



STORMWATER MANAGEMENT PLAN MARINE CORPS BASE CAMP PENDLETON

September 25, 2019

Prepared for



**Naval Facilities Engineering Command Southwest
San Diego, California**

and

**Marine Corps Base Camp Pendleton
Environmental Security
Building 22165
San Diego, CA**

Prepared Under

**Contract N62470-14-D-9016
Delivery Order N6247318F5035**

Prepared by

CDM - AECOM
Multimedia Joint Venture

**999 Town and Country Road
Orange, California 92868**



COMMENTS AND QUESTIONS

At Marine Corps Base (MCB) Camp Pendleton, storm water management is a team effort and an ongoing process. Members of the public and Marines on the Base share in the responsibility to shape elements of the program and are encouraged to comment on this Storm Water Management Plan and participate in future updates to this document.

Comments and questions may be directed to:

Storm Water Section
Environmental Security, Building 22165
MCB Camp Pendleton, CA 92055-5008

To report an illicit discharge to the storm water conveyance system, call: (760) 725-9760.

TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS		vii
1	INTRODUCTION	1
1.1	The Benefits of Controlling Stormwater Runoff	1
1.2	Regulations Controlling Stormwater	2
1.3	Purpose of the SWMP	2
1.4	Frequency of SWMP Updates	3
1.5	Area Subject to the SWMP	3
1.6	Areas Not Covered by the SWMP	3
1.7	Developed Area, Population and Natural Drainage Systems	4
1.8	SWMP Scope and Structure	7
2	DISCHARGE PROHIBITIONS AND EFFLUENT LIMITATIONS	8
2.1	Discharge Prohibitions	8
2.1.1	Permit Requirements (Section B of the Permit)	8
2.2	Bacteria Effluent Limitations in the San Luis Rey Watershed	9
2.2.1	Permit Requirements (Section F.5.i of the Permit)	9
2.2.2	Tasks to Meet Bacteria Effluent Limitations	10
2.2.2.1	Investigation of MS4 Facilities with the Potential to Discharge Bacteria	10
2.2.2.2	Develop / Implement BMPs For Facilities with The Potential to Cause A Bacteria Discharge	10
2.2.2.3	Conduct Dry and Wet Weather Receiving Water Monitoring	10
2.2.2.4	Collaborate and Coordinate with other San Luis Rey Watershed Stakeholders	11
2.3	Trash Limitations	12
2.3.1	Regulatory Requirements (Trash Amendments)	12
2.3.1.1	Submit Preliminary Jurisdictional Maps identifying Priority Land Use Areas	12
2.3.1.2	Identify Compliance Method to Achieve the Trash Ban	12
2.3.1.3	Complete a Trash Assessment of the MS4 General Permit Territory	14
2.3.1.4	Submit Trash Compliance Implementation Plan	15
2.3.2	Progress Meeting the Trash Amendment Deadlines	15

3	SWMP PROGRAM MANAGEMENT.....	16
4	LEGAL AUTHORITY TO ENFORCE THE MS4 GENERAL PERMIT	19
4.1	Permit Requirements (Section F.5.a.1 of the Permit).....	19
4.2	Current Legal Authority Through Base Orders, Directives and Certification Statements ..	20
4.3	Current Vendor Contract Language Legal Authority	21
4.4	Certification Statement	21
4.4.1	Permit Requirements (Section F.5.a.1(iii) of the Permit)	21
4.4.2	Status of the Certification Statement	21
5	EDUCATION AND OUTREACH PROGRAM	22
5.1	Permit Requirements (Section F.5.b.2 of the Permit).....	22
5.1.1	Staff and Operator Training (Section F.5.b.3 of the Permit)	22
5.1.2	Pollution Prevention and Good Housekeeping (Section F.5.b.4 of the Permit)	23
5.2	Long-Term Education and Outreach Goals	23
5.3	Tasks, Responsibilities and Schedule	24
5.3.1	Task – Distribute Residential Flyers.....	24
5.3.2	Task – Provide Stormwater Awareness Training	25
5.3.3	Task - Distribute Operator Staff Level Posters.....	25
5.3.4	Task - Participate in Annual Earth Day Fair.....	25
5.3.5	Task - Distribute Stormwater BMPs.....	26
5.3.6	School Educational Programs.....	26
5.3.7	Responsibilities and Schedule	26
6	PUBLIC INVOLVEMENT AND PARTICIPATION PROGRAM.....	28
6.1	Permit Requirements (Section F.5.c of the Permit).....	28
6.2	Long-Term Public Involvement and Participation Goals	28
6.3	Tasks, Responsibilities and Schedule	29
6.3.1	Task - Install Additional Stormwater Plaques	29
6.3.2	Task - Maintain Stormwater Website	30
6.3.3	Task – Continue Public Participation in Cleanup and Grounds Maintenance.....	30
6.3.4	Responsibilities and Schedule	31

7	ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) PROGRAM	32
7.1	Permit Requirements (Section F.5.d of the Permit)	32
7.1.1	Outfall Mapping (Section F.5.d.1 of the Permit)	32
7.1.2	Field Sampling of Illicit Discharges (Section F.5.d.2 of the Permit)	32
7.1.3	IDDE Source Investigations / Corrective Actions (Section F.5.d.3 of the Permit)	32
7.2	Long-Term IDDE Program Goals	33
7.3	Tasks, Responsibilities and Schedule	34
7.3.1	Task – Track Sanitary Sewer Overflow Events	34
7.3.2	Task - Track Illicit Discharges Reported	34
7.3.3	Responsibilities and Schedule	34
8	CONSTRUCTION SITE RUNOFF CONTROL PROGRAM	35
8.1	Permit Requirements (Section F.5.e of the Permit)	35
8.2	Construction Site Runoff Control Program Goals	35
8.3	Tasks, Responsibilities and Schedule	36
8.3.1	Task – Ensure Construction Sites Comply with the CGP, if Required	36
8.3.2	Task – Require Construction Sites Apply BMPs to Prevent Stormwater Runoff	36
8.3.3	Task – Inspect Construction Sites to Confirm Compliance	36
8.3.4	Responsibilities and Schedule	37
9	STORMWATER POLLUTION PREVENTION / GOOD HOUSEKEEPING PROGRAM	38
9.1	Permit Requirements (Section F.5.f of the Permit)	38
9.1.1	Inventory and Map of Permittee-Owned or Operated Facilities (Section F.5.f.1 and F.5.f.2 of the Permit)	38
9.1.2	Facility Assessments (Section F.5.f.3 of the Permit)	38
9.1.3	Storm Water Pollution Prevention Plans (Section F.5.f.4 of the Permit)	38
9.1.4	Inspections, Visual Monitoring and Remedial Action (Section F.5.f.5 of the Permit)	38
9.1.5	Storm Drain System Assessment and Prioritization (Section F.5.f.6 of the Permit)	39
9.1.6	Maintenance of Storm Drain Systems (Section F.5.f.7 of the Permit)	40
9.1.7	Permittee Operations and Maintenance Activities (Section F.5.f.8 of the Permit)	40

9.1.8	Pesticide, Herbicide, and Fertilizer Application and New Landscape Design and Maintenance Management (Section F.5.f.9 of the Permit)	40
9.2	Pollution Prevention / Good Housekeeping Program Goals	41
9.3	Tasks, Responsibilities and Schedule	42
9.3.1	Task – Perform Facility Assessments to Identify Hotspots and Issue SWPPPs	42
9.3.2	Task - Inspect Hotspot BMPs and Perform Corrective Actions	42
9.3.3	Task – Perform Inspections and Maintenance of High Priority Storm Drains	44
9.3.4	Responsibilities and Schedule	45
10	POST-CONSTRUCTION STORMWATER MANAGEMENT PROGRAM	46
10.1	Permit Requirements (Section F.5.g of the Permit)	46
10.1.1	Site Design Measures (Section F.5.g.1 of the Permit)	46
10.1.2	Low Impact Development Design Standards (Section F.5.g.2 of the Permit)	47
10.1.3	Source Control Measures (Section F.5.g.2.a of the Permit)	48
10.1.4	Operation and Maintenance of Post-Construction Storm Water Management Measures (Section F.5.g.4 of the Permit)	49
10.2	Long-Term Post-Construction Stormwater Management Program Goals (Section F.5.g.6 of the Permit)	49
10.3	Tasks, Responsibilities and Schedule	50
10.3.1	Task – Identify Projects Subject to Site Design Measures	50
10.3.2	Task – Identify Projects Subject to LID	51
10.3.3	Task – Identify Projects Subject to Source Control Measures	51
10.3.4	Task - Implement O&M of New Development and Redevelopment BMPs	52
10.3.5	Responsibilities and Schedule	52

LIST OF APPENDICES

Appendix A: Glossary of Terms	A-1
Appendix B: Urbanized Development Area Subject to the MS4 General Permit	B-1
Appendix C: Stormwater Base Order	C-1
Appendix D: Legal Authority – Signed Certification Statement	D-1
Appendix E: Public Education Residential Flyer	E-1
Appendix F: Public Education Staff Level Poster	F-1
Appendix G: Public Education Earth Day Fair Posters	G-1
Appendix H: Operational Best Management Practices (BMPs)	H-1
Appendix I: BMPS For Construction Site Storm Water Runoff Control	I-1

Appendix J: Site Investigation Checklist Form

J-1

Appendix K: High Priority Stormwater Infrastructure Inspection Report

K-1

THIS PAGE INTENTIONALLY LEFT BLANK

ABBREVIATIONS AND ACRONYMS

BMP	best management practice
BO	Base Order
CASQA	California Stormwater Quality Association
CDFG	California Department of Fish and Game
CGP	Construction General Permit
CFR	Code of Federal Regulations
CSBP	California Stream Bioassessment Procedures
DoD	Department of Defense
U.S. EPA	U.S. Environmental Protection Agency
ES	Environmental Security
FEAD	Facilities, Engineering and Acquisition Division
FSC	Facilities Service Contracts
FMD	Facilities Maintenance Division
IC	illicit connection(s)
ID	illicit discharge(s)
INRMP	Integrated Natural Resources Management Plan
JPAO	Joint Public Affairs Office
LCAC	Landing Craft Air Cushion
LOG	Logistics
MCAS	Marine Corps Air Station
MCCS	Marine Corps Community Services
MEF	Marine Expeditionary Force
MEP	maximum extent practicable
MILCON	Military Construction
MRCD	Mission Resource Conservation District
MS4	municipal separate storm sewer system
MS4 General Permit	Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit, Order No. 2013-0001-DWQ, February 2013
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
O&M	operation and maintenance
O&T	Operations and Training
PCSWMP	post-construction storm water management plan
PEAIP	Program Effectiveness Assessment and Improvement Plan
PE/O	public education and outreach
PPV	public-private venture
PWD	Public Works Division
RFP	request for proposal
ROICC	Resident Officer in Charge of Construction
RWQCB	Regional Water Quality Control Board
SDRWQCB	San Diego Regional Water Quality Control Board
SJA	Staff Judge Advocate
SOP	standard operating procedure

SOW	Statement of Work
SWDIV	Southwest Division
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USMC	United States Marine Corps
WACO	Western Area Counsel Office

1 INTRODUCTION

The goal of this Storm Water Management Plan (SWMP) is to protect and improve the quality of surface water resources on Marine Corps Base (MCB) Camp Pendleton and comply with stormwater control regulations and permits, in a manner that is consistent with the Base's military training mission.

This section describes both the water quality benefits of controlling stormwater runoff, and the regulatory framework that shaped this SWMP.

1.1 The Benefits of Controlling Stormwater Runoff

The quality of surface water resources is directly impacted by the storm water runoff that flows through urbanized areas. In undeveloped or low density developed areas, many of the pollutants collected and carried in storm water runoff are filtered out as the water flows through natural depressions and vegetated areas. However, in densely developed and urban settings, much of the natural landscape and vegetation has been altered, graded, or paved, leaving little opportunity for accumulated pollutants to be filtered naturally. Urbanized areas typically have drainage systems designed to rapidly collect and convey storm water to land, creeks, rivers and the ocean to minimize flooding, bypassing the natural filtering processes. Unlike the wastewater sewer system, the storm water conveyance system does not connect to a publicly owned treatment works prior to discharging to receiving waters.

In addition, urbanization causes other changes in stormwater quality including increased loads of chemical pollutants leading to increased toxicity, and increased flow magnitude and frequency which directly contributes to stream bank erosion, destabilized roadway/bridge crossings, culvert blockage with sediments, and physical changes to stream, lake, and wetland habitats.

Some of the most common sources of pollutants in urban runoff include:

- (a) urban activities such as landscape maintenance, vehicle use and maintenance, home and building maintenance, outdoor material storage, construction related land disturbance, etc.;
- (b) impervious surfaces such as streets, rooftops, and parking lots which accumulate pollutants from drips, spills, aerial fallout, dumping, etc.; and
- (c) illegal dumping of pollutants into storm drains.

A wide range of pollutants can be contained in urban runoff, including petroleum products, pesticides, herbicides, fertilizers, dissolved metals, plant debris, yard and pet waste, litter, and sediments. These pollutants can negatively impact the water quality and beneficial uses of surface water. For example, urban runoff can alter the physical, chemical, and biological characteristics of receiving water bodies, thereby harming aquatic and terrestrial organisms. Urban runoff also can make beaches and rivers unsightly or unsafe for human contact (due to pathogens), thereby limiting recreational use of these resources. As a result, urban runoff directly impacts the health, recreational and beneficial uses of the receiving rivers, creeks, and ocean waters.

1.2 Regulations Controlling Stormwater

To address the problems with urban runoff, the Clean Water Act was amended to state that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge complies with a National Pollutant Discharge Elimination System (NPDES) permit. An additional amendment to the Clean Water Act added Section 402(p), which established a framework for regulating storm water discharges under the NPDES Program. Subsequently, in 1990, the U.S. Environmental Protection Agency (U.S. EPA) passed regulations for permitting storm water discharges from industrial sites and from municipal separate storm sewer systems (MS4) serving a population of 100,000 people or more. These regulations, known as the Phase I regulations, require operators of medium and large MS4s to obtain storm water permits. In subsequent years, U.S. EPA issued additional regulations, which required storm water discharges from small MS4s (serving populations less than 100,000) to seek coverage and comply with the terms of a new NPDES General Permit (California Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer System (MS4) General Permit, Order No. 2013-0001-DWQ (NPDES General Permit No. CAS000004). These regulations are known as the Phase II regulations. The Phase II regulations treat a military base as a “non-traditional” small MS4, subject to Section F of the MS4 General Permit. The MS4 General Permit became effective February 2013.

An MS4 is defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (ii) designed or used for collecting or conveying storm water; (iii) which is not a combined sewer; and (iv) which is not part of a Publicly Owned Treatment Works (POTW).

Phase II regulations require operators of small MS4s in urbanized areas to implement programs and practices to control polluted storm water runoff. The MS4 General Permit requires small MS4s permittees to develop a storm water management plan (SWMP) designed to reduce the discharge of pollutants to the maximum extent practicable (MEP) and to protect water quality.

As a small MS4, the Base is required to create a SWMP addressing specific program elements required by the permit. Phase II permittees like MCB Camp Pendleton are not required to submit a written plan to the SWRCB for approval. Rather, the Base is only required to maintain a written plan or other documents on-site to guide its internal process for complying with the permit.

1.3 Purpose of the SWMP

The State Water Resources Control Board describes the two purposes of the SWMP, as follows:

- (a) *First, a storm water management document assists permittees in managing their storm water program. Such a document serves as guidance to (1) identify different staff involved in storm water compliance over multiple departments within the permittee agency and, (2)*

provides those staff with a simple narrative connecting all the detailed, specific BMPs in relation to multiple permittee departments. Simply put, the document provides the permittee with a map to the compliance process.

- (b) *Second, the storm water management document is an essential tool for Regional Water Board audits. During MS4 audits, the Regional Water Board typically requests and reviews a SWMP to understand the permittee's storm water program and management structure. Although the MS4 General Permit contains specific details on each program requirement, it lacks the simple narrative nexus that a storm water management document can provide on how the storm water program is implemented by a specific permittee. The guidance document may be in spreadsheet form, as a flowchart, or as a written narrative. In other words, the structure is left up to the permittee as to the way in which they want to demonstrate or illustrate the relationship between their storm water program and their management structure.*

1.4 Frequency of SWMP Updates

The SWMP will be amended whenever there is a change in operation, construction, or maintenance activities that may significantly affect the discharge of pollutant to the storm water conveyance system.

1.5 Area Subject to the SWMP

MCB Camp Pendleton occupies approximately 125,000 acres of coastal southern California in the northwest corner of San Diego County. Although a variety of land uses occur at MCB Camp Pendleton, the primary land use is the support of military training. The mission of MCB Camp Pendleton is to operate an amphibious training Base that promotes the combat readiness of operating forces by providing facilities, services, and support responsive to the needs of Marines, sailors, and their families. In support of this mission, MCB Camp Pendleton provides many services that are like those offered by local municipalities, such as housing, water, and sewage service, solid waste disposal, medical and dental service, schools, child care, employment assistance, and recreation opportunities. These services are in different cantonment areas on the Base. The map contained in Appendix B shows the urbanized cantonment area (not including the housing areas) subject to the MS4 General Permit.

In summary, the urbanized areas, which includes the cantonment and housing areas, are subject to the MS4 General Permit and this SWMP.

1.6 Areas Not Covered by the SWMP

The MS4 General Permit only applies to areas where the activity and population density resembles a municipality, such as the cantonment and housing areas. Military training areas are not subject to the requirements of the MS4 General Permit, as these areas lack permanent urbanized infrastructure. Military training areas are broadly regulated under the Base Training Regulation BO50900, but not the MS4 General Permit.

In addition, MCB Camp Pendleton also has tenants that lease various portions of Base land, including the San Onofre Nuclear Generating Station, the California Department of Transportation (Interstate 5 between San Clemente and Oceanside, including rest stops), and the North County Transit District which owns and operates a commuter rail system between Oceanside and San Diego, as well as the Commuter Rail Maintenance Facility. The State Department of Parks and Recreation leases land for the San Onofre State Park system, which is divided into the San Onofre Beach Park and the San Mateo Park. Since these leased areas are under the control of the tenants, they are not covered by this SWMP. Various leases also have been granted in the past for agricultural purposes, such as livestock grazing, seed collection, and crop production. These former agricultural fields are not subject to the MCB Camp Pendleton SWMP, until converted to urban development.

Discharges from specific construction and industrial activities at MCB Camp Pendleton are regulated under separate NPDES permits issued by the SWRCB. Eight (8) industrial facilities located on MCB Camp Pendleton, shown in Table 1-1, are subject to the California State General Permit for Industrial Activities. A Storm Water Pollution Prevention Plan (SWPPP) and monitoring program have been prepared and implemented to address permit requirements for each of these facilities. Construction sites that create soil disturbance on greater than or equal to 1 acre of land are subject to California State General Permit for Construction Activities. Otherwise, sites within the Base that do not meet the threshold of a permitted industrial or construction site but conduct similar activities on a smaller scale must follow the control measures in this SWMP.

Table 1-1. Industrial Facilities Subject to the General Permit for Industrial Activities

Las Pulgas Landfill
San Onofre Landfill
North Region Tertiary Treatment Plant
South Region Tertiary Treatment Plant
Main Recycling Center
Defense Logistics Agency Disposition Services Pendleton
Southwest Region Fleet Transport
Marine Corps Air Station

1.7 Developed Area, Population and Natural Drainage Systems

MCB Camp Pendleton borders three metropolitan areas: Fallbrook, San Clemente, and Oceanside. Four major watersheds are located within MCB Camp Pendleton: San Mateo, San Onofre, Las Flores, and Santa Margarita Watersheds (Figure 1-2). Two of the watersheds, Las Flores and San Onofre, are completely contained within the Base. In addition to these four major watersheds, a portion of the San Luis Rey watershed is also contained within the Base. The largest stream system is the Santa Margarita, which is 742 square miles (474,880 acres). The three largest estuaries are situated at the mouths of the Santa Margarita, Las Flores, and San Mateo streams. Other estuaries on the Base include: San Onofre, Hidden, Aliso, French, and Cocklebur. The Santa Margarita River Estuary is classified as an impaired water body under the Clean Water Act, Section 303(d), and is considered an environmentally sensitive area.

Because 90% or more of the Santa Margarita drainage system is located off-base, activities occurring in those areas of the Santa Margarita watershed that lie outside the Base's jurisdictional boundaries impact Base water quality. Most of the land use surrounding MCB Camp Pendleton includes urban development, rural residential development, and agricultural farming and ranching.

The largest concentration of development at MCB Camp Pendleton is in the southeastern area of the Base, close to the Fallbrook and San Luis Rey gates (Areas 11-17). Major community support facilities include the Mainside Center (Areas 11-16) and the Naval Hospital (Area 26). The primary housing areas in the southeastern portion of the Base are the De Luz, San Luis Rey (Areas 11-17), and O'Neill Heights (Area 26). The Marine Corps Air Station (MCAS), a permitted industrial facility, is in the southeastern portion of the Base (Area 23).

The second largest concentration of development occurs in the southwestern area of MCB Camp Pendleton at the main gate, or the Oceanside entrance. Wire Mountain (Area 20) and Stuart Mesa (Area 31) are the primary housing complexes in the southwestern portion of MCB Camp Pendleton. A major community support facility is the Pacific Plaza shopping center located just east of Interstate 5. The Del Mar boat basin (Area 21) and the Serra Mesa Housing are located to the west of Interstate 5. In the northwest corner of the Base near the San Onofre gate and the City of San Clemente, the primary housing areas are San Mateo Point and San Onofre (Area 61). The major community facility supporting the northern half of the Base is the Seaside Square shopping center near the San Onofre and Christianitos gates at Interstate 5.

MCB Camp Pendleton also has tenants that lease various portions of land on the Base, including the San Onofre Nuclear Generating Station, the California Department of Transportation, the North County Transit District, and the California Department of Parks and Recreation. Various leases also have been granted historically for agricultural purposes, such as livestock grazing, seed collection, and crop production.

MCB Camp Pendleton has two distinct populations that reside and work on the Base: (1) the residential population, comprised of Marines and their families; and (2) the transitional, daytime working population, including Department of Defense (DoD) military and civilian personnel, employees of the San Onofre Nuclear Generating Station, State Park employees, and private contractors. The military population at MCB Camp Pendleton can be transient, due to military deployments and relocations to other military bases.

