

## City of Terrell Hills Storm Water Management Plan

**As a regulated Urbanized MS4 community, the City of Terrell Hills is required to develop a Storm Water Management Plan (SWMP). The following plan will constitute the required SWMP. Continual monitoring of the plan will occur to assure that the plan is fully Implemented, to verify the impact to area Storm water, and efforts will be made to enhance the plan as verifiable data becomes available.**

### Definitions:

**Best Management Practices (BMPs)** - Schedules of activities, prohibitions of practices, maintenance procedures, structural controls, local ordinances, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spills or leaks, waste disposal, or drainage from raw material storage areas.

**Construction Site Operator** - The person or persons associated with a small or large construction project that meets either of the following two criteria:

- (a) the person or persons that have operational control over construction plans and specifications (including approval of revisions) to the extent necessary to meet the requirements and conditions of this general permit; or
- (b) the person or persons that have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a storm water pollution prevention plan for the site or other permit conditions (e.g. they are authorized to direct workers at a site to carry out activities required by the Storm Water Pollution Prevention Plan or comply with other permit conditions).

**Discharge** - When used without a qualifier, refers to the discharge of storm water runoff or certain non-storm water discharges as allowed under the authorization of this general permit.

**Final Stabilization** - A construction site where either of the following conditions are met:

- (a) All soil disturbing activities at the site have been completed and a uniform (e.g. evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.
- (b) For individual lots in a residential construction site by either:
  - (1) the homebuilder completing final stabilization as specified in condition (a) above; or

- (2) the homebuilder establishing temporary stabilization for an individual lot prior to the time of transfer of the ownership of the home to the buyer and after informing the homeowner of the need for, and benefits of, final stabilization.
- (c) For construction activities on land used for agricultural purposes (e.g. pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to a surface water and areas which are not being returned to their preconstruction agricultural use must meet the final stabilization conditions of condition (a) above.

**Illicit Connection** - Any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

**Illicit Discharge** - Any discharge to a municipal separate storm sewer that is not entirely composed of storm water, except discharges pursuant to this general permit or a separate authorization and discharges resulting from emergency fire fighting activities.

**Large Construction Activity** - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than five (5) acres of land. Large construction activity also includes the disturbance of less than five (5) acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than five (5) acres of land. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of a ditch, channel, or other similar storm water conveyance. Large construction activity does not include the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.

**Maximum Extent Practicable (MEP)** - The technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in storm water discharges that was established by CWA • 402(p). A discussion of MEP as it applies to small MS4s is found at 40 CFR • 122.34.

**Notice of Change (NOC)** - Written notification from the permittee to the executive director providing changes to information that was previously provided to the agency in a notice of intent.

**Outfall** - For the purpose of this permit, a point source at the point where a municipal separate storm sewer discharges to waters of the United States (U.S.) and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances that connect segments of the same stream or other waters of the U.S. and are used to convey waters of the U.S.

**Redevelopment** - Alterations of a property that changed the footprint of a site or building in such a way that there is a disturbance of equal to or greater than one (1) acre of land. This term does not include such activities as exterior remodeling.

**Small Construction Activity** - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one (1) acre and less than five (5) acres of land. Small construction activity also includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one (1) and less than five (5) acres of land. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of a ditch, channel, or other similar storm water conveyance. Small construction activity does not include the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.

**Small Municipal Separate Storm Sewer System (MS4)** – refers to a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by the United States, a state, city, town, borough, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under • 208 of the CWA; (ii) Designed or used for collecting or conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of a publicly owned treatment works (POTW) as defined at 40 CFR • 122.2; and (v) Which was not previously authorized under a NPDES or TPDES individual permit as a medium or large municipal separate storm sewer system, as defined at 40 CFR §§122.26(b)(4) and (b)(7). This term includes systems similar to separate storm sewer systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. This term does not include separate storm sewers in very discrete areas, such as individual buildings. For the purpose of this permit, a very discrete system also includes storm drains associated with certain municipal offices and education facilities serving a nonresidential population, where those storm drains do not function as a system, and where the buildings are not physically interconnected to an MS4 that is also operated by that public entity.

