

Ballona Creek Watershed Management Group

## **Coordinated Integrated Monitoring Program**

### **DRAFT**



*Photo courtesy of: Jonathan Coffin, Inglewood, CA.*

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Attachment A: Enhanced Watershed Management Plan Area Background

Attachment B: Monitoring Location Fact Sheets

Attachment C: Analytical and Monitoring Procedures

Attachment D: Data Management and Reporting

## List of Appendices

- Appendix 1: Example Field, Calibration and Chain-of-Custody Forms
- Appendix 2: Plastic Pellet Monitoring and Reporting Program
- Appendix 3: Calculations for Data Quality Assessment
- Appendix 4: Chapter 13 QA/QC Data Evaluation from Caltrans Guidance Manual: Stormwater Monitoring Protocols, 2nd Edition

## List of Acronyms

BC	Ballona Creek
BCWMG	Ballona Creek Watershed Management Group
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIMP	Coordinated Integrated Monitoring Program
CMP	Coordinated Monitoring Program
CVRWQCB	Central Valley Regional Water Quality Control Board
DAP	Discharge Assessment Plan
DDT	Dichloro-diphenyl-trichloroethane
DO	Dissolved Oxygen
EWMP	Enhanced Watershed Management Program
GIS	Geographic Information System
HUC	Hydrologic Unit Code
IC/ID	Illicit Connection/Illicit Discharge
LA	Los Angeles
LACDPW	Los Angeles County Department of Public Works
LACFCD	Los Angeles County Flood Control District
LTA	Long Term Assessment
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NSW	Non-Stormwater
OC	Organochlorine
PCB	Polychlorinated Biphenyl
RWL	Receiving Water Limitation
SCCWRP	Southern California Coastal Water Research Project

SMC	Stormwater Monitoring Coalition
SSC	Suspended Sediment Concentration
SW	Stormwater
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TRE	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
USEPA	United States Environmental Protection Agency
WBPC	Waterbody-Pollutant Combination
WLA	Waste Load Allocation
WQBEL	Water Quality Based Effluent Limitation

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# 1 Introduction

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The National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit No. R4-2012-0175 (Permit) was adopted November 8, 2012 by the Los Angeles Regional Water Quality Control Board (Regional Board) and became effective December 28, 2012. The purpose of the Permit is to ensure the MS4s in Los Angeles County are not causing or contributing to exceedances of water quality objectives set to protect the beneficial uses in the receiving waters. Included as Attachment E to the Permit are requirements for a Monitoring and Reporting Program (MRP). The stated Primary Objectives for the MRP, listed in Part II.A.1 of the MRP, are as follows:

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 wasteload 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.

Permittees have the option to develop a Coordinated Integrated Monitoring Program (CIMP) to specify approaches for meeting the Primary Objectives of the MRP. The Ballona Creek (BC) Watershed Management Group (BCWVG) has selected to develop and implement a CIMP that is tailored to address the specific needs of the Ballona Creek watershed. This CIMP provides a discussion of the monitoring locations, constituents, monitoring frequency, and general monitoring approach. The attachments and appendices to this CIMP describe additional background information and detail specific analytical and monitoring procedures that will be used to implement this CIMP. The BCWVG CIMP meets the requirements of the MS4 Permit, including all TMDL monitoring requirements.

## 1.1 ENHANCED WATERSHED MANAGEMENT PROGRAM AREA

The Ballona Creek watershed receives drainage from an approximately 128-square mile area of western Los Angeles County. The Ballona Creek Estuary (BCE) and Ballona Creek collectively extend 9.5 miles upstream before going underground into the MS4 network. Ballona Creek flows through residential, commercial, and industrial areas before becoming the BCE, which empties into Santa Monica Bay. Ballona Creek Reaches 1 and 2 (as defined by the Regional Board) and the BCE receive drainage from the jurisdictions that comprise the BCWVG. The BCWVG includes the Cities of Beverly Hills and West Hollywood, and portions of the Cities of Los Angeles, Inglewood, Culver City, and Santa Monica as well as unincorporated areas of the County of Los Angeles and the Los Angeles County Flood Control District (LACFCD). Major tributaries to Ballona Creek include Sepulveda Canyon Channel (Reach 2) and Centinela Creek (Ballona Estuary). Other water bodies in the watershed include the Del Rey Lagoon and the Ballona Wetlands, which are both connected to the Ballona Estuary through tide gates. Note that although Benedict Canyon Channel is identified in TMDLs as a tributary to Ballona Creek, it is a closed channel that daylights where the channel meets Ballona Creek and is not identified in the

Basin Plan as a waterbody in the watershed. As such, it is not considered a tributary for the purposes other than addressing the bacteria TMDL for the watershed. The City of Los Angeles is the responsible agency for the Del Rey Lagoon whose tributary area is approximately 25 acres. The Ballona Wetlands encompass approximately 626 acres (541 acres of natural wetlands area and 85 acres of roads, parking lots, levees and other structures). Approximately 460 acres of the Ballona Wetlands are located within the Ballona Creek watershed and the remaining portion is located in the Marina Del Rey watershed. The Ballona Wetlands are owned and/or managed by the California Department of Fish and Wildlife (CDFW) and the State Land Commission. **Table 1** presents the major water bodies within the BCWMG Enhanced Watershed Management Program (EWMP) area. **Figure 1** displays the BCWMG and the participating jurisdictions.

**Table 1. Waterbodies Associated with the BCWMG EWMP Area**

Mainstem	Associated Tributaries
Ballona Creek Reach 1	
Ballona Creek Reach 2	Sepulveda Channel
Ballona Creek Estuary	Centinela Creek
Lagoons and Wetlands	
Del Rey Lagoon	Ballona Wetlands
Downstream Waters	
Santa Monica Bay	

The TMDLs addressing water body-pollutant combinations (WBPCs) within or downstream of the EWMP area are presented in **Table 2**. Part XIX.B of the MRP, the TMDL Basin Plan Amendments (BPAs), and United States Environmental Protection Agency (USEPA)-established TMDL documents include TMDL monitoring requirements and recommendations, which are summarized in **Attachment A**.

**Table 2. TMDLs Applicable to the Ballona Creek Watershed EWMP**

TMDL	Regional Board Resolution Number(s)	Effective Date and/or EPA Approval Date
Ballona Creek Trash (BC Trash)	2004-023	08/11/2005
Ballona Creek Estuary Toxic Pollutants (BC Toxics TMDL)	2006-011	01/11/2006
	2013-010	Not Yet Effective
Ballona Creek, Ballona Estuary, and Sepulveda Channel Bacteria (BC Bacteria TMDL)	2007-015	04/27/2007
	2012-008	Not Yet Effective
Ballona Creek Metals (BC Metals TMDL)	2007-015	10/29/2008
	2013-010	Not Yet Effective
Santa Monica Bay Nearshore and Offshore Debris (Debris TMDL)	2010-010	03/20/2012
Santa Monica Bay DDTs and PCBs (SMB Toxics)	NA	03/26/2012
Ballona Creek Wetlands TMDL for Sediment and Invasive Exotic Vegetation (Wetlands TMDL)	(USEPA TMDL)	03/26/2012

The BCWMG agencies have agreed to collectively develop this CIMP. Therefore, this CIMP covers all of the areas served by an MS4 and owned by the MS4 permittees within the watershed. A breakdown of the area by MS4 Permittee and other agencies is provided in **Table 3**. Collectively, the MS4 permittees in the Ballona Creek watershed have jurisdiction over approximately 123 square miles or 96 percent of the total watershed area. The EWMP agencies have no jurisdiction over the land that is owned by the State of California (i.e., California Department of Fish and Wildlife, the State Lands Commission, and California Department of Transportation) and the United States Government. Approximate land area and land use summaries for the participating jurisdictions are listed in **Table 4**, with the most prevalent land use being residential.

**Table 3. Ballona Creek Watershed Land Area Distribution and EWMP Participation**

Agency	EWMP Agency	Land Area (sq. mi.)	% of EWMP Area
City of Beverly Hills	Yes	5.7	4.6%
County of Los Angeles	Yes	4.9	4.0%
Culver City	Yes	4.9	4.0%
City of Inglewood	Yes	3.0	2.4%
City of Los Angeles	Yes	102.0	83.2%
City of Santa Monica	Yes	0.3	0.3%
City of West Hollywood	Yes	1.8	1.5%
LACFCD	Yes	NA	
<b>Area of EWMP Agencies</b>		<b>122.6</b>	<b>100%</b>
Caltrans	No	2.6	
State of California	No	1.4	
United States Government	No	1.1	
<b>Total Watershed Area</b>		<b>127.7</b>	

**Table 4. Land Use Summaries of Jurisdictions Participating in the BCWMG**

Jurisdiction	Area (sq. mi.)	Percent of Jurisdiction <sup>(1)</sup>			
		Res	Com/Ind	Ag/Nur	Open
City of Beverly Hills	5.4	84%	14%	<1%	2%
County of Los Angeles	4.6	52%	39%	<1%	9%
Culver City	4.7	54%	44%	<1%	2%
City of Inglewood	3.0	64%	32%	<1%	4%
City of Los Angeles	86.2	73%	24%	<1%	3%
City of Santa Monica	0.3	66%	33%	<1%	1%
City of West Hollywood	1.8	70%	29%	<1%	1%
All Jurisdictions	106.0	71%	25%	<1%	4%

1. Land use classifications include: residential (Res), commercial and industrial (Com/Ind), agriculture and nursery (Ag/Nur), and open space (Open). Totals correspond to the percent of the total area considered in the EWMP (i.e., only using open space characterized as golf courses, local parks, and regional parks).

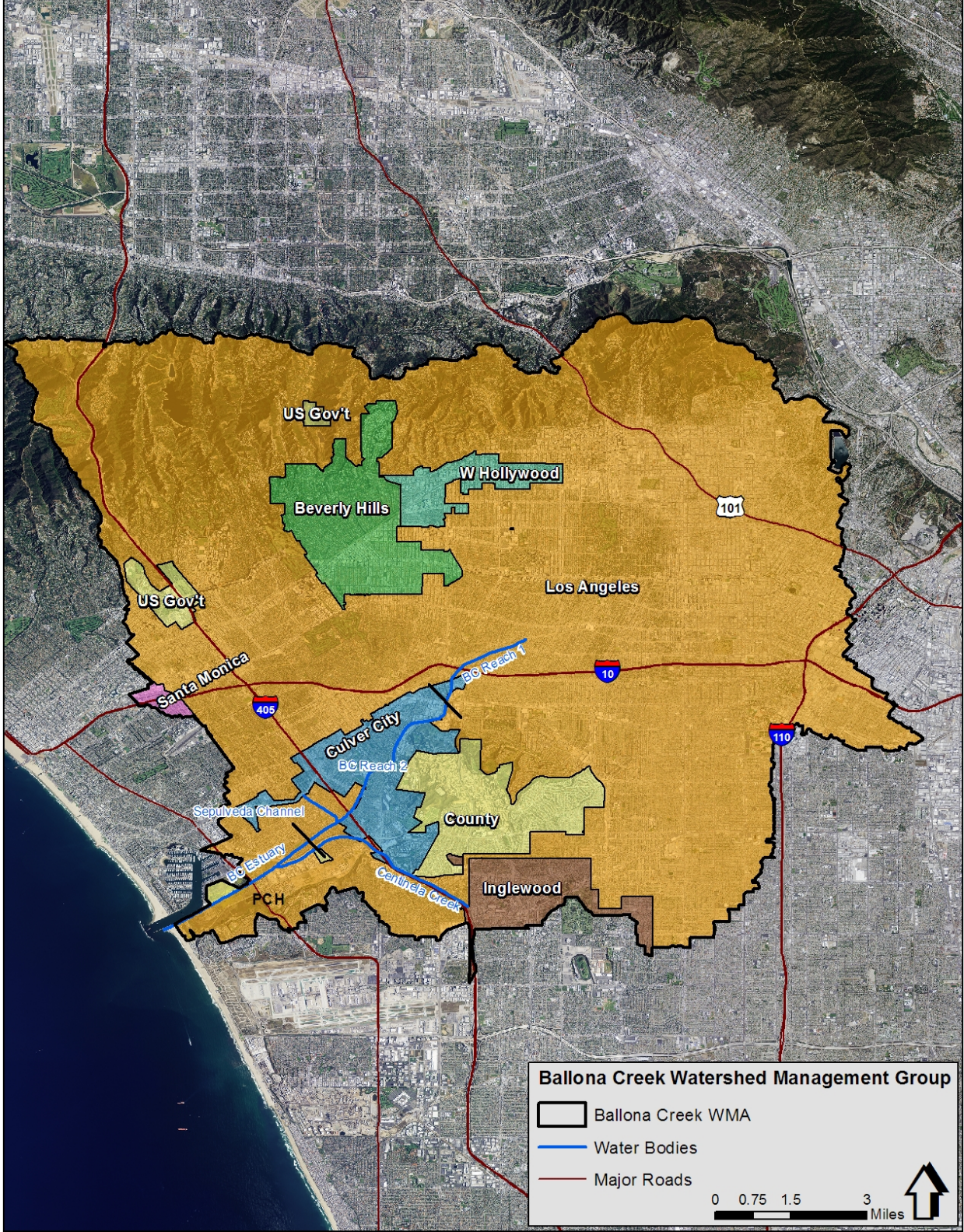


Figure 1. Jurisdictional Boundaries for the BCWMG

## 1.2 WATER QUALITY PRIORITIES

As part of the EWMP, the BCWVG analyzed data to determine water quality priorities for the watershed. While the water quality priorities analysis will be finalized as part of the EWMP development, an initial characterization of the water quality priorities has been developed and is briefly summarized in **Attachment A**. The three Permit categories are defined as:

- **Category 1:** WBPCs for which TMDL WQBELs and/or RWLs are established in Part VI.E and Attachments L and O of the MS4 Permit.
- **Category 2:** WBPCs for which data indicate water quality impairment in the receiving water according to the State's Listing Policy, regardless of whether the pollutant is currently on the 303(d) List and for which the MS4 discharges may be causing or contributing.
- **Category 3:** WBPCs for which there are insufficient data to indicate impairment in the receiving water according to the State's Listing Policy, but which exceed applicable receiving water limitations contained in the MS4 Permit and for which MS4 discharges may be causing or contributing to the exceedance.

The Permit categories are utilized in this CIMP to identify parameters that will be monitored at each receiving water and outfall monitoring site. Since the analysis is waterbody specific, different parameters may be monitored at different monitoring sites. **Attachment A** contains a detailed discussion regarding the decision-making process for identifying parameters that will be monitored at each receiving water and outfall monitoring site.

## 1.3 CIMP OVERVIEW

The primary purpose of this CIMP is to outline the process for collecting data to meet the goals and requirements of the MRP. This CIMP is designed to provide the BCWVG the information necessary to guide water quality program management decisions. This CIMP provides information on sample collection and analysis methodologies. Additionally, the monitoring will provide a means to measure compliance with the Permit. The MRP, as outlined in the Permit, is composed of five elements, including:

1. Receiving Water Monitoring
2. Stormwater Outfall Monitoring
3. Non-Stormwater (NSW) Outfall Monitoring
4. New Development/Redevelopment Effectiveness Tracking
5. Regional Studies

In addition to the five elements, which are presented as sections in this CIMP, a specific trash and plastic pellets monitoring section is included. An overview of each of the monitoring types and their monitoring objectives are described in the following subsections.