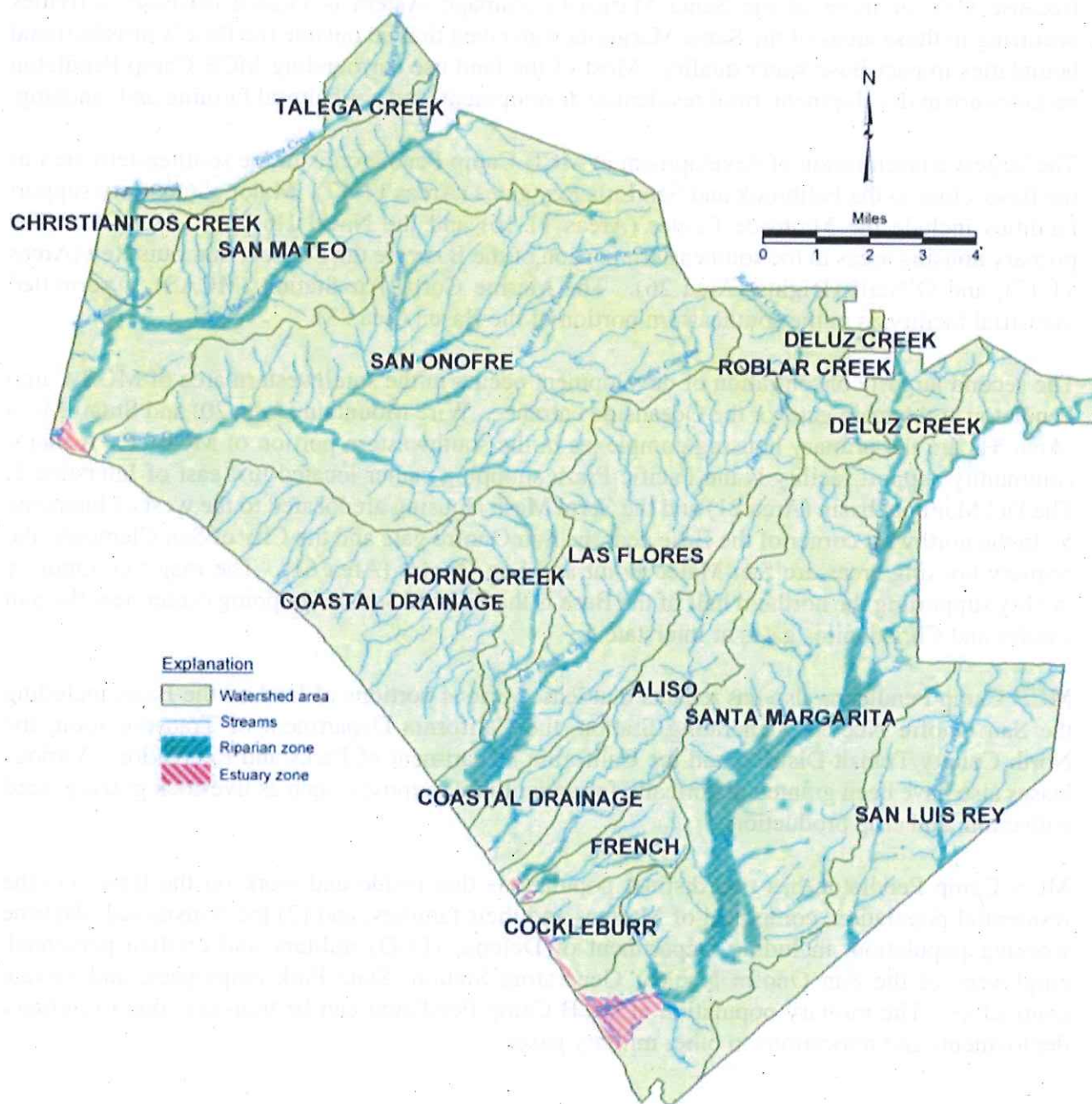


Figure 1-1. Watersheds within the MCB Camp Pendleton Boundary

1.8 SWMP Scope and Structure

This SWMP addresses the regulatory requirements described in Sections 1.2 through 1.4 and constitutes the Base's road map for compliance with the MS4 General Permit. The SWMP outlines a program of best management practices (BMPs) for the following six minimum control measures:

- (a) Public education and outreach (Section 5);
- (b) Public involvement and participation (Section 6);
- (c) Illicit discharge detection and elimination (Section 7);
- (d) Construction site stormwater runoff control (Section 8);
- (e) Post-construction stormwater management in new development and redevelopment (Section 9); and
- (f) Stormwater Pollution prevention / good housekeeping (Section 10).

The objectives of each control measure will be met through activities tailored to the target audience, pollutants of concern, and water quality objectives. These control measures consist of BMPs, which are activities or structural improvements that help reduce the quantity and improve the quality of stormwater runoff. BMPs include treatment requirements, operating procedures and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. Though BMPs are more typically known to include things like adding erosion controls such as straw waddles during construction, other examples of BMPs include educational training or signage that increases awareness about the prevention or control of illicit discharges.

Each control measure described in this SWMP contains the following items:

- (a) Permit requirements;
- (b) Long-term measurable goals; and
- (c) Tasks, roles of responsible parties, and schedule.

The SWMP includes the long-term measurable goals identified in the Program Effectiveness Assessment and Improvement Program (PEAIP). As part of the SWMP, certain PEAIP metrics will be tracked to (1) record the BMPs implemented; (2) measure the effectiveness of the BMPs installed, such as a reduction in the number of reported illicit discharges; and (3) evaluate the overall success of environmental improvements. More information on how these metrics were derived can be obtained from the "Program Effectiveness Assessments and Improvement Plan dated June 2019" prepared by KMJV.

Finally, a schedule for achieving each of the control measure activities is provided.

2 DISCHARGE PROHIBITIONS AND EFFLUENT LIMITATIONS

Permittees are prohibited from discharging non-stormwater into the MS4 system and are required to implement controls to reduce the discharge of pollutants from their MS4s to waters of the U.S., to the MEP standard. Storm water discharges also can not contain a hazardous substance in amounts equal or exceeding a reportable quantity listed in 40 C.F.R. Part 117 or 40 C.F.R. Part 302. Other specific discharge prohibitions and limitations are described below.

2.1 Discharge Prohibitions

2.1.1 Permit Requirements (Section B of the Permit)

The MS4 General Permit prohibits the discharge of non-stormwater into the MS4 system, unless covered under a list of exceptions, and the discharge does not threaten to cause pollution or a nuisance. The Section B exceptions are described as follows.

- (a) water line flushing;
- (b) individual residential car washing;
- (c) diverted stream flows;
- (d) rising ground waters;
- (e) uncontaminated ground water infiltration (as defined at 40 C.F.R. §35.2005(20)) to separate storm sewers;
- (f) uncontaminated pumped ground water;
- (g) discharges from potable water sources;
- (h) foundation drains;
- (i) air conditioning condensation;
- (j) springs;
- (k) water from crawl space pumps;
- (l) footing drains;
- (m) flows from riparian habitats and wetlands;
- (n) dechlorinated swimming pool discharges; and

- (o) incidental runoff from landscaped areas.

Discharges from fire-fighting activities (not including the testing of fire-fighting equipment, hydrants, pumps, or washing of fire trucks, etc.) can be discharged into the MS4 unless introducing a significant source of pollutants to waters of the U.S. The use of firefighting retardants is permitted, but storm drains should be blocked off to prevent the entry of fire retardants into the MS4, if possible.

2.2 Bacteria Effluent Limitations in the San Luis Rey Watershed

2.2.1 Permit Requirements (Section F.5.i of the Permit)

The MS4 General Permit contains total maximum daily load (TMDL) waste load allocations (WLAs) for certain watersheds identified in Attachment G of the MS4 General Permit. The TMDL requirements contained on page 40 of Attachment G, known as the “Bacteria Project I – Twenty Beaches and Creeks in the San Diego Region”, provides wet weather and dry weather fecal coliform, enterococcus, and total coliform WLAs for the San Luis Rey watershed over a 10+ year compliance period. Since MCB Camp Pendleton has a portion of the San Luis Rey watershed within its boundary, the Base is subject to these bacteria WLA limits.

The Phase II entities must take the following actions to meet the requirements of the TMDL:

- (a) Develop and implement the Storm Water Pollution Prevention Plan (SWPPP) to achieve reductions in fecal coliform, enterococcus, and total coliform by the final attainment dates as required by the TMDL. The SWPPP must include short term and long-term BMP strategies appropriate for the prioritization schedule in Attachment A, pages A-63 through A-65 of Resolution No. R9-2010-0001.
- (b) By July 1, 2019, monitor discharges from their facilities including MS4 discharge locations to demonstrate progress towards attainment with final waste load allocations. The monitoring and assessment results must be submitted as part of the annual report required under Section F.5.j. of the MS4 General Permit.
- (c) By April 4, 2021, the permittees shall demonstrate attainment of the Dry Weather WLAs. By April 4, 2031, the permittees shall demonstrate attainment of the Wet Weather WLAs.

To demonstrate compliance with the TMDL program, the permittee must complete and submit information that includes the status of their implementation of the applicable TMDL requirements with each annual report. The TMDL implementation report shall include the following information:

- (a) A description of BMPs implemented, including types, number, and locations;
- (b) An assessment of the effectiveness of implemented BMPs in progressing towards attainment of WLSs within the specified time frames;

- (c) All monitoring data, including a statistical analysis of the data to assess progress towards attainment of the WLAs within the TMDL specified timeframes; and
- (d) Based on results of the effectiveness assessment and monitoring, a description of the additional BMPs that will be implemented to attain the WLAs within the TMDL specified timeframes.

2.2.2 Tasks to Meet Bacteria Effluent Limitations

MCB Camp Pendleton will undertake several tasks to address the Twenty Beaches and Creeks Bacteria TMDL Requirements for the San Luis Rey watershed. These activities are as follows:

- (a) Complete a desktop analysis and field verification of MCB Camp Pendleton's MS4 facilities with the potential to release bacteria within the San Luis Rey watershed.
- (b) Develop and implement BMPs with the goal to eliminate all bacteria illicit discharges (dry weather, non-stormwater discharges).
- (c) Conduct dry and wet weather receiving water monitoring to evaluate compliance with the bacteria Water Quality Objective and waste load allocations, and to verify potential impacts of MS4 discharges.
- (d) Collaborate with other San Luis Rey watershed stakeholders (Oceanside, Vista, San Diego County, Caltrans, etc.) by participating in workgroup meetings and information sharing.

Specific activities to achieve these goals follows.

2.2.2.1 Investigation of MS4 Facilities with the Potential to Discharge Bacteria

MCB Camp Pendleton will provide a baseline site investigation of facilities that have the potential to release bacteria into Pilgrim Creek or its tributaries within the watershed. A final report will be produced in the 2019-2020 reporting period, containing the field photos, site evaluation checklists, and a map of the locations of the bacteria hotspot facilities.

2.2.2.2 Develop / Implement BMPs For Facilities with The Potential to Cause A Bacteria Discharge

A set of BMPs for the control of bacteria will be issued to those facilities identified in the field investigations. This task is targeted for completion in the 2019-2020 reporting period.

2.2.2.3 Conduct Dry and Wet Weather Receiving Water Monitoring

Receiving water monitoring has been initiated to determine in-stream bacteria levels, with the first series of wet and dry weather samples completed by the July 1, 2019 regulatory deadline. The data provides a snapshot of the status of receiving water quality compliance with the Basin Plan

Water Quality Objectives and bacteria TMDL compliance. The first dry and wet weather sampling was completed for comparing indicator bacteria levels (fecal coliform, total coliform, and enterococcus) to Water Quality Objectives of the Basin Plan. Testing also included e. coli bacteria during wet weather. Six locations were selected based on ease of access for the samplers and potential to capture sources that might contribute bacteria. Receiving water monitoring includes the following locations:

- (a) Location PC1 – a segment of Pilgrim Creek, located near Engineer Road; the furthest north location representing a background sample for water quality with no development in the drainage area.
- (b) Location PC2 – a segment of Pilgrim Creek, located near Pipeline Road; a background sample for water quality with no development in the drainage area except for limited drainage from a retired wastewater treatment plant.
- (c) Location PC3 – a segment of Pilgrim Creek, located near Pipeline Road; this area collects drainage from a developed area including several housing complexes, recreational areas, commercial shopping malls, and office buildings.
- (d) Location PC4 – a segment of Pilgrim Creek, located near Vandergrift Road; this area collects drainage from a developed area including housing complexes, recreational areas (including the Stepp Stables), commercial shopping malls, and office buildings.
- (e) Location PC5 – a segment of Pilgrim Creek; this area collects drainage from a developed area including housing complexes and is located adjacent to the paintball park recreational facility.
- (f) Location PC6 – the southernmost segment of Pilgrim Creek; this sampling location provides the final data point for comparison to the Waste Load Allocation limit.

A report summarizing the receiving water monitoring program will be submitted with each annual report (due October 15) and uploaded electronically to SMARTS, as required.

2.2.2.4 Collaborate and Coordinate with other San Luis Rey Watershed Stakeholders

In addition to developing the bacteria TMDL program, MCB Camp Pendleton will continue to meet with the San Luis Rey Watershed Management Area Water Quality Improvement Plan Workgroup. This meeting is intended for Phase I watershed co-permittees that are operating under an approved Water Quality Improvement Plan, and the active Workgroup participants include the County of San Diego, the City of Vista, the City of Oceanside, and Caltrans. As a Phase II permittee, MCB Camp Pendleton is participating voluntarily as a minority stakeholder in the watershed, to share information with the Workgroup. MCB Camp Pendleton will continue collaborating with the Workgroup as the Base's monitoring and assessment efforts move forward.

2.3 Trash Limitations

Studies show that trash is predominantly generated on land and then transported to a receiving water body, with stormwater providing the main transport pathway. The control of trash in stormwater has become regulated through the recent adoption of a series of amendments to state laws.

2.3.1 Regulatory Requirements (Trash Amendments)

In response to the accumulation of trash in waterways, the State SWRCB adopted on April 7, 2015 an Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) to Control Trash and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan). Together, they are collectively referred to as the "Trash Amendments". The new Trash Amendments do the following: (1) establish a prohibition on the discharge of trash, (2) provide implementation requirements for permitted storm water and other discharges, (3) set a time schedule for compliance, and (4) provide a framework for monitoring and reporting requirements. The Trash Amendments became effective on December 2, 2015. Achievement of the trash ban must be accomplished by permittees by December 2, 2030.

Under the new Trash Amendments, the SWRCB issued a letter to all Phase I and II permittees (known as the Water Code Section 13383 / Section 13267 Orders) on June 2, 2017 to complete and / or make the following submittals:

- (a) Submit preliminary jurisdictional maps identifying priority land uses;
- (b) Submit the compliance method to achieve the trash ban;
- (c) Complete a trash assessment of the MS4 General Permit territory; and
- (d) Submit compliance plans for achieving the trash prohibition.

These submittals are described in more detail, below.

2.3.1.1 Submit Preliminary Jurisdictional Maps identifying Priority Land Use Areas

The Trash Amendments focus on trash control in the locations with highest trash generation rates. High trash generating areas were defined as high density residential, industrial, commercial, mixed urban and public transportation land uses (known as the "priority land use areas"). As the first step of the compliance process, permittees are required to submit their preliminary jurisdictional maps (indicating their priority land use areas) electronically via SMARTS by September 1, 2017.

2.3.1.2 Identify Compliance Method to Achieve the Trash Ban

Within this land-use based approach, there are two alternative compliance tracks the permittee can choose, referred to as Track 1 and Track 2 options. Under Track 1, permittees can elect to install a network of systems to capture trash in the storm drains in the priority land use areas for the municipal systems. Under Track 2, permittees can use any combination of controls (structural and/or institutional) anywhere in their jurisdiction, if they can demonstrate that their system performs as well as Track 1.

Full capture systems for storm drains under Track 1, are defined in the Trash Amendments as treatment controls (either a single device or a series of devices) that trap all particles that are 5 mm or greater, and have a design treatment capacity that is either: (a) of not less than the peak flow rate, Q , resulting from a one-year, one-hour, storm in the sub-drainage area, or (b) appropriately sized to, and designed to carry at least the same flows as, the corresponding storm drain. Full capture systems must be selected from a list of systems certified by the SWRCB. Under Track 2, a permittee would develop and implement a plan that uses any combination of controls, such as full capture systems, other treatment controls (e.g., partial capture devices with green infrastructure and low impact development controls (LID)), institutional controls, and/or multi-benefit projects to achieve the same performance results as Track 1 would achieve, defined as "full capture system equivalency".

Due to the individual site conditions, types of trash, and the available resources for maintenance and operation within a municipality, the combination of full capture systems, multi-benefit projects, other treatment controls, and institutional controls used to comply with the Trash Amendments will vary by permittee. However, the SWRCB's expectation is that full capture systems should be preferentially selected by a permittee if such installation is not cost prohibitive.

MS4 permittees that opt to comply under Track 2 would have to submit implementation plans that describe: (a) the combination of controls selected, and the rationale for the selection, (b) how the combination of selected controls is designed to achieve full capture system equivalency, and (c) how the full capture system equivalency will be demonstrated. The implementation plans and the methodology for demonstrating full capture equivalency (if choosing Track 2) are subject to the approval of the RWRCB.

Each permittee is required to submit electronically via SMARTS, their elected compliance approach (i.e. Track 1 or Track 2) by September 1, 2017. MS4 permittees complying under Track 1 (by installing, maintaining, and operating a network of full capture systems in the priority land use areas) would not have minimum monitoring requirements. Instead, permittees would need to provide an annual report to the SWRCB demonstrating installation, operation, and maintenance of full capture systems. The annual report would include a Geographic Information System (GIS) based map depicting the locations of each installed full capture system and the drainage area that serves each full capture system.

MS4 permittees complying under Track 2, on the other hand, do have minimum monitoring requirements. They would develop and implement annual monitoring that demonstrates the

effectiveness of the selected combination of treatment and institutional controls and compliance with full capture system equivalency. The monitoring reports must include a GIS map depicting the locations and drainage area served by each treatment control, institutional control, and/or multi-benefit project. In addition to the GIS map, the annual monitoring report should be designed to demonstrate the effectiveness of the selected controls and compliance with full capture system equivalency.

Table 2-1 summarizes the differences between the Track 1 and Track 2 compliance options.

Table 2-1. Comparison of Trash Ban Compliance Tracks (Track 1 vs Track 2)

Features	Track 1	Track 2
Plan of Implementation	Install, operate and maintain full capture systems in storm drains that capture runoff from the priority land use areas.	Implement a plan with a combination of full capture systems, multi-benefit projects, institutional controls, and/or other treatment controls to achieve full capture system equivalency.
Time Schedule	10 years from first implementing permit but no later than 15 years from the effective date of the Trash Amendments.	10 years from first implementing permit but no later than 15 years from the effective date of the Trash Amendments.
Monitoring and Reporting	Demonstrate installation, operation, and maintenance of full capture systems and provide mapped location and drainage area served by full capture systems.	Develop and implement a set of monitoring objectives that demonstrate effectiveness of the selected combination of controls and compliance with full capture system equivalency.

2.3.1.3 Complete a Trash Assessment of the MS4 General Permit Territory

If the Track 2 compliance option is selected, the permittee is required to conduct and submit trash assessments to identify the existing levels of trash generation.

To accurately establish baseline trash generation levels, a minimum of two trash assessments should be conducted on streets and sidewalks during both the dry (April-September) and wet (October- March) seasons. So that baseline trash generation levels are not under-predicted, assessments should be conducted at timeframes when the greatest level of trash has accumulated on streets and sidewalks (e.g. directly before street-sweeping events). Additionally, to reduce the influence of recent rainfall-runoff events that may have washed street trash into storm drains, the assessments should only be conducted if less than 0.5 inches of rainfall has occurred in a 24-hour period, 48 hours prior to the assessment.

2.3.1.4 Submit Trash Compliance Implementation Plan

By December 1, 2018, permittees must submit electronically via SMARTS:

(a) updated jurisdictional maps identifying the following:

- Priority land use areas;
- The corresponding MS4 network;
- Proposed locations of all certified full capture systems and where any combination of controls will be implemented that will achieve full capture equivalency; and
- Trash levels for all priority land use areas, categorized as Level A (not littered), Level B (slightly littered), Level C (littered), or Level D (very littered).

(b) an implementation plan that includes the following:

- An explanation for how the selected combination of controls will achieve full capture or full capture system equivalency; and
- A description of how full capture system equivalency (Track 2 only) will be demonstrated.

2.3.2 Progress Meeting the Trash Amendment Deadlines

ES electronically submitted preliminary jurisdictional maps showing the MS4 and the cantonment boundaries via SMARTS on September 1, 2017, as required. That submission also included a statement that MCB Camp Pendleton would be complying with the trash ban, by applying Track 2 methodology.

MCB Camp Pendleton has completed the trash assessment of the cantonment areas, following the Trash Assessment Minimum Level of Effort guidelines, as recommended by the SWRCB.

Further work on the development of final jurisdictional maps identifying the trash generation levels and the compliance implementation plan is expected to be completed in the 2019-2020 reporting period.

3 SWMP PROGRAM MANAGEMENT

Accomplishing the goals and objectives of the SWMP will require coordination among various Base entities. Those groups and their general roles are described as follows:

Commanding General (CG): The CG has the ultimate responsibility for ensuring that all conditions of the MS4 General Permit are met. The CG establishes the legal authority for enforcement under the Uniform Code of Military Justice.

Environmental Security (ES): ES provides the lead role and overall coordination of environmental compliance and environmental conservation. These areas of support include:

- (a) Environmental Compliance Evaluation Program
- (b) Environmental Training and Education
- (c) Air Quality Management
- (d) Emergency Planning and Response
- (e) Cultural Resources Management
- (f) Hazardous Waste Management
- (g) Environmental Restoration (ER) Program
- (h) Natural Resources Management
- (i) Environmental Planning and Review
- (j) Integrated Pest Management
- (k) Overseas Environmental Compliance
- (l) Drinking Water Systems and Water Conservation
- (m) Integrated Solid Waste Management (ISWM)
- (n) Storage Tank Management
- (o) Polychlorinated Biphenyl (PCB) Management
- (p) Wastewater and Stormwater Management
- (q) Environmental Management of Munitions on Operational Ranges

ES staff provide procedural and technical advice on National Environmental Policy Act (NEPA) documents, facility planning, construction planning, maintenance and daily facilities activities, military operations, and other proposed actions. The ES mission is to provide guidance and management of environmental requirements to sustain military training.

ES has the overall responsibility of managing the storm water program and SWMP implementation. More specifically, ES's responsibilities include:

- (a) Preparing the SWMP;
- (b) Working to create instruments establishing the legal authority for compliance with the MS4 General Permit via environmental policies, base orders, and service contract language;

- (c) Providing comments on designs and proposals for new development, redevelopment, or recurring maintenance to ensure that BMPs will be installed, implemented and maintained during construction and after final stabilization (post-construction) as part of the NEPA review process;
- (d) Providing technical guidance on BMPs in facility planning, construction, maintenance, operations, and military training;
- (e) Overseeing storm water monitoring requirements;
- (f) Training staff and performing public outreach;
- (g) Assessing the effectiveness of the SWMP;
- (h) Updating the SWMP; and
- (i) Submitting annual reports to the SWRCB.

Facilities: Facilities is responsible for planning, implementing, controlling, maintaining, and repairing real property assets, water quality and quantity management planning, facilities planning, engineering services, as well as acquisition support services, pest control, military construction and utility distribution. Facilities consist of Family Housing, Bachelor Housing, Facilities Resource Management, Water Resources Division, the Public Works Division (PWD), Facilities Maintenance Division (FMD), and the Real Estate Office. The Family Housing Office manages residential areas on Base including certain environmental compliance within the housing leased land.

Public Works Division (PWD) of Facilities: PWD is responsible for master planning. This includes the Base development plan, Military Construction (MILCON) projects and training facilities design, facilities site approvals and supporting project level environmental studies.

Facilities, Engineering and Acquisition Division (FEAD): FEAD is responsible for oversight of construction, maintenance, and repair projects once the project contracts have been awarded. FEAD is under the direction of Public Works.

Facilities Maintenance Division (FMD) of Facilities: FMD is responsible for planning, implementing, controlling, maintaining and repairing real property assets, such as structures, roads, walks, paved areas and grounds, utility systems, landfills, and recycling facilities. FMD is also responsible for pest control, managing the energy conservation program, performing preventive maintenance and inspections of Base facilities, and developing long-range maintenance schedules. FMD also provides MCAS Camp Pendleton Naval Hospital, Landing Craft Air Cushion (LCAC), and MCCS with daily maintenance and repair support services, including emergency maintenance and minor repairs to facilities.

Marine Corps Community Services (MCCS): MCCS is composed of four operating divisions: Services, Food and Hospitality, Semper Fit, and Personal Services. These divisions operate

various recreational facilities on the beach and Lake O'Neil, fitness gyms, stores, clubs, and services. The Logistic Division of MCCA supports these operating divisions and is responsible for issues related to MCCA facilities, including renovation, construction, maintenance, and long-range facilities planning.

Logistics (LOG): LOG provides oversight of the procurement, distribution, maintenance, and replacement of material and personnel. Responsibilities applicable to the SWMP include the motor pool for fleet vehicles and oversight of the mess halls.

Operations and Training: Operations and Training coordinates all military and paramilitary organization training facilities, ranges, training areas, airspace and sea space.

Staff Judge Advocate (SJA): SJA assists Commanders with operational law, civil law, and military justice and supports environmental compliance.

Western Area Counsel Office (WACO): WACO provides installation and environmental law support to western regional Marine Corps Commands.

Fire Department: Fire Department is responsible for base-wide fire protection programs.

Marine Corps Air Station (MCAS): MCAS maintains and operates facilities to support flight operations in Camp Area 23.

LCAC Complex: This complex is responsible for repair, maintenance, and operational training of LCACs.

