater Controls.

BMP	Measurable Goals
<p><i>Employee Training</i> <i>Mike Pavlisick: Public Works Director</i></p>	<p>Continue training program using available materials to provide education to municipal employees on installation, operation, inspection, and maintenance of all stormwater management practices in the city. The program includes inspection forms and schedules.</p>
	<p>Continue program training to all appropriate city personnel at least annually.</p>
<p><i>Internal Reporting</i></p>	<p>Maintain program for reporting results on facility inspections, storm drain system inspections, and maintenance activities by using inspection forms and schedules.</p>
<p><i>Storm Drain Cleaning</i> <i>Mike Pavlisick: Public Works Director</i></p>	<p>Maintain a map of all storm drains and conveyances showing major outfalls and structural controls to be used as a resource for scheduling and conducting inspections and identifying problem areas.</p>
	<p>Maintain and implement scheduled inspections and cleaning of all storm drains and conveyances as well as reporting results of inspections and maintenance activities.</p>
<p><i>Stormwater Inspections</i> <i>Mike Pavlisick: Public Works Director</i></p>	<p>Conduct regular inspections of stormwater runoff management at all municipal facilities. Program includes responsibilities of involved parties and protocol for conducting and reporting results.</p>

SECTION 8 IMPAIRED WATERBODIES AND TOTAL MAXIMUM DAILY LOADS

Several waterbodies that receive stormwater runoff from the City of Pass Christian have been identified by the MDEQ as impaired. Additionally, many of these impaired waterbodies have had Total Maximum Daily Loads (TMDLs) developed for certain parameters. A list of impaired streams segments and approved TMDLs in Harrison County or near the City of Pass Christian is included below. No waste load allocations (WLAs) associated with the TMDLs have been set for non-point discharges. The BMPs proposed in this stormwater management program have been strategically selected to provide management of stormwater discharges to those impaired waterbodies within the permittees' areas. A discussion of those BMPs intended to control the discharge of pollutants of concern and ensure that discharges will not cause exceedances of water quality standards is provided below.

The BMPs proposed to meet the public education component requirements of the permit have been selected to raise public awareness regarding water quality impairment due to failing septic systems. Areas within the watershed of impaired waterbodies will be targeted first for the intensive distribution of educational materials and associated measures. A map of the sewered areas has been created to identify the unsewered communities and associated major stormwater outfalls. Currently there are no unsewered areas in Pass Christian.

The public education program will also educate developers adverse impacts associated with loss of vegetation and increasing impervious areas associated with many common development practices. The BMPs proposed to meet requirements of the public involvement/participation component have been selected to encourage public participation in identifying and eliminating illicit discharges, and erosion from construction sites. Education efforts will focus on alternative methods for construction and post-construction stormwater management that encourage low-impact development measures such as vegetative measures, reduced impervious area, reversed elevation for parking lot landscaping, etc.

The BMPs proposed to meet the requirements of the construction site and post-construction stormwater management minimum measures have been selected to address problems associated with urban non-point source runoff such as increased impervious area and loss of vegetation. Measures such as site plan reviews requiring a written stormwater management plan for construction and post-construction will allow the municipalities to guide development and encourage the use of structural and non-structural controls on a case-by-case basis. This case-by-case consideration will involve evaluation of the potential pollutants and the quality of the receiving waterbody. More stringent standards for managing stormwater runoff will be applied to those development projects that have the potential to contribute pollutants of concern to an impaired waterbody.

The BMPs proposed to meet the requirements of the good housekeeping/pollution prevention component of the stormwater management program have been selected to address the subjects of employee training and inspection and maintenance of BMPs. It is important for municipal employees to be well educated on the proper operation and maintenance of the BMPs employed throughout the city order to implement a meaningful and effective inspection and maintenance program. Inspection and maintenance of BMPs is paramount to the effective function of the BMPs.

Inspection and maintenance programs will initially be focused within the watersheds of impaired waterbodies.

