



*Prepared for:*

**The City of Rolling Hills**  
2 Portuguese Bend Road  
Rolling Hills, CA 90274

# City of Rolling Hills

## Non-Storm Water Screening and Monitoring Program

*Prepared by:*

**Geosyntec**   
consultants

engineers | scientists | innovators

2100 Main Street, Suite 150  
Huntington Beach, CA 92648  
Telephone: (714) 969-0800  
Fax (714) 969-0820  
[www.geosyntec.com](http://www.geosyntec.com)

Project Number: HSW1398B

November 2014



## TABLE OF CONTENTS

	<u>Page</u>
1. INTRODUCTION .....	1
2. NON-STORM WATER SCREENING AND MONITORING .....	2
2.1 Background.....	2
2.2 Canyon Screening and Identifying Canyons with Significant Non-Storm Water Discharges .....	3
2.3 Inventory of Monitored Canyons .....	5
2.4 Prioritization of Monitored Canyons .....	5
2.5 Source Identification.....	6
2.6 Monitoring .....	7
2.7 Reporting .....	8
3. SUMMARY OF ONGOING TMDL COMPLIANCE MONITORING.....	8
3.1 Machado Lake Nutrient TMDL Monitoring for Palos Verdes Peninsula.....	8
3.2 Machado Lake Pesticides and PCBs Monitoring .....	9
3.3 Santa Monica Bay Beaches Bacteria TMDL Monitoring .....	9
3.4 Machado Lake Trash TMDL Monitoring.....	9
3.5 Santa Monica Bay Debris TMDL Monitoring .....	10
3.6 Greater Los Angeles Harbor Waters Toxic Pollutants TMDL Monitoring.....	10

## LIST OF ATTACHMENTS

Attachment A: Screening Locations

Attachment B: Field Data Sheets



## 1. INTRODUCTION

The 2012 Municipal Separate Storm Sewer System (MS4) Permit<sup>1</sup> (Permit) requires the City of Rolling Hills (City) to develop a Monitoring and Reporting Program (MRP) to accomplish the following primary objectives:

1. Assess the chemical, physical, and biological impacts of discharges from the MS4 on receiving waters.
2. Assess compliance with receiving water limitations (RWLs) and water quality-based effluent limitations (WQBELs) established to implement Total Maximum Daily Load (TMDL) wet-weather and dry-weather waste load allocations (WLAs).
3. Characterize pollutant loads in MS4 discharges.
4. Identify sources of pollutants in MS4 discharges.
5. Measure and improve the effectiveness of pollutant controls implemented under the Permit.

To achieve these objectives in a cost efficient and effective manner, the Permit allows Permittees to coordinate monitoring efforts on a watershed or subwatershed basis by developing a Coordinated Integrated Monitoring Program (CIMP). Although the City has decided not to participate in the development of an enhanced watershed management program (EWMP), the City submitted a letter of intent to the Los Angeles Regional Water Quality Control Board (Regional Board) on June 27, 2013 stating the City's intent to collaborate with the Palos Verdes Peninsula agencies<sup>2</sup> to develop a CIMP in accordance with the requirements of the Permit (Peninsula CIMP).

---

<sup>1</sup> Order No. R4-2012-0175 NPDES Permit No. CAS004001 Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach MS4.

<sup>2</sup> The Palos Verdes Peninsula agencies include the City of Rolling Hills, City of Rancho Palos Verdes, City of Palos Verdes Estates, City of Rolling Hills Estates, County of Los Angeles, and the Los Angeles County Flood Control District.



Because the City has chosen not to participate in an EWMP, they are required to develop an integrated monitoring plan addressing any monitoring requirements that will not be addressed by the Peninsula CIMP (i.e., those monitoring requirements which they intend to implement individually), per Attachment E, Part IV.C.2 of the Permit.

This report has been drafted to serve as the individual integrated monitoring plan for the City. As discussed in the August 22, 2013 meeting between the City and Regional Board, this integrated monitoring plan includes the following:

1. Non-storm water screening and monitoring plan, including the information identified in Part VII.A and IX of Attachment E of the Permit; and
2. A description and documentation of all ongoing TMDL compliance monitoring conducted by the City individually or in coordination with other agencies and confirmation that the TMDL compliance monitoring will continue uninterrupted during the development and approval of the CIMP.

All other MS4 Permit monitoring requirements will be addressed by the City's participation in the Peninsula CIMP, which was submitted to the Regional Board on June 27, 2014 and the City's participation in the Coordinated Compliance Monitoring Plan for the Greater Los Angeles Harbor Waters Toxic Pollutants TMDL monitoring which is also incorporated by reference in the Peninsula CIMP. A December 5, 2013 letter from the Regional Board to the City confirms the Regional Board's agreement with this approach.

