

**Exhibit B**

# ENHANCED WATERSHED MANAGEMENT PROGRAM (EWMP) FOR NORTH SANTA MONICA BAY COASTAL WATERSHEDS



*Submitted to:*  
**Los Angeles Regional Water Quality Control Board**

*Submitted by:*  
**North Santa Monica Bay Coastal Watersheds EWMP Group**

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**Table ES-1. Water Body Pollutant Prioritization for the NSMBCW EWMP Area**

Category	Water Body	Pollutant	Basis
1	Malibu Creek and Lagoon	Nutrients	USEPA-established Nutrients TMDL and Benthic TMDL for the Malibu Creek Watershed
	SMB Beaches	Dry Weather Bacteria	SMB Beaches Bacteria TMDLs for both dry and wet weather
	SMB Beaches	Wet Weather Bacteria	
	Malibu Creek and Lagoon	Indicator Bacteria	Malibu Creek and Lagoon Indicator Bacteria TMDL
	Malibu Creek	Trash	Malibu Creek Trash TMDL
	SMB	Trash/Debris	TMDL for debris for Santa Monica Bay Offshore/Nearshore
	SMB	DDTs	USEPA TMDL for DDT and PCBs for Santa Monica Bay Offshore/Nearshore
	SMB	PCBs	
2	Topanga Canyon Creek	Lead	Topanga Canyons Creek 303(d) listing for lead.
	Malibu Creek	Sulfates & Selenium	Malibu Creek 303(d) listing for sulfates and selenium
	Malibu Lagoon	pH	Malibu Lagoon 303(d) listing for pH
3	None		There are currently no known available data demonstrating exceedances of receiving water limits within the NSMBCW Area, aside from those WBPCs already defined as Category 1 and 2.

The RAA was performed for bacteria in both the Santa Monica Bay Watershed and the Malibu Creek Watershed. In addition, the RAA was performed for nutrients (nitrates, total nitrogen, and total phosphorus) in the Malibu Creek Watershed and total lead in the Topanga Canyon Creek subwatershed.

The MS4 compliance targets for dichloro-diphenyl-trichloroethanes (DDTs) and polychlorinated biphenyls (PCBs) established in the Santa Monica Bay DDT & PCB TMDL were based on the assumption that the existing stormwater pollutant loads for DDT and PCBs were lower than what was needed to protect the Santa Monica Bay from these legacy pollutants (i.e., based on data used in the TMDL, no MS4 pollutant load reduction is expected to be required). Therefore, no reductions in DDT and PCB loading from the NSMBCW EWMP Group MS4s are required to meet the TMDL and therefore, no pollutant modeling is required.



highest concentrations of sulfate are in the upper portion of the watershed, and are reportedly due to the presence of the Monterey Geologic Formation, which is known to contain high levels of sulfur and selenium (LVMWD, 2011).

### *2.1.3 MS4 DISCHARGE QUALITY*

Stormwater and non-stormwater discharges have not yet been characterized within the NSMBCW EWMP Area. No MS4 discharge monitoring data were available at the time of this assessment, but discharge characterization will occur as part of the implementation of the CIMP (NSMBCW EWMP Group, 2014d). Since outfall monitoring data from the CIMP were not available at the time of EWMP development, information from regional MS4 land use studies (e.g., Los Angeles County, 2000) and/or TMDL technical reports were used in Section 2.2 for the water body-pollutant prioritization.

## 2.2 WATER BODY-POLLUTANT PRIORITIZATION

Water body-pollutant combinations (WBPCs) were established and categorized based on Permit Section VI.C.5.b. **Figure 5** provides a brief conceptual overview of the process used to identify and categorize the WBPCs within the NSMBCW EWMP Area.



suspended sediments and attached pollutants with less space as compared to wet vaults and other settling devices. Several types of hydrodynamic separation devices are also designed to remove floating oils and grease using sorbent media. Like media filters, hydrodynamic separators can be used as stand-alone or pre-treatment measures to extend the life and effectiveness of downstream BMPs.