### 1.3.1 Receiving Water Monitoring

The objectives of the receiving water monitoring include the following:

- Determine whether the RWLs are being achieved;
- Assess trends in pollutant concentrations over time, or during specified conditions; and

- Determine whether the designated beneficial uses are fully supported as determined by water chemistry, as well as aquatic toxicity and bioassessment monitoring.

The receiving water monitoring will provide data to determine whether the RWLs and water quality objectives are being achieved in the BCWVG EWMP area and support management decisions related to EWMP implementation. Over time, the monitoring will allow the assessment of trends in pollutant concentrations. Receiving water monitoring consists of a long term assessment (LTA) monitoring station designed to meet all receiving water permit requirements and additional TMDL monitoring locations necessary to evaluate TMDL requirements, 303(d) listings, and other exceedances of RWLs. Implementation of the BCWVG CIMP will replace existing TMDL monitoring programs.

### **1.3.2 Stormwater Outfall Monitoring**

Stormwater outfall monitoring of discharges from the MS4 support meeting three objectives including:

- Determine the quality of stormwater discharge relative to municipal action levels.
- Determine whether stormwater discharge is in compliance with applicable stormwater WQBELs derived from TMDL WLAs.
- Determine whether the discharge causes or contributes to an exceedance of RWLs.

The stormwater outfall monitoring is designed to characterize stormwater discharges from MS4s at representative outfall locations within the EWMP area and support management decisions related to EWMP implementation. Additionally, implementation of the BCWVG CIMP will meet the TMDL outfall monitoring requirements.

### **1.3.3 Non-Stormwater Outfall Program**

Objectives of the NSW outfall monitoring include the following:

- Determine whether a discharge is in compliance with applicable NSW WQBELs derived from TMDL WLAs.
- Determine whether a discharge exceeds NSW action levels.
- Determine whether a discharge contributes to or causes an exceedance of RWLs.
- Assist in identifying illicit discharges.

The NSW Outfall Screening and Monitoring Program (NSW Outfall Program) is focused on dry weather discharges to receiving waters from major outfalls. The NSW Outfall Program provides monitoring to evaluate whether the NSW constituent load is adversely impacting the receiving water, serves to assess the Permit requirement to effectively prohibit NSW discharges, and serves to integrate with TMDL outfall monitoring efforts. These in turn support management decisions related to EWMP implementation.

### **1.3.4 New Development and Redevelopment Effectiveness Tracking**

Permittees are required to maintain a database to track specific information related to new and redevelopment projects subject to the minimum control measure (MCM) requirements in Part VI.D.7. The Permit contains data tracking requirements in Part X.A of the MRP and in Part VI.D.7.d.iv. The objective of the New Development/Redevelopment effectiveness tracking

is to track whether the conditions in the building permit issued by the Permittee are implemented to ensure the volume of stormwater associated with the design storm is retained on-site as required Part VI.D.7.c.i. of the Permit.

### **1.3.5 Trash and Plastic Pellet Monitoring**

The objective of the trash and plastic pellet monitoring is to satisfy the monitoring requirements of the *Ballona Creek Trash TMDL* and *Santa Monica Bay Nearshore and Offshore Debris TMDL* (Debris TMDL) in accordance with the requirement in Part III of the MRP.

### **1.3.6 Regional Studies**

Only one regional study is identified in the MRP: Southern California Stormwater Monitoring Coalition (SMC). The Southern California SMC is a collaborative effort between all of the Phase I MS4 NPDES Permittees and NPDES regulatory agencies in Southern California. The Southern California Coastal Water Research Project (SCCWRP) oversees the SMC. There are no SMC sites within the Ballona Creek watershed; however, the BCWMG is conducting bioassessment, toxicity, and water and sediment chemistry monitoring in the Ballona Creek Estuary on the same frequency as the SMC initiated programs. In this manner, the BCWMG is in turn supporting the goals of the SMC.

## 2 Receiving Water Monitoring Program

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The objectives of the receiving water monitoring (Part II.E.1 of the MRP) include the following:

- a. Determine whether the receiving water limitations are being achieved;
- b. Assess trends in pollutant concentrations over time, or during specified conditions; and
- c. Determine whether the designated beneficial uses are fully supported as determined by water chemistry, as well as aquatic toxicity and bioassessment monitoring.

The following presents the receiving water monitoring sites, monitoring parameters and frequency, as well as a discussion on monitoring coordination and summary of how the receiving water monitoring program meets the objectives of the MRP. The approach builds off the MRP requirements, the TMDL monitoring requirements (detailed in **Attachment A**), as well as existing monitoring programs in the watershed (detailed in **Attachment A**). Implementation of the BCWVG CIMP will replace existing TMDL monitoring programs.

### 2.1 RECEIVING WATER MONITORING SITES

The MRP specifies that receiving water monitoring shall be performed at previously designated mass emission stations (unless justification of why monitoring at the mass emission stations will be discontinued is provided), TMDL receiving water compliance points (as designated in TMDL Monitoring Plans approved by the Regional Board Executive Officer), and additional receiving water locations representative of the impacts from MS4 discharges. To address the different monitoring objectives, two types of monitoring sites are included in this CIMP.

- **LTA Receiving Water** – LTA receiving water monitoring is intended to determine if RWLs are achieved, assess trends in pollutant concentrations over time, and determine whether designated uses are supported.
- **TMDL Receiving Water** – TMDL receiving water monitoring is intended to evaluate attainment of, or progress in attaining TMDLs, and support evaluating the status of 303(d) listings and other RWL exceedances specific to other reaches in the watershed.

LTA monitoring provides a long-term record to understand conditions within the EWMP area, for the full suite of parameters, including TMDL parameters. TMDL monitoring addresses TMDL related constituents and provides monitoring locations to assess other identified exceedances of RWLs determined through an analysis of existing and future data.

Both LTA and TMDL monitoring have been ongoing for some time in the BCWVG area. Monitoring similar to LTA monitoring was required on the mainstem of Ballona Creek by the previous MS4 Permit and conducted at the previously designated mass emission station. TMDL monitoring sites were required in Ballona Creek Reaches 1 and 2, Ballona Creek Estuary, Sepulveda Channel, Centinela Creek, Benedict Canyon Channel, and Del Rey Lagoon. To meet the TMDL requirements three Coordinated Monitoring Programs (CMPs) were developed and were considered during CIMP site selection:

- *Ballona Creek, Ballona Estuary, & Sepulveda Channel Bacteria TMDL Coordinated Monitoring Plan* (BC Bacteria CMP)

- *Ballona Creek Metals TMDL and Ballona Creek Estuary Toxic Pollutants TMDL Coordinated Monitoring Plan* (BC Metals and Toxics CMP)
- *Total Maximum Daily Load for Bacteria in Ballona Creek, Ballona Estuary, and Sepulveda Channel: Coordinated Monitoring Plan for Del Rey Lagoon* (Del Rey Lagoon CMP)

The receiving water monitoring sites in the BCWMP EWMP area and the type of monitoring (e.g., LTA or TMDL) that will be conducted at each site are summarized in **Table 5**. The locations of the monitoring sites are shown in **Figure 2**. Each constituent required for monitoring by the MRP is addressed by at least one of the two types of receiving water monitoring. A summary of constituents which will be monitored at each of the receiving water monitoring sites is presented in **Section 2.2**.

The receiving water monitoring sites meet the MRP objectives and support an understanding of potential impacts associated with MS4 discharges. However, as described in the MRP (Part II.E.1), receiving water sites are intended to assess receiving water conditions. An exceedance of a RWL at a receiving water site does not on its own indicate MS4 discharges caused or contributed to the RWL exceedance. As the receiving water sites also receive runoff from non-MS4 sources, including open space and other permitted discharges, the exceedance of a RWL may have been caused or contributed to by a non-MS4 source. A determination regarding whether MS4 discharges caused or contributed to a RWL exceedance should be made using data collected through outfall monitoring.

**Table 5. Receiving Water Monitoring Sites**

Site ID	Water Body/Location	Previous Site Name Used in TMDL Coordinated Monitoring Programs	Coordinates		Monitoring Type	
			Latitude	Longitude	LTA	TMDL
BC_02_SAW	Ballona Creek Reach 2 at Sawtelle Blvd	BC-2	33.998293	-118.402035	X	X
BC_02_ING	Ballona Creek Reach 2 at Inglewood Blvd	BC-1; BCB-5	33.989385 <sup>(1)</sup>	-118.412169 <sup>(1)</sup>		X
BC_01_WAS	Ballona Creek Reach 1 at W Washington Blvd	BCB-1	34.032252	-118.375328		X
BC_01_NAT	Ballona Creek Reach 1 at National Blvd	BC-3	34.027953	-118.376366		X
BCC_DUQ	Benedict Canyon Channel upstream of confluence with Ballona Creek	BCB-3	34.015141	-118.390655		X
SC_CUL	Sepulveda Channel at Culver Blvd	BC-4; BCB-4	33.998319	-118.415671		X
CC_ING	Centinela Creek at Inglewood Blvd	BCB-7	33.987368	-118.409549		X
CC_CEN	Centinela Creek at Centinela Ave	BC-5	33.985321	-118.413104		X
DRL_BCE	Del Rey Lagoon at outlet to the Ballona Creek Estuary	BCB-9	33.962820	-118.451837		X
BCE_MCC	Ballona Creek Estuary at McConnell Ave	BCB-6	33.981657	-118.422380		X
BCE_CUL <sup>(2)</sup>	Ballona Creek Estuary downstream of Culver Blvd	BCE-4	33.971000 <sup>(3)</sup>	-118.439000 <sup>(3)</sup>		X
BCE_PAC <sup>(2)</sup>	Ballona Creek Estuary at Pacific Ave	BCE-2; BCB-8	33.963035	-118.453415		X

1. Bacteria monitoring will occur at 33.989891, -118.411571.

2. Bed sediment and fish tissue monitoring site.

3. General vicinity of monitoring site. Actual location where bed sediment and tissue samples are collected may vary slightly.

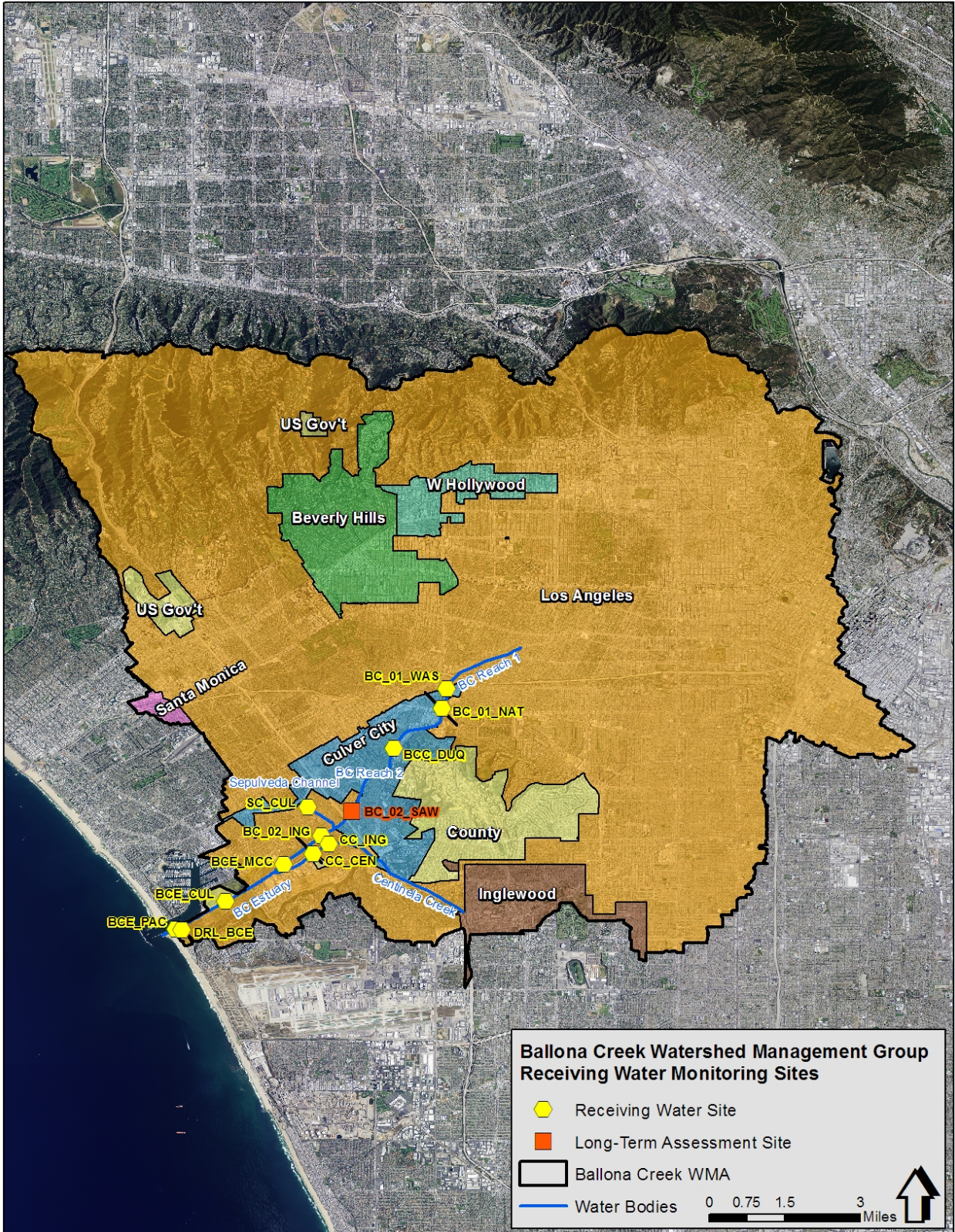


Figure 2. Overview of Receiving Water Monitoring Sites

### 2.1.1 Long Term Assessment Monitoring Site

One of the primary objectives of receiving water monitoring is to assess trends in pollutant concentrations over time, or during specified conditions. As a result, the primary characteristic of an ideal receiving water assessment monitoring site is a robust dataset of previously collected monitoring results so that trends in pollutant concentrations over time, or during specified conditions, can be assessed.

This CIMP LTA station will be located at Ballona Creek at Sawtelle Boulevard. There are two current receiving water monitoring sites located at Ballona Creek at Sawtelle Boulevard: (1) the historical mass emission station (S01) and (2) a BC Metals and Toxics CMP site (BC-2). Locating the LTA site at Sawtelle Boulevard will provide a long historical record by which to assess trends over time and evaluate the long-term attainment of RWLs and beneficial uses within the EWMP area. This site will also be utilized to support TMDL monitoring. The location of the LTA monitoring site is shown on **Figure 2. Attachment B** provides a summary of the monitoring site, associated attributes, and photographs.

Another primary role of the LTA site is to identify additional constituents for monitoring at other locations within the watershed. If exceedances are observed at the LTA site as described in **Section 2.2** monitoring for those constituents will be added to upstream sites.

### 2.1.2 TMDL Sites

Within the BCWMP EWMP area, TMDL monitoring sites are required in Ballona Creek Reaches 1 and 2, Ballona Creek Estuary, Sepulveda Channel, Centinela Creek, Benedict Canyon Channel, and Del Rey Lagoon. Twelve TMDL sites will be monitored under this CIMP. The following briefly describes how existing TMDL monitoring sites are incorporated into this CIMP. Note that upon approval by the Regional Board Executive Officer, the CIMP will effectively replace the existing CMPs.

The five water quality monitoring sites monitored as part of the BC Metals and Toxics CMP (BC sites in **Table 5**) will be used as TMDL monitoring sites. Of the six sediment quality and bioaccumulation monitoring sites, two monitoring sites will be utilized to eliminate redundancy. The sediment and bioaccumulation monitoring sites are the two sites where fish tissue bioaccumulation monitoring has been most successful (BC Metals and Toxics CMP monitoring sites BCE-2 and BCE-4).