## **2. NON-STORM WATER SCREENING AND MONITORING**

This Non-Storm water Screening and Monitoring program provides a detailed approach to screening and identifying significant non-storm water discharges from the City of Rolling Hills to address Permit requirements in Attachment E Part IX A through F. The Peninsula CIMP is referenced to address how any significant non-storm water discharges that cannot be eliminated will be monitored to address the non-storm water monitoring requirements in Permit Attachment E Part IX G and H.

### **2.1 Background**

The City of Rolling Hills is a uniquely developed community, being composed entirely of low-density, single family residential homes on large lots and lacking a continuous improved storm drain system throughout the City. The City is by design a low density, low impact, rural residential community with primary drainage conveyed via natural canyons. Roadways are narrow with soft shoulders (no curb-and-gutter). Dry weather



flows and small rainfall events are infiltrated within the natural soft-bottom canyons which serve as the primary drainage system. Storm water from private property drains into these largely undisturbed, heavily vegetated, soft-bottom canyons.

This lack of a developed storm drain system within the City, coupled with the particular attention given to the monitoring of “major outfalls” in the Permit, means that the City’s Non-Storm Water Outfall Monitoring Program must be adapted to this unique situation. The City will therefore focus non-storm water screening efforts on the natural canyons that serve as the primary drainage network in the City. The term “outfall,” as used by the Permit and applied to the City, will refer to the selected screening/monitoring locations within the City’s canyons that are described in this plan.

The City’s Non-Storm Water Outfall Screening and Monitoring Program integrated with the Peninsula CIMP has been prepared to meet the specific objectives outlined in Part IX.A of Attachment E of the Permit:

1. To identify non-exempt non-storm water discharges or conditionally exempt non-storm water discharges<sup>3</sup> from the City’s canyons, so that such discharges may be eliminated or effectively controlled in accordance with City’s illicit connection/illicit discharge (IC/ID) program; and
2. To assess whether such non-storm water discharges are causing or contributing to exceedances of applicable receiving water limits to be evaluated through implementation of Section 2 of the Peninsula CIMP.

## **2.2 Canyon Screening and Identifying Canyons with Significant Non-Storm Water Discharges**

The MS4 Permit requires Permittees to “identify MS4 outfalls with significant non-storm water discharges” within their jurisdiction. To accomplish this, the City will conduct a field screening of pre-determined “major canyons” to visually observe whether non-storm water discharges are present in significant amounts. “Major canyons” are defined as canyons within the City which drain at least 50 acres<sup>4</sup> of land within the City’s jurisdiction. Canyons which are known to contain natural flows on a

---

<sup>3</sup> These discharges are defined in Section III.A of the Permit and have been codified in Chapter 8.32 of the City’s Municipal Code.

<sup>4</sup> Attachment A of the Permit similarly uses a drainage area of 50 acres as the threshold to define a major outfall.



regular basis (e.g., canyons fed by a perennial spring), as determined by historic observations and review of the USGS National Hydrograph Dataset, will not be screened directly as part of the non-storm water monitoring program; however, the results of screening in the other canyons will be used to consider whether similar non-storm water discharges could also discharge to the canyons with natural flow and will be investigated through the City’s Illicit Discharge Elimination Program and results received from dry weather receiving water monitoring through the Peninsula CIMP. These canyons known to contain natural flows include Sepulveda Canyon, George F. Canyon, Bent Springs Canyon, and Klondike Canyon.

Five major canyons have been identified for screening within the City: Aqua Magna Canyon (including Johns Canyon), Blackwater Canyon, Purple Canyon, Paintbrush Canyon, and an unnamed canyon near the southeast corner of the City (hereinafter called “Unnamed Canyon 1”). Aqua Magna Canyon and Blackwater Canyon are within the Machado Lake Watershed; Purple Canyon is within the Greater LA Harbor Watershed; and Paintbrush Canyon and Unnamed Canyon 1 is within the Santa Monica Bay Watershed. These major canyons are shown on Figure 1.

These five canyons will be screened four times during dry weather spaced out over a twelve-month period. The first two screening events will occur within the 2014-15 reporting year, with the goal of conducting the first screening event in late summer/early fall of 2014 prior to the rainy season, then conducting the second screening in early spring following two months of dry weather subsequent to the rainy season. Two additional screenings will be conducted during early summer and late summer prior to the onset of the 2015-16 rainy season. An example schedule thus described could be achieved with screenings in: September 2014, May 2015, July 2015, and September 2015.