4 LEGAL AUTHORITY TO ENFORCE THE MS4 GENERAL PERMIT

4.1 Permit Requirements (Section F.5.a.1 of the Permit)

Section F.5.a.1 of the MS4 General Permit states that the permittee shall review, revise or adopt new relevant policies, contractual provisions, Base orders, resolutions or other regulatory mechanisms to ensure it has at a minimum the legal authority to:

- (a) Effectively prohibit non-storm water discharges through the MS4.
- (b) Detect and eliminate illicit discharges and illegal connections to the MS4. Illicit connections include pipes, drains, open channels, or other conveyances that have the potential to allow an illicit discharge to enter the MS4. Illicit discharges include all non-storm water discharges not otherwise authorized in the MS4 General Permit.
- (c) Respond to spills and prohibit dumping or disposal of materials other than storm water into the MS4.
- (d) Require vendors, contractors and operators of commercial facilities to minimize the discharge of pollutants to the MS4 through the installation, implementation, and maintenance of BMPs consistent with the CASQA Best Management Practice Handbooks, or equivalent.
- (e) Ensure construction site or industrial facility operators provide a Waste Discharge Identification Number for coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit (CGP) and Industrial General Permit (IGP) and comply with the appropriate permit.
- (f) Review designs and proposals for new development and redevelopment to determine whether adequate BMPs will be installed, implemented and maintained during construction and after final stabilization (post-construction).
- (g) Promptly cease and desist discharges and/or cleanup and abate a discharge, including the ability to:
 - Effectively require the discharger to abate and clean up their discharge, spill, or pollutant release within 72 hours of notification;
 - Require abatement, within 30 days of notification, for uncontrolled sources of pollutants that could pose an environmental threat;
 - Perform the cleanup and abatement work and bill the responsible party, if necessary;
 - Provide the option to order the cessation of activities until problems are addressed;

- Require a new timeframe and notify the RWQCB when all parties agree that clean-up activities cannot be completed within the original timeframe within five business days of the determination that the timeframe requires revision; and
- Submit by the second year online annual report, a statement signed by both the permittee's legal counsel and an authorized signatory certifying the permittee has adequate legal authority to comply with all MS4 General Permit requirements.

4.2 Current Legal Authority Through Base Orders, Directives and Certification Statements

Marine Corps installations use a hierarchy of orders and directives to implement legal authority within the Marine community. The primary authority mechanism is through the Marine Corps Orders (MCO). Base Orders establish the responsibilities and procedures that govern the conduct of all persons and activities at MCB Camp Pendleton including residents, Marine personnel, contractors and lessees. As such, the Base Order provides an appropriate mechanism to meet the legal authority requirements of the MS4 General Permit.

Base Orders are maintained by the Installation Adjutant's Office and are available internally via a SharePoint website. Among those MCB Camp Pendleton Orders, several address activities which may impact stormwater runoff, such as:

- Order 5090.2 - Environmental Compliance and Protection Program
- Order 5340.1A - Fundraising Events aboard MCB Camp Pendleton
- Order 6250.1G - Pest Control Operations
- Order 11345.1 - Oil-Water Separators and Equipment Wash Racks
- Order 11345.2 - Fats, Oils and Grease (FOG) Control
- Order 11014.1A - Area Commander Responsibilities for MCB Camp Pendleton

MCO 5090.2 covers all Base environmental programs including the Clean Water Act requirements. Order 5340.1A includes requirements for fundraiser car washes held on the Base. Under this MCO, MCB Camp Pendleton has installed designated wash stations at locations frequently used for fundraiser car washing in accordance with the Clean Water Act. The wash stations are connected to the Base sanitary sewer system to prevent the release of oil/fuel, sediment and detergent to the environment.

To more specifically comply with Section F.5.a.1 of the MS4 General Permit, ES has prepared a Base Order for managing stormwater, which delineates responsibilities for implementation of the MS4 General Permit requirements. This Base Order operates in the same way that a city ordinance would, in establishing the legal authority of a governing body to enforce the MS4 General Permit. The Stormwater Base Order is contained in Appendix C of this SWMP.

The stormwater Base Order prohibits non-storm water discharges to the extent allowable by law and references the SWMP to identify the BMPs to be used to reduce storm water pollution to the maximum extent practical. In general, non-storm water discharges are any discharges to the storm water conveyance system that are not composed entirely of storm water, or discharges that are not specifically authorized as an “exempt non-storm water discharge” (see Section 2.1.1 for a list of exempt non-storm water discharges).

4.3 Current Vendor Contract Language Legal Authority

As part of standard contract language, commercial contractors are required to follow all environmental standards and MCB Camp Pendleton Base Orders and directives. When a new Base Order is established, commercial contractors are put on notice and are required to comply with these new “local” requirements. The stormwater Base Order provides the necessary legal authority to implement the MS4 General Permit. The contractors are expected to comply with all federal, state and local environmental requirements. The SWMP is maintained on the publicly accessible ES stormwater website, and it includes the stormwater Base Order.

4.4 Certification Statement

4.4.1 Permit Requirements (Section F.5.a.1(iii) of the Permit)

All permittees shall submit electronically via SMARTS, a statement signed by both the permittee’s legal counsel and an authorized signatory certifying the permittee has adequate legal authority to comply with all MS4 General Permit requirements contained in Section F.5.a.1 of the MS4 General Permit.

4.4.2 Status of the Certification Statement

A statement was signed May 2018 by the WACO legal counsel and the ES designated MS4 permittee legally responsible person, certifying that the Base has established the legal authority to support the requirements of the MS4 General Permit. The signed certification statement is contained in Appendix D.

5 EDUCATION AND OUTREACH PROGRAM

5.1 Permit Requirements (Section F.5.b.2 of the Permit)

Within the second year of the effective date of the permit, the permittee must develop and implement a comprehensive storm water public education and outreach program. The program must be designed to inform the public about the benefits of protecting water quality and steps that can be taken to reduce storm water pollution. The public education and outreach program must measurably increase the public's knowledge regarding the storm drain system, impacts of urban runoff and illicit discharges on receiving waters, and potential BMP solutions to control stormwater quality. For a non-traditional MS4 permittee such as a military base, the "public" is defined as all military personnel, residents, staff, visitors and government contractors.

The permittee shall, at a minimum:

- (a) Develop and implement a public education strategy that establishes education tasks based on water quality issues, target audiences, and anticipated task effectiveness. The strategy must include identification of who is responsible for implementing specific tasks and a schedule for task implementation. The strategy must demonstrate how specific high priority storm water quality issues are addressed.
- (b) Gauge level of awareness in target audiences and effectiveness of education tasks.
- (c) Develop and disseminate appropriate educational materials to target audiences (e.g. such as printed materials, billboard and mass transit advertisements, signage, stenciling at storm drain inlets, radio advertisements, television advertisements, and websites).
- (d) Convey messages to explain the benefits of water-efficient landscaping and reducing illicit discharges with information about how the public can report illicit discharge incidents.
- (e) Provide public schools with materials to effectively educate school-age children, about storm water and how to protect water quality habitat in their local watersheds.
- (f) Develop and convey messages specific to reducing discharges from pressure washing operations and landscape irrigation.
- (g) Educate organized car wash participants and provide information pertaining to car wash discharge reduction.
- (h) Conduct focused education based on identified illicit discharge(s).

5.1.1 Staff and Operator Training (Section F.5.b.3 of the Permit)

Permittees must develop and implement a training program for all staff that may be notified of or otherwise observe an illicit discharge or illegal connection to the storm drain system, as part of their normal work activities. The training program shall include:

- (a) Identification of an illicit discharge or illegal connection;
- (b) Procedures for reporting and responding to the illicit discharge or illegal connection;
- (c) Training to address procedures, techniques, or staffing;
- (d) Annual assessment of trained staff's knowledge of illicit discharge response and refresher training as needed; and
- (e) Contact information, including the procedure for reporting an illicit discharge, shall be included in each of the permittee's fleet vehicles that are used by field staff.

5.1.2 Pollution Prevention and Good Housekeeping (Section F.5.b.4 of the Permit)

The permittee must provide a biennial training program for employees involved in implementing stormwater pollution prevention and good housekeeping practices. The biennial training program shall include the following:

- (a) General storm water education and the permit requirements which apply to the staff being trained.
- (b) Clear guidance on appropriate storm water BMPs to use at permittee owned facilities and during typical operation and maintenance activities.
- (c) An assessment of trained staff's knowledge of pollution prevention and good housekeeping which will guide revisions to the training program. The permittee shall determine the need for interim training during alternate years when training is not conducted, through an evaluation of employee knowledge.

5.2 Long-Term Education and Outreach Goals

The Public Education and Outreach Program goals are to communicate to the public the common sources of pollution that impact stormwater quality and the ways to control those sources. Figure 5-1 summarizes MCB Camp Pendleton's Public Education and Outreach Program goals.

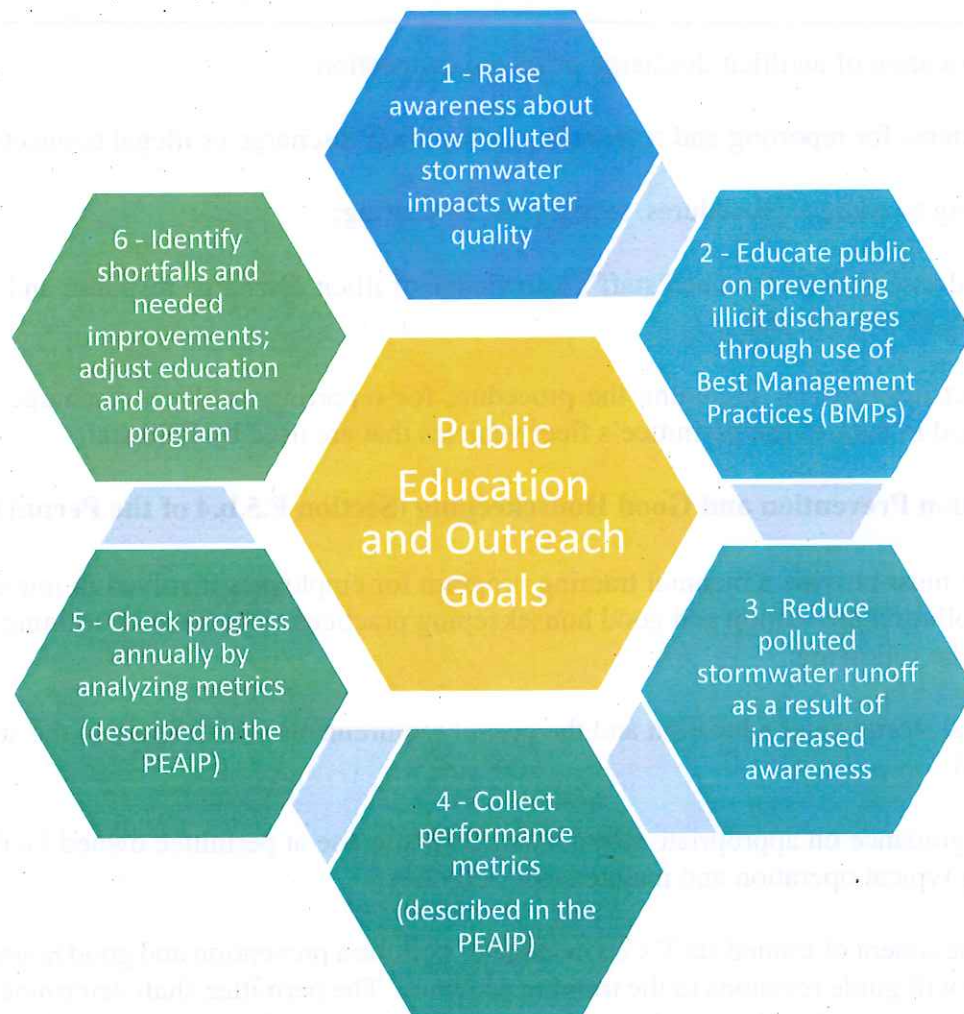


Figure 5-1: Public Education and Outreach Goals

5.3 Tasks, Responsibilities and Schedule

To reach the diverse members of the Base community, multiple methods and media will be used to increase public awareness. Program content for outreach activities may include BMPs, contact information for reporting an illicit discharge, and employee training appropriate to the target audience. ES Stormwater Section inspectors will also educate individuals about the SWMP, appropriate BMPs, and associated Base Order requirements as needed during inspections. A more detailed description of the tasks to be completed annually to promote public education and outreach are described below.

5.3.1 Task – Distribute Residential Flyers

MCB Camp Pendleton will continue to distribute stormwater educational materials addressing the impacts of residential development on water quality from the following pollutants/sources: pet waste, fertilizers, pesticides and herbicides, illicit discharges into the storm drain system,

residential car maintenance, and the improper disposal of wastes into the MS4. In coordination with the Lincoln Military Housing Office, the residential flyer (Appendix E) will continue to be distributed electronically annually and be included in the welcome packages provided to new residents. The flyer will also be placed in libraries and other public places (bowling lanes, supermarket bulletin boards, etc.) and refreshed annually.

Prior to annual re-distribution, the flyer will be checked for content and accuracy, and updated accordingly.

5.3.2 Task – Provide Stormwater Awareness Training

Each year, ES will provide training on a rotating basis to the ECCs, operators, contractors, construction and maintenance staff. The topics to be considered include:

- (a) construction BMPs;
- (b) the Trash Plan update;
- (c) how to prevent and report illicit discharges;
- (d) LID design techniques;
- (e) pollution prevention and good housekeeping practices;
- (f) this SWMP;
- (g) the bacteria TMDL for the San Luis Rey watershed;
- (h) the quarterly SWPPP inspections of the facilities designated as “hotspots” (i.e. having a high potential to discharge pollutants to waters of the U.S.); and
- (i) facility assessments to be completed every 5-year permit term to identify new “hotspots”.

ES will determine the need for interim training or new target audiences by reviewing the types and locations of illicit discharges reported over time.

5.3.3 Task - Distribute Operator Staff Level Posters

Each year, ES will distribute posters to operator locations with stormwater awareness messaging. During 2019, the MCCA facilities were targeted for poster distribution. Additional Base groups will be targeted for poster distribution each year.

5.3.4 Task - Participate in Annual Earth Day Fair

The ES Stormwater Section will continue to participate in the annual Earth Day event, which is scheduled in April and announced on the website <https://www.pendleton.marines.mil/Unit->

Home/Earth-Day/. The exhibit showcases the Marine Corps stewardship efforts, providing environmental education relating to energy efficiency, natural and cultural resources management, recycling, and family friendly learning. The Stormwater Section representative will display posters (Appendix G), distribute residential flyers (Appendix E), and will be available to answer any questions.

5.3.5 Task - Distribute Stormwater BMPs

During routine site inspections, illicit discharge investigations and training, ES Stormwater Section will distribute BMPs appropriate to the site's activities. Those BMPs (Appendix H) will also be maintained on the ES stormwater website <http://www.pendleton.marines.mil/Staff-Agencies/Environmental-Security/Storm-Water/>. The website will be updated whenever BMPs are modified.

5.3.6 School Educational Programs

To implement an educational and outreach program for school children, the Base will continue to provide staffing and educational materials for those events, when requested. The school program may include elementary school classroom presentations on pollution prevention, and field trips for school children that focus on water resources and pollution prevention.

5.3.7 Responsibilities and Schedule

Table 5-1 assigns the responsibility and schedule for each task associated with increasing public awareness through this multimedia information campaign.

TABLE 5-1. Public Outreach and Education Tasks, Responsibilities and Schedule

Task	Lead Department	Frequency
Create educational flyer targeting residents and distribute in a mass mailing.	ES with Lincoln Military Housing Office	Every 1-2 years
Distribute educational flyer in the welcome package given to new residents.	ES with Lincoln Military Housing Office	As needed
Post residential flyer in public locations.	ES	Annually
Track residential flyer mailing data (dates mailed, number of residential recipients, etc.).	ES	Annually
Prepare and present stormwater awareness training on differing topics to staff operators.	ES with CETEP	Two or more per year
Conduct stormwater training at the monthly ECC meetings.	ES with CETEP	Two or more per year
Track stormwater awareness training data (dates, number of attendees, follow-up surveys, etc.).	ES with CETEP	Annually
Create and distribute operator staff level posters at ECC meetings (Appendix F).	ES	Annually

Track poster data (number of posters, camp areas posted, etc.).	ES	Annually
Participate in annual Earth Day events, and include posters, handouts and sign-in guest book.	ES	Annually
Prepare and distribute BMPs for specific operations, maintenance activities to reduce stormwater pollution	ES	As needed
Install large weather-resistant outdoor metal signs at high impact areas such as mess halls, etc.	ES	1-5 installations/yr

6 PUBLIC INVOLVEMENT AND PARTICIPATION PROGRAM

6.1 Permit Requirements (Section F.5.c of the Permit)

The public involvement and participation program shall encourage volunteerism, public comment and input on policy and activism in the community. The permittee shall, at a minimum:

- (a) Ensure that high priority storm drain inlets include a labeled, stenciled or other method (e.g., clearly visible sign placed in area of high pedestrian activity) of communicating a storm water awareness message such as “only rain in the drain”; and
- (b) Integrate storm water awareness messages and information on a public website.

6.2 Long-Term Public Involvement and Participation Goals

The long-term goals for public involvement and participation are shown in Figure 6-3.

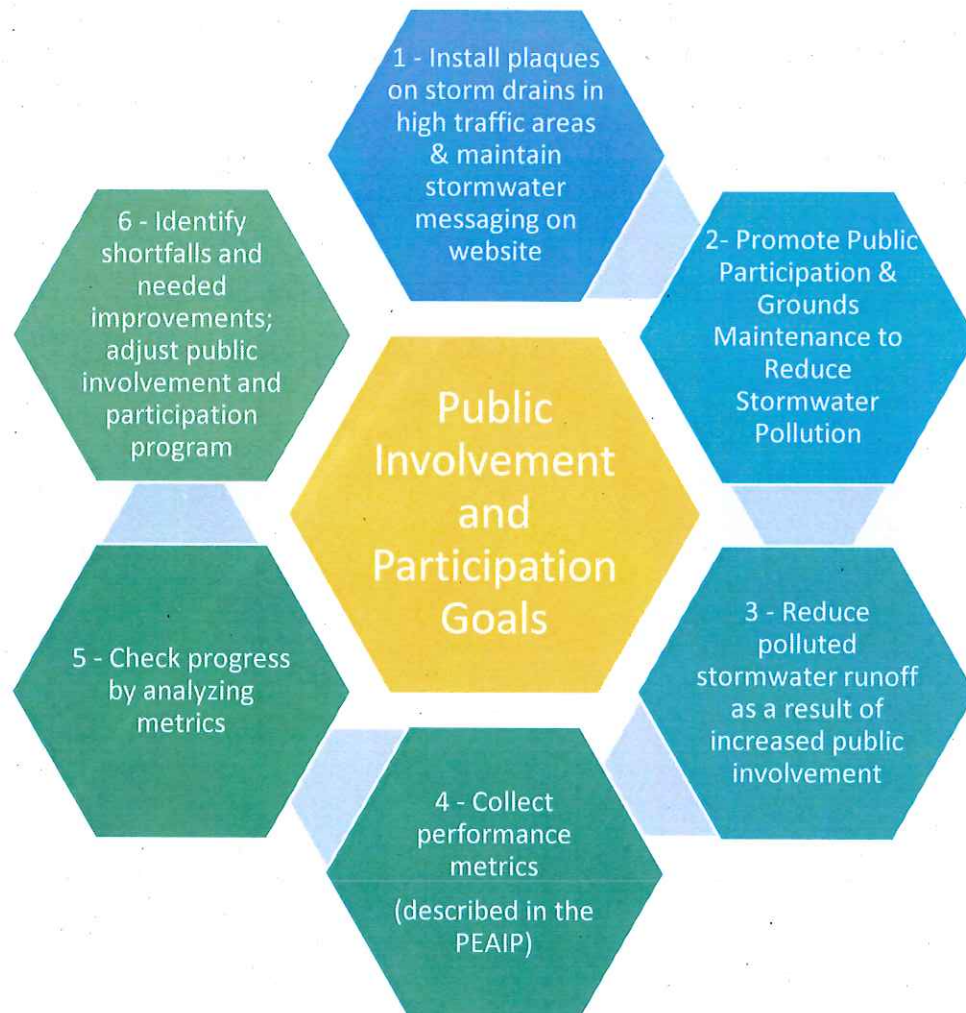


Figure 6-3: Public Involvement and Participation Goals

6.3 Tasks, Responsibilities and Schedule

6.3.1 Task - Install Additional Stormwater Plaques

The Lincoln Military Housing Office has stenciled signs adjacent to storm drains which read “No Dumping – Protect Life Downstream”, in housing areas. An example of this highly visible stencil is shown in Figure 6-1. Each stencil is repainted frequently to maintain a readable message, typically every spring.



Figure 6-1: Sample Stormwater Stencil and Installation in Housing Area

In addition, ES has installed approximately 40 plaques that have been installed in high traffic areas above storm drains with the message “No Dumping / Drains to Ocean”. The map showing the locations of these plaques is contained in a report entitled “Identifying and Labeling High Priority Storm Drain Inlets”, dated February 2018, prepared for NAVFAC. Figure 6-2 provides a photo of a typical storm drain plaque installed in the high public access areas.



Figure 6-2: Sample Plaque Detail and Installation in a High Traffic Area

Additional plaques with stormwater messaging will be purchased and installed as funding becomes available. It is assumed that the Lincoln Military Housing Office will continue to repaint the stencils every spring, as has been their policy.

6.3.2 Task - Maintain Stormwater Website

ES maintains a website as required by Section F.5.b.2 of the MS4 General Permit, which provides general information related to various environmental topics affecting the Base. The stormwater webpage includes (1) stormwater BMPs, (2) training slides, (3) tips for households, (4) public education and outreach materials, (5) the definition of an illicit discharge and instructions on how to report it, and (6) regulatory reference documents, such as the MS General Permit. Also, a copy of the SWMP is maintained on the website.

The website (found at <https://www.pendleton.marines.mil/Staff-Agencies/Environmental-Security/Storm-Water/>) will be updated annually, or as needed. The types of information that will trigger further updates by ES include adding (1) new stormwater awareness training slides, (2) updated contact information, (3) revised BMPs, and (4) revisions to the SWMP, etc.

6.3.3 Task – Continue Public Participation in Cleanup and Grounds Maintenance

The Marines regularly volunteer (perform unpaid service) to support grounds maintenance, under the general requirements of MCB CAMPEN Order 11014.1A, dated June 24, 2015. The Order directs Area Commanders to supply grounds maintenance in assigned areas using support organized and implemented by the Marines, including the removal of trash and organic debris. This occurs base-wide in each cantonment area, providing an education on the importance of good housekeeping practices to a large part of the Marine population, while keeping grounds and storm drains free of trash and debris. This “public participation” is a significant contributor to the relative

absence of trash on Base. Trash and debris removal by the Marines under Base Order CAMPENO 11014.1A will continue as a long-term public participation program goal. Other volunteer activities can be undertaken in the future, such as voluntary beach or river cleanup programs, arranged by ES.

6.3.4 Responsibilities and Schedule

Table 6-1 assigns the responsibility and schedule for each task associated with maintaining public involvement and participation.

Table 6-1. Public Involvement and Participation Tasks, Responsibilities and Schedule

Task	Lead Department	Frequency
Install additional stormwater plaques in cantonment areas- existing development.	ES	As available / funded
Install new stormwater plaques – new development.	FEAD	As needed
Stencil stormwater signs in housing areas	Lincoln Military Housing Office	As needed
Update stormwater website	ES	As needed
Continue to implement Base Order 11014.1A, maintaining cantonment areas with effective maintenance of grounds.	S4s/Marines	As needed

7 ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) PROGRAM

7.1 Permit Requirements (Section F.5.d of the Permit)

The permittee must develop an Illicit Discharge Detection and Elimination Program to detect, investigate, and eliminate illicit discharges, including illegal dumping into its system, described below.

7.1.1 Outfall Mapping (Section F.5.d.1 of the Permit)

Within the second year of the effective date of the permit, the permittee must maintain an up-to-date and accurate outfall map, in hard copy, electronic form, or within a geographic information system (GIS). The outfall map shall at a minimum show:

- (a) The location of all outfalls and drainage areas within the urbanized area contributing to those outfalls, and that directly discharge to a receiving water.
- (b) The location of all water bodies receiving direct discharges from those outfalls.