The eight sites included in the BC Bacteria CMP (the BCB-1 through BCB-8 sites in **Table 5**) are also included as TMDL monitoring sites, with one exception to eliminate the collection of data that is duplicative. The BCB-2 monitoring site has been removed given that the data collected at this site are almost indistinguishable from the data collected at the other BC Bacteria CMP site located in Ballona Creek Reach 2 (BCB-5). Details for this analysis are provided in **Attachment B**. The one site included in the Del Rey Lagoon CMP (BCB-9 in **Table 5**) is also a TMDL monitoring site. The TMDL monitoring sites are listed in **Table 5** and shown on **Figure 2. Attachment B** provides a summary of the monitoring sites, associated attributes, and photographs.

## 2.2 MONITORED PARAMETERS AND FREQUENCY OF MONITORING

Each constituent required for monitoring by the MRP is addressed by at least one of the two types of receiving water monitoring (LTA or TMDL). Constituents for monitoring were based on the water quality priorities. A summary of constituents, which will be monitored at each of the Ballona Creek mainstem and Ballona Creek Estuary receiving water monitoring sites, is presented in **Table 6**. A summary of constituents, which will be monitored at each of the Ballona Creek tributary receiving water monitoring sites, is presented in **Table 7**. Analytical methods, detection limits, sampling methods, and sample handling procedures are detailed in **Attachment C**. In addition, details regarding the collection of quality assurance/quality control (QA/QC) samples are outlined in **Attachment C**.

As described in **Section 11**, data collected as part of the BCWVG CIMP will be reviewed and changes to the constituents and frequencies listed in **Table 6** and **Table 7** will be discussed in the annual report and implemented starting no later than the first CIMP event of the next monitoring year (i.e., the first event after July 1 of the year following the annual report submittal). Data collected at the LTA site will be used to identify additional constituents for monitoring at other locations within the watershed. Except for constituents for which a TMDL has been established and interim compliance milestone dates have not passed or are currently being attained, monitoring for a new constituent would be initiated at the BCE\_PAC, CC\_CEN, and SC\_CUL receiving water monitoring sites if there are two consecutive exceedances observed during the same condition (i.e., wet or dry weather) at the LTA site and would continue until the deactivation criterion is triggered. The deactivation criterion is two consecutive samples that do not exceed RWLs during the same condition (i.e., wet or dry weather). The same activation/deactivation criterion was utilized in the BC Metals and Toxics CMP. The two consecutive exceedance/non-exceedance activation/deactivation criteria are used to avoid the possibility of performing additional sampling to compensate for one-time events that may be a result of sampling and/or analytical error.

**Table 6. List of Parameters to be Monitored at Ballona Creek Mainstem and Ballona Creek Estuary Receiving Water Monitoring Sites and Annual Frequency (wet/dry)<sup>(1)</sup>**

Parameters	Estuary			Reach 1			Reach 2	
	BCE_PAC	BCE_CUL	BCE_MCC	BC_01_WAS	BC_01_NAT	BC_02_SAW	BC_02_ING	
Flow and field parameters <sup>(2)</sup>								Frequency is equal to the number of times a site is visited for monitoring
Pollutants identified in Table E-2 of the MRP <sup>(3)</sup> and not otherwise addressed below								1 <sup>(4)</sup> /1 <sup>(4)</sup>
Total Coliform, <i>E. coli</i> , Enterococcus	52 <sup>(5)</sup>		52 <sup>(5)</sup>					
<i>E. coli</i>				52 <sup>(5,6)</sup>				52 <sup>(5)</sup>
Aquatic Toxicity and Toxicity Identification Evaluation (TIE), if necessary						3/9		2/1
Hardness						3/9		3/9
Total Suspended Solids (TSS)	3/2				3/9	3/9		3/0
Suspended Sediment Concentration (SSC)								3/0
TDS and Settleable Solids								3/0
Suspended Sediment: Cadmium, Copper, Lead, Silver, Zinc, Chlordane <sup>(7)</sup> , DDT <sup>(8)</sup> , PCBs <sup>(9)</sup> , and PAHs <sup>(10)</sup>								3/0
Tissue: Chlordane <sup>(7)</sup> , DDT <sup>(8)</sup> , and PCBs <sup>(9)</sup>	Annually							
Bed Sediment: Total Organic Carbon (TOC), grain size, Cadmium, Copper, Lead, Silver, Zinc, Chlordane <sup>(7)</sup> , DDT <sup>(8)</sup> , PCBs <sup>(9)</sup> , and PAHs <sup>(10)</sup>	Annually	Annually						
Sediment Toxicity Testing	Annually	Annually						
Bioassessment	Once every 5 years	Once every 5 years						
Copper (total and dissolved)	3/2					3/9		3/9
Lead (total and dissolved)	0/2					3/9		3/9
Zinc (total and dissolved)	3/0					3/9		3/9
Selenium (total)								3/2
Cadmium (total and dissolved)						3/0		3/0
Mercury (total)	3/2					3/2		3/2

Parameters	Estuary			Reach 1		Reach 2	
	BCE_PAC	BCE_CUL	BCE_MCC	BC_01_WAS	BC_01_NAT	BC_02_SAW	BC_02_ING
Nickel (total and dissolved)	0/2						
Silver (total and dissolved)	3/0				3/0		
Ammonia						0/2	
Dibenzo(a,h)anthracene	0/2						
Indeno(1,2,3-cd)pyrene	0/2						

- Annual frequency listed as number of wet/dry-weather events per year, respectively (e.g., 3/2 signifies three wet and two dry weather events per year).
- Field parameters are defined as DO, pH, temperature, and specific conductivity. Flow will not be collected at sites located in the BCE. Consistent with the BC Bacteria CMP. Flow and field parameters will not be monitored during weekly bacteria monitoring events unless additional constituents are monitored at a site during the event.
- All pollutants identified in Table E-2 of the MRP not already explicitly addressed by monitoring at this site.
- Monitoring frequency only applies during the first year of monitoring. For constituents identified in Table E-2 of the MRP that are not detected at the Method Detection Limit (MDL) or the result is below the lowest applicable water quality objective, additional monitoring will not be conducted (i.e., the monitoring frequency will become 0/0). For constituents detected above the lowest applicable water quality objective, future monitoring will be conducted at the frequency specified in the MRP (i.e., the monitoring frequency will become 3/2).
- Monitoring frequency is weekly regardless of the weather condition.
- Consistent with the data analysis conducted for the BC Bacteria TMDL Staff Report, a 1:1 *E. coli* to fecal coliform ratio will be used.
- As outlined in **Attachment D**, chlordanes includes analyses for the following species: alpha-chlordane, gamma-chlordane, gamma-chlordane, cis-Nonachlor, and trans-Nonachlor.
- DDT includes analyses for the following species: 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.
- As outlined in **Attachment D**, PCBs includes analyses for all aroclor species when analyzed in water and the following 54 PCB congeners when analyzed in water, tissue, sediment, or suspended solids: 8, 18, 28, 31, 33, 37, 44, 49, 52, 56, 60, 66, 70, 74, 77, 81, 87, 95, 97, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132, 138, 141, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 174, 177, 180, 183, 187, 189, 194, 195, 201, 203, 206, and 209.
- As outlined in **Attachment D**, PAHs includes analyses for the following species: acenaphthene, anthracene, biphenyl, naphthalene, 2,6-dimethylnaphthalene, fluorene, 1-methylnaphthalene, 2-methylnaphthalene, 1-methylphenanthrene, phenanthrene, benzo(a)anthracene, benzo(a)pyrene, benzo(e)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, perylene, and pyrene.

**Table 7. Summary of Constituents to be Monitored at Ballona Creek Tributary Receiving Water Monitoring Sites and Annual Frequency (wet/dry)<sup>(1)</sup>**

Constituents	Del Rey Lagoon		Benedict Canyon Channel		Centinela Creek		Sepulveda Channel	
	DRL_BCE		BCC_DUQ		CC_ING	CC_CEN	SC_CUL	
Flow and field parameters <sup>(2)</sup>	Frequency is equal to the number of times a site is visited for monitoring							
Total Coliform, <i>E. coli</i> , Enterococcus	52 <sup>(3)</sup>		52 <sup>(3)</sup>		52 <sup>(3)</sup>			
<i>E. coli</i>			52 <sup>(3)</sup>				52 <sup>(3)</sup>	
Hardness						3/9		3/9
TSS						3/9		3/9
SSC						3/0		
TDS and Settleable Solids						3/0		
Suspended Sediment: Cadmium, Copper, Lead, Silver, Zinc, Chlordane <sup>(4)</sup> , DDT <sup>(5)</sup> , PCBs <sup>(6)</sup> , and PAHs <sup>(7)</sup>						3/0 <sup>(8)</sup>		
Copper (total and dissolved)						3/9		3/9
Lead (total and dissolved)						3/9		3/9
Zinc (total and dissolved)						3/9		3/9
Selenium (total)						3/2		3/2
Cadmium (total and dissolved)						3/0		
Silver (total and dissolved)						3/0		
Ammonia								0/2
Indeno(1,2,3-cd)pyrene						3/0		
Chrysene						3/0		
Benzo(a)anthracene						3/0		
Benzo(k)fluoranthene						3/0		

1. Annual frequency listed as number of wet-weather/dry-weather events per year, respectively (e.g., 3/2 signifies three wet weather and two dry weather events per year).
2. Field parameters are defined as DO, pH, temperature, and specific conductivity. Consistent with the BC Bacteria CMP, flow and field parameters will not be monitored during weekly bacteria monitoring events unless additional constituents are monitored at a site during the event.
3. Monitoring frequency is weekly regardless of the weather condition.
4. As outlined in **Attachment D**, chlordane includes analyses for the following species: alpha-chlordane, gamma-chlordane, oychlordane, cis-Nonachlor, and trans-Nonachlor.
5. DDT includes analyses for the following species: 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.
6. As outlined in **Attachment D**, PCBs includes analyses for the following all aroclor species when analyzed in water and the following 54 PCB congeners when analyzed in water, tissue, sediment, or suspended solids: 8, 18, 28, 31, 33, 37, 44, 49, 52, 56, 60, 66, 70, 74, 77, 81, 87, 95, 97, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132, 138, 141, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 174, 177, 180, 183, 187, 189, 194, 195, 201, 203, 206, and 209. The selected PCBs were identified from a variety of sources including the CTR, California Sediment Quality Objectives, and the BIGHT 2013 study.

7. As outlined in **Attachment D**, PAHs includes analyses for the following species: acenaphthene, anthracene, biphenyl, naphthalene, 2,6-dimethylnaphthalene, fluorene, 1-methylnaphthalene, 2-methylnaphthalene, 1-methylphenanthrene, phenanthrene, benzo(a)anthracene, benzo(a)pyrene, benzo(e)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, perylene, and pyrene as these are the PAHs identified in the California Sediment Quality Objectives.

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## 2.3 WEATHER CONDITIONS

Monitoring will occur during dry and wet conditions. Dry weather is defined in the MRP as when the flow of the receiving waterbody is less than 20 percent greater than the base flow or, in the case of an estuary, on days with less than 0.1 inch of rain and those days not less than three days after a rain event of 0.1 inch or greater within the watershed, as measured from at least 50 percent of Los Angeles County Department of Public Works (LACDPW) controlled rain gauges within the watershed. Wet weather conditions are defined in the MRP as when the receiving waterbody has flow that is at least 20 percent greater than its base flow or, in the case of an estuary, during a storm event of greater than or equal to 0.1 inch of precipitation. TMDLs within the Ballona Creek watershed have defined wet weather as when the maximum daily flow rate is equal to or greater than 64 cubic feet per second (cfs) and dry weather as below 64 cfs at the Sawtelle Blvd flow gauge. As such, for the purposes of this CIMP, weather conditions will be defined as follows:

- **Dry Weather:** When the flow of the receiving waterbody is less than 64 cfs at the Sawtelle Blvd flow gauge<sup>1</sup> **and** when there is less than 0.1 inch of rain in the previous three days.
- **Wet Weather:** When the flow of the receiving waterbody is equal to or greater than 64 cfs at the Sawtelle Blvd flow gauge<sup>2</sup> **and** when there is at least 0.1 inch of rain during the targeted storm event.

Note that if rainfall begins after dry weather monitoring has been initiated, then dry weather monitoring will be suspended and continued on a subsequent day when weather conditions meet the dry weather conditions. Generally, grab samples will be collected during dry weather and composite samples will be collected during wet weather. Grab samples will be used for dry weather sampling events because the composition of the receiving water will change less over time; and thus, the grab sample can sufficiently characterize the receiving water. Grab samples during dry weather are consistent with similar programs within the region. However, to sufficiently characterize the receiving water during wet weather, composite samples will generally be used for wet weather sampling events. Grab samples may be utilized to collect wet weather sampling in certain situations, which may include, but are not limited to, when the constituent of interest requires the use of grab samples (e.g., *E. coli* and oil and grease), situations where it is unsafe to collect composite samples, or to perform investigative monitoring where composite sampling or installation of an automatic sample compositor (autosampler) may not be warranted. For safety purposes, when wet weather grab sampling is conducted, samples may be taken from slightly upstream or downstream of the designated monitoring location.

The MRP includes specific criteria for the time of monitoring events. With the exception of bacteria and metals monitoring, most constituents will be monitored during two dry weather monitoring events. For dry weather toxicity monitoring, sampling must take place during the historically driest month. As a result, the dry weather monitoring event that includes toxicity

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<sup>1</sup> The wet weather flow trigger for an individual receiving water monitoring location may be set to 20% above the base dry weather flow at that site.

<sup>2</sup> *Ibid.*

monitoring will be conducted in July. The second dry weather monitoring event will take place during January unless sampling during another month is deemed to be necessary or preferable.

All reasonable efforts will be made to monitor the first significant rain event of the storm year (first flush). The targeted storm events for wet weather sampling will be selected based on a reasonable probability that the events will result in substantially increased flows in Ballona Creek over at least 12 hours; however, it may be necessary to target smaller storms in some instances. Sufficient precipitation is needed to produce runoff and increase flow. The decision to sample a storm event will be made in consultation with weather forecasting information services after a quantitative precipitation forecast (QPF) has been determined. All efforts will be made to collect wet weather samples from all sites during a single targeted storm event. However, safety or other factors may make it infeasible to collect some or all samples from a given storm event. For example, storm events that will require field crews to collect wet weather samples during holidays and/or weekends may not be sampled due to sample collection or laboratory staffing constraints.

Additional information to support evaluating weather conditions and targeting wet weather sampling events is provided in **Attachment C**.

## **2.4 MONITORING COORDINATION**

This CIMP is written to outline the monitoring requirements to assess the BCWVG MS4 Permit requirements. Coordination with other monitoring programs may occur in the future, where data from other programs may be used to fulfill or supplement BCWVG data.

## **2.5 RECEIVING WATER MONITORING SUMMARY**

A summary of how the receiving water monitoring program meets the intended objectives of the receiving water monitoring program outlined in Part II.E.1 of the MRP is presented in **Table 8**. The schedule for implementing receiving water monitoring is presented in **Section 13**.