Screening will be conducted at specific locations near the downstream end of each major canyon. Screening locations for each canyon have been selected based on a desktop evaluation and general familiarity with the City’s terrain. Factors considered in selection included accessibility/safety, proximity to City boundary, and ability to adequately observe the presence/absence of flows. These screening locations are shown on Figure 1; photos and brief descriptions of these locations are provided in Attachment A. It is important to note that these locations may be altered if it is determined by field personnel that adequate observations cannot be made safely. In such cases, field personnel will note the reason for the alteration as well as the new location selected. If necessary, new locations will be considered outside of the City’s boundary farther towards the bottom of canyons, with reasonable attempts being made to get as near to the City boundary as possible.



For each screened major canyon, field personnel will determine if significant non-storm water discharges are present. Attachment E of the Permit provides examples of various characteristics that may be used to determine if discharges are considered significant. Due to the uniqueness of the City's storm water infrastructure, observed measurable<sup>5</sup> flows that are not known to be naturally occurring will be defined as significant non-storm water discharges for the sake of this screening.

If, after four dry weather screenings, no significant non-storm water discharges are present at a particular monitoring location, no further action is necessary under this Plan.

A field data sheet (Attachment B) will be completed by field personnel at each screening location to assist in the development of an inventory of the screened canyons.

### **2.3 Inventory of Monitored Canyons**

An inventory of the screened canyons will be developed following the screening, identifying those canyons with observed significant non-storm water discharges and those requiring no further assessment (Part IX.D of Attachment E of the Permit). For canyons requiring no further assessment, the inventory will include the justification of this determination (e.g., the canyon does not have observed measurable flow).

To gather necessary information of each major canyon to be used in the City's inventory, a field data sheet will be filled out for each major canyon. A blank field data sheet has been provided in Attachment B, which includes the minimum attributes listed in Part IX.D.2 of Attachment E.

Collected data will be incorporated into an electronic inventory which the City will maintain. Updates to the inventory will occur at least once a year, as necessary.

### **2.4 Prioritization of Monitored Canyons**

Part IX.E.1 of Attachment E of the Permit requires that identified outfalls with significant non-storm water discharges be prioritized according to the following:

---

<sup>5</sup> Measurable flows are defined as active flows that continue beyond the City boundary or line of sight (if upstream of the City boundary). Pondered water, wetted soil, or flows that dry up within the City's boundary are not considered significant discharges since they do not leave the City.



- a. Outfalls discharging directly to receiving waters with water quality based effluent limitations (WQBELs) or receiving water limitations in the TMDL provisions for which final compliance deadlines have passed.
- b. All major outfalls and other outfalls that discharge to a receiving water subject to a TMDL shall be prioritized according to TMDL compliance schedules.
- c. Outfalls for which monitoring data exist and indicate recurring exceedances of one or more of the Action Levels identified in Attachment G of the MS4 Permit.
- d. All other major outfalls identified to have significant non-storm water discharges.

Due to the limited number of major canyons within the City, such a prioritization is not necessary at this time. Additionally, based on current information, all major canyons in the City would qualify as “Priority b” if significant non-storm water discharges are observed.

Following the screening of the major canyons, a source identification schedule will be developed to ensure that source investigations are conducted on no less than 25% of the major canyons with significant non-storm water discharges by December 28, 2015, and 100% by December 28, 2016. Depending on the nature and origin of any significant sources that are identified, additional time may be required to fully identify and characterize the sources.

## **2.5 Source Identification**

A source investigation is required for major canyons identified to have significant non-storm water discharges to ascertain the source(s) and point(s) of origin of the non-storm water discharge(s).

Due to the unique nature of the City and the lack of man-made storm water infrastructure, conducting source investigations within the major canyons of the City presents numerous challenges. As a result, the process the City will follow to conduct these source investigations will be a fluid one, changing as necessary based on the specifics of the observed discharge. In most cases, the procedure will be to walk the canyon under investigation, beginning at the downstream end and walking upstream to attempt to locate the source of flow. In some locations, canyon access is impossible due to characteristics such as steep grades or the presence of poison oak. In these instances, the City will attempt to gain safe access from other locations in the canyon, or at the very least observe the canyon from additional viewing points, in an attempt to identify





the source of discharge. In cases where private access is required, the City will obtain appropriate access permission before proceeding.