### 3.3 DEMONSTRATION OF BMP PERFORMANCE – INTRODUCTION TO THE REASONABLE ASSURANCE ANALYSIS

Because the EWMP is a planning document intended to lay out a framework of activities that will achieve Water Quality Objectives, it is necessary to demonstrate that selected BMPs are reasonably expected to meet defined goals. This evaluation of performance is described through a technically robust and rigorous Reasonable Assurance Analysis (RAA). Through this analysis, the NSMBCW EWMP Group identified and evaluated BMP implementation scenarios within the NSMBCW EWMP Area for each WBPC identified in Section 2. The RAA process shows that implementation of EWMP-defined activities within the NSMBCW EWMP Area are expected to result in discharges that achieve applicable Permit-specified WQBELs and that do not cause or contribute to exceedances of applicable RWLs. Since the modeling conducted as part of the RAA serves as the basis not only for BMP evaluation but also BMP identification, Section 4 is devoted to providing details on the RAA process. Results from the RAA are presented in Section 5 (Santa Monica Bay Watershed) and Section 6 (Malibu Creek Watershed).

## 4 RAA MODELING TOOLS AND APPROACH

In 2014, the Regional Board released a guidance document intended to establish baseline expectations and promote consistency and objectivity in the development of the RAAs throughout the Los Angeles Region. RAA details described herein, including model selection, data inputs, critical condition selection (90<sup>th</sup> percentile wet year), calibration performance criteria, and output types are consistent with the resulting Regional Board RAA Guidance.

### 4.1 RAA APPROACH - DRY WEATHER

Demonstrating reasonable assurance of compliance with applicable dry weather Permit limits (**Table 10**) requires a methodology that accounts for many factors which cannot be accurately modeled based on dry weather runoff processes alone (Thoe et al, 2015), despite the existence of somewhat extensive dry weather beach-specific monitoring datasets that are available. Therefore, to perform the RAA for dry weather for the NSMBCW EWMP Area, a semi-quantitative conceptual model (methodology) has been developed following the Permit compliance structure. This approach applies independent



lines of evidence for demonstrating that MS4 discharges are not causing or contributing to receiving water exceedances. The following series of criteria form the dry weather RAA methodology. If one criterion is met for each Coordinated Shoreline Monitoring Plan (CSMP) compliance monitoring location (CML), then “reasonable assurance” is considered to be demonstrated. This methodology was presented to Regional Board staff on April 9, 2014, and verbal feedback received at the time was supportive.

1. If a dry weather diversion, infiltration, or disinfection system is located at the downstream end of the analysis region, reasonable assurance is considered to be demonstrated. To meet this criterion, any such system must have records to show that it is consistently operational, well maintained, and effectively removing bacteria in the treated effluent (in the case of disinfection facilities). Diversion or infiltration systems must demonstrate consistent operation and maintenance so that all freshwater surface discharges to the receiving water are effectively eliminated during year-round dry weather days.
2. If there are no MS4 outfalls (major or minor) owned by the NSMBCW Agencies within the analysis region, MS4 discharges are considered to not be contributing to pollutant concentrations in the receiving water. Therefore, reasonable assurance is demonstrated.
3. For the Santa Monica Bay Beaches Bacteria TMDL compliance monitoring locations, if the allowed summer-dry and winter-dry single sample exceedance days have been achieved for four out of the past five years and the last two years, then the existing water quality conditions at this compliance monitoring location are acceptable, and reasonable assurance is demonstrated.
4. If non-stormwater MS4 outfall discharges have been eliminated within the analysis region, reasonable assurance is demonstrated. For this criterion to be met, supporting records from the non-stormwater outfall screening program should be supplied.