**Table 8. Summary of Receiving Water Monitoring Program Objectives**

MRP Objective	CIMP Component Meeting Objective
Determine whether the RWLs are being achieved.	<ul style="list-style-type: none"> <li>• Twelve (12) total receiving water monitoring sites.</li> <li>• Receiving water monitoring sites located as required by TMDLs.</li> <li>• Constituents added for monitoring based on the water quality priorities (i.e., the constituents at the highest risk of exceeding RWLs).</li> </ul>
Assess trends in pollutant concentrations over time, or during specified conditions.	<ul style="list-style-type: none"> <li>• Monitoring at previously monitored mass emission station to be continued.</li> <li>• Monitoring at all previously monitored water quality TMDL receiving water monitoring sites to be continued, with one exception to avoid duplicative efforts.</li> <li>• Monitoring at previously monitored sediment and bioassessment TMDL receiving water monitoring sites with longest historical record to be continued.</li> <li>• Monitoring at previously monitored storm-borne sediment receiving water monitoring sites to be continued.</li> <li>• Weekly bacteria monitoring at eight (8) receiving water monitoring sites.</li> <li>• Monitoring during dry weather and wet weather at frequency specified in the MRP.</li> <li>• Constituents added for monitoring based on the water quality priorities.</li> </ul>
Determine whether the designated beneficial uses are fully supported as determined by water chemistry, as well as aquatic toxicity and bioassessment monitoring.	<ul style="list-style-type: none"> <li>• At least one monitoring site located in each waterbody specified in the Basin Plan.</li> <li>• Aquatic toxicity monitoring to be conducted during dry and wet weather.</li> <li>• Bioassessment, aquatic toxicity, and water and sediment chemistry monitoring to be conducted in the Ballona Creek Estuary.</li> <li>• Constituents added for monitoring based on the water quality priorities.</li> </ul>

### 3 MS4 Infrastructure Database

To meet the requirements of Part VII.A of the MRP, a map(s) and/or database of the MS4's storm drains, channels, and outfalls must be submitted with this CIMP and include detailed information (as described in the Permit, page E20-21). Each year, the map and associated database are required to be updated to incorporate the most recent characterization data for outfalls with significant NSW discharge.

The NSW Outfall Program requires the development of an MS4 outfall database by the time that this CIMP is submitted. The objective of the MS4 database is to geographically link the characteristics of the outfalls within the BCWVG EWMP area with watershed characteristics including: subwatershed, waterbody, land use, and effective impervious area. The information will be compiled into geographic information systems (GIS) layers as described in the following subsections.

#### 3.1 AVAILABLE INFORMATION

A GIS database was submitted concurrently with this CIMP and contains the elements described in **Table 9**. Given that the BCWVG is continually gathering information and that the information being gathered is continually being imported into the BCWVG's GIS layers, **Table 9** represents a snapshot of the elements that are available at the date of submittal of this CIMP.

**Table 9. MS4 Database Elements Submitted with CIMP**

Permit Requirement	Database Element	Submitted
VII.A.1	Surface water bodies within the BCWVG jurisdictions.	X
VII.A.2	Watershed (HUC-12) boundary.	X
VII.A.3	Land use overlay.	X
VII.A.5	Jurisdictional boundaries.	X
VII.A.6	The location and length of all open channel and underground pipes 18 inches in diameter or greater (with the exception of catch basin connector pipes).	X
VII.A.7	The location of all dry weather diversions.	X
VII.A.8	The location of all major MS4 outfalls within the Permittee's jurisdictional boundary. Each major outfall shall be assigned an alphanumeric identifier, which must be noted on the map.	X <sup>(1)</sup>
VII.A.10	Storm drain outfall catchment areas for each major outfall within the Permittee(s) jurisdiction.	X <sup>(2)</sup>
Each mapped MS4 outfall shall be linked to a database containing descriptive and monitoring data associated with the outfall. The data shall include:		
VII.A.11.a	Ownership	X
VII.A.11.b	Coordinates	X
VII.A.11.c	Physical description	X

1. All outfalls greater than 36 inches have been defined. Outfalls that are considered "major" for other reasons as identified in the Permit (see Permit Attachment A page A-11 for complete definition of major outfalls) have not been defined at this time. The database will be updated as information is developed.
2. Storm drain outfalls were linked in the database to the modeling subwatersheds to provide information on the contributing areas. Detailed analysis of storm drain outfall catchment areas will be developed as described in **Table 10**.

### 3.2 PENDING INFORMATION AND SCHEDULE FOR COMPLETION

The elements described in **Table 10** represent pending information that is primarily expected to be an outcome of implementing the NSW Outfall Program as noted in the **Table 10** footnotes. As such, a schedule for completing each of the elements is provided. As the data become available, they will be entered into the GIS and water quality databases. Each year, the storm drains, channels, outfalls, and associated databases will be updated to incorporate the most recent characterization data for outfalls with significant NSW discharge. The updates will be included as part of the annual reporting to the Regional Board.

**Table 10. MS4 Database Elements to Be Developed**

Permit Requirement	Database Element	To Be Developed	Date of Submission
VII.A.4	Effective Impervious Area (EIA) overlay (if available).	X	As Available
VII.A.9	Notation of outfalls with significant NSW discharges (to be updated annually).	X <sup>1</sup>	December 2015
VII.A.10	Detailed analysis of storm drain outfall catchment areas for any new outfall monitoring locations, outfalls identified as having significant NSW discharges, and outfalls addressed by structural BMPs.	X <sup>2</sup>	Ongoing
Each mapped MS4 outfall shall be linked to a database containing descriptive and monitoring data associated with the outfall. The data shall include:			
VII.A.11.d	Photographs of the outfall, where possible, to provide baseline information to track operation and maintenance needs over time	X <sup>3</sup>	December 2015
VII.A.11.e	Determination of whether the outfall conveys significant NSW discharges.	X <sup>1</sup>	December 2015
VII.A.11.f	Stormwater and non-stormwater monitoring data	X <sup>4</sup>	Ongoing

1. The determination of significant will be made after the initial screening process outlined in this CIMP is completed using the criteria presented in **Section 5.2**.
2. Storm drain outfalls were linked in the database to the modeling subwatersheds to provide information on the contributing areas. Detailed analysis of storm drain outfall catchment areas for the stormwater outfall monitoring sites have been developed and additional detailed analysis for any new outfall monitoring locations, outfalls identified as having significant NSW discharges, and outfalls addressed by structural BMPs will be conducted as needed.
3. These data will be gathered as part of the screening and monitoring program and will be added to the database as they are gathered.
4. These data will be gathered as part of the screening and monitoring program and will be added to a separate water quality database as they are gathered.

## 4 Stormwater Outfall Monitoring

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As outlined in the MRP (Part VIII.A of the MRP), stormwater discharges from the MS4 shall be monitored at outfalls and/or alternative access points such as manholes or in channels representative of the land uses within the Permittee's jurisdiction to support meeting the three objectives of the stormwater outfall based monitoring program:

- a. Determine the quality of a Permittee's discharge relative to municipal action levels, as described in Attachment G of MS4 Permit;
- b. Determine whether a Permittee's discharge is in compliance with applicable WQBELs derived from TMDL WLAs; and
- c. Determine whether a Permittee's discharge causes or contributes to an exceedance of RWLs.

### 4.1 STORMWATER OUTFALL MONITORING SITES

Three stormwater outfall monitoring sites were selected for the BCWVG EWMP area with one site located in each of the three major waterbodies (Ballona Creek, Sepulveda Channel, and Centinela Creek). The sites were selected based on an evaluation of the land uses draining to the outfall location, the jurisdictions draining to the outfall location (with an emphasis placed on receiving drainage from as many jurisdictions as possible), the safety and accessibility of the site, and the ability to use autosampler equipment at the location. The primary criterion for selecting the monitoring sites was the representativeness of the land uses within the estimated outfall catchment area as compared to the BCWVG EWMP area as a whole. The selected sites are representative of the land uses within the BCWVG EWMP area as shown in **Table 13**. The data collected at the monitored outfalls will be considered representative of all MS4 discharge within the EWMP area. The resulting data will be applied to all BCWVG members represented by the site, regardless of whether a site is located within a particular jurisdiction. Because of this approach, evaluation of whether BCWVG members caused or contributed to exceedances of WQBELs and/or RWLs may be based on comingled discharges or data not collected within a given jurisdiction.

A "representative" approach to characterizing stormwater discharges is used rather than selecting individual sites for each jurisdiction. The "representative" approach provides the level of information necessary to support management decisions and evaluate whether MS4 discharges cause or contribute to exceedances. The "representative" approach also allows for a coordinated approach aimed at assessing inter-event variability (e.g., for different storm events) in stormwater discharge quality which is much greater than the variability between individual outfall drainages or major land uses. Based on stormwater monitoring results from other programs in California, discharge quality from drainages with similar mixed land uses is not substantially different. Furthermore, due to the high variability in discharge quality at any given site during wet weather, it will be impossible to distinguish statistically between drainages. As such, given the high variability typical of stormwater pollutant levels, and with only a few storm events that can be collected per year given climatic conditions, it will not be possible to make *meaningful* distinctions between drainages, either within land use types, across land use types, or between jurisdictions. Management implementation by the Permittees is also expected to be relatively consistent throughout the watershed, so additional focus on geographic differences is

not necessary. This means that only a handful of sites are needed to adequately characterize residential land use discharge quality within the watershed. Realistically achievable changes in stormwater runoff quality or loads (e.g., 20–50% reductions) are statistically demonstrable only over relatively long periods of time ( $\geq 10$  years). The approach to monitor one outfall for each major waterbody will provide the representative data needed to meet the specific MRP objectives for stormwater outfall monitoring and support management decisions of the BCWMG. Additional monitoring sites will not provide significant improvements in representation or characterization of discharge quality, or additional information for discharge quality management. For additional details on the analysis to support the approach to one site per major waterbody, please see **Attachment B**.

Summary information for the three stormwater outfall monitoring sites is presented in **Table 11** and the locations are shown on **Figure 3**. **Table 12** identifies the outfalls which would be considered representative of each of the BCWMG members. Additionally, **Table 12** identifies the receiving waters to which the outfall sites may be considered applicable. That is, if an exceedance was observed in a receiving water, the outfall data would be reviewed to determine if an individual BCWMG member caused or contributed to the exceedance.

**Attachment B** presents additional details of the sites. Additionally, alternate sites are identified in **Attachment B** in the event the primary sites are not accessible, are determined to backflow during high flow conditions to the extent that a representative sample cannot be obtained, or are unsafe for sampling. For all three stormwater outfall monitoring sites, if determined to be preferable, sampling may occur at a manhole located upstream of each of the location where the outfall discharges to a receiving water.

**Table 11. Stormwater Outfall Monitoring Sites**

Site Characteristic	Waterbody The Outfall Directly Discharges To		
	Ballona Creek	Sepulveda Channel	Centinela Creek
Site Name	BC_SW_FAI	SC_SW_WAS	CC_SW_LAC
Jurisdiction Where Site is Located	City of Los Angeles	Culver City	Inglewood
Jurisdictions Discharging to Site	Beverly Hills, City of Los Angeles, West Hollywood	City of Los Angeles, Culver City	City of Los Angeles, County of Los Angeles, Inglewood
Drain Name	BI 0054 –Pico Blvd	BI 0425 Line G - S Culver City	BI 0273 – BI 0443 U1
Size	136 inches	66 inches	186 inches
Shape	Rectangular	Round	Rectangular
Material	Reinforced Concrete Box	Reinforced Concrete Pipe	Reinforced Concrete Box
Latitude	34.03825	33.99986	33.96777
Longitude	-118.36910	-118.41757	-118.37057

**Table 12. BCWMG Member Represented by Each Stormwater Outfall Monitoring Site<sup>(1), (2)</sup>**

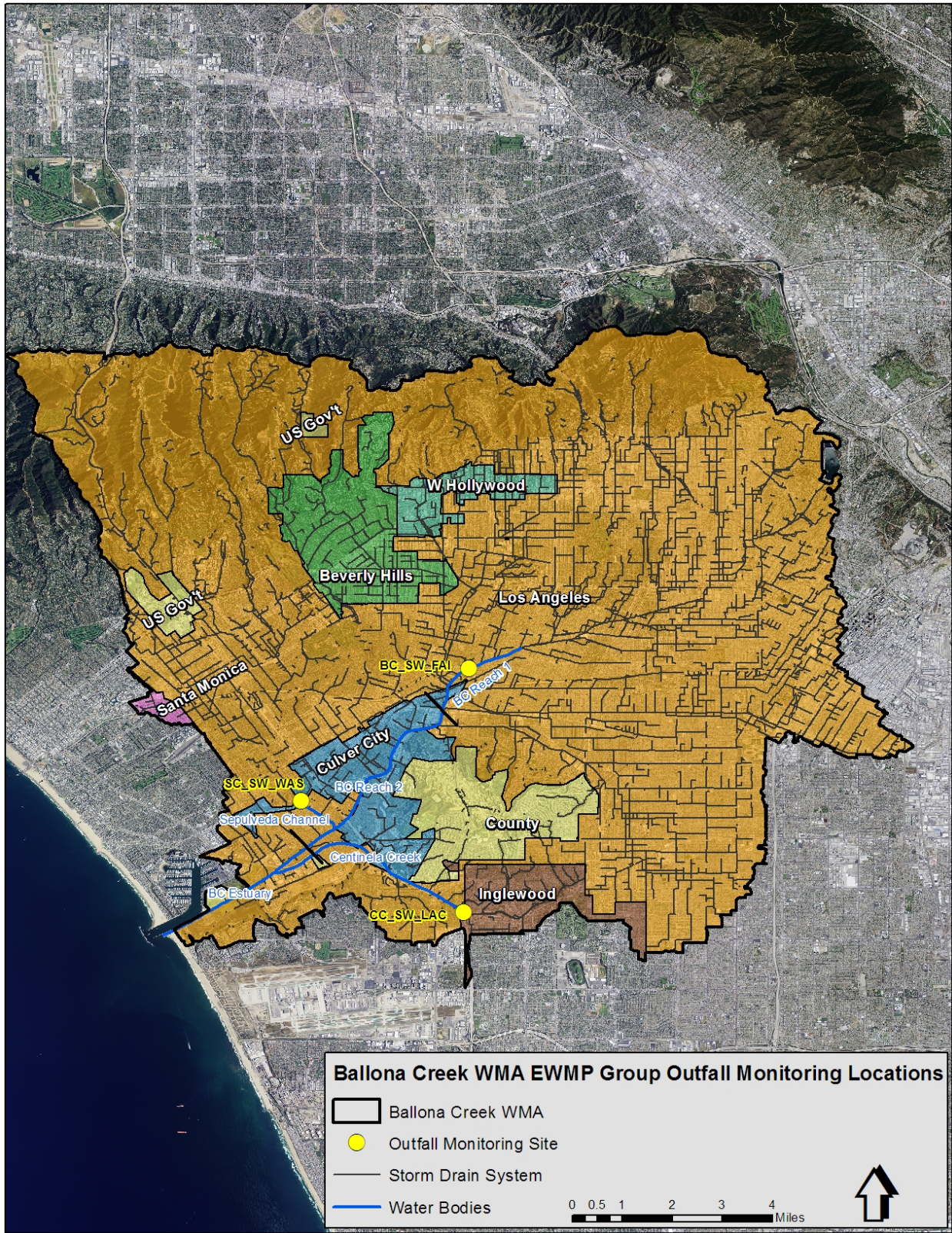
Jurisdiction	Site	Ballona Creek			Tributaries	
		Estuary	Reach 2	Reach 1	Sepulveda Channel	Centinela Creek
Beverly Hills	BC_SW_FAI	X	X	X(D)		
	BC_SW_FAI	X	X	X(D)		
City of Los Angeles	CC_SW_LAC	X				X(D)
	SC_SW_WAS	X	X		X(D)	
County of Los Angeles	CC_SW_LAC	X				X(D)
Culver City	SC_SW_WAS	X	X	X	X(D)	X
Inglewood	CC_SW_LAC	X				X(D)
Santa Monica	SC_SW_WAS <sup>(3)</sup>	X	X		X(D)	
West Hollywood	BC_SW_FAI	X	X	X(D)		

1. Jurisdiction either discharges directly or indirectly to waterbody. A direct discharge indicates that an outfall that receives drainage from a jurisdiction discharges directly into the waterbody. An indirect discharge indicates that flow from a jurisdiction is discharged upstream of the waterbody. An X(D) represents the waterbody the outfall directly discharges to.
2. If an exceedance is observed in a waterbody, the paired data collected from the drains discharging directly and/or indirectly to the waterbody will be used to assess whether the BCWMG member caused or contributed to the exceedance.
3. Could be replaced by a more representative site from the Santa Monica Bay CIMP which has identified a monitoring site that likely provides a more representative characterization of the City of Santa Monica's stormwater discharges.