Significant non-storm water flows will be classified into one of these three categories:

- A. Illicit discharges: If the source is determined to be an illicit discharge, the City will follow procedures outlined in its Illicit Discharge Elimination Program and appropriate documentation will be made regarding the source.
- B. Authorized or conditionally exempt essential non-storm water discharges: If the source is determined to be authorized per Chapter 8.32 of the City's Municipal Code, the source will be documented in the inventory and photographs of the source will be archived. Such findings will be reported each year in the City's annual report. In order to identify potential non-storm water discharges authorized by an individual or general NPDES Permit, the City will consult the State's Stormwater Multiple Application and Report Tracking System (SMARTS) and will also seek assistance from Regional Board staff in identifying potential authorized discharges within the City not included in the SMARTS system.
- C. Unknown sources: If the source is unknown or is a conditionally exempt non-essential non-storm water discharge, the City will conduct monitoring consistent with Part IX.G of Attachment E of the Permit. The City will document the efforts undertaken to identify the source.

For cases where multiple sources are discovered within the same canyon, the City will attempt to quantify the relative contribution of each individual source, to the extent practicable. In the unlikely event that significant non-storm water discharges cannot be eliminated through the City's Illicit Discharge Elimination Program, and the discharges are not natural, authorized, or essential conditionally exempt discharges, then such discharges will be incorporated into the Peninsula CIMP non-storm water monitoring program.

## **2.6 Monitoring**

If monitoring is required following the identification of significant non-storm water discharges, procedures for conducting monitoring consistent with those outlined in the Permit Attachment E, Section IX.G as described in Section 4.7 of the Peninsula CIMP will be followed. Such monitoring if required will be incorporated into the Peninsula CIMP Non-Stormwater Monitoring Program.



## **2.7 Reporting**

The City will report the findings of this Non-Storm Water Screening and Monitoring Program in its annual report at the conclusion of the twelve months of screening and then annually as needed to report the results of Source Identification investigations. Included in the first annual report will be a spreadsheet database listing information accumulated through the screening for each location including but not limited to: receiving water, nearest receiving water monitoring station, drainage area tributary to the screening location in total and within Rolling Hills, dates of screening, etc. If any significant non-storm water discharges that cannot be eliminated are incorporated into the Peninsula CIMP non-storm water monitoring program, then reporting of that information will be included as part of the Peninsula CIMP annual report.

## **3. SUMMARY OF ONGOING TMDL COMPLIANCE MONITORING**

On June 27, 2013 the City submitted a Letter of Intent to the Regional Board to participate in the development of a Coordinated Integrated Monitoring Program (CIMP) in collaboration with the Palos Verdes Peninsula watershed agencies. These agencies are part of Jurisdictional Group 7 with respect to the coordinated shoreline monitoring that currently exists under the Santa Monica Bay Beaches Bacteria TMDL. On December 5<sup>th</sup> 2013, the City received a letter from the Executive Officer confirming the City's participation in the Peninsula CIMP which was submitted on June 27, 2014 to meet the City's obligations for receiving water monitoring and storm water outfall monitoring. The following discussion summarizes ongoing TMDL compliance monitoring either conducted by the City individually or in coordination with other agencies that will continue until the Peninsula CIMP is approved. Upon approval of the Peninsula CIMP, these programs may be incorporated into the CIMP. Additional details for these programs can be found in the Peninsula CIMP.

### **3.1 Machado Lake Nutrient TMDL Monitoring for Palos Verdes Peninsula**

The incorporated cities of the Palos Verdes Peninsula are conducting joint monitoring to meet the requirements of the *Machado Lake Eutrophic, Algae, Ammonia, and Odors (Nutrient) Total Maximum Daily Load (TMDL)* established by the Regional Board on May 1, 2008 (Resolution No. R08-006). This monitoring is being conducted in accordance with the *Palos Verdes Peninsula Coordinated Monitoring Plan (CMP)* approved by the Executive Officer of the Regional Board. Monitoring under the CMP began in August 2011. The first annual monitoring report with full analysis of the data was submitted by December 14, 2012, and the second report was submitted with the City's MS4 Permit Annual report by December 15, 2013.



### **3.2 Machado Lake Pesticides and PCBs Monitoring**

The Executive Officer of the Regional Board conditionally approved the Palos Verdes Peninsula Coordinated Monitoring and Reporting Plan and Quality Assurance and Project Plan for the TMDL for Pesticides and PCBs in Machado Lake on August 2, 2013. The Peninsula Agencies' contractor conducting the Machado Lake Nutrient TMDL monitoring has been directed to expand the wet weather monitoring to include sampling and analysis of storm water-borne sediment for pesticides and PCBs in accordance with the approved plan. This was initiated during the 2013-14 reporting year; however, sufficient sediment was not collected from the single qualifying storm to conduct the pesticide and PCB analysis.