**Table 10** summarizes the dry weather TMDL limits for each applicable WBPC in the NSMBCW EWMP Area.





**Table 10. Dry Weather Permit Limits (Final Compliance Limits)**

Waterbody	TMDL	Pollutant	RWL/WQBEL
SMB	SMB Beaches Bacteria TMDL for Dry Weather	Coliform	Exceedance Days (per season, per year)
Malibu Creek	Malibu Creek Watershed Nutrients TMDL	Coliform	
		Nitrate + Nitrite	8 lbs/day (summer daily maximum)
		Total Phosphorus	0.8 lbs/day (summer daily maximum)
	Malibu Creek and Lagoon Benthic TMDL	Total Nitrogen	1.0 mg/L (summer) <sup>a</sup>
		Total Phosphorus	0.1 mg/L (summer) <sup>a</sup>

<sup>a</sup> Values shown are TMDL WLAs, and are not yet formally incorporated into the Permit (e.g., as RWLs or WQBELs). These values are expressed in the TMDL as seasonal averages.

**4.1.1 NON-STORMWATER DISCHARGE SCREENING**

Since the NSMBCW EWMP Group’s dry weather compliance approach is consistent with the Permit requirement to eliminate 100 percent of non-exempt dry weather MS4 discharges, the Group’s non-stormwater screening process plays an important role in demonstrating reasonable assurance of compliance for dry weather.

The non-stormwater screening process, used to identify outfalls with significant non-stormwater discharge, consists of the steps outlined in Table 11 and shown in **Figure 6**. Further details on the NSMBCW EWMP Group’s approach to meet this requirement are provided below and in Section 4 of the NSMBCW CIMP (NSMBCW EWMP Group, 2014d).



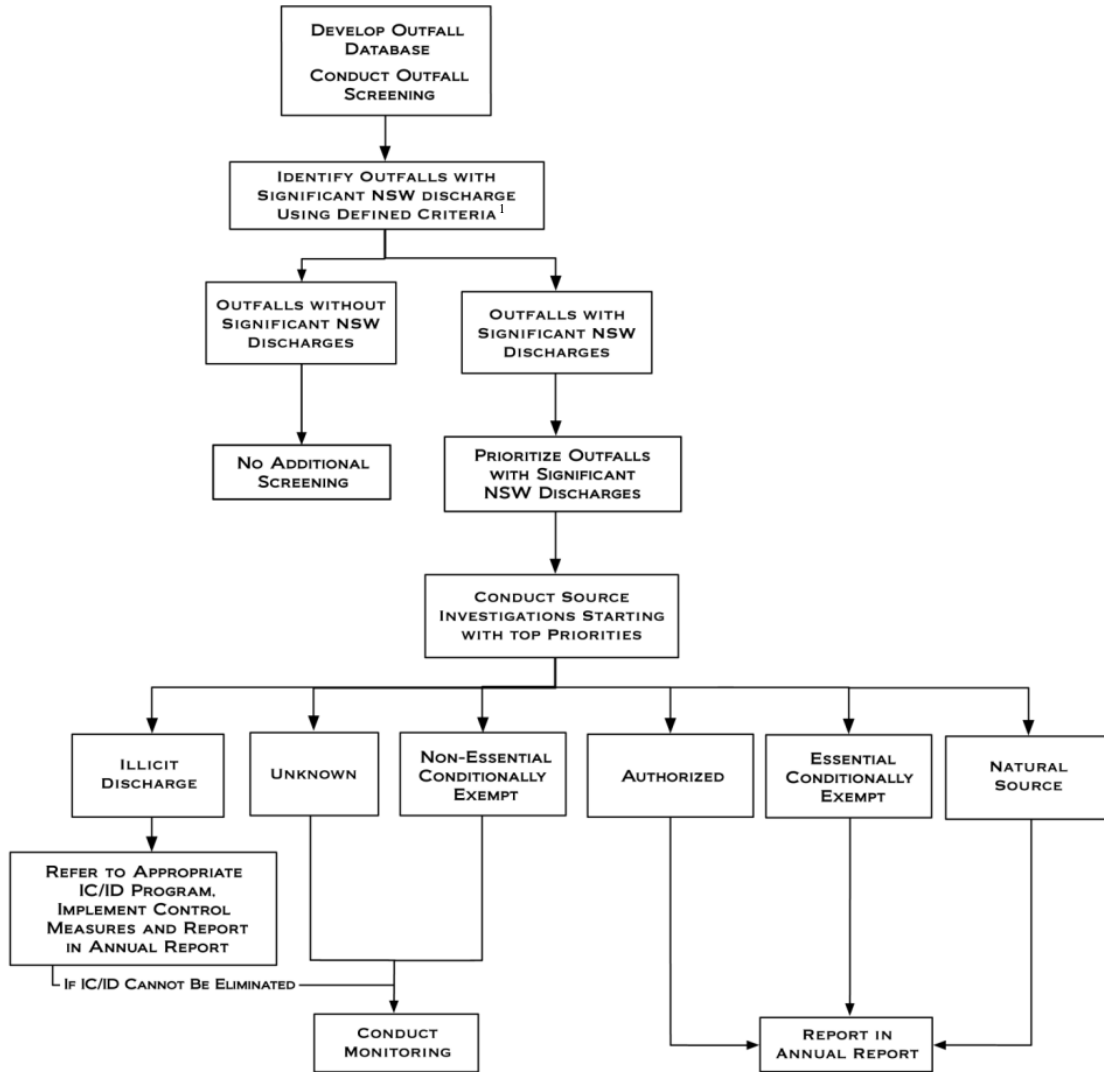
**Table 11. Non-Stormwater Outfall Screening and Monitoring Program Summary**