**Table 13. Land Use Summary, areas in square miles and percent of drainage**

Drainage	Percent of Jurisdiction <sup>(1)</sup>			
	Res	Com/Ind	Ag/Nur	Open
EWMP Area	71%	25%	<1%	4%
BC_SW_FAI	76%	23%	<1%	2%
SC_SW_WAS	86%	14%	<1%	<1%
CC_SW_LAC	68%	27%	<1%	5%

1. Land use classifications include: residential (Res), commercial and industrial (Com/Ind), agriculture and nursery (Ag/Nur), and open space (Open). Totals correspond to the percent of the total area considered in the EWMP.



**Figure 3. Stormwater Outfall Monitoring Locations Overview**

## 4.2 MONITORED PARAMETERS AND FREQUENCY

The requirements for parameters to be monitored are outlined in the Part VIII.B.1.c of the MRP. Parameters that will be monitored during three events at each stormwater outfall monitoring site are presented in **Table 14** and are based on the monitoring requirements of the waterbody to which they discharge, as well as downstream waterbodies. This list was generated from the current list of constituents monitored during wet weather in the receiving waters and will be updated as the constituents monitored during wet weather in the waterbody to which they discharge, as well as downstream waterbodies, are updated and/or changed based upon the data collected at the individual outfall site. Outfalls will be monitored for all required constituents except toxicity. Toxicity monitoring will occur when triggered by receiving water toxicity monitoring and Toxicity Identification Evaluation (TIE) results. Wet weather events for stormwater outfall monitoring will occur simultaneously with receiving water monitoring to the extent possible. To be consistent with receiving water monitoring, stormwater outfall monitoring will consist of collecting composite samples (except in certain situations as described in **Section 2.3**). Wet weather conditions for targeted storm events are described in **Section 2.3** and **Attachment C**. Analytical methods, detection limits, sampling methods, sample handling procedures, and details regarding the collection of QA/QC samples are detailed in **Attachment C**.

**Table 14. List of Parameters for Stormwater Outfall Monitoring**

Parameters <sup>(1)</sup>	Receiving Water to Which Outfall is Discharging		
	Ballona Creek	Centinela Creek	Sepulveda Channel
Flow, hardness, pH, dissolved oxygen, temperature, and specific conductivity	X	X	X
Table E-2 pollutants of the MRP detected above relevant objectives and not otherwise addressed below	X	X	X
<i>E. coli</i>	X	X	X
TSS	X	X	X
SSC	X		X
TDS	X		X
Settleable Solids	X		X
Chlordane <sup>(2)</sup>	X	X	X
DDTs <sup>(2)</sup>	X	X	X
PCBs <sup>(2)</sup>	X	X	X
PAHs <sup>(2)</sup>	X	X	X
Copper (total and dissolved)	X	X	X
Lead (total and dissolved)	X	X	X
Zinc (total and dissolved)	X	X	X
Mercury (total)	X	X	X
Cadmium (total and dissolved)	X	X	X
Silver (total and dissolved)	X	X	X
Indeno(1,2,3-cd)pyrene		X	
Chrysene		X	
Benzo(a)anthracene		X	

Parameters <sup>(1)</sup>	Receiving Water to Which Outfall is Discharging		
	Ballona Creek	Centinela Creek	Sepulveda Channel
Benzo(k)fluoranthene		X	

- As described in **Section 11**, data collected as part of this CIMP will be reviewed and changes to the constituents and frequencies as a result of exceedances in the receiving waters or as a result of toxicity testing will be discussed in the annual report and implemented starting no later than the first CIMP event of the next monitoring year (i.e., the first event after July 1 of the year following the annual report submittal).
- See **Table 6** for a summary of the constituents that comprise chlordane, DDTs, PCBs, and PAHs.

### 4.3 STORMWATER OUTFALL MONITORING SUMMARY

A summary of how the stormwater outfall monitoring program meets the intended objectives of the stormwater outfall monitoring program outlined in Part VIII.A of the MRP is presented in **Table 15**. The schedule for implementing stormwater outfall monitoring is presented in **Section 13**.

**Table 15. Summary of Stormwater Outfall Monitoring Program Objectives**

MRP Objective	CIMP Component Meeting Objective
Determine the quality of a Permittee's discharge relative to municipal action levels, as described in Attachment G of MS4 Permit.	<ul style="list-style-type: none"> <li>Stormwater outfall monitoring sites chosen using a representative land use approach.</li> <li>Stormwater outfall monitoring sites chosen to be representative of entire BCWVG EWMP area.</li> <li>Extensive list of constituents being collectively monitored at stormwater outfall monitoring sites.</li> </ul>
Determine whether a Permittee's discharge is in compliance with applicable WQBELs derived from TMDL WLAs.	<ul style="list-style-type: none"> <li>Stormwater outfall monitoring sites located in waterbodies with applicable WQBELs.</li> <li>Stormwater outfall monitoring sites chosen using a representative land use approach.</li> <li>List of constituents based on the water quality priorities which includes constituents with WQBELs derived from TMDL WLAs.</li> </ul>
Determine whether a Permittee's discharge causes or contributes to an exceedance of RWLs.	<ul style="list-style-type: none"> <li>One stormwater outfall monitoring site located in each waterbody.</li> <li>Monitoring frequency equal to receiving water monitoring frequency to enable determination of whether the Permittee's discharge is causing or contributing to any observed exceedances of water quality objectives in the receiving water.</li> <li>Stormwater outfall monitoring sites chosen using a representative land use approach.</li> <li>List of constituents based on the monitoring requirements of the waterbody to which they discharge, as well as downstream waterbodies.</li> </ul>

## 5 Non-Stormwater Outfall Program

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The objectives of the NSW Outfall Program include the following (Part II.E.3 of the MRP):

- a. Determine whether a Permittee's discharge is in compliance with applicable NSW WQBELs derived from TMDL WLAs;
- b. Determine whether a Permittee's discharge exceeds NSW action levels, as described in Attachment G of the MS4 Permit;
- c. Determine whether a Permittee's discharge contributes to or causes an exceedance of RWLs; and
- d. Assist a Permittee in identifying illicit discharges as described in Part VI.D.10 of the MS4 Permit.

Additionally, the outfall screening and monitoring process is intended to meet the following objectives (Part IX.A of the MRP):

1. Develop criteria or other means to ensure that all outfalls with significant NSW discharges are identified and assessed during the Permit term.
2. For outfalls determined to have significant NSW flow, determine whether flows are the result of illicit connections/illicit discharges (IC/IDs), authorized or conditionally exempt NSW flows, natural flows, or from unknown sources.
3. Refer information related to identified IC/IDs to the IC/ID Elimination Program (Part VI.D.10 of the Permit) for appropriate action.
4. Based on existing screening or monitoring data or other institutional knowledge, assess the impact of NSW discharges (other than identified IC/IDs) on the receiving water.
5. Prioritize monitoring of outfalls considering the potential threat to the receiving water and applicable TMDL compliance schedules.
6. Conduct monitoring or assess existing monitoring data to determine the impact of NSW discharges on the receiving water.
7. Conduct monitoring or other investigations to identify the source of pollutants in NSW discharges.
8. Use results of the screening process to evaluate the conditionally exempt NSW discharges identified in Parts III.A.2 and III.A.3 of the Permit and take appropriate actions pursuant to Part III.A.4.d of the Permit for those discharges that have been found to be a source of pollutants. Any future reclassification shall occur per the conditions in Parts III.A.2 or III.A.6 of the Permit.
9. Maximize the use of Permittee resources by integrating the screening and monitoring process into existing or planned CIMP efforts.

### 5.1 NON-STORMWATER OUTFALL SCREENING AND MONITORING PROGRAM

The NSW Outfall Program is focused on NSW discharges to receiving waters from major outfalls (i.e., discharges occurring during dry weather). The NSW Outfall Program is designed to

be complimentary to the individual BCWVG members IC/ID programs, established under Part VI.D.10 of the Permit.

In summary, the intent of the NSW Outfall Program is to demonstrate that the Permittees are effectively prohibiting NSW discharges that are not exempt or conditionally exempt discharges to receiving waters and to assess whether NSW discharges are causing or contributing to exceedances of RWLs. By detecting, identifying, and eliminating illicit discharges, the NSW Outfall Program will demonstrate Permittees' efforts to effectively prohibit NSW discharges to and from the MS4. Where NSW discharges are deemed "significant", the program will discern whether they are illicit, exempt, or conditionally exempt, and demonstrate whether the discharges may be causing or contributing to exceedances of RWLs.

For the receiving water and stormwater outfall monitoring programs, sufficient information is available, including guidance from the MRP, to support the identification of sites and begin the process of initiating water quality monitoring upon approval of this CIMP. For the NSW Outfall Program, the MRP specifies a process for screening, investigating, and ultimately monitoring. The outfall screening and investigation is intended to be completed prior to initiating monitoring for all constituents of interest at an individual outfall. A summary of the approach to address the required elements of the NSW Outfall Program is presented in **Table 16**. **Figure 4** presents a NSW Outfall Program flow diagram. Detailed discussion of each element is provided in the following subsections.

The water quality priorities and corresponding receiving water conditions were used to establish an approach for the NSW Outfall Program to ensure that, if actions must be taken at a storm drain, there is a corresponding water quality issue in the receiving water. Based on a review of the available information, *E. coli* was identified as the water quality priority that appears to be most appropriate to use when determining the significance of a NSW discharge for the following reasons:

1. Of the constituents addressed by TMDLs for which WQBELs and RWLs were incorporated into the Permit, *E. coli* consistently exceeds RWLs and the final dry weather compliance date for the BC Bacteria TMDL has passed. Metals appear to consistently meet the dry weather RWLs. All other TMDL related WQBELs and RWLs are primarily associated with wet weather discharges.
2. The BC Bacteria TMDL requires Permittees to conduct outfall monitoring.

Although the initial focus of the NSW Outfall Program will be on supporting and integrating the requirements with the BC Bacteria TMDL, this approach will consider the broader requirements of the Permit. Additionally, the NSW Outfall Program will likely be modified over time to reflect changing priorities within the BCWVG EWMP area.

**Table 16. Summary of the NSW Outfall Program Elements**

<b>Element</b>	<b>Description</b>	<b>Timing of Completion Identified in the Permit MRP</b>
1. Outfall Screening	Because data required to implement the NSW Outfall Program are not available, the Permittees will implement a screening process to determine which outfalls exhibit significant NSW discharges and those that do not require further investigation.	Prior to initiating source investigations.
2. Identification of outfalls with significant NSW discharge (Part IX.C of the MRP)	Based on data collected during the Outfall Screening process, Permittees will identify MS4 outfalls with significant NSW discharges.	
3. Inventory of Outfalls with NSW discharge (Part IX.D of the MRP)	Permittees will develop an inventory of major MS4 outfalls with known significant NSW discharges and those requiring no further assessment.	
4. Prioritized source investigation (Part IX.E of the MRP)	The Permittees will use the data collected as part of the Outfall Screening process to prioritize outfalls for source investigations.	
5. Identify sources of significant NSW discharges (Part IX.F of the MRP)	For outfalls exhibiting significant NSW discharges, the Permittees will perform source investigations per the established prioritization.	Source investigations will be conducted for 25% of the outfalls with significant NSW discharges by December 28, 2015 and 100% by December 28, 2017.
6. Monitoring NSW discharges exceeding criteria (Part IX.G of the MRP)	Using the information collected during screening and source investigation efforts, the Permittees will monitor outfalls that have been determined to convey significant NSW discharges comprised of either unknown or non-essential conditionally exempt NSW discharges, or continuing discharges attributed to illicit discharges.	Monitoring will commence within 90 days of completing the source investigations or after this CIMP has been approved by the Regional Board Executive Officer, whichever is later.

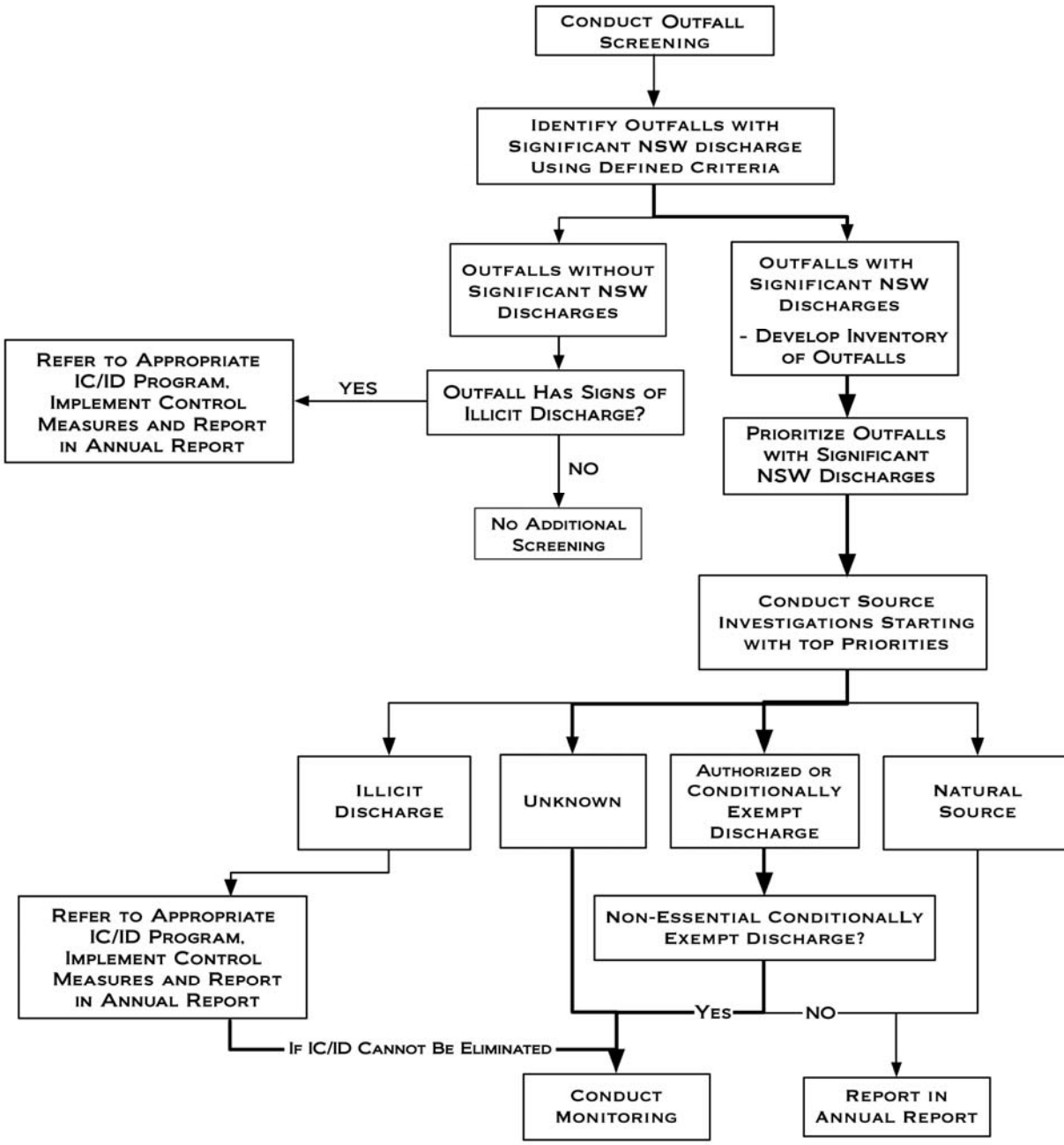


Figure 4. NSW Outfall Program Flow Diagram

## 5.2 IDENTIFICATION OF OUTFALLS WITH SIGNIFICANT NON-STORMWATER DISCHARGES

The data necessary to identify significant NSW discharges are not available at this time. Thus, outfall screening is necessary to collect the information to identify major outfalls exhibiting significant NSW discharges and develop the information needed for the inventory of outfalls with significant NSW discharges. The MRP (Part IX.C.1) states that other characteristics, as determined by the Permittee and incorporated within the screening program, may be used to determine significant NSW discharges. Data will be collected during the Outfall Screening

process to focus efforts on discharges that have, or the potential to have, an impact on receiving waters. For the reasons stated above (i.e., *E. coli* consistently exceeds RWLs, the final dry weather compliance date for the BC Bacteria TMDL has passed, and the BC Bacteria TMDL requires Permittees to conduct outfall monitoring), *E. coli* loading will serve as the primary characteristic for determining significant NSW discharges. **Table 17** presents the components of the Outfall Screening process and the characteristics that will be utilized to determine the outfalls with significant NSW discharges.