**Storm Water and Storm Water Runoff** - Rainfall runoff, snow melt runoff, and surface runoff and drainage.

**Storm Water Associated with Construction Activity** - Storm water runoff from an area where there is either a large construction activity or a small construction activity.

**Storm Water Management Program (SWMP)** - A comprehensive program to manage the quality of discharges from the municipal separate storm sewer system.

**Structural Control (or Practice)** - A pollution prevention practice that requires the construction of a device, or the use of a device, to capture or prevent pollution in storm water runoff. Structural controls and practices may include but are not limited to: wet ponds, bio-retention, infiltration basins, storm water wetlands, silt fences, earthen dikes, drainage swales, vegetative lined ditches, vegetative filter strips, sediment traps, check

dams, subsurface drains, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

**Waters of the United States** - (from 40 CFR • 122.2) Waters of the United States or waters of the U.S. means:

- (a) all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (b) all interstate waters, including interstate wetlands;
- (c) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds that the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
  - (1) which are or could be used by interstate or foreign travelers for recreational or other purposes;
  - (2) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - (3) which are used or could be used for industrial purposes by industries in interstate commerce;
- (d) all impoundments of waters otherwise defined as waters of the United States under this definition;
- (e) tributaries of waters identified in paragraphs (a) through (d) of this definition;
- (f) the territorial sea; and
- (g) wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR • 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

## **Commonly Used Acronyms**

BMP	Best Management Practice
CFR	Code of Federal Regulations
CGP	Construction General Permit, TXR150000
CWA	Clean Water Act
DMR	Discharge Monitoring Report
EPA	Environmental Protection Agency
FR	Federal Register
IP	Implementation Procedures
MCM	Minimum Control Measure
MSGP	Multi-Sector General Permit, TXR050000
MS4	Municipal Separate Storm Sewer System
NOC	Notice of Change
NOD	Notice of Deficiency
NOI	Notice of Intent
NOT	Notice of Termination (to terminate coverage under a general permit)
NPDES	National Pollutant Discharge Elimination System
SWMP	Storm Water Management Program
SWP3, SWPPP	Storm Water Pollution Prevention Plan
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TPDES	Texas Pollutant Discharge Elimination System
TWC	Texas Water Code

**A. Control Measures**

1. Public Education and Outreach on Storm Water Impacts

(a) A public education program shall be developed and implemented to distribute educational materials to the community or conduct equivalent outreach activities that will be used to inform the public. The City of Terrell Hills will consider the following groups and shall provide justification for any listed group that is not included in the program:

- (1) residents;
- (2) visitors;
- (3) public service employees;
- (4) businesses;
- (5) commercial and industrial facilities; and
- (6) construction site personnel.

(b) BMPs to accomplish this requirement shall include;

- (1) Promotion of Water Conservation practices for Homeowners
- (2) Development of Storm water educational materials
- (3) Develop a page for the City's website dedicated to educational information on Storm water.
- (4) Seek cooperative agreements with area stakeholders in the promotion of Storm water protection (Examples will include San Antonio Water System, Edwards Aquifer Authority and the Alamo Area Council of Governments).
- (5) Develop a training program for public employees of the City
- (6) Develop educational materials for construction projects both public and private that occur in the City.

(7) Educational articles will be included in the City's Newsletter distributed to all properties in the City.

(c) Implementation Schedule

(1) The development of a webpage shall be accomplished by July 31, 2008 and shall be updated a minimum of quarterly.

(2) Educational material development will occur through out the permit period with the first brochure drafts available January 31, 2009 including those targeting the following audiences; The General public, Construction project employees, and Public Employees.

(3) Public Employee training program shall commence on or after July 31, 2009.

(4) Educational articles shall be included in the City Newsletter with the first Newsletter that is published after July 31, 2008.

(5) Exploring possible Cooperative agreements will continue through the entire permit period and shall be included in future meetings commencing on or after January 31, 2008.

2. Public Involvement/Participation

(a) The City of Terrell Hills shall comply with any state and local public notice requirements when implementing a public involvement/participation program.

(b) BMPs to accomplish this requirement shall include;

(1) Holding Public Hearings

(2) Coordinate with area groups (Examples: Local Garden Clubs and Scouting Organizations doing community projects).

(3) Provide contact information on the City's Website for both input concerning the SWMP and notification of both comment opportunities and educational .