7.1.2 Field Sampling of Illicit Discharges (Section F.5.d.2 of the Permit)

Within the second year of the effective date of the permit, the permittee shall conduct field sampling to detect potential illicit discharges while conducting the outfall inventory. If while conducting the outfall inventory, an outfall is found flowing or ponded and it has been more than 72 hours since the last rain event, then the permittee shall sample the discharge. If an outfall is flowing or ponding and it has been more than 72 hours since the last rain event, the permittee shall:

- (a) Conduct monitoring for the indicator parameters identified in the Permit or based on local knowledge of pollutants of concern.
- (b) Conduct follow up investigations if the action level concentrations (section F.5.d.3) are exceeded.

7.1.3 IDDE Source Investigations / Corrective Actions (Section F.5.d.3 of the Permit)

Within the second year of the effective date of the permit, the permittee must develop written procedures for conducting investigations into the source of all non-storm water discharges suspected to be illicit discharges, including approaches to requiring such discharges to be eliminated, and procedures to implement corrective actions (e.g., BMPs). These procedures shall be included as part of the Illicit Discharge Detection and Elimination Program. At a minimum, the permittee shall investigate to locate the source of any suspected illicit discharge within 72 hours of becoming aware of the suspected illicit discharge. Reporting and corrective actions are as follows:

- (a) Report immediately any dry weather flows believed to be an immediate threat to human health or the environment to local Health Department.

- (b) Investigate and document the source of all non-storm water discharges.
- (c) Immediately notify the responsible party of the problem.
- (d) Report immediately to the owners/operators of the downstream MS4, a non-storm water discharge suspected of being sanitary sewage and/or significantly contaminated.

7.2 Long-Term IDDE Program Goals

Figure 7-1 summarizes MCB Camp Pendleton's illicit discharge detection and elimination program goals.

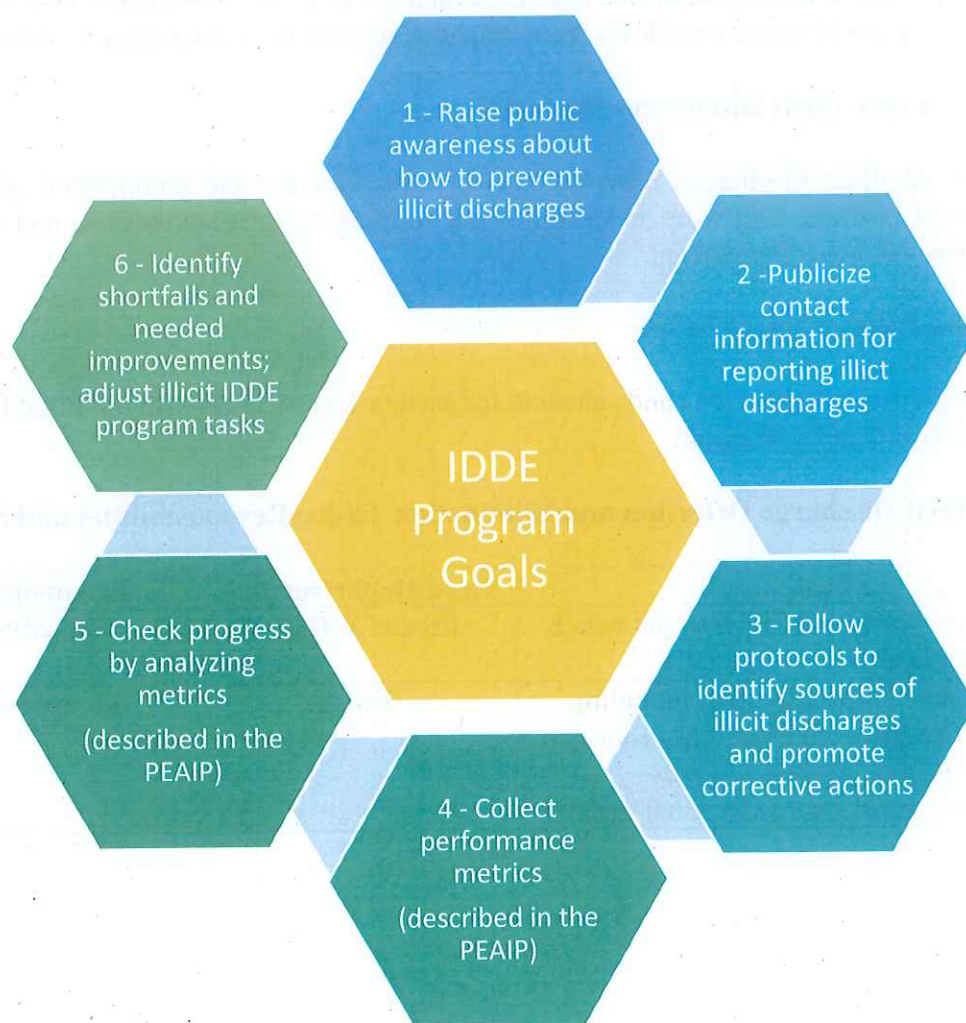


Figure 7-1: Illicit Discharge Detection and Elimination Program Goals

7.3 Tasks, Responsibilities and Schedule

7.3.1 Task – Track Sanitary Sewer Overflow Events

The Sanitary Sewer Overflow Response Plan (SSORP) provides procedures on how to address an overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system. The procedures direct the first responders to add sandbags near catch basin inlets or storm drains to prevent the wastewater from entering the drainage system and causing potential contamination to the tributary receiving waters. All discharges that enter a storm drain system are recorded and appropriately reported to regulatory agencies. The records of spills are used to understand what BMPs and training are needed to properly respond to these types of emergencies. ES and WRD will continue to track sanitary sewer overflows, and revise or improve BMP training to prevent sewer overflows from reaching stormwater conveyance systems.

7.3.2 Task - Track Illicit Discharges Reported

ES will track all illicit discharges reported, identify the sources, and recommend appropriate BMPs. ES will perform follow-up inspections and training to raise awareness, and to ensure corrective measures have been taken.

7.3.3 Responsibilities and Schedule

Table 7-1 assigns the responsibility and schedule for each task associated with the Illicit Discharge Detection and Elimination Program.

Table 7-1. Illicit Discharge Detection and Elimination Tasks, Responsibilities and Schedule

Task	Lead Department	Frequency
Track sanitary sewer overflow events which entered storm drains.	ES and WRD	Annually
Track illicit discharges reported, including inspections / re-inspections of sites, root cause analysis and progress towards elimination of the discharge for each event.	ES	As reported

8 CONSTRUCTION SITE RUNOFF CONTROL PROGRAM

8.1 Permit Requirements (Section F.5.e of the Permit)

The permittee must develop, implement, and enforce a program to prevent construction site discharges of pollutants and impacts to beneficial uses of receiving waters. The program shall include the development of contract language ensuring the permittee's in-house construction operators or outside contractors comply with the CGP and implement appropriate BMPs. Contract language shall apply to all projects that result in a total land disturbance of either one acre or more or that result in a total land disturbance of less than one acre if part of a larger common plan of development.

8.2 Construction Site Runoff Control Program Goals

Figure 8-1 summarizes MCB Camp Pendleton's Construction Site Runoff Control Program goals.



Figure 8-1: Construction Site Runoff Control Program Goals

8.3 Tasks, Responsibilities and Schedule

8.3.1 Task – Ensure Construction Sites Comply with the CGP, if Required

ES will be responsible for providing technical guidance on Permit requirements and BMPs to control erosion and sediment. ES Stormwater Section provides oversight of the Base's Construction Stormwater Program. Oversight begins with projects in the initial stages of planning and continues through construction. All proposed construction projects receive appropriate environmental review, as prescribed by NEPA and Base Order No. 5090.2. ES Stormwater Section reviews projects for impacts to stormwater and water quality, and determines what permits are required, including identifying if coverage under the CGP is required. These findings are conveyed to the project proponent and contractor through a written NEPA Decision Memorandum, or comments attached to the environmental review of an Environmental Assessment (EA) or Environmental Impact Study (EIS). The NEPA Decision Memorandum is appended to the project's contract to ensure that the contractor is legally obligated to meet all stated environmental requirements.

8.3.2 Task – Require Construction Sites Apply BMPs to Prevent Stormwater Runoff

ES Stormwater Section will continue to evaluate construction projects that enter the NEPA review process and identify the need to apply BMPs. The project proponents are advised that since the Base is subject to MS4 General Permit within the cantonment and housing areas, all BMPs must meet the standards of the California Stormwater Quality Association (CASQA), or equivalent standards. If requested, ES Stormwater Section will act as a technical advisor, to aid in the selection of the appropriate BMPs to meet the site's conditions. The BMPs that address planning a construction site to minimize soil movement and capture sediment, while minimizing post-construction discharges, are provided in Appendix I.

8.3.3 Task – Inspect Construction Sites to Confirm Compliance

ES Stormwater Section will continue to inspect construction sites which are at risk to creating stormwater runoff. All illicit discharge reports involving construction sites will be thoroughly inspected by ES, with the purpose of identifying any lacking or failed BMPs. Follow-up inspections will be conducted to ensure that corrective actions are taken. ES will provide guidance for eliminating the illicit discharge resulting from the BMP violation.

For those construction sites which have sought coverage under the CGP, and have submitted a SWPPP, the inspection will include an assessment of the effectiveness of the BMPs identified in the SWPPP. A sample checklist for these inspections is included in Appendix J. Based on the site inspection findings, the inspector may schedule follow-up actions necessary to comply with the CGP. In the event of serious noncompliance and BMP failures, the inspector will follow up with appropriate actions to bring the site back into regulatory compliance; and ensure that the construction unit or contractor makes appropriate SWPPP modifications. Cases involving significant problems may be referred to the SJA for review and advice concerning initiation of

administrative and/or disciplinary action. In addition, where there is a violation of the Clean Water Act, the RWQCB will be notified.

8.3.4 Responsibilities and Schedule

Table 8-1 assigns the responsibility and schedule for each task associated with implementing the Construction Site Runoff Control Program.

Table 8-1. Construction Site Runoff Control Program Tasks, Responsibilities and Schedule

Task	Lead Department	Frequency
Ensure construction sites comply with CGP, if required	FEAD / FEAD-ENV, FSC, MCCS, ES	As needed
Require construction sites apply BMPs to prevent stormwater runoff	FEAD / FEAD-ENV, FSC, MCCS, ES	As needed
Inspect construction sites to confirm compliance	FEAD / FEAD-ENV, FSC, MCCS, ES	As needed

9 STORMWATER POLLUTION PREVENTION / GOOD HOUSEKEEPING PROGRAM

9.1 Permit Requirements (Section F.5.f of the Permit)

The permittee must develop and implement a program to prevent or reduce the amount of pollutant runoff, by training employees on how BMP pollution prevention/good housekeeping techniques can be incorporated into permittee operations.

9.1.1 Inventory and Map of Permittee-Owned or Operated Facilities (Section F.5.f.1 and F.5.f.2 of the Permit)

The permittee must prepare an inventory and map of permittee-owned or operated facilities within their jurisdiction that are a threat to water quality. The map shall identify where the permittee-owned or operated facilities are located, as well as the receiving waters to which these facilities discharge.

9.1.2 Facility Assessments (Section F.5.f.3 of the Permit)

The permittee shall conduct an annual review and assessment of all permittee-owned or operated facilities to determine their potential to impact surface waters. The assessment shall include the following:

- (a) The permittee shall identify as pollutant hotspots those facilities that have a high potential to generate storm water and non-storm water pollutants. Among the factors to be considered are the type and volume of pollutants stored at the site, the presence of improperly stored materials, activities that should not be performed outside (e.g., changing automotive fluids, vehicle washing), proximity to water bodies, poor housekeeping practices, and the discharge of pollutants of concern to receiving waters. Pollutant hotspots shall include, at a minimum, the permittee's maintenance yards, hazardous waste facilities, fuel storage locations, and any other facilities at which chemicals or other materials have a high potential to be discharged in storm water.
- (b) The permittee shall document the procedures it uses for conducting the assessment along with a copy of any site evaluation checklists used to conduct the assessment.

9.1.3 Storm Water Pollution Prevention Plans (Section F.5.f.4 of the Permit)

The permittee must develop and implement site-specific SWPPPs for pollutant hotspots at high priority sites, that identifies a set of storm water BMPs to be installed, implemented, and maintained to minimize the discharge of pollutants in storm water. The SWPPP shall be kept on-site at each of the permittee-owned or operated facility.

9.1.4 Inspections, Visual Monitoring and Remedial Action (Section F.5.f.5 of the Permit)

The permittee must conduct regular inspections of permittee-owned and operated facilities, as follows:

- (a) Quarterly hotspot visual inspections – Perform quarterly visual inspections of all hotspot permittee-owned or operated facilities to ensure materials and equipment are clean and orderly, to minimize the potential for pollutant discharge, and to ensure implementation of BMPs. The permittee shall look for evidence of spills and immediately clean them up to prevent contact with precipitation or runoff. The quarterly inspections shall be tracked in a log for every facility, and records kept with the SWPPP. The inspection report shall also include any identified deficiencies and the corrective actions taken.
- (b) Quarterly Hotspot comprehensive inspections – At least once per quarter, a comprehensive inspection of hotspot facilities, including all storm water BMPs, shall be performed, with specific attention paid to waste storage areas, dumpsters, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant-generating areas. The quarterly inspection results shall be documented, and records kept with the SWPPP, including actions taken to correct deficiencies.
- (c) Quarterly Hotspot visual observation of storm water and non-storm water discharges – At least once per quarter, visually observe discharge location from hotspot facilities. Where discharges are observed, identify any observed problems (e.g., color, foam, sheen, turbidity) associated with pollutant sources or BMPs. Corrective action shall be taken within seven days or before the next storm event, whichever is sooner. Visual observations shall be documented, and records kept with the SWPPP.
- (d) Non-Hotspot Inspection – At a minimum, inspect each inventoried facility that is not a hotspot, once per permit term as described above.

9.1.5 Storm Drain System Assessment and Prioritization (Section F.5.f.6 of the Permit)

The permittee must develop and implement procedures to assess and prioritize the MS4 storm drain system for clean-out, including but not limited to catch basins, pipe and pump infrastructure, above-ground conveyances, including receiving waterbodies within the permittee's urbanized area and assign a priority to all storm drain system facilities based on accumulation of sediment, trash and/or debris. Assign high priority to catch basins meeting the following criteria:

- (a) Catch basins known to accumulate a significant amount of sediment, trash, and/or debris;
- (b) Catch basins collecting large volumes of runoff;
- (c) Catch basin collecting runoff from areas that do not receive regular street sweeping;
- (d) Catch basins collecting runoff from drainage areas with exposed or disturbed soil; and
- (e) Catch basins that receive citizen complaints/reports.

9.1.6 Maintenance of Storm Drain Systems (Section F.5.f.7 of the Permit)

The permittee shall begin maintenance of all high priority storm drain systems, to include:

- (a) Storm drain systems inspection – Based on the priorities assigned in Section F.5.f.6 of the Permit, develop a strategy to inspect storm drain systems within the permittee's jurisdiction. At a minimum, inspect all catch basins of high priority systems annually, prior to the rainy season.
- (b) Storm drain cleaning – Develop and implement a schedule to clean high priority catch basins and other systems. Cleaning frequencies shall be based on priority areas, with higher priority areas receiving more frequent maintenance.
- (c) Maintenance of surface drainage structures –Visually monitor all open channels, detention basins, and other drainage structures for debris at least once per year and remove annually.
- (d) Disposal of waste materials - Develop a procedure to dewater and dispose of materials extracted from catch basins. This procedure shall ensure that water removed during the catch basin cleaning process and waste material will not reenter the MS4.

9.1.7 Permittee Operations and Maintenance Activities (Section F.5.f.8 of the Permit)

The permittee must assess their O&M activities for potential to discharge pollutants in storm water and inspect all BMPs on a quarterly basis, as follows:

- (a) Develop and implement O&M activity assessment based on the potential to discharge pollutants in storm water.
- (b) Identify all materials that could be discharged from each of these O&M activities.
- (c) Develop and implement a set of BMPs that, when applied during permittee O&M activities, will reduce the discharge of pollutants in storm water. The permittee shall use the CASQA Municipal Handbook or equivalent as guidance.
- (d) Evaluate annually all BMPs implemented during O&M activities.

9.1.8 Pesticide, Herbicide, and Fertilizer Application and New Landscape Design and Maintenance Management (Section F.5.f.9 of the Permit)

The permittee shall implement a program which focuses on pollution prevention, source control BMPs, and landscape design and maintenance to reduce the amount of pesticides, herbicides and fertilizers used, as follows:

- (a) Evaluate pesticides, herbicides and fertilizers used and application activities performed to identify pollution prevention and source control opportunities.

(b) Implement practices that reduce the discharge of these chemicals, such as:

1. Educate applicators and distributors of storm water issues.
2. Implement integrated pest management measures that rely on non-chemical solutions.
3. Collect and properly dispose of unused pesticides, herbicides, and fertilizers.
4. Minimize irrigation run-off.

9.2 Pollution Prevention / Good Housekeeping Program Goals

Figure 9-1 summarizes MCB Camp Pendleton's Pollution Prevention / Good Housekeeping Program Goals.



Figure 9-1 Pollution Prevention / Good Housekeeping Program Goals

9.3 Tasks, Responsibilities and Schedule

9.3.1 Task – Perform Facility Assessments to Identify Hotspots and Issue SWPPPs

The facility assessments must be performed once each 5-year permit cycle. The facility assessments and SWPPPs were completed for the first Permit term. The next Permit cycle is 2018 to 2023, and therefore the next cycle of facility assessments will have to be completed by 2023. After completing the next cycle of facility assessment, a SWPPP will be issued for all identified hotspots.

9.3.2 Task - Inspect Hotspot BMPs and Perform Corrective Actions

As required by the MS4 General Permit, MCB Camp Pendleton will perform a visual inspection of all owned and operated facilities to ensure materials and equipment are clean and orderly, to minimize the potential for pollutant discharge, and to ensure implementation of BMPs. The inspection report will include any identified deficiencies and the actions taken to correct the deficiencies. At least once per quarter, a comprehensive inspection of hotspot facilities, including all storm water BMPs, shall be performed, with specific attention paid to waste storage areas, dumpsters, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant-generating areas. The quarterly inspection results shall be documented, and records kept with the SWPPP. At least once per quarter, MCB Camp Pendleton will visually observe any discharges emanating from hotspot facilities. Where discharges are observed, the inspector will identify any observed problems (e.g., color, foam, sheen, turbidity) associated with pollutant sources or BMPs and remedy within seven days or before the next storm event, whichever is sooner. A copy of the operational BMPs to use for the inspections is contained in Appendix H.

Table 9-1 provides the sites identified as hotspots through the most recent facility assessment process.

Table 9-1. Facility's Assessed as Hotspots

Camp Area	Organization Name	Facility Activity	Building No.	Type of Maintenance	Water Body / Watershed
14	HQ Regiment, 1 st Marine Logistics Group (MLG)	military motor - transport	140211 140212	vehicle maintenance and storage, equipment maintenance and storage, Hazmat management and storage, material storage, waste storage, parking lot	ephemeral stream and urine pond / Santa Margarita Watershed

Camp Area	Organization Name	Facility Activity	Building No.	Type of Maintenance	Water Body / Watershed
14	7th Engineer Support Battalion	military motor - transport	140178	vehicle maintenance and storage, equipment maintenance, Hazmat management and storage, waste storage	San Luis Rey River / San Luis Rey Watershed
15	Marine Corps Community Services (MCCS)	Stepp Stables	15016	animal storage, equipment storage, material storage, Hazmat management and storage, waste management, waste storage	ephemeral stream and Pilgrim Creek / San Luis Rey Watershed
17	MCCS	Paintball Park	1700 Vandegrift Rd	parking lot, waste storage	Pilgrim Creek / San Luis Rey Watershed
18	MCCS	Marine Corps Memorial Golf Course	18415	Vehicle storage, equipment maintenance and storage, fueling facility, Hazmat management and storage, material storage, pesticide storage, restrooms, herbicide/fertilizer use, parking lot	Windmill Canyon / San Luis Rey Watershed
31C	LCAC	military vehicle maintenance and fueling	31904 310904 31907 31908 31917 31915 31925	vehicle maintenance and storage, equipment maintenance and storage, Hazmat management and storage, waste storage, fuel farm	Pacific Ocean / Aliso Watershed
41	1 st Reconnaissance Battalion	military motor - transport	4104	vehicle maintenance and storage, equipment storage, Hazmat management and storage, waste storage	ephemeral stream and Las Flores Creek / Las Flores Watershed

Camp Area	Organization Name	Facility Activity	Building No.	Type of Maintenance	Water Body / Watershed
41	1 st Light Armored Reconnaissance (LAR) Battalion	military motor – transport and armory	41800	vehicle maintenance and storage, equipment maintenance and storage, Hazmat management and storage, waste storage	ephemeral stream and Las Flores Creek / Las Flores Watershed
41	4 th Light Armored Reconnaissance (LAR) Battalion	military motor – transport and armory	41408	vehicle maintenance and storage, equipment maintenance and storage, Hazmat management and storage, waste storage	ephemeral stream and Las Flores Creek / Las Flores Watershed
52	Light Armored Vehicle Training Company	military training	520593 520594	vehicle maintenance and storage, Hazmat management and storage, waste storage, parking lot	north fork San Onofre Creek and San Onofre Creek / San Onofre Watershed
53	1 st Marine Regiment Communications	Military equipment maintenance	530402	vehicle maintenance and storage, equipment storage, Hazmat storage, waste storage	north fork San Onofre Creek / San Onofre Watershed

9.3.3 Task – Perform Inspections and Maintenance of High Priority Storm Drains

Using the priorities described in the Storm Drain Assessment and Prioritization Report dated June 2017, MCB Camp Pendleton will continue to inspect storm drain systems within its jurisdiction. At a minimum, ES will inspect all catch basins of high priority systems annually, prior to the rainy season. A sample of the storm water infrastructure inspection form is contained in Appendix K.

MCB Camp Pendleton will clean high priority catch basins and other systems, either using FMD services or through subcontracted services. MCB Camp Pendleton will visually monitor all open channels, detention basins, and other drainage structures for debris at least once per year and identify and prioritize problem areas. At a minimum, removal of trash and debris from open channels and other drainage structures shall occur annually.

Depending on the specific maintenance tools being used (vacuum truck, hand tools, etc.) different procedures will be applied to dewater and dispose of materials extracted from catch basins. This procedure shall ensure that water removed during the catch basin cleaning process and waste material will not re-enter the MS4.

9.3.4 Responsibilities and Schedule

Table 9-3 assigns the responsibilities and schedule for each task associated with the Prevention / Good Housekeeping Program.

Table 9-3. Pollution Prevention / Good Housekeeping Tasks, Responsibilities and Schedule

Task	Lead Department	Frequency	Schedule
Perform Facility Assessments to Identify Hotspots & Issue SWPPPs	ES	Every 5-year permit cycle	Between 2018-2023
Inspect Hotspot BMPs, perform corrective actions & update SWPPPs	ES	Quarterly	Jan-March April-June July-Sept Oct-Dec
Perform Inspections of High Priority Storm Drains	ES	Annually, before the rain season	Prior to Oct 1
Perform Maintenance of High Priority Storm Drains	ES/FMD	Annually, before the rain season	Prior to Oct 1

10 POST-CONSTRUCTION STORMWATER MANAGEMENT PROGRAM

10.1 Permit Requirements (Section F.5.g of the Permit)

Permittees shall regulate development to comply with the following requirements:

- (a) Site design measures;
- (b) Low Impact Development design standards;
- (c) Alternative post-construction storm water management program requirements; and
- (d) Operation and maintenance of post construction storm water management measures.

These requirements are discussed in more detail below.

10.1.1 Site Design Measures (Section F.5.g.1 of the Permit)

Within the second year of the effective date of the permit, the Permittee shall require implementation of site design measures for all projects that create and/or replace (including projects with no net increase in impervious footprint) between 2,500 square feet and 5,000 square feet of impervious surface.