**Table 17. Approach for Establishing an Outfall Screening Process Utilizing *E. coli* Loading as the Key Characteristic for Determining Significant Non-Stormwater Discharges**

Component	Description
<b>Characteristics for Defining Significant NSW Discharges</b>	<p>The top 10% of the ranked outfalls will be determined to be significant NSW discharges. The ranking score considers the first two aspects of the discharge and then is calculated as the sum of the two ranking criteria in <b>bold</b>:</p> <ul style="list-style-type: none"> <li>○ Does the non-stormwater discharge reach the receiving water during dry weather? If yes, continue through the ranking criteria.</li> <li>○ Is the <i>E. coli</i> concentration in the NSW discharge above receiving water limits? If yes, continue through the ranking criteria.</li> <li>○ <b><i>E. coli</i> loading rate</b>: for each outfall monitored during the Outfall Screening process, the average <i>E. coli</i> loading rate from two outfall surveys will be calculated. The average <i>E. coli</i> loading rates from all outfalls will be ranked from highest to lowest. A ranking score will be applied to each outfall based on the deciles (10th percentile, 20<sup>th</sup> percentile, etc.,) of its average <i>E. coli</i> loading rate.</li> <li>○ <b><i>Number of dry weather exceedance days at the nearest downstream receiving water site</i></b>: a ranking score will also be applied to outfalls based on the number of dry weather exceedance days exhibited at the nearest downstream receiving water site. The total number of dry weather (summer dry and winter dry) exceedance days during the Outfall Screening process will be used. Each receiving water site will be ranked from highest to lowest based on the total number of exceedance days.</li> </ul>
<b>Data Collection</b>	Data that will be collected include accurate flow measurements and <i>E. coli</i> concentration. Additionally, the information needed to complete the inventory as described in <b>Section 5.3</b> will be collected.
<b>Frequency</b>	Twice as part of the initial screening process.

### 5.3 INVENTORY OF MS4 OUTFALLS WITH NON-STORMWATER DISCHARGES

An inventory of MS4 outfalls will be developed identifying those outfalls with known significant NSW discharges and those requiring no further assessment (Part IX.D of the MRP). If the MS4 outfall requires no further assessment, the inventory will include the rationale for the determination of no further action required. Potential rationale for a determination of no further action could include: 1) the outfall does not have flow; 2) the outfall does not have a known significant NSW discharge; or 3) discharges observed were determined to be exempted. The inventory will be recorded in the database required in Part VII.A of the MRP. Each year, the inventory will be updated to incorporate the most recent characterization data for outfalls with significant NSW discharges.

The following physical attributes of outfalls with significant NSW discharges will be included in the inventory and will be collected as part of the Outfall Screening process:

- a. Date and time of last visual observation or inspection
- b. Outfall alpha-numeric identifier
- c. Description of outfall structure including size (e.g., diameter and shape)
- d. Description of receiving water at the point of discharge (e.g., natural, soft-bottom with armored sides, trapezoidal, concrete channel)
- e. Latitude/longitude coordinates
- f. Nearest street address
- g. Parking, access, and safety considerations
- h. Photographs of outfall condition
- i. Photographs of significant NSW discharge (or indicators of discharge) unless safety considerations preclude obtaining photographs
- j. Estimation of discharge rate
- k. All diversions either upstream or downstream of the outfall
- l. Observations regarding discharge characteristics such as turbidity, odor, color, presence of debris, floatables, or characteristics that could aid in pollutant source identification.

#### **5.4 PRIORITIZED SOURCE IDENTIFICATION**

Once the major outfalls exhibiting significant NSW discharges have been identified through the Outfall Screening process and incorporated into the inventory, Part IX.E of the MRP requires that the Permittees prioritize the outfalls for further source investigations.

Once the prioritization is completed, a source identification schedule will be developed. The schedule will focus on the outfalls with the highest ranking scores first and ensure that source investigations are completed on no less than 25% of the outfalls with significant NSW discharges by December 28, 2015 and 100% by December 28, 2017.

As the approach for identifying significant NSW discharges already focuses on ranking outfalls based upon each outfall's individual ranking score, the following prioritization criteria will be utilized initially and may be revised as priorities in the EWMP area change:

1. Outfalls with the highest ranking score based on considerations related to *E. coli*.
2. Outfalls for which monitoring data exist and indicate recurring exceedances of one or more of the NSW Action Levels identified in Attachment G of the Permit.

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

As described in the Fact Sheet for the Permit, the screening and source identification components of the program are used to identify the source(s) and point(s) of origin of the NSW discharge. Based on the prioritized list of major outfalls with significant NSW discharges, investigations must be conducted to identify the source(s) or potential source(s) of non-stormwater flows.

Part IX.A.2 of the MRP requires Permittees to classify the source investigation results into one of four endpoints outlined as follows and summarized in **Table 18**:

- A. Illicit connections or illicit discharges: 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 the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or a conditionally exempt essential discharge, the Permittee must document the source. For non-essential conditionally exempt discharges, the Permittee 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.

**Table 18. Summary of Endpoints for Source Identification**

Endpoint	Follow-up	Action Required by Permit
A. Illicit Discharge or Connection	Refer to IC/ID program	Implement control measures and report in annual report. Monitor if cannot be eliminated.
B. Authorized or Conditionally Exempt Discharges <sup>1</sup>	Document and identify if essential or non-essential	Monitor non-essential discharges
C. Natural Flows	End investigation	Document and report in annual report
D. Unknown	Refer to IC/ID program	Monitor

1. Discharges authorized by a separate NPDES permit, a discharge subject to a Record of Decision approved by USEPA pursuant to section 121 of CERCLA, or is a conditionally exempt NSW discharge addressed by other requirements. Conditionally exempt NSW discharge addressed by other requirements are described in detail in Part III.A. Prohibitions – Non-Stormwater Discharges of the Permit.

Source investigations will be conducted using site-specific procedures based on the characteristics of the NSW discharge and the techniques utilized by the individual Permittee’s IC/ID program conducting the investigation. Investigations could include:

- Gathering field measurements to characterize the discharge.
- Following dry weather flows from the location where they are first observed in an upstream direction along the conveyance system.
- Compiling and reviewing available resources including past monitoring and investigation data, land use/MS4 maps, aerial photography, and property ownership information.

Where investigations determine the NSW source to be authorized, natural, or essential conditionally exempt flows, the investigation will be concluded and the next highest priority outfall will then be investigated. Where investigations determine that the source of the discharge

is non-essential conditionally exempt, an illicit discharge, or is unknown – further investigation will be considered to eliminate the discharge or demonstrate that it is not causing or contributing to receiving water impairments. In some cases, source investigations may ultimately lead to prioritized programmatic or structural BMPs. Where Permittees determine that the NSW discharge will be addressed through modifications to programs or by structural BMP implementation, the Permittee will incorporate the approach into the implementation schedule developed in the EWMP, and the outfall will be lowered in priority for investigation, such that the next highest priority outfall is addressed.

## **5.6 NON-STORMWATER DISCHARGE MONITORING**

As outlined in the MRP (Part II.E.3), outfalls with significant NSW discharges that remain unaddressed after source investigation shall be monitored to meet the following objectives:

- a. Determine whether a Permittee's discharge is in compliance with applicable NSW WQBELs derived from TMDL WLAs;
- b. Determine whether the quality of a Permittee's discharge exceeds NSW action levels, as described in Attachment G of the Permit; and,
- c. Determine whether a Permittee's discharge causes or contributes to an exceedance of RWLs.

Thus, outfalls that are determined to convey significant NSW discharges where the source investigations conclude that the source is attributable to a continued illicit discharge (Endpoint A from **Table 18**), non-essential conditionally exempt (Endpoint B from **Table 18**), or unknown (Endpoint D from **Table 18**), must be monitored. Monitoring will begin within 90 days of completing source investigations or after the Executive Officer approves this CIMP, whichever is later.

Monitoring for non-stormwater discharges will be more dynamic than either the receiving water or stormwater outfall monitoring. As non-stormwater discharges are addressed, monitoring at the outfall will cease. Additionally, if monitoring demonstrates that discharges do not exceed any WQBELs, non-stormwater action levels, or water quality standards for pollutants identified on the 303(d) list, monitoring will cease at an outfall after the first year or specific pollutants will be no longer be analyzed. Thus, the number and location of outfalls monitored as well as the pollutants monitored has the potential to change on an annual basis. The process for adapting monitoring locations and frequency is presented in **Section 11**.

### **5.6.1 Non-Stormwater Outfall-Based Monitoring Sites**

The Outfall Screening and prioritization processes will result in an inventory of outfalls that are required to be monitored per the Permit requirements. The information to determine the number and location of outfalls requiring monitoring will be available after the screening is completed.

### **5.6.2 Monitored Parameters and Frequency of Monitoring**

Part IX.G.2-4 of the MRP specifies the following monitoring frequency for NSW outfall monitoring:

- For outfalls subject to a dry weather TMDL, the monitoring frequency shall be per the approved TMDL monitoring plan or as otherwise specified in the TMDL or as specified in an approved CIMP.
- For outfalls not subject to dry weather TMDLs, four times per year approximately quarterly for first year.
- Monitoring can be eliminated or reduced to twice per year, beginning in the second year of monitoring if pollutant concentrations measured during the first year do not exceed WQBELs, NSW Action Levels, or water quality standards for pollutants identified on the 303(d) List.

While this monitoring frequency is specified in the Permit, it is important to link outfall monitoring with receiving water monitoring to place the data into the appropriate context. Additionally, during the Permit term, outfalls will be screened twice and those with significant NSW discharges will be subject to a source investigation and potentially abatement (e.g., diversion or treatment). To meet the requirements of the BC Bacteria TMDL, all drains, regardless of whether they contain significant NSW discharge will be monitored for *E. coli* and flow during the two screening events. Also, in reviewing water quality data, the other relevant WQBELs during dry weather (i.e., metals) are consistently meeting the dry weather interim targets based on the data analysis conducted during the water quality prioritization process (**Attachment A**). As a result, two dry weather monitoring events will be conducted annually on significant NSW discharges, following the screening events and coordinated with the receiving water monitoring events, to allow an evaluation of whether the significant NSW discharges are causing or contributing to any observed exceedances of water quality objectives in the receiving water.

The requirements for constituents to be monitored are outlined in the Part IX.G.1.a-e of the MRP. Outfalls will initially be monitored for all required constituents except toxicity. Toxicity monitoring will occur when triggered by receiving water toxicity monitoring and TIE results. An overview of the constituents required in the MRP for NSW monitoring is listed in **Table 19**. This list was generated from the current list of constituents monitored during dry weather in the receiving waters and will be updated as the constituents monitored during dry weather in the waterbody to which they discharge, as well as downstream waterbodies, are updated and/or based upon the data collected at the individual outfall site. To be consistent with receiving water monitoring, NSW monitoring will consist of collecting grab samples. Note that constituents associated with suspended sediments transported during wet weather (i.e., PCBs, DDTs, dieldrin, chlordane, and PAHs) are not included in the list of constituents presented in **Table 19** and should not be monitored during NSW outfall monitoring.

Analytical methods, detection limits, sampling methods, and sample handling procedures are detailed in **Attachment C**. In addition, details regarding the collection of QA/QC samples are outlined in **Attachment C**.

**Table 19. List of NSW Outfall Monitoring Parameters**

Parameters <sup>(1)</sup>	Receiving Water to Which Outfall is Discharging		
	Ballona Creek	Centinela Creek	Sepulveda Channel
Flow, hardness, pH, dissolved oxygen, temperature, and specific conductivity	X	X	X
Table E-2 pollutants detected above relevant objectives and not otherwise addressed below	X	X	X
<i>E. coli</i>	X	X	X
TSS	X	X	X
Copper (total and dissolved)	X	X	X
Lead (total and dissolved)	X	X	X
Zinc (total and dissolved)	X	X	X
Mercury (total)	X	X	X
Nickel (total and dissolved)	X	X	X
Ammonia	X		X

1. As described in **Section 11**, data collected as part of this CIMP will be reviewed and changes to the constituents and frequencies as a result of exceedances in the receiving waters or as a result of toxicity testing will be discussed in the annual report and implemented starting no later than the first CIMP event of the next monitoring year (i.e., the first event after July 1 of the year following the annual report submittal).

## 5.7 NON-STORMWATER OUTFALL MONITORING SUMMARY

A summary of how the NSW outfall monitoring program meets the intended objectives of the NSW outfall monitoring program outlined in Part II.E.3 of the MRP is presented in **Table 20**. The schedule for implementing the NSW Outfall Monitoring Program is presented in **Section 13**.