SUMMARY OF 2008 303(d) LIST OF IMPAIRED WATERBODIES IN HARRISON COUNTY AND NEAR THE CITY OF PASS CHRISTIAN

Monitored Segments

Waterbody	Location	Impaired Use	Cause
Pass Christian East Beach	Hwy 90 at Market Street to East Markham Drive	Recreation	Pathogens
Long Beach	Near Oak Gardens to Girard	Recreation	Pathogens

STORMWATER PROGRAM ATTACHMENTS

Attachment A

Mississippi Non-Point Source Management Program Education Materials

The Mississippi Non-Point Source Management Program establishes a statewide strategic plan to address current and future non-point source pollution. The program encourages a watershed approach and has the following mission: “to conserve and improve state waters, for man’s use and the sustainment and propagation of wildlife and aquatic life, through focused research, responsible regulation, widespread education, and cooperation with other agencies and the public.”

Education Materials to be used by City of Pass Christian:

- *Planning and Design Manual for the Control of Erosion, Sediment and Stormwater*
- *How to Conduct a Storm Drain Stenciling Program* brochure
- *Mississippi Environment* magazine
- *Animal Waste Control Facility Improving Water Quality*
- *Field Manual for Erosion and Sediment Control on Construction Sites in Mississippi – (Published by DEQ)*
- *Stormwater and the Construction Industry (Poster)*
- *After the Storm* brochure
- *Link to EPA and MDEQ Website*
- *Stormwater Outreach Materials, 2003, DVD*

Contact:

Mississippi Department of Environmental Quality
Office of Pollution Control
State NPS Coordinator
(601) 961-5171

**Attachment B
NEMO – Non-Point Education for Municipal Officials Project**

NEMO is a program dedicated to the protection of natural resources. The key focus of the program is to educate municipalities and counties on managing land use in order to protect natural resources, community character, and long-term economic well-being. The NEMO program targets political officials making decisions on land use within municipal governments and provides an education of prevention regarding non-point source pollution.

The original program began in Connecticut, and the group consisted of professionals such as biologist, GIS specialist, water quality specialist, marine specialist, and other scientific specialties from the University of Connecticut. NEMO was originally the pilot program to assist the coastal towns of Connecticut in managing the issue of non-point source pollution. Today NEMO has assisted nearly all the 169 municipalities in the state of Connecticut and has received numerous awards for their activities.

NEMO began in the state of Connecticut; however, the USDA Cooperative State Research, Education, and Extension service as well as the EPA Office of Water support it. NEMO offers an advisory panel to help provide solutions and ideas for other groups nationally. The Mississippi Department of Environmental Quality is promoting the NEMO Program and will work with counties throughout the state

NEMO provides decision-making groups a source of information that is non-partisan and is influenced by sound scientific practices as opposed to political, advocacy, or budgetary persuasions.

Contact:

Non-Point Education for Municipal Officials
Jim Gibbons, Project Director
jgibbons@canr.cag.uconn.edu
<http://www.nemo.uconn.edu>

Mississippi Department of Environmental Quality
Office of Pollution Control
James MacClellan, Environmental Engineer
(601) 961-5376

Attachment C

Storm Drain Stenciling Program

Storm drain stenciling programs involve labeling storm drain inlets with painted message. Messages heed warning to citizens not to dump pollutants into the drains. Such programs should be focused in areas where sensitive waters or high pollutant loading from storm drains has been identified. The benefits of a storm drain stenciling programs are that they are effective, inexpensive, and easy to implement. Volunteer groups are often enlisted to assist with the stenciling activities. Several sources exist for stenciling resources, such as sources for materials and example projects from different areas.

There are many benefits of the storm drain stenciling programs. They are Effective, inexpensive, and easy to implement. Costs are generally low and depend on the type of signage used.

There are a few limitations. There is safety concern. If spray painting – make sure standards are met for air quality. Another limitation is that the drains must repainted after years of weather and traffic.

Contact:

Adopt-A-Stormdrain
(310) 374-8212
adoptastormdrain.com

Attachment D

2010 Schedule