Projects with 2,500 square feet and 5,000 square feet shall implement one or more of the following site design measures to reduce project site runoff:

- (a) Stream setbacks and buffers – a vegetated area including trees, shrubs, and herbaceous vegetation, that exists or is established to protect a stream system, lake reservoir, or coastal estuarine area;
- (b) Soil quality improvement and maintenance - improvement and maintenance of soil through soil amendments and creation of microbial community;
- (c) Tree planting and preservation – planting and preservation of healthy, established trees that include both evergreens and deciduous;
- (d) Rooftop and impervious area disconnection - rerouting of rooftop drainage pipes to drain rainwater to rain barrels, cisterns, or permeable areas instead of the storm sewer;
- (e) Porous pavement - pavement that allows runoff to pass through it, thereby reducing the runoff from a site and filtering pollutants;
- (f) Green roofs – a vegetative layer grown on a roof (rooftop garden);

- (g) Vegetated swales - a vegetated, open-channel management practice designed specifically to treat and attenuate storm water runoff; and
- (h) Rain barrels and cisterns - systems that collect and store storm water runoff from a roof or other impervious surface.

Project proponents shall use the SWRCB SMARTS Post-Construction Calculator, or equivalent, to quantify the runoff reduction resulting from implementation of site design measures.

10.1.2 Low Impact Development Design Standards (Section F.5.g.2 of the Permit)

Within the second year of the effective date of the permit, the permittee must implement standards to effectively reduce runoff and pollutants from development projects, meeting Low Impact Development (LID) design standards. The permittee shall regulate all development projects that create and/or replace 5,000 square feet or more of impervious surface (Regulated Projects). The permittee shall require these Regulated Projects to implement measures for site design, source control, runoff reduction, storm water treatment and baseline hydromodification management as defined in the MS4 General Permit. Regulated Projects include new and redevelopment projects on public or private land that fall under the planning and permitting authority of a Permittee. Redevelopment is any land-disturbing activity that results in the creation, addition, or replacement of exterior impervious surface area on a site on which some past development has occurred.

The following describe specific Regulated Project requirements for redevelopment and road projects:

- (a) Where a redevelopment project results in an increase of more than 50 percent of the impervious surface of a previously existing development, runoff from the entire project, consisting of all existing, new, and/or replaced impervious surfaces, must be included to the extent feasible.
- (b) Where a redevelopment project results in an increase of less than 50 percent of the impervious surface of an existing development, only runoff from the new and/or replaced impervious surface of the project must be included.
- (c) Any of the following types of road projects that create 5,000 square feet or more of newly constructed contiguous impervious surface and that are public road projects shall comply with Low Impact Development Standards except that treatment of runoff of the 85th percentile 24-hour storm runoff event that cannot be infiltrated onsite shall follow U.S. EPA guidance regarding green infrastructure to the extent feasible. Types of projects include (1) construction of new streets or roads, including sidewalks and bicycle lanes built as part of the new streets or roads which create 5,000 square feet or more of impervious surface; or (2) widening of existing streets or roads with additional traffic lanes:

- Where the addition of traffic lanes results in an alteration of more than 50 percent of the impervious surface (5,000 square feet or more) of an existing road, runoff from the entire project, consisting of all existing, new, and/or replaced impervious surfaces, must be included in the treatment system design.
- Where the addition of traffic lanes results in an alteration of less than 50 percent (but 5,000 square feet or more) of the impervious surface of an existing road, only the runoff equivalent from new and/or replaced impervious surface of the project must be included in the treatment system design.

Specific LID design exclusions include:

- (a) Sidewalks built as part of new streets or roads and built to direct storm water runoff to adjacent vegetated areas.
- (b) Bicycle lanes that are built as part of new streets or roads that direct storm water runoff to adjacent vegetated areas.
- (c) Impervious trails built to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas, preferably away from creeks or towards the outboard side of levees.
- (d) Sidewalks, bicycle lanes, or trails constructed with permeable surfaces.

10.1.3 Source Control Measures (Section F.5.g.2.a of the Permit)

Regulated Projects with pollutant-generating activities and sources shall be required to implement standard permanent and/or operational source control measures. Measures for the following pollutant-generating activities and sources shall be designed consistent with recommendations from the CASQA Stormwater BMP Handbook for New Development and Redevelopment or equivalent manual, and include:

- (a) Accidental spills or leaks;
- (b) Interior floor drains;
- (c) Parking/Storage area maintenance;
- (d) Indoor and structural pest control;
- (e) Landscape/outdoor pesticide use;
- (f) Pools, spas, ponds, decorative fountains, and other water features;
- (g) Restaurants, grocery stores, and other food service operations;

- (h) Storage and handling of solid waste;
- (i) Outdoor storage of equipment or materials;
- (j) Vehicle and equipment cleaning;
- (k) Vehicle and equipment repair and maintenance;
- (l) Fuel dispensing areas;
- (m) Loading docks;
- (n) Fire sprinkler test water;
- (o) Drain or wash water from boiler drain lines, condensate drain lines, rooftop equipment, drainage sumps, and other sources;
- (p) Unauthorized non-storm water discharges; and
- (q) Building and grounds maintenance.

10.1.4 Operation and Maintenance of Post-Construction Storm Water Management Measures (Section F.5.g.4 of the Permit)

Within the third year of the effective date of the Permit, the permittee must implement an O&M verification program for new development projects. The permittee shall ensure that systems and hydromodification controls installed at projects are properly operated and maintained for the life of the projects. The permittee shall maintain a database of all projects that have installed treatment systems. The permittee is required to annually prepare a list of newly installed (installed within the reporting period) storm water treatment systems and hydromodification management controls to the local mosquito and vector control agency and the appropriate Regional Water Board, on an annual basis.

10.2 Long-Term Post-Construction Stormwater Management Program Goals (Section F.5.g.6 of the Permit)

Figure 10-1 summarizes MCB Camp Pendleton's Post Construction Stormwater Management Program goals.



Figure 10-1: Post-Construction Stormwater Management Program Goals

10.3 Tasks, Responsibilities and Schedule

10.3.1 Task – Identify Projects Subject to Site Design Measures

Through the NEPA review process, ES will continue to advise development and redevelopment projects that create and/or replace (including projects with no net increase in impervious footprint) between 2,500 square feet and 5,000 square feet of impervious surface to implement one or more of the following site design measures to reduce project site runoff:

- (a) Stream Setbacks and Buffers – a vegetated area including trees, shrubs, and herbaceous vegetation, that exists or is established to protect a stream system, lake reservoir, or coastal estuarine area;

- (b) Soil Quality Improvement and Maintenance - improvement and maintenance soil through soil amendments and creation of microbial community;
- (c) Tree planting and preservation – planting and preservation of healthy, established trees that include both evergreens and deciduous, as applicable;
- (d) Rooftop and Impervious Area Disconnection - rerouting of rooftop drainage pipes to drain rainwater to rain barrels, cisterns, or permeable areas instead of the storm sewer;
- (e) Porous Pavement - pavement that allows runoff to pass through it, thereby reducing the runoff from a site and surrounding areas and filtering pollutants;
- (f) Green Roofs – a vegetative layer grown on a roof (rooftop garden);
- (g) Vegetated Swales - a vegetated, open-channel management practice designed specifically to treat and attenuate storm water runoff;
- (h) Rain Barrels and Cisterns - system that collects and stores storm water runoff from a roof or other impervious surface.

10.3.2 Task – Identify Projects Subject to LID

Through the NEPA review process, ES will continue to identify and advise development and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, to meet LID design standards. These projects will be required to implement measures for site design, source control, runoff reduction, storm water treatment and baseline hydromodification management, as defined in the MS4 General Permit.

10.3.3 Task – Identify Projects Subject to Source Control Measures

Through the NEPA review process, ES will continue to identify and advise development projects with pollutant-generating activities to implement permanent features and/or operational source control measures to minimize the impact of these pollutant generating activities on stormwater quality. Measures for the following pollutant-generating activities and sources shall be designed consistent with recommendations from the CASQA Stormwater BMP Handbook for New Development and Redevelopment or equivalent manual:

- (a) Accidental spills or leaks;
- (b) Interior floor drains;
- (c) Parking/Storage area maintenance;

- (d) Indoor and structural pest control;
- (e) Landscape/outdoor pesticide use;
- (f) Pools, spas, ponds, decorative fountains, and other water features;
- (g) Restaurants, grocery stores, and other food service operations;
- (h) Storage and handling of solid waste;
- (i) Outdoor storage of equipment or materials;
- (j) Vehicle and equipment cleaning;
- (k) Vehicle and equipment repair and maintenance;
- (l) Fuel dispensing areas;
- (m) Loading docks;
- (n) Fire sprinkler test water;
- (o) Drain or wash water from boiler drain lines, condensate drain lines, rooftop equipment, drainage sumps, and other sources;
- (p) Unauthorized non-storm water discharges; and
- (q) Building and grounds maintenance.

10.3.4 Task - Implement O&M of New Development and Redevelopment BMPs

MCB Camp Pendleton will implement an O&M verification program for new development projects, to ensure that systems and hydromodification controls installed at projects are properly operated and maintained for the life of the projects. Examples of BMPs include vegetated swales, and bioretention basins.

10.3.5 Responsibilities and Schedule

Table 10-1 assigns the responsibilities and schedule for each task associated with the Post-Construction Stormwater Management Program.

Table 10-1. Post-Construction Stormwater Management Program Tasks, Responsibilities and Schedule

Tasks	Lead Department	Frequency
Identify Projects Subject to Site Design Measures	ES	As needed
Identify Projects Subject to LID Design Standards	ES	As needed
Identify Projects Subject to Source Control Measures	ES	As needed
Implement O&M of New Development and Redevelopment	ES, FMD	Annually, before the rain season

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A GLOSSARY OF TERMS

Best Management Practices (BMPs): Activities or structural improvements that help reduce the quantity and improve the quality of storm water runoff. BMPs include runoff treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs also may include public education and outreach measures, such as fact sheets, educational brochures, and public meetings to discuss storm water management techniques.

California State General Construction Storm Water Permit: NPDES Permit No. CAS000002, Waste Discharge Requirements for Discharges of Storm water Associated with Construction Activities, and any amendments thereto.

California State General Industrial Storm Water Permit: NPDES Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm water Associated with Industrial Activities Excluding Construction Activities, and any amendments thereto.

Clean Water Act (Water Quality Act): Public law 92-500; 33 U.S.C. 1251 et seq.; legislation which provides statutory authority for the National Pollutant Discharge Elimination System program. Formerly the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972.

Construction Activity: Activity that involves land disturbance of equal to or greater than 1 and less than 5 acres. Land disturbance includes, but is not limited to, grading, digging, cutting, scraping, stockpiling or excavating of soil; placement of fill materials; paving, pavement removal, exterior construction; substantial removal of vegetation where soils are disturbed including but not limited to removal by clearing or grubbing; or any activity which bares soil or rock or involves streambed alterations or the diversion or piping of any watercourse. Land disturbance does not include routine maintenance to maintain original line and grade, hydraulic capacity, or the original purpose of the facility, nor does it include emergency construction activities required to protect public health and safety.

Conveyance: The process of water moving from one place to another.

Detention: The temporary storage of storm water runoff in a manner that controls peak discharge rates and provides some gravity settling of pollutants.

Detention Basin: A structural best management practice designed for the purpose of temporarily storing stream flow or surface runoff, and gradually releasing the stored water at controlled rates.

Discharge: (1) To allow pollutants to directly or indirectly enter storm water, or to allow storm water or non-storm water to directly or indirectly enter the storm water conveyance system or receiving waters, from an activity or operations which one owns or operates; (2) the pollutants,

storm water and/or non-storm water that is discharged; (3) the volume of water (and suspended sediment if surface water) that passes a given location within a given period of time.

Environmentally Sensitive Areas: Environmentally sensitive areas include but are not limited to all Clean Water Action Section 303(d) impaired water bodies; areas designed as Areas of Special Biological Significance by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); water bodies designated with the RARE beneficial use by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); areas designated as preserves or their equivalent under the Multi Species conservation Program within the Cities and county of San Diego; and any other equivalent environmentally sensitive areas which have been identified by Camp Pendleton.

Erosion: When land is diminished or worn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally but can be intensified by land clearing activities such as farming, development, road building, and timber harvesting.

Erosion and Sediment Control BMPs: Best management practices that are designed to minimize the accelerated erosion and sediment runoff at a site during construction activities.

General Permit: A permit issued under the National Pollutant Discharge Elimination System program to cover a certain class or category of storm water discharges. These permits reduce the administrative burden of permitting storm water discharges.

Grading: The cutting and/or filling of the land surface to a desired slope or elevation.

Household Hazardous Waste: A household hazardous material that no longer has a use and is discarded or intended to be discarded. The term includes but is not limited to paint and paint-related materials; yard and garden products; household cleaners; used oil, motor vehicle fluids, batteries and oil filters; and household batteries.

Illicit Discharge: Any discharge to a municipal separate storm sewer that is not composed entirely of storm water and is not authorized by a National Pollutant Discharge Elimination System permit, with some exceptions (e.g., discharges due to fire-fighting activities).

Impaired Water Body: A water body that is listed by the State Water Resources Control Board as impaired by a pollutant or pollutants, pursuant to Section 303(d) of the Federal Clean Water Act. An impaired water body is sometimes referred to as a "303(d) listed water body."

Impervious Cover or Impervious Surface: Constructed or modified surfaces that cannot effectively infiltrate rainfall. The term includes but is not limited to building rooftops, pavement, sidewalks, and driveways.

Industrial Activity: Manufacturing, processing, or raw materials storage at a commercial, industrial or municipal facility. The term includes, but is not limited to, industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials; manufactured

products, waste material, or by-product creation or storage; material handling; refuse storage or disposal; the application or disposal of process wastewaters; storage and maintenance of material handling equipment; treatment, storage or disposal of residuals; outdoor shipping and receiving; activities in manufacturing buildings; storage of raw materials and intermediate and finished products; and areas where significant industrial activity has taken place in the past and significant materials remain and are exposed to storm water. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product.

Infiltration: The process of storm water or non-storm water percolating into the subsoil.

Infiltration BMPs: Any structural treatment BMP designed primarily to percolate water into the subsurface, such as an infiltration trench or infiltration basin. An infiltration BMP may include filtering prior to or during infiltration. BMPs that infiltrate some water but which are designed primarily to retain water or to treat water, such as retention basins, constructed wetlands, or filtering swales, are not considered infiltration BMPs.

Maintenance [of a BMP]: Periodic action taken to maintain the as-designed performance of a BMP and includes but is not limited to repairs to the BMP as necessary, and replacement of the BMP by an equally effective or more effective BMP at the end of its useful life.

Maximum Extent Practicable (MEP): An acceptability standard for BMPs. When BMPs are required to meet this standard, the BMPs must be the most effective set of BMPs that is still practicable. A BMP is effective if it prevents, reduces or removes the pollutants that would otherwise be present in runoff due to human activity. A BMP is considered practicable if the BMP (1) complies with other regulations as well as storm water regulations; (2) is compatible with the area's land use, character, facilities, and activities; (3) is technically feasible (considering area soil, geography, water resources, and other resources available); (4) is economically feasible; and (5) provides benefits that are reasonable in relation to costs.

Municipal Facility: A facility owned or operated by the Marine Corps Base Camp Pendleton that is used for a governmental purpose. Facilities on Base-owned land that are leased or rented to others to generate Base revenues are not Municipal Facilities. (The commercial or industrial lessees of such facilities will, however, be subject to the Base Order (BO 5090.X).)

Municipal Separate Storm Sewer System (MS4): What constitutes a *municipal separate storm sewer system* (MS4) is often misinterpreted and misunderstood. The term MS4 does not solely refer to municipally-owned storm sewer systems, but rather is a term of art with a much broader application that can include, in addition to local jurisdictions, State transportation departments, universities, local sewer districts, hospitals, military bases, and prisons. An MS4 also is not always just a system of underground pipes – it can include roads with drainage systems, gutters, and ditches. The regulatory definition of an MS4 follows. According to 40 CFR 122.26(b), “municipal separate storm sewer means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law)...including special districts

under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the Clean Water Act that discharges into waters of the United States. (ii) Designed or used for collecting or conveying storm water; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.” A regulated MS4 is any MS4 covered by the NPDES Storm Water Program (regulated small, medium, or large MS4s).

National Pollutant Discharge Elimination System (NPDES): The surface water quality program authorized by Congress as part of the 1987 Clean Water Act. This is Environmental Protection Agency's program to control pollutant discharge to waters of the United States (see 40 CFR 122.2).

Notice of Intent (NOI): An application to notify the permitting authority of a facility's intention to be covered by a general permit; exempts a facility from having to submit an individual or group application.

NPDES Permit: A National Pollutant Discharge Elimination System permit issued by the U.S. Environmental Protection Agency, the State Water Resources Control Board, or the Regional Water Quality Control Board.

Outfall: The point where wastewater or drainage discharges from a sewer pipe, ditch, or other storm water conveyance to a receiving body of water.

Permitting Authority (PA): The NPDES-authorized State agency or EPA regional office that administers the NPDES Storm Water Program. PAs issue permits, provide compliance assistance, and inspect and enforce the program.

Pollutant: Any agent introduced to storm water or non-storm water through human activity that may cause or contribute to the degradation of water quality such that public health, the environment, or beneficial uses of waters may be affected.

Rainy Season: The rainy season generally occurs from October 1 to April 30 at Marine Corps Base Camp Pendleton.

Receiving Waters: All waters that are “Waters of the State” within the scope of the State Water Code, including but not limited to natural streams, creeks, rivers, reservoirs, lakes, ponds, water in vernal pools, lagoons, estuaries, bays, the Pacific Ocean, and ground water. These waters receive storm water runoff.

Redevelopment: Any construction, alteration or improvement at an already developed site that will increase the total impervious surface area of that site, or that involves activities that could expose contaminants to rainfall. Examples include expanding building footprints, adding or replacing part of a structure, exterior construction and remodeling, replacing existing impervious surfaces that are not part of a routine maintenance activity, and other activities that create additional impervious surface.

Runoff: Drainage or flood discharge that leaves an area as surface flow or as pipeline flow. Has reached a channel or pipeline by either surface or sub-surface routes.

San Diego Regional Water Quality Control Board (SDRWQCB): The California Regional Water Quality Control Board for the San Diego Region.

Sanitary Sewer: A system of underground pipes that carries sanitary waste or process wastewater to a treatment plant.

Sediment: Soil, sand, and minerals washed from land into water, usually after rain. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

Site Plan: A graphical representation of a layout of buildings and facilities on a parcel of land.

Stop Work Order: An order issued which requires that specifically identified activity or all activity on a site be stopped.

Storm Drain: A slotted opening leading to an underground pipe or an open ditch for carrying surface runoff.

Storm Water: Precipitation that accumulates in natural and/or constructed storage and storm water systems during and immediately following a storm event. For example: storm water runoff, surface water runoff, street wash waters related to street cleaning or maintenance, infiltration (other than infiltration contaminated by seepage from sanitary sewers or by other discharges) and drainage related to storm events or snow melt.

Storm Water Conveyance System: Private and public drainage facilities other than sanitary sewers by which urban run-off may be conveyed to Receiving Waters, and includes but is not limited to roads, streets, constructed channels, aqueducts, storm drains, pipes, street gutters, inlets to storm drains or pipes, or catch basins.

Storm Water Management: The use of structural and/or non-structural BMPs that are designed to reduce urban run-off pollutant loads, discharge volumes, and/or peak discharge flow rates or velocities. Storm water management also includes planning and programmatic measures.

Storm Water Management Plan (SWMP): A plan identifying the measures that will be used for storm water and non-storm water management during activities identified in the SWMP. Example activities are construction, vehicle maintenance and repair, and landscaping.

Storm Water Pollution Prevention Plan (SWPPP): A plan to describe a process whereby a facility thoroughly evaluates potential pollutant sources at a site and selects and implements appropriate measures designed to prevent or control the discharge of pollutants in storm water runoff.

Structural BMP: A BMP that relies on either a physical condition (other than an entirely natural and undisturbed condition), or on a constructed or installed device to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Constructed or enhanced BMPs that depend on natural materials and processes (e.g., constructed drainage swales or buffers, or constructed wetlands), and that require periodic maintenance to function as designed, are Structural BMPs.

Structural Post-Construction BMP: A structural BMP (other than a temporary construction related BMP) put in place in connection with a land development or redevelopment project to prevent or reduce contamination in storm water or Receiving Waters, or to prevent or reduce erosion downstream from the project.

Surface Water: Water that remains on the surface of the ground, including rivers, lakes, reservoirs, streams, wetlands, impoundments, seas, estuaries, etc.

Tributary to an Impaired Water Body: A facility or activity is tributary to an impaired water body if urban runoff from that facility or activity enters (1) the storm water conveyance system at a place and in a manner that will carry pollutants for which that water body is impaired in that discharge to the impaired water; (2) a flowing stream that will carry pollutants for which that water body is impaired in that discharge to the impaired water; or (3) an ephemeral stream that reaches the impaired water during storm events and that will carry pollutants for which that water body is impaired from the facility or activity to the impaired water body during such storm events.

Urbanized Area: A Bureau of the Census determination of a central place (or places) and the adjacent densely settled surrounding territory that together have a minimum residential population of 50,000 people and a minimum average density of 1,000 people/square mile. This is a simplified definition of a UA; consult the Bureau of the Census for a full definition.

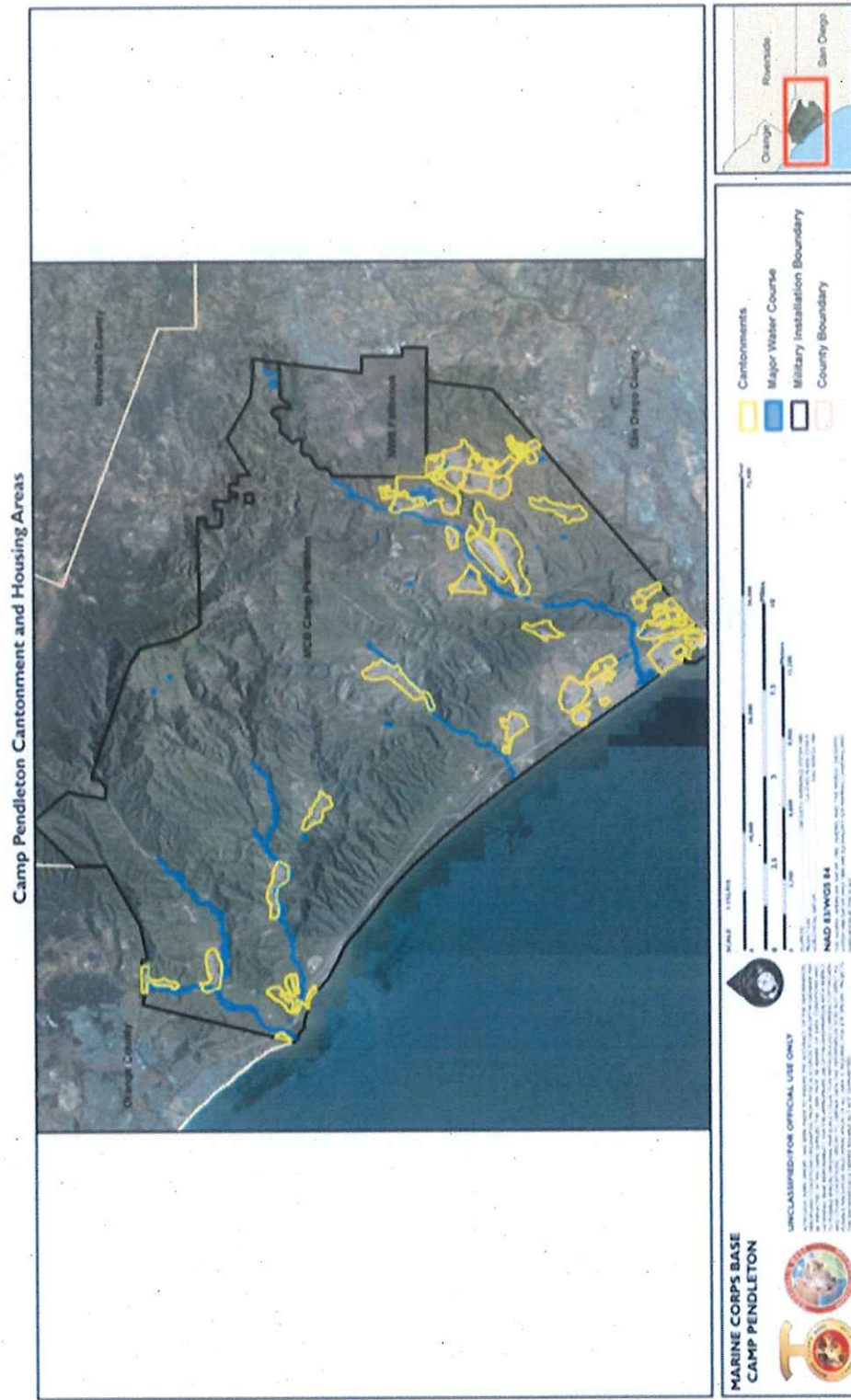
Urban Runoff: All flows in a storm water conveyance system in urbanized areas other than point source discharges in violation of a site-specific NPDES permit. Urban runoff includes but is not limited to storm water, exempt non-storm water discharges, and illicit discharges.