**Table 20. Summary of NSW Outfall Monitoring Program Objectives**

MRP Objective	CIMP Component Meeting Objective
Determine whether a Permittee's discharge is in compliance with applicable NSW WQBELs derived from TMDL WLAs	<ul style="list-style-type: none"> <li>List of constituents based on the water quality priorities which incorporate constituents with WQBELs derived from TMDL WLAs.</li> <li>When implementing the NSW Outfall Program, <i>E. coli</i> is used when determining the significance of a NSW discharge because, of the constituents addressed by TMDLs for which WQBELs and RWLs were incorporated into the Permit, <i>E. coli</i> consistently exceeds RWLs and the final dry weather compliance date for the BC Bacteria TMDL has passed.</li> </ul>
Determine whether a Permittee's discharge exceeds NSW action levels, as described in Attachment G of the MS4 Permit.	<ul style="list-style-type: none"> <li>Outfalls for which monitoring data exist and indicate recurring exceedances of one or more of the NSW action levels will be prioritized during implementation of the NSW Outfall Program.</li> <li>Extensive list of constituents being collectively monitored at NSW outfall monitoring sites.</li> </ul>
Determine whether a Permittee's discharge causes or contributes to an exceedance of RWLs.	<ul style="list-style-type: none"> <li>Monitoring frequency equal to the receiving water monitoring frequency during which time all constituents are monitored to enable determination of whether the Permittee's discharge is causing or contributing to any observed exceedances of water quality objectives in the receiving water.</li> <li>List of constituents based on the monitoring requirements of the waterbody to which they discharge, as well as downstream waterbodies.</li> </ul>
Assist a Permittee in identifying illicit discharges as described in Part VI.D.10 of the MS4 Permit.	<ul style="list-style-type: none"> <li>NSW Outfall Program is designed to be complimentary to IC/ID program.</li> <li>NSW Outfall Program provides a mechanism for the detection, identification, and elimination of illicit discharges.</li> <li>Where NSW discharges are deemed "significant", the NSW Outfall Program will discern whether the discharges are illicit, exempt, or conditionally exempt.</li> <li>If the source identification component of the NSW Outfall Program determines a discharge to be an illicit discharge, the discharge will be referred to the IC/ID program.</li> </ul>

## **6 Trash and Plastic Pellet Monitoring**

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The monitoring and reporting requirements of the Ballona Creek Trash TMDL (Trash TMDL) and Santa Monica Bay Nearshore and Offshore Debris TMDLs (Debris TMDL) are unique when compared with other components of this CIMP. The monitoring requirements of the Trash TMDLs may be broken up into two categories: (1) Trash and (2) Plastic Pellets. The following subsections detail how the BCWMG will meet the requirements specific to each category.

### **6.1 TRASH**

The following BCWMG members are implementing the Ballona Creek Trash and Santa Monica Marine Debris TMDLs through the installation of full capture devices: County of Los Angeles and the cities of Beverly Hills, Inglewood, Los Angeles, and Santa Monica. As such, no specific trash monitoring is required or will be conducted for these jurisdictions.

The following BCWMG members are utilizing a combination of full capture, partial capture systems and/or institutional controls: cities of Culver City and West Hollywood. These jurisdictions are required to measure the effectiveness of partial capture systems and institutional controls through a mass balance approach based on the trash daily generation rate (DGR) for a specific area. Details on how these BCWMG members will conduct the necessary monitoring are presented in **Attachment C**.

### **6.2 PLASTIC PELLETS**

Under the Santa Monica Bay Nearshore and Offshore Debris TMDL, jurisdictions identified as responsible parties for point sources of trash in the existing Ballona Creek Trash TMDL shall either prepare a Plastic Pellet Monitoring and Reporting Plan (PMRP) or demonstrate that a PMRP is not required under certain circumstances, as follows:

1. Responsible jurisdictions that have industrial facilities or activities related to the manufacturing, handling, or transportation of plastic pellets within their jurisdiction shall prepare a PMRP to (i) monitor the amount of plastic pellets being discharged from the MS4; (ii) establish triggers for increased industrial facility inspections and enforcement of SWPPP requirements for industrial facilities identified as responsible for the plastic pellet WLA herein; and (iii) address possible plastic pellet spills.
2. Responsible jurisdictions that have no industrial facilities or activities related to the manufacturing, handling, or transportation of plastic pellets, may not be required to conduct monitoring at MS4 outfalls, but shall be required to include a response plan in the PMRP. In order to be absolved of the requirement to conduct monitoring at MS4 outfalls, documentation of the absence of industrial facilities and activities within the jurisdiction that are related to the manufacturing, handling and transportation of plastic pellets must be provided in the proposed PMRP.
3. An MS4 Permittee may demonstrate to the Regional Board that it has only residential areas within its jurisdiction, and that it has limited commercial or industrial transportation corridors (rail and roadway), such that it is not considered a potential source of plastic pellets to Santa Monica Bay. Such demonstration may be submitted in lieu of a PMRP and must include the municipal zoning plan and other appropriate documentation. The

Executive Officer may approve an exemption from the requirement to prepare a PMRP for the MS4 Permittee on the basis of this demonstration, if appropriate.

The PMRP requirements apply to areas within the BCWVG's jurisdictions that contain industrial facilities that are related to the manufacturing, handling, or transportation of plastic pellets. Each BCWVG Member conducted an analysis to determine which one of the three categories listed above was applicable to their jurisdiction. The plastic pellet use category that each BCWVG Member is subject to and the associated requirement are detailed in **Table 21**. **Appendix 2** presents details on the determination of the categories presented in **Table 21** as well as a detailed PMRP and Spill Response Plan.

**Table 21. BCWVG Member Plastic Pellet Use Category and Associated Requirement**

BCWVG Member	Category <sup>(1)</sup>	Requirement
Los Angeles County	2	Spill Response Plan
City of Beverly Hills	2	Spill Response Plan
City of Culver City	2	Spill Response Plan
City of Inglewood	2	Spill Response Plan
City of Los Angeles	1	Plastic Pellet Monitoring and Reporting Plan (PMRP)
City of Santa Monica	2	Spill Response Plan
City of West Hollywood	2	Spill Response Plan
LACFCD	2	Spill Response Plan

1. Category 1 denotes jurisdictions that have industrial facilities or activities related to the manufacturing, handling, or transportation of plastic pellets. Category 2 represents jurisdictions that have no industrial facilities or activities related to the manufacturing, handling, or transportation of plastic pellets

## 7 New Development/Re-Development Effectiveness Tracking

BCWMG members are required to maintain databases to track specific information related to new and redevelopment projects subject to the MCM in Part VI.D.7. The specific data to be tracked is listed in Part X.A of the MRP (**Table 22**). The data will be used to assess the effectiveness of the LID requirements for land development and to fulfill reporting requirements. Although the data requirements are clear, the procedures for reviewing projects, tracking data, and reporting are different for each jurisdiction and may even be different across departments within the same jurisdiction. Due to the complexity of land development processes across jurisdictions, data management and tracking procedures will vary by jurisdiction. As such, the following subsections generally detail the requirements and approaches related to the new and redevelopment tracking requirements. Specifics are available from each BCWMG member.

**Table 22. Required Data to Track for New and Redevelopment Projects per Part X.A of the MRP**

✓ Name of the Project	✓ Project design storm volume (gallons or million gallons per day)
✓ Name of the Developer	✓ Percent of design storm volume to be retained onsite
✓ Project location and map <sup>1</sup>	✓ Design volume for water quality mitigation treatment BMPs (if any)
✓ Documentation of issuance of requirements to the developer	✓ One year, one hour storm intensity <sup>2</sup> (if flow through treatment BMPs are approved)
✓ 85 <sup>th</sup> percentile storm event for the project design (inches per 24 hours)	✓ Percent of design storm volume to be infiltrated at an offsite mitigation or groundwater replenishment site
✓ 95 <sup>th</sup> percentile storm event for projects draining to natural water bodies (inches per 24 hours)	✓ Percent of design storm volume to be retained or treated with biofiltration at an offsite retrofit project
✓ Other design criteria required to meet hydromodification requirements for drainages to natural water bodies	✓ Location and maps of offsite mitigation, groundwater replenishment, or retrofit sites <sup>1</sup>
✓ Project design storm (inches per 24 hours)	✓ Date of Certificate of Occupancy

1. Preferably linked to the GIS Storm Drain Map.

2. As depicted on the most recently issued isohyetal map published by the Los Angeles County hydrologist.

The Standard Urban Stormwater Mitigation Program (SUSMP) requirements implemented under the previous MS4 Permit (Order R4-01-182) laid the foundation for the MCMs contained in Part VI.D.7 of the current MS4 Permit. With implementation of the SUSMP, Permittees required post construction BMPs on applicable projects, developed standard requirements for project submittals, and began to track related data. The Permittees will build on the existing procedures for land development to ensure that all required project data is captured.

To meet the requirements of the Permit, internal procedures and data protocols that clearly define departmental roles and responsibilities pertaining to data collection, data management, and tracking will be utilized. These procedures will include points in the process where data are generated and tracked, who is responsible for tracking the data, and how the data will be

managed. Data management protocols and internal procedures, will also consider the land development data tracking requirements contained in Part VI.D.7.d.iv.(1)(a). These requirements are distinct from those listed in the MRP but will be addressed similarly. Data requirements under Part VI.D are contained in **Table 23**.

**Table 23. Required Data to Track for New and Redevelopment Projects per Part VI.D.7.d.iv.(1)(a)**

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✓ Municipal Project ID	✓ Maintenance Records
✓ State Waste Discharge Identification Number	✓ Inspection Date(s)
✓ Project Acreage	✓ Inspection Summary(ies)
✓ BMP Type and Description	✓ Corrective Action(s)
✓ BMP Location (coordinates)	✓ Date Certificate of Occupancy Issued
✓ Date of Acceptance	✓ Replacement or Repair Date
✓ Date of Maintenance Agreement	

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## 8 Regional Studies

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Only one regional study is identified in the MRP: Southern California SMC. The Southern California SMC is a collaborative effort between all of the Phase I MS4 NPDES Permittees and NPDES regulatory agencies in Southern California. SCCWRP oversees the management and implementation of the SMC.

The goal of the SMC is to develop technical information necessary to better understand stormwater mechanisms and impacts, and develop tools to effectively and efficiently improve stormwater decision-making. One program initiated under the SMC is a Regionally Consistent and Integrated Freshwater Stream Bioassessment Monitoring Program (Bioassessment Program). The SMC initiated the Bioassessment Program in 2009. The bioassessments are structured to occur in cycles of five years. Sampling under the first cycle concluded in 2013. The next five-year cycle is scheduled to begin in 2015, with additional special study monitoring scheduled to occur in 2014.

The MRP states that each Permittee shall be responsible for supporting the monitoring described at the sites within the watershed management area(s) that overlap with the Permittee's jurisdictional area. Support for the SMC has included monetary contributions to provide base support to SCCWRP (monitoring plan development, report writing, etc.) and/or in-kind contributions such as providing staff time for monitoring and site assessments. Currently, the SMC is not specifically implementing monitoring within the Ballona Creek watershed. As such, it does not appear that the BCWVG is required to provide support. However, the BCWVG is conducting bioassessment, toxicity, and water and sediment chemistry monitoring in the Ballona Creek Estuary on the same frequency as the SMC initiated programs. In this manner, the BCWVG is in turn supporting the goals of the SMC.

## **9 Special Studies**

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The MRP states that each Permittee be responsible for conducting special studies required in an effective TMDL or an approved TMDL Monitoring Plan. The effective TMDLs, revised TMDLs, and approved Monitoring Plans relevant to the BCWVG EWMP area do not require the completion of special studies. Special studies may be identified in the future and may either rely upon data collected through this CIMP or may be developed through a separate process.

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## 10 Non-Direct Measurements

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Environmental data (water, sediment, and tissue data) collected through other monitoring programs in the watershed will be incorporated to the extent practicable. The extent practicable will be dictated by the cost of gathering and compiling information from outside programs. It is not the intent or purpose of this CIMP to compile and analyze all available data. Environmental data reported by other entities will be evaluated for suitability for inclusion in this CIMP database and will be accepted if it meets the following requirements:

- Conducted and documented in accordance with the sampling procedures outlined in this CIMP.
- Sample collection is performed and documented by a competent party in accordance with applicable guidance and this CIMP.
- Sample analysis is conducted using approved analytical method by a certified analytical laboratory.

Non-direct measurements related to tidal measurements will be obtained from the National Oceanic and Atmospheric Administration. Flow and rainfall information will be obtained from the LACDPW as described in **Attachment C**.

# 11 Adaptive Management

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The adaptive management process will be utilized on an annual basis to evaluate this CIMP and update the monitoring requirements as necessary. As noted in this CIMP, several monitoring elements are dynamic and may require modifications to the monitoring sites, schedule, frequency or parameters. In particular, the NSW screening program and the toxicity monitoring will likely generate changes that need to be incorporated. This section lays out a range of possible modifications to this CIMP and the process for CIMP revision and update.

## 11.1 INTEGRATED MONITORING AND ASSESSMENT PROGRAM

This CIMP is based on the MRP requirements and analysis of existing data. As monitoring occurs, additional information will be gathered that will require modifications to this CIMP. Every year, an evaluation will be conducted to identify potential modifications resulting from the following:

- TIEs result in the identification of additional constituents that need to be monitored.
- Additional upstream receiving water monitoring is necessary to characterize the spatial extent of a RWL exceedance.
- Additional outfall monitoring is needed in response to RWL exceedances.
- NSW outfall sites will change as discharges are addressed.
- Monitoring data demonstrates that water quality objectives are not being exceeded in the receiving waters.
- Source investigations determine that MS4 discharges are not a source of a constituent.

The results from the monitoring are meant to tie into the EWMP as feedback for the water quality changes resulting from control measures implemented by the BCWVG. As a result, additional changes may be considered during the evaluation based on the control measure implementation needs.

## 11.2 CIMP REVISION PROCESS

This CIMP identifies a range of sampling that will likely result in data that will require changes to ensure monitoring meets the requirements and intent of the MRP and supports EWMP implementation. However, since many of those potential changes are identified in this CIMP, it should not be necessary to obtain Regional Board approval of modifications already considered in this CIMP to ensure timely implementation of appropriate modifications to monitoring. These changes are outlined in this section. Changes identified in this section will be discussed in the annual report and implemented starting no later than the first CIMP monitoring event of the next monitoring year (i.e., the first event after July 1 of the year following the annual report submittal), including:

1. Adding constituents (including but not limited to those which meet the activation criteria described in **Section 2.2**) at receiving water and/or outfall monitoring sites, increasing monitoring frequency, or adding sites as a result of requirements in the MRP (e.g., TIE results), procedures outlined in this CIMP or to further support meeting the monitoring objectives.

2. Discontinuing monitoring for Table E-2 constituents that are not identified as a water quality priority and are not detected at levels above relevant water quality objectives in the first year of monitoring.
3. Discontinuing monitoring of any non-TMDL constituent at a specified site if there are two consecutive monitoring events for the same condition (i.e., wet or dry weather) with no exceedances observed (i.e., constituents which meet the deactivation criteria described in **Section 2.2**).
4. Modifying methods for consistency with USEPA method requirements or to achieve lower detection limits.
5. Changing analytical laboratories.
6. Relocating an outfall monitoring location determined to be not representative of MS4 discharges in the BCWMP EWMP area (for reasons other than the observed water quality) or because monitoring at the site is not feasible.
7. Implementing the changes associated with conducting at least one re-assessment of the NSW Outfall Program during the Permit term.
8. Modifications to sampling protocols resulting from coordination with other watershed monitoring programs.

Should additional modifications be identified that are not specified in this section that would be major changes to the approach, the modifications will be proposed in the annual report and in a separate letter to the Regional Board requesting Executive Officer approval of the change. Upon receipt of written approval from the Executive Officer, this CIMP will be updated and a revised CIMP will be provided to the Regional Board.

## 12 Data Management and Reporting

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**Attachment D** details the procedures for managing and reporting data to meet the goals and objectives of this CIMP and the Permit. The details contained in **Attachment D** serve as a guide for ensuring that consistent protocols and procedures are in place for successful data management and reporting. Data management procedures include data review, verification, and validation.