<b>Element</b>	<b>Description</b>
Develop MS4 outfall database	Develop a database of all major outfalls with descriptive information, linked to GIS.
Outfall screening	A screening process will be implemented to collect data for determining which outfalls exhibit significant NSW discharges.
Identification of outfalls with NSW discharge	Based on data collected during the Outfall Screening process, identify outfalls with NSW discharges.
Inventory of outfalls with significant NSW discharge	Develop an inventory of major MS4 outfalls with known significant NSW discharges and those requiring no further assessment.
Prioritize source investigation	Use the data collected during the screening process to prioritize significant outfalls for source investigations.
Identify sources of significant discharges	For outfalls exhibiting significant NSW discharges, perform source investigations per the prioritization schedule. If not exempt or unknown, determine abatement process.
Monitor discharges exceeding criteria	Monitor outfalls that have been determined to convey significant NSW discharges comprised of either unknown or non-essential conditionally exempt discharges, or continuing discharges attributed to illicit discharges must be monitored.





**Figure 6. Non-Stormwater Outfall Screening Program**



<sup>1</sup> Discharges are defined as “significant” based on a variety of factors, including, but not limited to: a) proximity of the outfall to receiving water bodies where TMDLs apply; b) presence of persistent flows at the outfall, meaning flow is observed on two or more of the three screenings at a rate “greater than a garden hose” (> 10 gpm); c) characteristics of the catchment area, including but not limited to, presence of permitted discharges in the area, land use characteristics, and previous IC/ID results.

**4.1.2 INVENTORY OF MS4 OUTFALLS WITH SIGNIFICANT NON-STORMWATER DISCHARGES**

An inventory of MS4 outfalls will be developed identifying those outfalls with known significant non-stormwater discharges and those requiring no further assessment (Part



IX.D of the Permit MRP). If the MS4 outfall requires no further assessment, the inventory will include the rationale for the determination of no further action required. The inventory will be included in the outfall database. The inventory will be updated to incorporate the most recent characterization data for outfalls with significant non-stormwater discharges.