Water Quality Standards: The beneficial uses (e.g., swimming, fishing, municipal drinking water supply) of water and the water quality objectives adopted by the State or the United States Environmental Protection Agency to protect those uses.

Watershed: A geographical area which drains to a specified point on a watercourse, usually a confluence of streams or rivers. Also known as a drainage area, catchment, or river basin.

Waters of the United States: Includes interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce. (Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA are not waters of the United States.) A complete definition can be found at 40 CFR 122.2.

APPENDIX B **URBANIZED DEVELOPMENT AREA SUBJECT TO THE MS4 GENERAL PERMIT**



THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C
STORMWATER BASE ORDER
(Draft submitted on April 12, 2019 to NAVFAC for review)

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX D
LEGAL AUTHORITY – SIGNED CERTIFICATION STATEMENT
(following 3 pages)

THIS PAGE INTENTIONALLY LEFT BLANK

Certification

To effectively implement a coordinated storm water program, Marine Corps Installations-Marine Corps Base Camp Pendleton (MCIWEST-MCB CAMPEN) shall have a storm water management program that includes the establishment of legal authority. This document serves to certify that MCIWEST-MCB CAMPEN has and will maintain full legal authority to implement and enforce each of the requirements within:

State Water Resources Control Board
Water Quality Order No. 2013-0001-DWQ ("Order")
National Pollutant Discharge Elimination System
("NPDES") General Permit No. CAS000004

Waste Discharge Requirements ("WDRs") for Storm Water Discharges
from Small Municipal Separate Storm Sewer Systems ("MS4s") ("General
Permit")

The General Permit requires that MCIWEST-MCB CAMPEN, within the second year of the effective date of the permit, review, revise or adopt new relevant policies, contractual provisions, base orders, resolutions or other regulatory mechanisms to ensure it has at a minimum the legal authority to:

- (a) Effectively prohibit non-storm water discharges through the MS4. Exceptions to this prohibition may include the non-storm water discharges from B.3 (Page 17) of the MS4 General Permit, only if they are considered non-significant contributors of pollutants.
- (b) Detect and eliminate illicit discharges and illegal connections to the MS4. Illicit connections include pipes, drains, open channels, or other conveyances that have the potential to allow an illicit discharge to enter the MS4. Illicit discharges include all non-storm water discharges not otherwise authorized in this Order, including, but not limited to discharges from mobile cleaning and pressure washing operations.
- (c) Respond to spills, and prohibit dumping or disposal of materials other than storm water into the MS4.
- (d) Require vendors, contractors and operators of commercial facilities to minimize the discharge of pollutants to the MS4 through the installation, implementation, and maintenance of Best Management Practices (BMPs) consistent with the California Stormwater Quality Association BMP Handbooks or equivalent.
- (e) Ensure construction site or industrial facility operators provide a Waste Discharge Identification Number for coverage under the Construction General Permit and Industrial General Permit and comply with the appropriate permit.
- (f) Review designs and proposals for new development and redevelopment to determine whether adequate BMPs will be installed, implemented, and maintained during construction and after final stabilization (post-construction).
- (g) Promptly cease and desist discharges and/or cleanup and abate a discharge including the ability to:
 - 1) Effectively require the discharger to abate and clean up their discharge, spill, or pollutant release within 72 hours of notification
 - 2) Require abatement, within 30 days of notification for uncontrolled sources of pollutants that could pose an environmental threat;
 - 3) Perform the cleanup and abatement work and bill the responsible party, if necessary;
 - 4) Provide the option to order the cessation of activities until such problems are adequately addressed if a situation persists where pollutant-causing sources or activities are not abated;
 - 5) Require a new timeframe and notify the Regional Water Board when all parties agree that clean-up activities cannot be completed within the original timeframe and notify the Regional Water Board in writing within five business days of the determination that the timeframe requires revision.

As an owner of real property, MCIWEST-MCB CAMPEN has the legal authority to comply and/or mandate compliance with the activities listed in (a)-(g), above on real properties that it owns in fee, either through administrative policies or contract agreements. In situations where a party is under contract with MCIWEST-MCB CAMPEN to use its property, MCIWEST-MCB CAMPEN clearly has the right to put provisions into its contracts requiring compliance with the provisions of sections (a) - (g), including provisions related to abatement of discharges set forth in section (g).

For situations where a party is under contract with MCIWEST-MCB CAMPEN, these procedures are implemented through typical contract enforcement procedures. However, in situations where a party that is not under contract with MCIWEST-MCB CAMPEN illegally discharges on MCIWEST-MCB CAMPEN property, MCIWEST-MCB CAMPEN will follow the process contained in section (g), with the understanding that MCIWEST-MCB CAMPEN's ability to require abatement within the time periods specified in section might be limited by the applicable law and the speed of the judicial process.

MCIWEST-MCB CAMPEN has the inherent legal authority to mandate compliance with conditions of the General Order on all real property that it owns subject only to the limitations of federal, state, and local laws and the judicial process.

The laws, regulations, guidance, and ordinances include, but are not limited to:

- Clean Water Act § 402(p)(3)(b)
- 40 C.F.R. §§ 122.22(b)
- 40 C.F.R. §§ 122.34(b)(3)(ii)(B), (b)(4)(ii)(A), and (b)(5)(ii)(B)
- 40 C.F.R. §§ 122.41(k)
- San Diego Region, Order No. R9-2010-0016, NPDES No. CAS0108766
- San Diego Municipal Storm Water Permit, Order No. R9-2007-0001, NPDES No. CAS0108758
- RWQCB San Diego Region MS4, Order No. R9-2013-0001 NPDES No. CAS0109266
- MS4 Permit Improvement Guide, U.S. EPA, April 2010, EPA 833-R-10-001
- MS4 Program Evaluation Guidance, U.S. EPA, EPA-833-R-07-003

I am the Environmental Law Counsel for the Western Area Counsel Office, and I certify under penalty of law that this document to certify legal authority to carry out the requirements for a Non-traditional Small Municipal Separate Storm Sewer System, Order No. 2013-00001-DWQ, NPDES No. CAS000004, and all attachments were prepared with my review in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

Printed Name: Major Christian P. Hur, U.S. Marine Corps

Title: Environmental Law Counsel

Signature: HUR.CHRISTIAN.PAT
RICK.1233504439

Digitally signed by
HUR.CHRISTIAN.PATRICK.1233504439
Date: 2018.05.04 07:04:34 -07'00'

Date: 4 May 2018

I am the Legally Responsible Person, a person duly authorized to sign reports required by the California General Permit for Storm Water from Non-traditional Small Municipal Separate Storm Sewer Systems, Order No. 2013-00001-DWQ, NPDES No. CAS000004, and I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

Printed Name: Mark Bonsavage Title: MCB CAMPEN Environmental Engineering Branch Head

Signature: BONSAVAGE.MARK.
JOHN.1198879033

Digitally signed by
BONSAVAGE.MARK.JOHN.1198879033
Date: 2018.05.03 16:26:59 -07'00'

Date: 05/03/2018

1. The purpose of this report is to provide a summary of the findings of the investigation into the alleged incident involving the employee and the customer. The investigation was conducted by the Human Resources Department and the results are as follows:

2. The employee was found to have engaged in inappropriate behavior towards the customer. The employee was found to have used offensive language and made inappropriate comments. The employee was also found to have touched the customer in an inappropriate manner.

3. The customer was found to have been treated unfairly and was distressed by the incident. The customer was found to have been treated with disrespect and was not given the opportunity to be heard.

4. The investigation found that the employee was not given proper training and supervision. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story.

5. The investigation found that the customer was not given the opportunity to be heard and was not given the chance to explain his side of the story. The customer was not given the opportunity to be heard and was not given the chance to explain his side of the story.

6. The investigation found that the employee was not given proper training and supervision. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story.

7. The investigation found that the customer was not given the opportunity to be heard and was not given the chance to explain his side of the story. The customer was not given the opportunity to be heard and was not given the chance to explain his side of the story.

8. The investigation found that the employee was not given proper training and supervision. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story.

9. The investigation found that the customer was not given the opportunity to be heard and was not given the chance to explain his side of the story. The customer was not given the opportunity to be heard and was not given the chance to explain his side of the story.

10. The investigation found that the employee was not given proper training and supervision. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story.

THIS PAGE INTENTIONALLY LEFT BLANK

11. The investigation found that the employee was not given proper training and supervision. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story.

12. The investigation found that the customer was not given the opportunity to be heard and was not given the chance to explain his side of the story. The customer was not given the opportunity to be heard and was not given the chance to explain his side of the story.

13. The investigation found that the employee was not given proper training and supervision. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story.

14. The investigation found that the customer was not given the opportunity to be heard and was not given the chance to explain his side of the story. The customer was not given the opportunity to be heard and was not given the chance to explain his side of the story.

15. The investigation found that the employee was not given proper training and supervision. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story.

16. The investigation found that the customer was not given the opportunity to be heard and was not given the chance to explain his side of the story. The customer was not given the opportunity to be heard and was not given the chance to explain his side of the story.

17. The investigation found that the employee was not given proper training and supervision. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story.

18. The investigation found that the customer was not given the opportunity to be heard and was not given the chance to explain his side of the story. The customer was not given the opportunity to be heard and was not given the chance to explain his side of the story.

19. The investigation found that the employee was not given proper training and supervision. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story. The employee was not given the opportunity to be heard and was not given the chance to explain his side of the story.

20. The investigation found that the customer was not given the opportunity to be heard and was not given the chance to explain his side of the story. The customer was not given the opportunity to be heard and was not given the chance to explain his side of the story.

APPENDIX E PUBLIC EDUCATION RESIDENTIAL FLYER

Plan Your Activities to Prevent Pollutants From Entering Our Storm Drains

Storm Water Runoff

Rain water flows over surfaces and picks up pollutants and carries them into storm drain systems, which eventually flows to waterways (lakes, rivers, the ocean, etc.) without treatment.



Here are ways you can help to prevent storm water pollution:

ONLY RAIN IS ALLOWED DOWN THE STORM DRAIN

Vehicle Maintenance

- Perform vehicle maintenance activities at approved locations (e.g. Auto Hobby Shop).
- Contain and clean up any fluids that are released during repair or maintenance. Keep materials and equipment for spill containment and cleanup easily accessible and dispose of absorbent materials properly.
- Store materials in secure, watertight containers, either indoors or under cover.

Vehicle Washing

- Use car wash facilities or designated wash racks.
- Wash vehicles on lawns and gravel (if possible) to allow the waste water to percolate into the soil and filter out pollutants.
- Consult your installation environmental office for Base car wash fundraising locations and procedures.



Vehicle Parking

- Move vehicles when street sweeping is scheduled to allow the street sweepers to remove accumulated sediment.
- Use a drip pan to catch fluid from a leaking vehicle or equipment and repair the leak as soon as possible.



Home, Garden Care Activities

- Report or adjust irrigation systems that create excessive runoff.
- Choose plants that are native to the region and climate to help reduce water, fertilizer, and pesticide needs.
- Minimize the use of chemicals and consider alternative products.

- Use product containers in good condition, kept securely closed when not in use, and store indoors when possible, or under cover outdoors protected from contact with rain and storm water.
- **DO NOT over-apply fertilizers or other gardening chemicals.**
- **DO NOT apply fertilizers or other gardening chemicals less than 24 hours prior to predicted storm events.**
- **DO NOT apply chemicals during storm events.**



Home Care and Maintenance

- Keep paint and solvent cans sealed and dry.
- Use drop cloths and drip pans.
- If painting outdoors, do not mix paints near storm drains or water sources (ponds, etc.).
- Immediately clean up all spills and properly dispose of spill cleanup materials.
- **DO NOT dump waste paints and solvents into the storm drain.**

General Household Maintenance

- Store household hazardous materials indoors or under cover in closed and labeled containers.
- If a commercial service is used for carpet and upholstery cleaning, ensure that the contractor or commercial service is collecting the wastewater in a holding tank for off-Base disposal.
 - Pick up and dispose of pet waste to prevent bacteria from entering the drainage system.



PUBLIC EDUCATION RESIDENTIAL FLYER (continued)

To report illegal dumping into a storm drain, please call:

Environmental Security
(760) 725-9760

To recycle or properly dispose of your household hazardous waste, Base residents should:

Take paints, batteries, antifreeze, cleaning products, used oil and oil filters to a hazardous waste collection facility/event. For questions or for more information on household hazardous waste drop-off points, call the following Housing District Offices at:

- ✓ Del Mar (760) 430-0040
- ✓ Del Valle (760) 410-6184
- ✓ DeLuz (760) 385-4835
- ✓ Edson (760) 237-6017
- ✓ Mesa (760) 385-5318
- ✓ Mountain (760) 430-8476
- ✓ San Onofre (949) 940-9178
- ✓ Stuart Mesa (760) 430-0694

General Contact:

Environmental Security
Stormwater Section
Building 22165, 11th Street
MCB Camp Pendleton, CA 92055



Stormwater Education Outreach Program

**YOU are the Solution
to
Stormwater Pollution**



**ONLY RAIN
is allowed down the
STORM DRAIN**

**Help Protect Creeks, Lakes,
Rivers, and Ocean Waters
From Industrial and
Household Pollutants**



APPENDIX F
PUBLIC EDUCATION STAFF LEVEL POSTER

PREVENT STORMWATER POLLUTION



USE Designated Vehicle Washing Areas



USE Spill Prevention & Response Equipment



USE Maintenance Bays



Cover & Contain Material & Waste Dumpsters

PREVENT WATER POLLUTION IN DRAINAGE SYSTEMS




DO NOT wash down to storm drain



DO NOT dump anything into storm drain



Storm drains flow directly to rivers & eventually to the ocean



CONTACT
Environmental Security
760-725-9760

MCB Camp Pendleton
Storm Water Training Program
Awareness Campaign

THIS PAGE INTENTIONALLY LEFT BLANK


THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX G

PUBLIC EDUCATION EARTH DAY FAIR POSTERS

Guidance for Base Residents to Protect Water Quality:

- Wash vehicles only at designated car wash facilities
- Pick up after your pet
- Sweep driveways and sidewalks; never hose down
- Never blow or sweep leaf litter into storm drains
- Perform vehicle maintenance only at designated maintenance facilities
- Clean up spills with absorbents (pads, granules) and sweep when dry
- Properly dispose of oil, trash, and chemicals; never pour anything down the storm drain
- Store pesticides, fertilizers, and other chemicals indoors or under cover



PUBLIC EDUCATION EARTH DAY FAIR POSTERS (continued)

CPEN Stormwater Regulatory Permitting Program

Municipal Separate Storm Sewer System (MS4) Permit

All communities with less than 100,000 people must enroll and implement various measures within its boundaries to control urban stormwater runoff, prevent illicit discharges, minimize pollution, and reduce impacts to water quality.

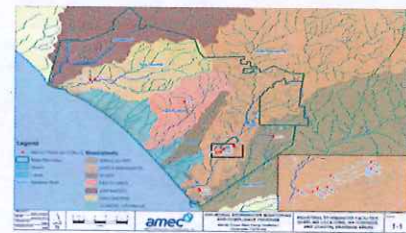


Construction Stormwater Permits

All construction projects that have a total land disturbance of 1 acre or more, or less than 1 acre but are part of a larger common plan of development, must obtain permit coverage under the California Construction General Permit for Stormwater Discharges.

Industrial Stormwater Permits

CPEN has 10 active Industrial Stormwater Facilities permitted by the California State Water Resources Control Board. The permits require on-site monitoring and controls to prevent or reduce pollutants from contaminating stormwater discharges.



PUBLIC EDUCATION EARTH DAY FAIR POSTERS
(continued)

Examples of Retention Systems
Providing Natural Separation of Pollutants from Stormwater Runoff

Detention Basin



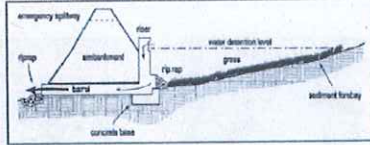
Constructed Wetlands



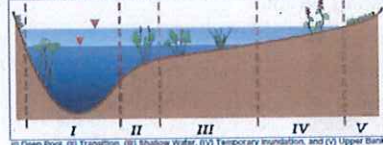
Bioretention Area



Detention Basin Schematic



Constructed Wetlands Schematic



Bioretention Area Schematic



PUBLIC EDUCATION EARTH DAY FAIR POSTERS
(continued)

CONSTRUCTION SITE STORMWATER MANAGEMENT

Project: _____ Contractor: _____ USMC Installation: _____

Construction projects one acre or more must obtain a Stormwater Permit for construction activities, develop and comply with a Stormwater Pollution Prevention Plan (SWPPP), and implement the following Stormwater Best Management Practices (BMPs)

DO

- ✓ Minimize the amount of exposed soil on-site
- ✓ Divert stormwater away from the project area
- ✓ Utilize fiber rolls, gravel bags, silt fencing, basins, and concrete washouts to prevent erosion and discharge of muddy/contaminated water
- ✓ Sweep paved areas regularly
- ✓ Cover and elevate materials that could runoff
- ✓ Install metal plates and rock at construction entrances/exits to prevent tracking off-site

DON'T

- ✗ Store materials near storm drain inlets
- ✗ Leave dumpsters uncovered
- ✗ Allow dirt, mud, concrete washout water, or other pollutants to discharge off-site
- ✗ Hose down a paved surface
- ✗ Conduct maintenance or wash vehicles or equipment on-site
- ✗ Track dirt or mud from project site onto streets



Contractor or Supervisor is held responsible for compliance and environmental damage on the construction site. Remember, you are representing the Marine Corps and the Commanding Officer of this Installation.



Contractor POC: _____

Government POC: _____



APPENDIX H
OPERATIONAL BEST MANAGEMENT PRACTICES (BMPs)
(following 23 pages)

THIS PAGE INTENTIONALLY LEFT BLANK

Base-Wide Best Management Practices

BMP No. and Description

H.1.1 Prevent or Reduce Stormwater Pollution to the Maximum Extent Practicable

1. Comply with Marine Corps Order (MCO) 5090.2, which describes non-stormwater discharge prohibitions and best management practice (BMP) requirements. Area Commanders are responsible for ensuring that MCOs and other directives are distributed to all relevant personnel within their jurisdictions, including Marine units. Contact the Environmental Security (ES) Stormwater Section [(760) 725-9760] to obtain educational fact sheets for vehicle maintenance areas, food service, recreational areas, and more.

H.1.2 Update Stormwater Pollution Prevention Plan

1. The facility's designated Environmental Compliance Coordinator (ECC) is responsible for updating the facility's stormwater pollution prevention plan (SWPPP), including applicable BMP requirements and to note changes to the facility activities.
2. Train personnel on personal safety, chemical management, and proper methods for handling and disposing of wastes. Instruct personnel on non-stormwater discharge prohibitions, wastewater discharge requirements, and BMPs.

H.1.3 Label Storm Drains

1. Label Base-owned or leased facilities storm drains. Storm drain tiles and signs should contain a brief statement prohibiting the dumping of improper materials into the stormwater conveyance system. Contact the ES Stormwater Section [(760) 725-9760] for guidance and stenciling materials.

H.1.4 Follow Proper Spill Containment, Cleanup, and Reporting Procedures

1. Stop spills and leaks at the source and clean them up promptly. Materials and equipment necessary for spill response should be maintained in good condition and be kept readily accessible. A typical spill kit contains dry absorbent materials, booms, gloves, and cleaners. At a minimum, kits should be accessible from all bulk liquid storage and transfer areas and from all fueling areas. Emergency telephone numbers of ES (24-hour) [(760) 414-5882] and the Fire Department [(911) or (760) 725-4321] should be posted.

Roads and Streets

BMP No. and Description

H.2.1 Street Sweeping

1. Establish street sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to receiving waters, etc. At a minimum, (1) sweep monthly in residential and other low traffic areas. Sweep more frequently in high-traffic areas or where needed; (2) sweep streets just before the onset of the rainy season (October 1 to April 30) and at least monthly thereafter; (3) maintain a consistent sweeping schedule.
2. Be sure that street sweeper operators make enough passes on each street to maximize the amount of sediment, debris, and trash collected.
3. Institute a restrictive parking policy during scheduled sweeping events to allow street sweepers better access to areas close to the curb.
4. Install permanent street sweeping signs. If permanent signs are not feasible, post temporary signs to announce scheduled sweeping events or develop and distribute flyers notifying residents of street sweeping schedules. This information could be included in the welcome package provided to new residents.
5. Keep accurate logs of the number of curb-miles swept and the amount of waste collected.
6. Do not store swept material along the side of the street or near storm drain inlets.

H.2.2 General Maintenance

1. Conduct maintenance measures and pavement marking during dry weather.
2. Repair potholes as soon as possible to reduce sediment loss and erosion.
3. Use water-based paints whenever possible. If using water-based paints, clean the application equipment in a sink that is connected to the sanitary sewer.
4. Be sure that all spare filling material on the road is collected.
5. Use dry cleaning methods, such as sweeping, wherever possible. Use wet cleaning methods, such as hosing or pressure washing, only after dry cleaning methods are used and adequate precautions have been taken to prevent the wastewater from entering the stormwater conveyance system or receiving waters.
6. Clean equipment offsite in designated wash areas when possible. If washing equipment onsite, construct an above-grade, lined basin for use as a temporary collection area. Locate the wash area away from stormwater conveyance system inlets. Do not discharge rinse water to the stormwater conveyance system under any circumstances.

H.2.3 Saw Cut Slurry

1. Avoid saw-cut activities during wet weather, to the extent feasible.
2. Store saw-cutting materials away from storm drains and under cover to prevent stormwater pollution.
3. During saw-cutting and grading operations, use as little water as possible. Block or place berms around nearby stormwater inlets, in drainage channels (if no inlet is nearby), or around work areas. Examples of appropriate barrier materials to contain slurry include sand/gravel bags or absorbent materials such as pads, pillows, and socks.
4. Remove saw-cut slurry as soon as possible with a shovel or vacuum or sweep up when dry. Dispose of the material properly.
5. Clean up spills from equipment and activities if it is safe to do so. Properly dispose of the spilled materials and any other materials used to contain the spill.

BMP No. and Description

H.2.4 Paving

1. Avoid paving activities during wet weather, to the maximum extent practicable.
2. Store paving materials away from streets, gutters, storm drain inlets, or watercourses. Store paving materials under cover, protected from rainfall and runoff. During rain events, cover stockpiles with plastic tarps or install berms to prevent materials from being transported into the stormwater runoff.
3. During the rainy season (October 1 through April 30), divert runoff away from work areas and stockpiled materials.
4. Cover and seal nearby storm drain inlets and manholes before applying seal coat, slurry seal, etc. Leave covers in place until the job is complete or until all water from the emulsified oil sealants has evaporated.
5. Use dry cleaning methods such as sweeping when cleaning up excess material. Dispose of the material properly.
6. Avoid cleaning paving equipment onsite and restrict equipment cleaning to an appropriate designated location away from storm drain inlets, to the maximum extent practicable.

H.2.5 Concrete

1. Avoid cleaning paving equipment onsite and restrict equipment cleaning to an appropriate designated location away from storm drain inlets, to the maximum extent practicable.
2. Instruct contractors to wash out concrete trucks at an off-Base facility. If concrete trucks must be washed on Base, create an aboveground basin using heavy plastic and sand/gravel bags. Allow the wash water to evaporate and dispose of the heavy plastic appropriately. Do not release wash water into the stormwater conveyance system. Whenever possible, recycle wash water by pumping the water back into mixers for reuse.
3. Store concrete materials under cover, away from storm drain inlets, gutters, or watercourses, or in a bermed area. Secure bags of cement after they are open. Be sure to keep wind-blown cement powder away from streets, gutters, storm drains, rainfall, and runoff.
4. Avoid mixing excess amounts of concrete or cement onsite.
5. Whenever possible, recycle leftover concrete, grout, and mortar material. Dispose of small amounts of excess materials in the trash. Transfer excess leftover materials to a landfill site for disposal.