Annual monitoring reports are required to be submitted by December 15 of every year. The annual monitoring reports will cover the monitoring period of July 1 through June 30. The annual monitoring reports will include the following:

- Watershed Summary Information
  - Watershed Management Area
  - Subwatershed (HUC-12) Descriptions
  - Description of Permittee(s) Drainage Area within the Subwatershed
- Annual Assessment and Reporting
  - Stormwater Control Measures
  - Effectiveness Assessment of Stormwater Control Measures
  - Non-stormwater Water Control Measures
  - Effectiveness Assessment of Non-Stormwater Control Measures
  - Integrated Monitoring Compliance Report
  - Adaptive Management Strategies
  - Supporting Data and Information.

Additionally, analytical data reports are required to be submitted on a semi-annual basis and will include the following:

- Exceedances applicable to WQBELs, RWLs, action levels, or aquatic toxicity thresholds
- Corresponding sample dates and monitoring locations.

Semi-annual data reports will be submitted with the annual report and six months prior to the annual report (June of each year). The mid-year data reports will cover the monitoring period of July 1 through December 31.

Furthermore, if any of the authorized or conditionally exempt essential NSW discharges are determined to be a source of pollutants that causes or contributes to an exceedance of applicable RWLs and/or WQBELs, Part III.A.4.e of the Permit requires that the Regional Board be notified within 30 days if the NSW discharge is an authorized discharge with coverage under a separate NPDES permit or authorized by USEPA under CERCLA, or a conditionally exempt essential NSW discharge or emergency NSW discharge.

Details on the reporting requirements from the MRP that will be submitted with the semi-annual analytical data reports and annual monitoring reports are presented in **Attachment D**. In addition to the requirements from the MRP, a discussion of how the reported data are to be used is included in **Attachment D**.

## 13 Schedule for CIMP Implementation

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Per the MRP, monitoring shall commence within 90 days after approval of this CIMP by the Executive Officer of the Regional Board. Implementation of all components of this CIMP will commence prior to or within 90 days of approval except for the following:

1. Plastic pellet monitoring, which is scheduled to begin per the Debris TMDL four years from the effective date of the TMDL (March 20, 2016)
2. New and redevelopment effectiveness tracking which will begin no later than the submittal of the Draft EWMP (June 28, 2015).

The status of implementation of the various components will vary based on the current status of implementation and the feasibility of collecting a sample within 90 days after approval of this CIMP (e.g., stormwater outfall monitoring). During the CIMP approval process all existing monitoring will continue. Within 90 days of CIMP approval, sample collection for all constituents at all dry weather receiving water sites and all constituents at all existing wet weather receiving water sites will commence. The remaining monitoring will be affected by the feasibility of collecting a sample within 90 days of CIMP approval. The two primary factors affecting the feasibility of sample collection upon approval of this CIMP relate to (1) autosampler installation and (2) monitoring that is dependent upon prerequisite information (e.g., monitoring of significant NSW discharges).

Autosamplers are used to characterize the water quality of a storm event. Receiving water wet weather samples and stormwater outfall samples will generally be collected as composite samples. As such, the installation of an autosampler is necessary before monitoring can commence. Given the continued use of previously monitored receiving water sites in Ballona Creek Reaches 1 and 2, Centinela Creek, and Sepulveda Channel, existing autosampling equipment can be utilized to conduct receiving water monitoring at these sites within 90 days of approval of this CIMP for constituents that were monitored prior to development of this CIMP and those newly identified for monitoring during CIMP development. However, given the addition of receiving water wet weather monitoring in the BCE at Pacific Avenue, an autosampler will likely need to be installed at the BCE\_PAC receiving water site before wet weather monitoring can commence. Similarly, an autosampler will likely be installed at each of the three stormwater outfall monitoring sites before stormwater outfall monitoring can commence.

The process for installing autosamplers includes numerous tasks that require multiple agency coordination and permitting. Numerous autosampler stations have been installed throughout the County and provide significant experience in understanding the challenges and timelines for designing, permitting, and installing autosampler stations. The following provides an overview of the tasks and timelines associated with autosampler installation and **Figure 6** presents a graphical representation of what would be considered a relatively straightforward installation timeframe:

- Detailed autosampler site configuration/design, which includes data collection and review, identification of permit requirements, concept design, development of summary

technical memos, and review by participating agencies and associated divisions: **12 months**

- Obtaining permits from one or more of the following entities: Army Corps of Engineers, LACFCD, US Fish and Wildlife Service, CA Department of Fish and Game, CA Coastal Commission, and the Regional Board: **3 to 10 months**
- Purchase of equipment via contractor or via agency procurement process (can occur somewhat concurrently with permitting): **2 to 6 months**
- Connecting to power via an upgrade to existing service or establishing new service: **1 to 6 months**
- Construction of monitoring station assuming no bid/award process: **1 month**
- Total time: **18 to 30 months**

To account for the time required for autosampler installation, a phased approach to sampling will be conducted for the wet weather receiving water and stormwater outfall elements of this CIMP (**Figure 5**). Phasing in the receiving water and stormwater outfall elements of this CIMP will allow evaluation of the sites to determine if any need to be changed due to significant contributions from non-MS4 sources or other reasons that sampling is not feasible at a site and one of the alternate or new sites must be utilized.

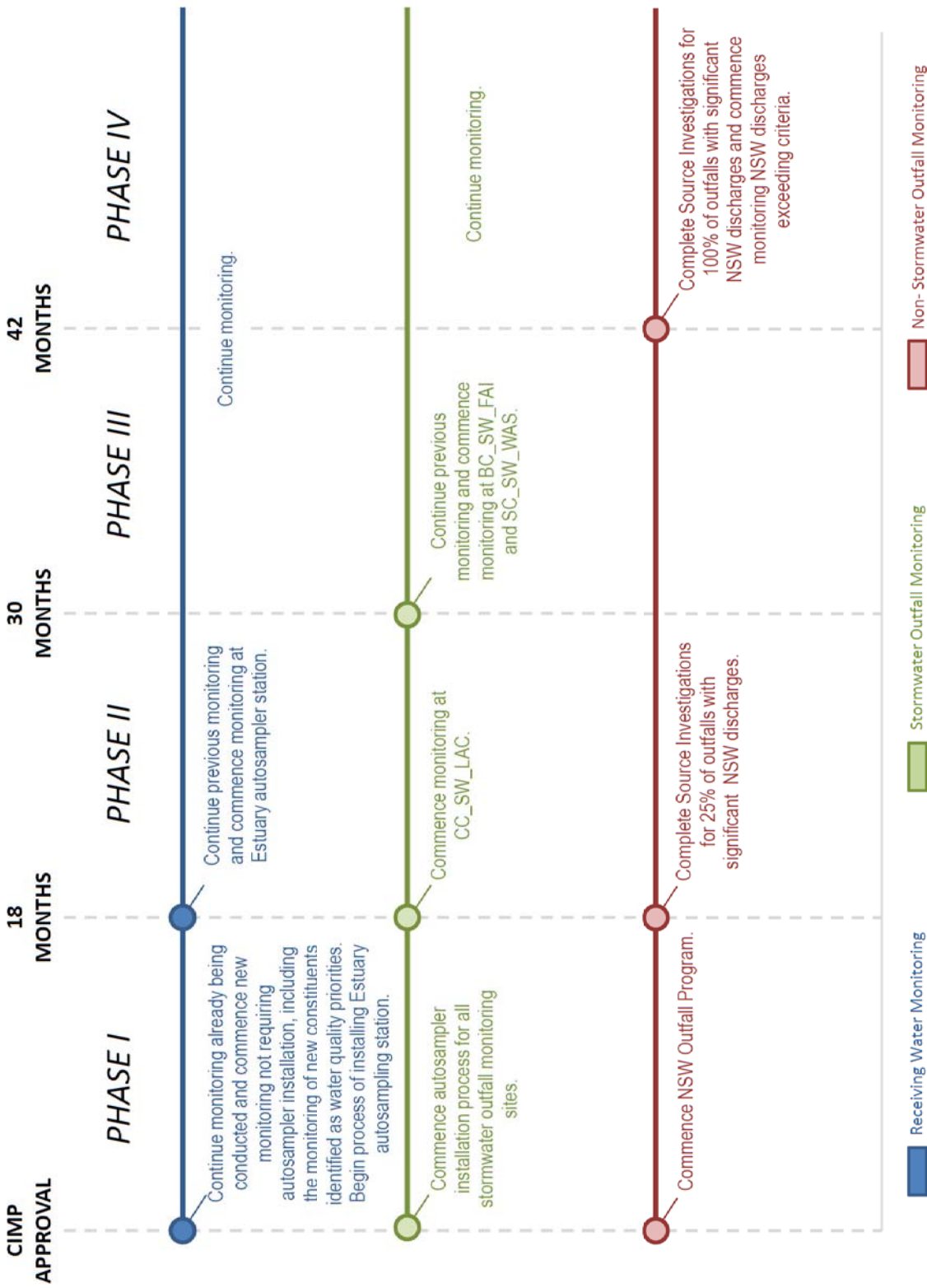
- Phase I of CIMP implementation will commence within 90 days after approval of this CIMP. Phase I receiving water monitoring will consist of **all** monitoring other than dry and wet weather monitoring conducted at the BCE\_PAC monitoring site due to the need to install an autosampler. Phase I stormwater outfall monitoring will consist of commencement of the autosampler installation process displayed in **Figure 6** for all three stormwater outfall monitoring sites. The primary challenges experienced during previous autosampler installation processes are permitting by non-BCWGM members (i.e., US Army Corps of Engineers) and establishment of power connections. In extreme cases, these challenges have caused the installation of equipment to take 36 months. However, the typical installation timeframe for conditions similar to the Ballona Creek EWMP area is 18 to 24 months.
- Phase II will commence 18 months from the approval of this CIMP to allow sufficient time for autosampler installation to be completed as detailed in **Figure 6**. Phase II (and all subsequent phases) receiving water monitoring will consist of the monitoring conducted during Phase I and the addition of wet weather monitoring conducted at the newly installed BCE\_PAC monitoring site. Phase II stormwater outfall monitoring will consist of monitoring conducted at the newly installed CC\_SW\_LAC monitoring site and the continuation of the autosampler installation process at the BC\_SW\_FAI and SC\_SW\_WAS monitoring sites.
- Phase III will commence 30 months from the approval of this CIMP to allow sufficient time for the installation of an additional two autosamplers. Phase III (and all subsequent phases) stormwater outfall monitoring will consist of the monitoring conducted during Phase II and the addition of stormwater outfall monitoring at the newly installed BC\_SW\_FAI and SC\_SW\_WAS monitoring sites.

As described in **Section 5**, the NSW Outfall Program consists of a process which consists of six elements which occur sequentially:

1. Outfall Screening
2. Identification of outfalls with significant NSW discharge
3. Inventory of outfalls with significant NSW discharge
4. Prioritized source investigation
5. Identify sources of significant NSW discharge
6. Monitoring significant NSW discharges exceeding criteria

To account for the time required to complete all six steps of the NSW Outfall Program, a phased approach to sampling as outlined in the MRP will be conducted for the NSW outfall elements of this CIMP. Phasing in the NSW outfall elements of this CIMP will provide the time necessary to complete each element of the NSW Outfall Program.

- Phase I will commence within 90 days after approval of this CIMP. Phase I NSW monitoring will consist of completion of elements one through three of the NSW Outfall Program and the completion of 25% of the source investigations included in element four of the NSW Outfall Program.
- Phases II and III NSW monitoring will consist of completion of the remaining 75% of the source investigations included in element four of the NSW Outfall Program. Phase IV will commence 42 months from the approval of this CIMP to allow sufficient time for all source investigations to be completed.
- Phase IV will consist of elements five and six of the NSW Outfall Program.



**Figure 5. Implementation Schedule for Major CIMP Elements**

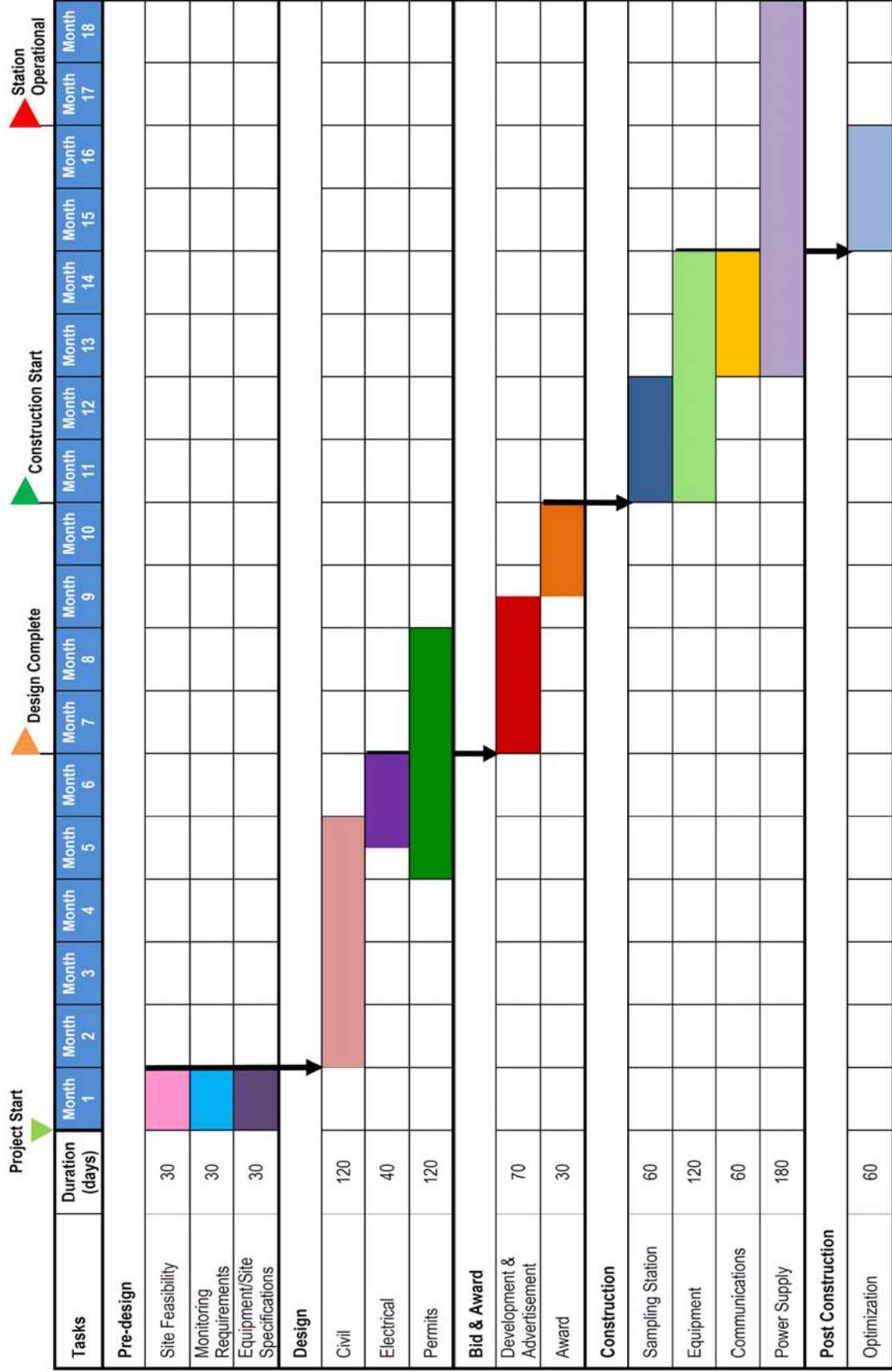


Figure 6. Typical Duration for the Establishment of a New Sampling Station Assuming a Streamlined Process

## 14 References

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