(c) Implementation Schedule

(1) A minimum of one (1) Public Hearing will be held by July 31, 2008 and as often as required either by law or as the public input may indicate as appropriate.

(2) Coordination with community groups shall be ongoing throughout the permit period and has been ongoing since January 2007.

(3) The links for providing public input and notice shall be activated as soon as practicable (see public education section).

3. Illicit Discharge Detection and Elimination

(a) Illicit Discharges

The City of Terrell Hills as part of the SWMP shall develop a program to detect and eliminate illicit discharges to the small MS4. BMPs to accomplish this requirement shall include;

(1) Detection

(a) The City started attempting to identify illicit discharges as part of the infrastructure improvement program implemented in 1992. The City shall continue to identify these discharges by;

(1) When flow is noted on the streets or drainage facilities, city employees must attempt to identify the source and determine whether it is an illicit discharge.

(2) During inspection of drainage facilities, crews are to be aware of the potential for illicit discharges.

(3) The Building Department through their inspection services shall monitor and be aware for potential illicit discharges.

(4) City crews shall use the City pipe camera equipment to assist in verifying whether illicit connections are made to the storm water system.

(2) Elimination

The SWMP shall include appropriate enforcement procedures for removing the source of an illicit discharge.

(a) The City has enacted several Ordinances that directly or indirectly impact storm water. These include;

Ordinance#1250 Plumbing Code

Ordinance#1069 Water Conservation

And the Franchise agreements with San Antonio

Water System Ordinance# 254 as amended May 10,  
1999.

(b) The City shall enact an Ordinance that specifically addresses storm water protection including construction activities.

(b) Allowable Non-Storm Water Discharges

Non-storm water flows listed in and in the Environmental Protection Agencies rules and in the general permit issued by the TCEQ and identified as allowable discharges shall not be considered as an illicit discharge requiring elimination. All discharges not listed shall be reviewed on a case by case basis to determine if the discharge can reasonably be expected to contribute significant sources of pollutants. During the permit period, the City shall develop a comprehensive list of allowable non-storm water discharges.

(c) Storm Sewer Map

(1) A map of the storm sewer system shall be developed and will include the following:

(i) the location of all outfalls;

(ii) the names and locations of all waters of the U.S. that receive discharges from the outfalls.

(d) Implementation Schedule

(1) City employees currently are required to identify the source of waters found to be running on City streets and in the storm water system. This practice shall be continued and resources identified for tracking these efforts.

- (2) The City Building Department currently inspects projects that include plumbing or drainage systems that might impact the storm water system. They will continue to conduct these inspections.
- (3) City crews will continue to seek out illicit discharges with;
  - a. Dye tests,
  - b. Use of the City pipe camera
  - c. And visual inspections where practicable.
- (4) A storm Water Ordinance shall be developed by January 31, 2010.
- (5) A map of the Storm Water System shall be completed and filed at the City Hall by January 31, 2011.
- (6) A full list of allowable non-storm water discharges shall be developed as part of the Storm Water Ordinance by January 31, 2010.

4. Construction Site Storm Water Runoff Control

As part of the Storm Water Ordinance requirement found in section 3 above, the City will include provisions that regulate Construction Site Runoff and controls to reduce or eliminate such runoff. The Ordinance will include;

- a) The development and implementation of regulatory mechanisms to require erosion and sediment controls, as well as sanctions to ensure compliance.
- (b) Requirements for construction site contractors to, at a minimum:
  - (1) implement appropriate erosion and sediment control BMPs; and
  - (2) control waste such as discarded building materials, concrete truck washout water, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.
- (c) The City will develop procedures for:
  - (1) site plan review which incorporate consideration of potential water quality impacts;

- (2) receipt and consideration of information submitted by the public; and
- (3) site inspection and enforcement of control measures to the extent allowable under state and local law.
- (4) provide space on the City's website for education and training for construction site operators.

(d) Implementation Schedule

- (1) The majority of this section will be implemented through the Storm Water Ordinance that will be developed and adopted by January 31, 2010.
- (2) Space on the City Website will be made available by July 2008 to start the educational process.