Parking Lots

BMP No. and Description

H.3 General Requirements

1. Use dry cleaning methods, such as sweeping and scraping, to clean parking areas on a regular basis to prevent significant pollutants from accumulating in the parking area. Properly dispose of any accumulated material. The Area Commander or designated facility Environmental Compliance Coordinator (ECC) is responsible for ensuring that the parking areas are swept.
2. Do not clean parking lots with water-based methods, such as hosing, steam cleaning, and pressure washing, unless (1) dry cleaning methods have been employed first, and (2) adequate precautions have been taken to prevent wash water and other contaminants from entering the stormwater conveyance system or receiving waters. Precautions may include placing sand/gravel bags or adsorbent pads around a storm drain opening or diverting wash water to a pervious surface. If water-based methods are necessary, minimize the amount of water used to clean the parking facility. Parking facilities should not be cleaned routinely with water.
3. Periodically inspect and spot clean the parking lots. Use absorbent materials to remove gas, oil, or antifreeze leaks. Absorbents can be used in any parking lot where leaks are observed, on wet areas, or in frequently used parking stalls. Collect the saturated absorbent material in approved containers and properly dispose.
4. Post "No Littering" signs to prohibit littering and dumping in the parking lots. Littering in parking lots is a source of pollutants to the stormwater conveyance system.
5. Place covered trash cans in convenient locations (away from storm drains) to encourage proper waste disposal and discourage littering. Empty the trash cans frequently.
6. Post signs to notify personnel that changing oil and performing vehicle maintenance in parking lots is prohibited on Base by order of the Commanding General.
7. Inspect vehicles stored in parking areas for extended periods. Clean up leaks and spills as necessary. Place drip pans under leaking vehicles and repair leaks as soon as possible. Dispose of automotive fluids at an authorized vehicle service facility.

Stormwater Conveyance System

BMP No. and Description

H.4 General Requirements

1. Conduct periodic visual inspections of the storm drain inlets, catch basins, culverts, concrete channels, and outfalls during the dry season (May 1 to September 30). Conduct visual inspections at least quarterly. Look for problem inlets where sediment/trash accumulates. Clean inlets as needed during the dry season (manually or using a vacuum truck).
2. Clean all inlets of the stormwater conveyance system at least once before the onset of the rainy season (October 1 to April 30) to ensure drainage capacity and to avoid resuspension of pollutants during a rain event. Remove sediment from creeks, basins, and channels when enough sediment has accumulated.
3. Complete non-emergency repairs and construction to the stormwater conveyance system during the dry season.
4. Where practicable, route the roof downspouts away from work areas and toward pervious areas such as lawns.
5. Provide treatment best management practices (BMPs) in critical areas where there is a higher potential for stormwater pollution. Ensure that treatment BMPs are maintained at a frequency that ensures proper performance of the BMP.
6. Report illicit connections and discharges to the stormwater conveyance system as soon as detected to the Environmental Security (ES) Stormwater Section [(760) 725-9760]. Inspect and clean stormwater pipelines and inlets immediately in areas affected by pollutant generating incidents, such as spills, fires, and fire hydrant flushing.
7. Dispose of the waste generated by maintenance activities into approved containers. Dewater the sediments in a manner that does not allow runoff into storm drains, such as discharging to sewer (with appropriate approvals) or using an evaporation basin. Analyze any sediment (less the debris) generated during maintenance activities if the sediment is suspected to contain pollutants to determine pollutant concentrations. Pollutants of concern are heavy metals, oil and grease, and petroleum hydrocarbons. Dispose of the sediment as hazardous waste if the pollutant concentrations are elevated. If the sediment is not hazardous, the Base landfill may be used for disposal.
8. Maintain inspection records for the following information collected on the stormwater conveyance system:
 - o Date and time the inspection was performed
 - o Name of the inspector
 - o Structures inspected (structure identification [ID])
 - o Locations of facilities inspected or cleaned (Camp Area, road name, etc.)
 - o Overall amount of material removed (estimated in either volume or dry weight)
 - o Type of material removed
 - o Disposal site utilized
 - o Problems noted
 - o Illegal/illicit connections or discharges detected
 - o Corrective action required
 - o Date corrective action was taken

Storage and Maintenance Yards

BMP No. and Description

H.5 General Requirements

1. Conduct repair and maintenance activities only in designated work areas (preferably indoors or under cover). These work areas should be located away from stormwater inlets and receiving waters to the maximum extent practicable. If not practicable, cover the stormwater inlets temporarily, or place sand/gravel bags or other absorbent materials (such as pads, pillows, or socks) around the inlets to prevent sediment and waste from entering the stormwater conveyance system. Divert runoff from work areas during the rainy season (October 1 to April 30).
2. Do not perform significant repair and maintenance work on boats over the water. Minor engine work and routine oil/fluid changing is not considered significant but may be conducted over water only if adequate precautions have been taken to prevent the entry of pollutants into the water.
3. If necessary, to prevent pollutants from entering the stormwater conveyance system or receiving waters, use structural controls at designated work areas to (1) prevent discharge of spills from the work area, (2) prevent run-on from contacting work surfaces and pollutants, and (3) prevent rainfall from contacting work surfaces and pollutants.
4. Promptly contain and clean up any release of fluids during repair and maintenance activities. Dispose of any saturated absorbent materials properly.
5. Store repair and maintenance materials and wastes indoors, under cover, or in secure and watertight containers. See Appendix H.6, Materials and Waste Management, for additional best management practices (BMPs) for materials and waste management.
6. Use dry cleaning methods such as sweeping or vacuuming on storage and maintenance areas. Do not use water-based cleaning methods, such as hosing, steam cleaning, and pressure washing, unless (1) dry cleaning methods have been employed first, and (2) adequate precautions have been taken to prevent wash water and other contaminants from entering the stormwater conveyance system or receiving waters. Precautions may include placing sand/gravel bags or adsorbent pads around storm drain openings or diverting wash water to pervious surfaces such as lawns or gravel areas. If water-based methods are necessary, minimize the amount of water used to clean the storage and maintenance facility. Storage and maintenance facilities should not be cleaned frequently with water.
7. Take all vehicles to approved facilities for washing (e.g., wash racks). If vehicles must be washed at the facility (without approved facilities for washing), wash the vehicle over a pervious surface such as lawns or gravel areas, where wash water and rinse water will infiltrate the pervious surface while sediments are filtered out. Do not release wash water or rinse water to the stormwater conveyance system or receiving waters under any circumstances. The stormwater conveyance system includes driveways, streets, and gutters.
8. Store vehicles in poor condition (vehicles awaiting repair, salvaged, or wrecked) underneath a temporary or permanent structure. Build a roof over vehicles kept for parts.
9. If equipment (e.g., radiators, axles) is to be stored outdoors, drain oil and other fluids first. This BMP is also applicable to vehicles being stored and not used on a regular basis.

BMP No. and Description

- | |
|--|
| 10. Inspect vehicles that are stored in parking areas for extended periods. Clean up leaks and spills as necessary. Place drip pans under leaking vehicles and repair leaks as soon as possible. Dispose of automotive fluids at an authorized vehicle service facility. |
|--|

Materials and Waste Management

BMP No. and Description

H.6.1 General Requirements

- | |
|---|
| <ol style="list-style-type: none">1. Store, manage, and dispose of hazardous materials and wastes in accordance with applicable federal, state, and local laws and regulations. Information related to hazardous materials can be obtained from the Environmental Security (ES) Hazardous Waste Division [(760) 725-4375/1963].2. Maintain, and keep readily accessible, materials and equipment necessary for spill response. Train Base personnel involved in the storage, management, or disposal of hazardous materials or wastes in their proper use. Report spills to the ES Hazardous Waste Division, Spill Response Coordinator [(760) 414-5882].3. Restrict access to hazardous materials.4. Clean up spills and leaks promptly.5. Use safeguards against accidental releases:<ul style="list-style-type: none">○ Provide overflow protection devices to warn operators or provide automatic shutdown transfer pumps.○ Provide protection guards (bollards) around tanks and piping to prevent vehicle or forklift damage.○ Provide clear tagging or labeling, and restricting access to valves to reduce human error.6. Maintain and keep readily accessible materials and equipment necessary to clean up trash and debris.7. Keep trash storage and disposal areas clean and free of debris.8. Post "No Littering" signs and enforce anti-litter laws. |
|---|

H.6.2 Significant Material Storage

- | |
|---|
| <ol style="list-style-type: none">1. Store all significant materials inside. If not feasible, store significant materials off the ground and provide overhead coverage for outdoor materials and waste storage areas. If overhead coverage is not available, cover stored materials with an impervious material such as a tarp.2. Surround storage areas, including dumpsters, with containment berms or other diversion methods.3. Store liquid hazardous materials within secondary containment. Maintain adequate freeboard to collect any potential spills.4. Inspect walls of pop-up berms periodically for proper positioning. Adjust as necessary.5. Inspect walls of permanent berms periodically for integrity. Repair as necessary.6. Maintain drain pipes of berms in a capped or closed valve status at all times unless releasing accumulated water that has no indications of pollutants.7. Keep drums, storage lockers, and other containers securely closed when not in use.8. Replace containers that are leaking, corroded, or otherwise deteriorating with ones in good condition. If the liquid chemicals are corrosive, use containers made of compatible |
|---|

BMP No. and Description
materials rather than metal drums.
H.6.3 Significant Material Disposal
<ol style="list-style-type: none"> 1. Do not mix wastes; mixing can cause chemical reactions, make recycling impossible, and complicate disposal. 2. Properly dispose of any liquids contained in pop-up or permanent berms that have indications of potential pollutants. 3. Do not pour liquid waste to floor drains, sinks, stormwater inlets, or other storm drains or the sanitary sewer system. Liquid waste includes, but is not limited to, used or leftover cleaning solutions, solvents, and automotive fluids. 4. Do not dispose of oil filters in trash cans or dumpsters, which may leak oil and contaminate stormwater runoff. Place the oil filter in a funnel over a waste oil recycling drum to drain excess oil before disposal. 5. Dispose of trash, recyclables, etc. at appropriate intervals to avoid overfilling of collection containers. 6. Dispose of surplus materials and obsolete equipment in a timely manner.
H.6.4 Significant Material Transfer (Loading and Unloading)
<ol style="list-style-type: none"> 1. Perform loading and unloading of materials in a designated area that is covered. 2. Avoid loading and unloading during wet weather. 3. Place portable rubber mats over storm drain inlets when transferring hazardous materials near a storm drain. 4. Install a spill control device (such as a tee section) in any catch basins that collect runoff from any storage areas if the materials stored are oils, gases, or other materials that separate from other materials and float on water. Separation allow for easier cleanup if a spill occurs. 5. Place drip pans or absorbent materials beneath mounted taps and at potential drip and spill locations during liquid transfer operations. Reuse, recycle, or properly dispose of any collected liquids or soiled absorbent materials. 6. Periodically inspect loading/unloading areas and remove accumulations of debris, litter, waste, or other materials.
H.6.5 Field and Training Operations
<ol style="list-style-type: none"> 1. Transport only the minimum amount of material needed for daily activities and transfer materials between containers at a facility where leaks and spill are easier to control. 2. If necessary, protect catch basins while conducting field activities so that if a spill occurs, the material is contained.

Vehicle or Equipment Mechanical Repair, Maintenance, Fueling, or Cleaning Facilities

BMP No. and Description

H.7.1 Vehicle and Equipment Fueling

1. Where practicable, place fueling areas under permanent cover.
2. Post signs to remind vehicle owners/operators not to top off the fuel tank when filling and post signs that ban changing engine oil or other fluids at that location.
3. Ensure that the following safeguards are in place:
 - Overflow protection devices on tank systems to warn the operator to automatically shut down transfer pumps when the tank reaches full capacity.
 - Protective guards around tanks and piping to prevent vehicle or forklift damage.
 - Clear tagging or labeling of all valves to reduce human error.
 - Automatic shut off for severed fuel hoses.
4. Use secondary containment and cover storm drains in the vicinity while transferring fuel from a tank truck to the fuel tank.
5. Where practicable, use a designated fueling area rather than a mobile fuel truck. Most vehicles should be able to travel to a designated area with little lost time. Place temporary "caps" over nearby catch basins or manhole covers so that if a spill occurs, it is prevented from entering the storm drain.
6. Connect storm drain inlets draining the fueling and surrounding areas to an oil/water separator and to the sanitary sewer, where practicable. Obtain necessary approvals from the Water Resources Division (WRD) Wastewater [(760) 725-4018] prior to discharging to the sanitary sewer.
7. Periodically inspect fueling and parking areas and remove significant accumulations of materials and substances (oil, fuel, grease, etc.). Dispose of materials properly.

H.7.2 Vehicle and Equipment Cleaning

1. Use dry cleaning methods whenever practicable.
2. Use hoses with nozzles that automatically turn off when left unattended.
3. Clearly mark designated wash areas with signs indicating locations and methods for washing. This area must be covered or bermed to collect the wash water and graded to direct the wash water to the sanitary sewer.
4. Do not use soaps and detergents while washing vehicles or equipment (where prohibited):
 - If cleaning materials are required, use biodegradable, phosphate-free detergents for washing vehicles and equipment as appropriate.
5. Collect, contain, and recycle as much wash water and rinse water as possible at vehicle and equipment washing facilities (e.g., wash rack with a closed-loop system). Discharge remaining water to the sanitary sewer after obtaining all necessary approvals WRD Wastewater [(760) 725-4018].
6. Clean vehicle and equipment parts without using liquid cleaners wherever possible. Do not use hose-off or single-use engine degreasing chemicals, unless the chemicals are captured and properly disposed of.
7. Conduct liquid cleaning at a centralized station so the solvents and residues remain in one area.

BMP No. and Description

H.7.3 Vehicle and Equipment Maintenance and Repair

1. Move maintenance and repair activities indoors whenever feasible.
2. Perform the activity during dry periods.
3. Use non-toxic chemicals for maintenance and minimize or eliminate the use of solvents.
4. Store idle equipment containing fluids under cover.
5. Minimize contact of stormwater with outside vehicle and equipment operations through berming and drainage routing (run-on prevention). Connect maintenance and repair areas to an oil/water separator and to the sanitary sewer, where practicable. Obtain necessary approvals from the WRD Wastewater [(760) 725-4018] prior to discharging to the sanitary sewer.
6. Use a tarp, ground cloth, or drip pans beneath the vehicle or equipment to capture spills and drips if temporary work is being conducted outside. Reuse, recycle, or dispose of the collected drips and spills properly.
7. Designate a specific area for draining and replacing motor oil, coolant, and other fluids. This area should not have any connections to the storm drain or the sanitary sewer and should allow for easy cleanup of leaks and spills.
8. Drain fluids from wrecked vehicles immediately. Ensure that the containment system (e.g., drip pan) is large enough to contain drained fluids (e.g., larger pans are needed to contain antifreeze, which may gush from some vehicles).
9. Promptly transfer used fluids to the proper waste or recycling drums and store in an appropriately designed area that can contain spills. Do not leave drip pans or other open containers lying around.
10. See Appendix H.15, Painting and Coating, for best management practices (BMPs) related to painting and coating activities.

Golf Courses, Parks or Recreational Facilities

BMP No. and Description

H.8.1 General Requirements

1. Beaches, picnic areas, lakes, and ponds receive many visitors and may collect a large amount of litter, debris, and other pollutants. To minimize the amount of potential pollutants that reach the water body, implement the following procedures, when feasible:
 - Provide and maintain trash receptacles to hold refuse generated by the public.
 - Collect trash and debris from bins and along water bodies to minimize the amount of waste that may contact the water.
 - Collect trash and debris from within water bodies where it is safe and feasible to do so.
 - When necessary, increase the frequency of trash collection during peak visitation months (generally June, July, and August).
 - Post signs to educate visitors about the effects of littering on the quality of recreational water bodies.
2. Retain and plant native vegetation when practicable to reduce water, fertilizer, and pesticide needs:
 - Determine existing native vegetation features (location, species, size, function, and importance) and consider the feasibility of protecting them.
 - Consider the benefits of using native vegetation, such as drainage control, erosion control, hardiness, and habitat preservation, versus any maintenance requirements, such as mowing, weeding, or watering.
 - Where feasible, retain and/or plant selected native vegetation whose features are determined to be beneficial.
3. Take steps to reduce or eliminate landscaping and irrigation runoff. Where practicable, use automatic timers to minimize runoff. Apply water at rates that do not exceed the infiltration rate of the soil. Avoid irrigating during rain events and within 24 hours of pesticide, herbicide, or fertilizer applications.
4. Place temporarily stockpiled material away from watercourses, and berm or cover stockpiles to prevent material releases to the storm drain system.
5. Clean active work areas routinely with dry cleaning methods such as sweeping and raking. Do not use water-based cleaning methods, such as hosing or pressure washing, unless: (1) dry cleaning methods have been employed first, and (2) adequate precautions have been taken to prevent wash water and other contaminants from entering the stormwater conveyance system or receiving waters. Precautions may include placing sand/gravel bags or adsorbent pads around a storm drain opening or diverting wash water to a pervious surface. If water-based methods are necessary, minimize the amount of water used to clean the area.
6. Blowers may be used to remove leaves and grass clippings if the materials are collected and properly disposed of. Do not allow blown materials to enter the stormwater conveyance system or any nearby receiving waters. The stormwater conveyance system includes driveways, streets, and gutters.

H.8.2 Pool and Fountain Maintenance

1. Do not use copper-based algaecides. Control algae with chlorine or other alternatives, such as sodium bromide.
2. Store all chemicals related to pool and fountain maintenance in leak-proof containers and under cover.
3. Do not clean filters in the street or near a storm drain; rinse filters onto a dirt area.
4. Provide drip pans or buckets beneath drain pipe connections to catch leaks, especially when pool water that has not been dechlorinated is pumped through piping to a discharge location.
5. Do not discharge the backwash from the filters into the stormwater conveyance system. Acceptable disposal options include the following: (1) discharging to the sanitary sewer (obtain all necessary approvals from the Water Resources Division (WRD) Wastewater [(760) 725-4018] prior to discharging to the sanitary sewer); (2) discharging to a pervious surface, such as a grass or gravel area; and (3) discharging to a holding tank or settling pond. The preferred option is to discharge backwash to the sanitary sewer.
6. **Dechlorinated** water from swimming pools and fountains is considered exempt and may be discharged to the stormwater conveyance system (with proper approval from the Environmental Security (ES)). Water may be dechlorinated through mechanical means, such as allowing the water to sit for several days without adding chlorine, or chemical means (i.e., adding sodium bisulfite), before discharge. Dechlorinate pool and fountain water to less than 0.1 milligram per liter (mg/L) free chlorine prior to discharge. The preferred option is to discharge the water to the sanitary sewer (obtain all necessary approvals from the WRD Wastewater [(760) 725-4018] prior to discharging to the sanitary sewer). Alternatively, consider reusing the dechlorinated for irrigating lawns or landscaped areas.
7. After Acid washing, neutralize the pool and fountain water to a pH of 7.2 to 8.0 prior to discharge. Avoid discharging to the stormwater conveyance system. As an alternative, consider the following discharge options: (1) discharging to the sanitary sewer (obtain all necessary approvals from the WRD Wastewater [(760) 725-4018] prior to discharging to the sanitary sewer); (2) discharging to a pervious surface, such as a grass or gravel area; or (3) discharging to a holding tank or settling pond. The preferred option is to discharge pool water to the sanitary sewer.
8. Train maintenance personnel to test chlorine levels and to apply neutralizing chemicals.

Landscaping and Grounds Maintenance

BMP No. and Description

H.9.1 Erosion Control

1. Maintain vegetative cover on medians and embankments to prevent soil erosion. Apply mulch or grass clippings to serve as additional cover.
2. With approval from the Facilities Maintenance Department (FMD), provide energy dissipators, such as riprap, below culvert outfalls to minimize the potential for erosion in these areas.
3. Where practicable, retain the native vegetation or plant additional native vegetation to reduce erosion, as well as water, fertilizer, and pesticide needs.
4. Consider using low water use groundcovers when planting or replanting.

H.9.2 Vegetation Management

1. When pruning or removing vegetation, prevent the clippings from entering the storm drains. Remove any clippings that enter the storm drain and leave the area around the storm drain clear of debris. Properly dispose of any landscaping waste by composting onsite or at an approved composting location or permitted landfill.
2. Avoid loosening the soil when manually or mechanically removing weeds. Consider removing weed tops by mowing to prevent loose soil from eroding into the storm drain or receiving waters.
3. Mow at optimal times. Do not mow if significant rain events are predicted.
4. Whenever possible, use mechanical methods of vegetation removal (e.g., mowing with tractor-type or push mowers, hand cutting with gas- or electric-powered weed trimmers) rather than applying herbicides. Use hand weeding where practical. See Appendix H.10, Activities Involving Pesticides, Herbicides, and Fertilizers, for additional best management practices (BMPs) for activities involving herbicides.
5. Blowers may be used to remove leaves and grass clippings if the materials are collected and properly disposed of. Do not allow blown materials to enter the stormwater conveyance system or any nearby receiving waters. The stormwater conveyance system includes driveways, streets, and gutters.
6. Place stockpiles of materials used for landscaping and grounds maintenance under cover and away from watercourses and storm drain inlets. Consider placing berms around the stockpiles, if necessary, to prevent the release of materials to the stormwater conveyance system or receiving waters.
7. Clean active work areas routinely with dry cleaning methods such as sweeping and raking. Do not use water-based cleaning methods, such as hosing or pressure washing, unless (1) dry cleaning methods have been employed first, and (2) adequate precautions have been taken to prevent wash water and other contaminants from entering the stormwater conveyance system or receiving waters. Precautions may include placing sand/gravel bags or adsorbent pads around a storm drain opening or diverting wash water to a pervious surface. If water-based methods are necessary, minimize the amount of water used to clean the area.

H.9.3 Irrigation Management

1. Where practicable, use automatic timers to minimize runoff.
2. Use popup sprinkler heads in areas with a lot of activity or where there is a chance the pipes may be broken. Consider the use of mechanisms that reduce water flow to sprinkler heads if broken.
3. Ensure that there is no runoff from the landscaped area(s) if reclaimed water is used for irrigation.
4. Irrigate slowly or pulse irrigate to prevent runoff; irrigate only as much as needed.
5. Apply water at rates that do not exceed the infiltration rate of the soil.
6. Inspect irrigation systems periodically to make sure that the appropriate amount of water is being applied, and that excessive runoff is not occurring. Take measures to reduce or eliminate landscaping and irrigation runoff. Examples include proper irrigation programming and programming of shorter irrigation cycle times or lower flow rates. Minimize excess watering.
7. Repair leaks in the irrigation system as soon as they are observed. When bailing out muddy water resulting from irrigation system repairs, pour the muddy water over the lawn or landscaped areas rather than into the storm drain system.