### **3.3 Santa Monica Bay Beaches Bacteria TMDL Monitoring**

Monitoring under the Coordinated Shoreline Monitoring Plan in accordance with the Santa Monica Bay Beaches Bacteria TMDL is conducted on a weekly basis by the Sanitation Districts of Los Angeles County at nine shoreline monitoring locations along the Palos Verdes Peninsula (Jurisdictional Group 7). The data is reported directly to the Los Angeles Regional Water Quality Control Board such that annual monitoring reports are not currently being prepared by Jurisdictional Group 7.

Drainage from that portion of the City of Rolling Hills that drains toward the Santa Monica Bay is conveyed via natural soft bottom canyons (Klondike Canyon, Paint Brush Canyon, and several smaller unnamed canyons) across significant areas of open space for a distance of ½ mile to a mile before reaching improved storm drains operated by other agencies that outlet into Portuguese Bend. The shoreline monitoring location in Portuguese Bend, also known as SMB 7-5, is an open beach shoreline monitoring location on the Palos Verdes Peninsula that is considered to be an anti-degradation monitoring location, i.e., it has historically and continues to exhibit a lower rate of exceedances than the reference monitoring location at Leo Carillo Beach (reference beach). For a weekly sampling schedule, SMB 7-5 is allocated zero (0) single sample exceedances per year during summer dry weather (April 1 through October 31), one (1) exceedance per year during winter dry weather (November 1 through March 30), and one (1) exceedance per year during year-round wet weather (November 1 through October 31) of the indicator bacterial targets under the Santa Monica Bay Beaches Bacteria TMDL.

### **3.4 Machado Lake Trash TMDL Monitoring**

The City of Rolling Hills has now completed a fourth year of monitoring in accordance with the Trash Monitoring and Reporting Plan and has submitted annual trash



monitoring reports along with its MS4 Permit Annual Report. Because the City of Rolling Hills does not have a storm drain system that is amenable to the installation of full capture devices, it has implemented a Trash Monitoring and Reporting Plan (TMRP) which includes a Minimum Frequency of Assessment and Collection Program (MFAC) in conjunction with Best Management Practices (BMPs) in order to achieve compliance with the Machado Lake Trash TMDL. The results obtained through implementation of the City's approved TMRP indicate an effective implementation of existing institutional and source controls such as weekly collection of trash (with additional pickup as needed) along roads and equestrian trails by the Rolling Hills Community Association (RHCA) maintenance crew, strict enforcement of litter laws, enforcement of ordinances requiring solid waste enclosures, and close oversight of the solid waste hauler. The collected data demonstrates that the City has reduced its generated trash by 100% from its baseline of 7,004 gallons of trash per year through its current BMP program.

### **3.5 Santa Monica Bay Debris TMDL Monitoring**

On September 3, 2013, the Executive Officer of the Regional Board approved the City of Rolling Hills' proposed approach to address the trash monitoring and reporting requirements for the Santa Monica Bay Nearshore and Offshore Debris TMDL. The City will utilize BMPs and institutional controls currently in effect to address the Machado Lake Trash TMDL which have demonstrated 100% reduction in the City's baseline trash generation rate. The City of Rolling Hills will utilize the Machado Lake Trash TMRP and resulting monitoring data to demonstrate compliance with the Santa Monica Bay Nearshore and Offshore Debris TMDL. A separate monitoring report is to be submitted by the City according to the implementation schedule for the Santa Monica Bay Nearshore and Offshore Debris TMDL using the data obtained from the Machado Lake TMRP.

### **3.6 Greater Los Angeles Harbor Waters Toxic Pollutants TMDL Monitoring**

Receiving water monitoring in the Greater Los Angeles and Long Beach Harbors consistent with the TMDL for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbors is being conducted through a Coordinated Compliance Monitoring and Reporting Plan approved by the Executive Officer of the Regional Board on June 6, 2014. The City of Rolling Hills has entered into a Memorandum of Understanding (MOU) with the Los Angeles Gateway Integrated Regional Water Management Joint Powers Authority along with a group of other responsible agencies to implement the Coordinated Compliance Monitoring Plan

City of Rolling Hills



approved by the Executive Officer. Receiving water monitoring under the plan began in the summer of 2013 as part of the Bight regional monitoring program.

# Figures

# Attachments

Attachment A:  
Screening Locations



Attachment B:  
Field Data Sheet