5. Post-Construction Storm Water Management in New Development and Redevelopment

The City will develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre of land, including projects less than one acre that are part of a larger common plan of development or sale that will result in disturbance of one or more acres, that discharge into the small MS4. This program shall include but not be limited to;

- (a) Development and implementation strategies which include a combination of structural and/or non-structural BMPs appropriate for the community. The contractor may select appropriate BMP's for review and approval by the City;
- (b) Use an ordinance to address post-construction runoff from new development and redevelopment projects to the extent allowable under state and local law; and
- (c) Ensure adequate long-term operation and maintenance of BMPs.
- (d) Implementation Schedule

(1) This section will be implemented through the Storm Water Ordinance that will be developed and adopted by January 31, 2010.

6. Pollution Prevention/Good Housekeeping for Municipal Operations

(a) Good Housekeeping and Best Management Practices (BMPs)

Housekeeping measures and BMPs shall be identified and implemented with the goal of preventing or reducing pollutant runoff from municipal operations. These shall include;

- (1) park and open space maintenance shall include;
  - (a) Minimizing the use of fertilizers, pesticides and herbicides,
  - (b) When the use of fertilizers, pesticides or herbicides are called for carefully following the manufacturers recommendations,
  - (c) The use of xeriscaping to minimize water usage and the potential for water run-off,
  - (d) The use of mulching to provide nutrients in lieu of fertilizers and minimize water usage.
- (2) street, road, or highway maintenance shall include;
  - (a) Developing maintenance and repair plans that take into consideration designing Storm Water Protection.
- (3) fleet and building maintenance;
- (4) storm water system maintenance;
- (5) new construction and land disturbances;
- (6) municipal parking lots;
- (7) vehicle and equipment maintenance and storage yards;

(b) Training

A training program will be developed for all employees responsible for municipal operations subject to the pollution prevention/good housekeeping program. The training program will include training materials directed at preventing and reducing storm water pollution from municipal operations. Materials may be developed, or obtained from the EPA, states, or other organizations and sources. Examples include;

(1) MSDS sheets for all cleaners, lubricants, pesticides and items used in the day to day operations shall be reviewed and used in the training program.

(2) BMP pamphlets developed by the EPA shall be utilized in the training program.

(3) Specific training shall be developed to help the employees identify potential sources of contamination and how to prevent said contamination.

(c) Structural Control Maintenance

Several structural controls have been installed in recent drainage projects. These include sediment catches and screens to reduce and/or prevent suspended solids from entering area waterways. To maintain the effectiveness of these structural controls the City shall;

(1) ensure proper maintenance activities that include;

(a) periodic cleaning of structural controls,

(2) develop maintenance schedules that include;

(a) quarterly inspection of structural controls,

(b) inspection of structural controls after any rain event of one inch or more.

(d) Disposal of Waste

All waste removed from the City's structural controls shall be properly disposed of based on the classification of the waste whether removed by City crews or those of contractors. These wastes shall include;

(1) dredge spoil;

(2) accumulated sediments; and

(3) floatables.

(e) Implementation

- (1) The City started implementing the cleaning and proper disposal of waste from structural controls in the spring of 2004.
- (2) The City will develop a written procedure to include inspection schedules and record maintenance by August of 2009.
- (3) A comprehensive training program for City Employees will be developed by August 2009.

## **Resources**

### **Texas Commission on Environmental Quality**

**Municipal Separate Storm Sewer System (MS4) General Permit**

**Draft SWMP Review Worksheet**

**Website**

**[www.tceq.state.tx.us/permitting/water\\_quality/stormwater/WQ\\_ms4\\_AIR.html](http://www.tceq.state.tx.us/permitting/water_quality/stormwater/WQ_ms4_AIR.html)**

### **Environmental Protection Agency**

National Menu of Stormwater Best Management Practices

**<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm>**

Public Education and Outreach on Stormwater Impacts Fact Sheet

Illicit Discharge Detection and Elimination Fact Sheet

Pollution Prevention/Good Housekeeping for Municipal Operations Fact Sheet

Construction Site Stormwater Runoff Control Fact Sheet

Pollution Prevention/Good Housekeeping for Municipal Operations Fact Sheet

### **City of Terrell Hills**

**City Ordinances;**

**No. 254, No. 1069, No. 1250**