#### *4.1.3 PRIORITIZED SOURCE IDENTIFICATION*

Once the major outfalls exhibiting significant non-stormwater discharges have been identified through the screening process and incorporated in the inventory, the NSMBCW EWMP Group will prioritize the outfalls for further source investigations.

Once the prioritization is complete, a source identification schedule will be developed. The scheduling will focus on the outfalls with the highest priorities first. Based on the recent approval of the CIMP, the schedule will ensure that source investigations are completed on no fewer than 50 percent of the outfalls with significant non-stormwater discharges by December 28, 2016 and 100 percent by December 28, 2017.

#### *4.1.4 SIGNIFICANT NON-STORMWATER DISCHARGE SOURCE IDENTIFICATION*

Based on the prioritized list of major outfalls with significant non-stormwater discharges, investigations will be conducted to identify the source(s) or potential source(s) of non-stormwater flows. The source investigation results will then be classified into one of four endpoints outlined as follows:

- A. Illicit connections or illicit discharges (IC/IDs): If the source is determined to be an illicit discharge, the Permittee must implement procedures to eliminate the discharge consistent with IC/ID requirements (Permit Part VI.D.10) and document actions.
- B. Authorized or conditionally exempt NSW discharges: If the source is determined to be an NPDES permitted discharge, a discharge subject to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or a conditionally exempt essential discharge, the Group Member must document the source. For non-essential conditionally exempt discharges, the Group Member must conduct monitoring consistent with Part IX.G of the MRP to determine whether the discharge should remain conditionally exempt or be prohibited.
- C. Natural flows: If the source is determined to be natural flows, the Permittee must document the source.
- D. Unknown sources: If the source is unknown, the Permittee must conduct monitoring consistent with Part IX.G of the MRP.



Based on the results of the source assessment, outfalls may be reclassified as requiring no further assessment and the inventory will be updated to reflect the information and justification for the reclassification.

Where investigations determine the non-stormwater source to be authorized, natural, or essential conditionally exempt flows, the EWMP Group will conclude the investigation, categorize the outfall as requiring no further assessment in the inventory, and move to the next highest priority outfall for investigation. Where investigations determine that the source of the discharge is non-essential conditionally exempt, an illicit discharge, or is unknown – further investigation may be conducted to eliminate the discharge or demonstrate that it is not causing or contributing to receiving water problems. In some cases, source investigations may ultimately lead to prioritized programmatic or structural BMPs. Where Permittees determine that they will address the non-stormwater discharge through modifications to programs or by structural BMP implementation, the EWMP Group will incorporate the approach into the implementation schedule developed for the EWMP Group and the outfall can be lowered in priority for investigation, such that the next highest priority outfall can be addressed.

#### *4.1.5 NON-STORMWATER DISCHARGE MONITORING*

Outfalls with significant NSW discharges that remain unaddressed after source investigation will be monitored for water quality in accordance with the CIMP. Monitoring will begin within 90 days of the completion of the respective source investigation.

#### *4.1.6 SIGNIFICANT NON-STORMWATER DISCHARGE ELIMINATION*

Within 180 days of the completion of the source identification, the Group will strive to eliminate, divert, or treat significant non-stormwater discharges that are unauthorized and determined to be causing or contributing to RWL/WQBEL exceedances.

### **4.2 RAA APPROACH – WET WEATHER**

The Permit specifies the TMDL RWLs and WQBELs applicable to each Permittee. The NSMBCW RAA was conducted to demonstrate reasonable assurance of compliance with these limits. In instances where critical conditions were not clearly defined (e.g., a critical condition of “wet weather”) or the limit’s expression could not be directly modeled based on pollutant loads in stormwater (e.g., exceedance days as the expression for bacteria RWLs), steps were taken to establish a link between the expressed Permit limit and relevant modelable data (i.e., rainfall, runoff, and pollutant concentrations in the runoff). **Table 12** summarizes these steps for each modeled WBPC with a Permit-established limit.