Activities Involving Pesticides, Herbicides, and Fertilizers

BMP No. and Description

H.10 General Requirements

1. Base personnel and contract service employees who work with pesticides and herbicides should be appropriately certified; Base personnel must be certified by the DoD and contractors must be certified by the State of California, for applying pesticides and herbicides. Evidence of proper certification should be included in groundskeeping contract requirements with acceptance of all other requirements described in the Base's Integrated Pest Management Plan (IPMP). The following regulations and best management practices (BMPs) should be included in contracts:
 - A Qualified Applicator Licensee who has a current Qualified Applicator Certificate must supervise employees conducting these activities.
 - Every two years, Qualified Applicator Certificate holders must show proof that they have secured a minimum of 40 hours of continuing education.
 - All Qualified Applicator Licensees and Qualified Applicator Certificate holders are required to report pesticide usage monthly to the ES for filing on NAVFAC Online Pesticide Reporting System (NOPRS), giving locations, type and quantity of pesticides, and other pertinent information.
 - Qualified Applicator Certificate holders must conduct monthly inspections to monitor storage, handling, and disposal of the pesticides, herbicides, and fertilizers.
 - The Department of Navy will review the pesticide application programs of Base agencies.
2. Base employees handling pesticides, herbicides, and fertilizers, or who work in areas where such chemicals are being applied, should be supervised by licensed personnel with current qualified applicator certificates. In addition, the following BMPs should be followed:
 - Do not apply fertilizers, pesticides, or herbicides less than 24 hours prior to predicted storm events. Do not apply fertilizers and pesticides during storm events.
 - Use pesticides only if there is an actual pest problem (not on a regular preventive schedule).
 - Reduce the use of high-nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming.
 - For spill containment, cleanup, and reporting BMPs, refer to Appendix H.1, Base-Wide BMPs.
 - After applying fertilizers, pesticides, or herbicides, do not clean the pavement or sidewalks with water. Ensure that written recommendations prepared by a State Pesticide Advisor are followed during pesticide application.
 - Ensure that pesticide and fertilizer labels and Safety Data Sheets (SDSs) are followed by the applicator. Ensure that all state, federal, and local regulations are followed in the use of fertilizers and pesticides.
 - Check irrigation schedules so that fertilizers, pesticides, or herbicides are be washed away and to minimize non-stormwater discharges. Do not irrigate within 24 hours of applying fertilizers, pesticides, or herbicides.
 - Use pesticides that are absorbed quickly into the soil or plants to reduce the amount of

BMP No. and Description

- pollutants entering the stormwater conveyance system.
- Use integrated pest management (IPM) practices and other nonchemical pest control methods such as traps, sticky tape, and hot-wire lamps when practicable.
 - Avoid spraying pesticides when the spray can drift into nontarget areas or onto nontarget vegetation, insects, or animals (when wind speed is 5 miles per hour [mph] or higher).
 - Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
 - Triple rinse containers and use rinse water as product. Dispose of unused product as hazardous waste.
 - Follow the pesticide, herbicide, and fertilizer labels and state regulations to dispose of excess products. Comply with Base and state reporting requirements for pesticides.
 - Ensure that Base personnel and contract service employees who handle pesticides, herbicides, and fertilizers are familiar with the most up-to-date SDSs.
 - Use the entire product before disposing of the container or give the unused portions to other agencies or community groups.
 - Minimize the use of pesticides/herbicides. Consider alternative products in lieu of pesticides/herbicides to control insects, fungi, and weeds. Information on alternatives can be provided by the Environmental Security (ES) Pollution Prevention Section [(760) 725-9757].
 - Keep product containers in good condition, keep them securely closed when not in use, and store them indoors when possible, or under cover outdoors in a manner that protects them from contact with precipitation, urban runoff, and stormwater.

Non-Emergency Fire Fighting Flows

BMP No. and Description

H.11 General Requirements

1. Direct water flows to landscaped areas or pervious areas whenever possible.
2. Prior to training activities, the officer in charge should survey the area selected to receive the water flow, to ensure that debris does not enter the stormwater system because of the drill.
3. Use lower gallon per minute (GPM) nozzle settings. Use fog streams in areas prone to erosion when practicable.
4. When practicable, minimize the length of the supply lines.
5. Discharge foam flushing to pervious surfaces such as lawns and landscaped areas.
6. When performing pump testing, provide a recycle test pit area.
7. When performing hose testing, perform the test on site and direct flows to dry wells or landscaped areas.
8. Design areas and facilities used for washing and/or cleaning fire hoses so that no wash water or other debris enters the stormwater conveyance system or receiving water (e.g., discharge wash water to a pervious surface or to the sanitary sewer system after obtaining all necessary approvals from the Water Resources Division (WRD) Wastewater [(760) 725-4018].
9. Use designated wash areas (preferably covered and bermed) to prevent contact with stormwater.
10. Consider constructing a holding basin or tank for wash water if discharging to the sanitary sewer is not a practicable option. Dispose of the liquid in the holding basins or tanks properly.
11. Do not discharge wash water containing detergents, degreasers, or other contaminants to the storm drain.
12. Dispose of fire sprinkler line flush water into the sanitary sewer. Do not allow discharge to storm drains or infiltration because of potential for fire sprinkler line water to contain high levels of pollutants.

Eating and Drinking Establishment

BMP No. and Description

H.12 General Requirements

1. Do not pour oil, grease, sauces or salad dressings, or waste grease down a storm drain or into a trash bin. Use a recycler or a liquid disposal company.
2. Do not wash equipment (mats, grease filters etc.) in areas where wash water or rinsate drains to the stormwater conveyance system or receiving waters. Clean equipment only in designated areas with a drain connected to the sanitary sewer.
3. Do not discharge mop water to the storm drain. Pour mop water down the sanitary sewer drain instead.
4. Inspect and clean dumpster and grease bin areas regularly. Provide containment, such as berms, around these areas. Keep dumpsters and grease bins securely closed when not in use to prevent rainfall from infiltrating the dumpster and to keep out animals. Replace or repair leaking dumpsters as soon as possible.
5. Do not hose out trash bin interiors. Mop the interior and discharge mop water to the sanitary sewer. Trash bins may be hosed out if the bin is cleaned in a designated area that has a drain connecting to the sanitary sewer.
6. Do not place liquid waste or leaky garbage bags into a trash bin. First remove as much liquid as possible and dispose of the liquid properly before placing the garbage bag into the trash bin.
7. Sweep the parking areas and other outside surfaces routinely to prevent significant sediment and debris from accumulating. Do not use hoses to wash down outside areas.
8. Maintain outdoor grease interceptors properly. Inspect the grease interceptors routinely, and correct any problems found during the inspections as soon as possible.
9. Keep materials and equipment for spill containment and cleanup nearby, accessible, and in good condition. Ensure that employees who work in eating and drinking establishments are trained to use the materials and equipment designated for spill containment and cleanup.
10. As necessary to prevent the entry of pollutants into the stormwater conveyance system or receiving waters, use structural controls in designated work areas to (1) prevent the discharge of spills from the work area, (2) prevent run-on from contacting work surfaces and pollutants, and (3) prevent rainfall from contacting work surfaces and pollutants.

Mission Refit Following Training in the Cantonment Areas

BMP No. and Description
H.13 General Requirements <ol style="list-style-type: none">1. Reduce or eliminate pollutants such as soaps and degreasers in wash water, where practicable.2. Use dry cleaning methods whenever practicable. Use wet cleaning methods, such as hosing or pressure washing, only after dry cleaning methods are used and adequate precautions have been taken to prevent the wastewater from entering the stormwater conveyance system or receiving waters.3. Wash vehicles and equipment only in areas where adequate precautions have been taken to prevent the entry of wash water and other contaminants into the stormwater conveyance system or receiving waters. Barricade drain inlets with sand/gravel bags or absorbent materials such as pads, pillows, or socks to prevent sediment and waste from entering the stormwater conveyance system during mission refit activities.4. Use designated wash areas and/or wash racks where practicable. Where practicable, wash areas should drain or be plumbed to the sanitary sewer.5. If recycle wash racks are not available, wash vehicles and equipment over pervious surfaces, such as grassy or gravelly areas, as often as possible. Discharging wash water or rinse water to pervious surfaces is generally allowed. However, do not discharge vehicle wash water or rinse water generated from cleaning engines, mechanical parts, or heavy equipment to pervious surfaces or the stormwater conveyance system.6. If wash water is not discharged to the sanitary sewer or to pervious surfaces, contain the water for treatment, reuse, or proper disposal.7. Train representatives from deployment training units at an Environmental Compliance Coordinator (ECC) meeting for best management practices (BMPs) applicable to mission refit activities. The representatives are responsible for disseminating information within their jurisdictions. Area Commanders are also responsible for instructing Base personnel who participate in mission refit activities about the appropriate BMPs.

General Building Maintenance

BMP No. and Description
H.14.1 Maintenance of Buildings, Rooftops, Sidewalks and Other Paved Areas
<ol style="list-style-type: none">1. Use dry cleaning methods, such as sweeping, wherever possible. Use wet cleaning methods, such as hosing or pressure washing, only after dry cleaning methods are used and adequate precautions have been taken to prevent the wastewater from entering the stormwater conveyance system or receiving waters.2. Cover stormwater inlets with filter fabric or similarly effective runoff control mechanism if dust, grit, wash water, or other pollutants may escape the work area and enter a catch basin. Be sure that the containment device is in place at the beginning of the work day and collect and dispose of accumulated dirty runoff and solids before removing the containment device at the end of the work day.3. Maintain painted surfaces at adequate intervals to avoid paint from chipping off buildings. For additional painting and coating best management practices (BMPs), refer to Appendix H.15, Painting and Coating.4. Inspect equipment located on rooftops (e.g., emergency generators, heating, ventilation, and air conditioning systems) periodically, and conduct preventive maintenance as necessary to prevent leaks and spills.
H.14.2 Mopping, Carpet Cleaning, and Upholstery Cleaning
<ol style="list-style-type: none">1. If a contractor is hired to clean carpets and upholstery, request that they dispose of any wastewater offsite.2. Do not discharge building wash waters (carpet cleaning wash water, mop water, washing machine effluent, other gray water, paint wash-up water, etc.) to the stormwater conveyance system or receiving waters. The stormwater conveyance system includes driveways, streets, and gutters. Discharge wash waters to the sanitary sewer. If a connection to the sanitary sewer system is not available onsite, contain wash water in a holding tank and discharge to the sanitary sewer. Obtain necessary approvals from the Water Resource Division (WRD) Wastewater [(760) 725-4018] prior to discharging to the sanitary sewer.3. Do not discharge wastewater from mopping, carpet cleaning, or upholstery cleaning to pervious surfaces, such as lawns or landscaped areas.4. Maintain tanks, hoses, and fittings in leak-proof condition.

Painting and Coating

BMP No. and Description

H.15.1 General Requirements

1. Conduct painting and coating activities inside a building, where practicable, or enclose the work area with tarps and plastic sheeting to prevent paints, coatings, and solvents from drifting out of the work area.
2. Cover or sandbag all storm drain inlets located within downgradient or painting and coating areas during hours of operation to prevent dust, paint chips, and rinse water from entering the storm drain.
3. Clean areas where painting and coating work is being actively conducted daily using dry methods such as sweeping, wiping, and vacuuming. Use water-based methods such as hosing or pressuring washing only after the work has been cleaned with dry methods first, and adequate precautions have been taken to prevent wash water from discharging to the stormwater conveyance system or receiving waters (e.g., sandbagging the drain).
4. Use drop clothes and drip pans in mixing areas. Do not mix paints near the storm drain inlets or receiving waters.
5. For spill containment, cleanup, and reporting best management practices (BMPs), refer to Appendix H.1, Base-Wide BMPs.
6. For significant materials and waste storage, management and disposal, refer to Appendix H.6, Material and Waste Management.

H.15.2. Storage

1. When not in use, store paints, coatings, and solvents under cover and in a contained area.
2. Keep all product containers in good condition.

H.15.3 Disposal

1. Do not discharge paint to the storm drain. Dispose of small amounts of water-based paint and paint cleaning water into the sanitary sewer via the sink or toilet. Obtain all necessary approvals from the Water Resource Division (WRD) Wastewater {(760) 725-4018} prior to discharging to the sanitary sewer. Dry, empty paint containers may be disposed in the trash. Dispose of oil-based paint and paint cleaning products at an appropriate waste disposal facility.
2. Filter, reuse, and recycle thinners and other solvents as often as possible. Dispose of oil-based paint and paint cleaning products at an appropriate waste disposal facility with appropriate containment.

Portable Latrine Maintenance and Storage

BMP No. and Description

H.16.1 Portable Latrine Maintenance

1. Do not dispose of rinse water generated from cleaning the portable latrines into the stormwater conveyance system or receiving waters. Request that contractors collect all rinse water and dispose of it offsite. If rinse water cannot be properly disposed of in the sanitary sewer at a job site, contain the water for proper disposal. Obtain necessary approvals from the Water Resource Division (WRD) Wastewater [(760) 725-4018] prior to discharging to the sanitary sewer.
2. Remove paper trash prior to cleaning the portable toilets.
3. Keep service facility wash area surfaces clean and maintained in good condition.
4. For spill containment, cleanup, and reporting best management practices (BMPs), refer to Appendix H.1, Base-Wide BMPs.
5. Maintain hoses, couplings, tanks, etc., in good condition to prevent leaks or spills.

H.16.2 Portable Latrine Storage

1. Place all portable latrines within secondary containment, such as a containment tray, to contain any spills that may occur.
2. Where practicable, place the portable latrines away from the stormwater conveyance system and receiving waters. In addition, locate latrines away from areas with high vehicular traffic.
3. Label portable latrines with the information needed to request cleaning or repair.
4. As necessary to prevent the entry of pollutants into the stormwater conveyance system or receiving waters, use structural controls in designated work areas to (1) prevent the discharge of spills from the work area, (2) prevent run-on from contacting work surfaces and pollutants, and (3) prevent rainfall from contacting work surfaces and pollutants.

Equine Operations

BMP No. and Description

H.17.1 Manure Management

1. Manure is a source of bacteria. Manage manure as follows to minimize health risks to the horses and minimize stormwater pollution:
 - For areas where manure is collected such as horse stalls, corrals, and wash areas, remove manure daily.
 - For areas that receive less manure such as horse stalls, clean them at least once per week during the dry season and twice per week during the wet season.
 - Dispose of manure daily either by composting or by hauling off site.
2. Store manure that cannot be disposed of daily for up to a week. A storage facility for manure should be on an impervious surface such as concrete, should be covered, and should provide enough storage for 15 cubic feet of manure per horse per week.

H.17.2 Critical Areas

1. Critical areas include areas where manure, bedding, or feed debris can collect such as stalls, feeding areas, etc. Implement drainage control best management practices (BMPs) to minimize the amount of pollutants that are introduced to nearby waterways:
 - Where practicable, connect storm drains draining stalls and horse wash racks to the sanitary sewer. Obtain necessary approvals from the Water Resources Division (WRD) Wastewater [(760) 725-4018] prior to discharging to the sanitary sewer.
2. If necessary, use structural controls at critical areas to (1) prevent discharge from critical areas, (2) prevent run-on from contacting critical areas and pollutants, and (3) prevent rainfall from contacting critical areas and pollutants.

H.17.3 Erosion Control

1. Both recreational activities involving horses as well as their day-to-day care can contribute sediment to waterways via erosion. The following procedures are recommended to minimize erosion:
 - Rotate grazing areas to minimize overgrazing. It is necessary for the vegetation to recover to maintain erosion prevention efficacy.
 - Surround high-use, bare areas such as horse stalls, corrals, and walkways by vegetative strips to filter nutrients and contaminants and capture sediment that may mobilize in stormwater runoff from these areas.
 - Grade trails at no more than a 10% grade and orient them so that runoff sheet flows perpendicularly to the trails.

APPENDIX I

BMPS FOR CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

The program activities described in Section 8 of the SWMP, "Construction Site Storm Water Runoff Control Measure" include establishing requirements for all construction sites of one acre or more to develop and maintain a storm water pollution prevention plan (SWPPP), performing site inspections and enforcing best management practices (BMP) requirements, and designating and publicizing a point of contact for reporting illicit discharges. Technical guidance will also be provided at the FEAD quarterly project working group meeting.

This appendix provides a brief description of the BMPs that may be implemented to control storm water pollution for the "Construction Site Storm Runoff Control" control measure. BMPs must be installed in accordance with industry recommended standards, such as the Caltrans guidelines¹ for road construction projects, or the California Storm Water BMP handbooks². It is the responsibility of the project proponent or contractor to select and implement BMPs in accordance with the requirements of the California General Construction Storm Water Permit. The project proponent will review the storm water pollution prevention plan (SWPPP) prepared for each construction project greater than one acre. For the duration of the construction process, the SWPPP developed for the construction site must be followed, inspections performed, and corrective actions taken for any BMP failures. The project proponents for construction projects less than one acre of land disturbance, are encouraged to contact the ES Stormwater Section for guidance on the appropriate selection of construction BMPs. The FEAD or other responsible personnel must inspect construction sites to ensure the SWPPP is being implemented and that BMPs, including post-construction BMPs, are effective in protecting stormwater quality. Appendix J includes a site inspection checklist form that can be used by Base inspectors at construction sites.

Construction Site Planning

- Plan the development to fit the topography, soils, drainage patterns, and natural vegetation.
- If the site is greater than one acre, prepare a SWPPP according to the SDRWQCB checklist, which is based on the State General Construction Permit; otherwise prepare a plan describing the BMPs that will be implemented to control storm water runoff. Contact the ES Storm Water Section (760-725-9760) for further guidance.
- Remove existing vegetation only when necessary and only with the approval of the ES Natural Resources Section. Preserve riparian buffers and corridors.
- Delineate clearing limits, easements, setbacks, sensitive or critical areas, trees, drainage courses, and buffer zones to prevent excessive or unnecessary disturbances and exposure.

¹ Caltrans. 2002. Storm Water Quality Guidelines, available:
<http://www.dot.ca.gov/hq/env/stormwater/special/index.htm>

² California Stormwater Quality Task Force. *California Stormwater Best Management Practice Handbooks, Construction Activity*. Hayward, California: March 1993. Order form available on
<http://www.swrcb.ca.gov/stormwtr/docs/bmp.pdf>

- Avoid construction on steep slopes.
- Minimize cuts and fills.
- Align temporary and permanent roads and driveways along slope contours.
- Phase grading operations to reduce disturbed areas and time of exposure.
- Avoid excavation and grading during wet weather.

Minimizing Soil Movement

- Prior to the rainy season, remove or contain any significant accumulations of eroded soils from slopes previously disturbed by clearing or grading, if those eroded soils could otherwise enter the storm water conveyance system or receiving waters during the rainy season.
- Install cover materials such as vegetative debris, mulch, crushed stone, geotextile fabric, and erosion control blankets. Minimize disturbed soil exposure time, by temporary stabilization or rapid reseeding of bare soil, etc.
- Use soil stabilizers as appropriate.
- Use temporary seeding and planting to reduce erosion potential.
- Construct stabilized access roads and entrances/exits to the construction site.
- When removing sediments from streets, driveways and paved areas, use dry sweeping methods, such as sweeping.

BMPs to Capture Sediment

- Use terracing, riprap, sand/gravel bags, rocks, straw bales, and/or temporary vegetation on slopes to reduce runoff velocity and to trap sediments. Do not use asphalt rubble or other demolition debris for this purpose. Other structural BMPs, such as temporary sediment basins, earth dikes, drainage swales, ditches, and check dams, also may be used to capture sediment from construction sites.
- Protect storm drain inlets from sediment-laden runoff. Storm drain inlet protection devices include sand bag barriers, filter fabric fences, block and gravel filters, and excavated drop inlet sediment traps. Do not use straw bale barriers at storm drain inlets.
- When dewatering the construction area, remove sediment from the discharge using filtration methods. Mobile units specifically designed for construction site dewatering can be rented for this purpose.

- Provide maintenance of all source control and structural BMPs, including post-construction BMPs (e.g., ensure vegetation has stabilized).

Good Housekeeping Practices

- All Construction Sites:
 - Identify all storm drains, drainage swales, and creeks located near the construction site and make sure all subcontractors are aware of their locations to prevent pollutants from entering them.
 - Clean up leaks, drips, and other spills immediately.
 - Refuel vehicles and heavy equipment in one designated location with containment (e.g., berms). Locate refueling areas at least 15 meters from receiving waters.
 - Wash vehicles at an appropriate off-site facility.
 - Never wash down pavement or surfaces where materials have spilled. Use dry cleanup methods.
 - Avoid contaminating clean runoff from areas adjacent to the site by using berms and/or temporary or permanent drainage ditches to divert water flow around the site.
 - Keep materials out of the rain. Schedule clearing or heavy earth moving activities for periods of dry weather. Cover exposed piles of soil, construction materials and wastes with plastic sheeting or temporary roofs. Store materials at least 15 meters from receiving waters. Before it rains, sweep and remove materials from surfaces that drain to storm drains, creeks, or channels.
 - Place trash cans around the site to reduce litter. Dispose of non-hazardous construction wastes in covered trash bins or recycling receptacles. Recycle leftover materials whenever possible.
 - Use all materials with the potential to pollute urban runoff (including but not limited to cleaning and maintenance products used outdoors, fertilizers, pesticides and herbicides, etc.) in accordance with label directions.
 - Dispose of all wastes properly. Materials that cannot be reused or recycled must be taken to an appropriate landfill or disposed of as hazardous waste.
 - Do not use trash bins that do not have covers and keep them closed.
 - Train personnel and inform subcontractors about the storm water requirements and their own responsibilities.

Post-Construction Runoff Control

- Stabilize all open areas.
- Remove and stabilize all temporary control measures.
- Maintain physical stabilization and/or vegetation stabilization BMPs until permanent landscaping has established to protect exposed slopes from erosion.
- Follow maintenance schedule for BMPs installed during construction that are designed to reduce or eliminate pollutants after construction is completed (i.e., post-construction BMPs).

Sources for Additional Information

BMPs must be installed in accordance with industry standards. The following handbooks may be used to obtain additional information on construction BMPs:

- Caltrans. 2002. Storm Water Quality Guidelines, available:
<http://www.dot.ca.gov/hq/env/stormwater/special/index.htm>
- California Stormwater Quality Task Force. *California Stormwater Best Management Practice Handbooks, Construction Activity*. Hayward, California: March 1993.
- Erosion and Sediment Control Field Manual. Third Edition, July 1999. California RWQCB San Francisco Bay Region.
- Field Manual on Sediment and Erosion Control Best Management Practices for Contractors and Inspectors. Jerald S. Fifield, PhD, CPESC, 2001.
- Designing for Effective Sediment and Erosion Controls for Construction Sites. Forester Communications. Jerald S. Fifield, PhD, CPESC, 2001.

APPENDIX J
SITE INVESTIGATION CHECKLIST FORM
(following 5 pages)

THIS PAGE INTENTIONALLY LEFT BLANK

Weekly/During/Post

SWPPP INSPECTION REPORT

Owner:
Contractor:
Job No:
Job Name:
Site Address:

WDID#:
Project Dates:
Site Area:
Exposed Area:
Site Contact:
Contact Number:

Risk Level

Phases of Construction

Qualified SWPPP Developer

Inspection Date: _____ Time of Inspection: _____
Inspector: _____ Report Signed by: _____
Signature: _____ Signature: _____

Pre-Rain, During-Rain and Post-Rain Event Data

Rain Event Data: Current Weather: Raining
Precipitation Condition Estimated start date of rain Estimated start time of rain

Rain Gauge Reading: NA

End date of last rain event:

Today is Day # of # of predicted rain event.

Is this an Inspection during or after a Qualifying Rain Event of .5" or more?

Number of qualifying rain events since July 1?

Were water samples taken today? If yes, complete Water Sample Report

SWPPP Audit Questions:

- Is there a SWPPP on-site?
- Does the SWPPP need to be amended?
- Is the wall map updated with current site BMPs?
- Are structural controls installed per the SWPPP?
- If the BMPs are not implemented per the SWPPP, Is there an effective combination of erosion and sediment controls?

BMP Observation Checklist

I	BMP Acceptable	Action Required	Not Applicable	CASQA BMP
1 Berms and Dikes				EC-3, 6, 7, 8
2 Slope protection				EC-4
3 Vegetation				EC-2
4 Surface erosion				WM-1, 2
5 Storage of Materials				WM-3
6 Soil Stockpiles				WM-3
7 Other Stockpiles				SE-4, EC-11
8 V-ditches & Slope Drains				
9 Fiber Rolls / Straw Wattles				SE-5
10 Check Dams				SE-4
11 Burlap / Poly Rock Bags				SE-6
12 Silt Fence				SE-1
13 Drain Inlet Protection				SE-10
14 Basins				SE-2, 3
15 Dust Control				WE-1
16 Construction Entrance				TC-1, 2, 3
17 Tracking on Street				SE-7
18 Debris Clean-up				WM-5, 6
19 Disposal Areas (Export Sites)				
20 Spills or Leaks on Vehicles, Equipment or Materials				WM-4,6,7,10
21 Portable Toilets and Septic				WM-9
22 Dumpsters, Roll-Offs, Trash				WM-5
23 Concrete, Paint, Stucco Wash				WM-8
24 Dewatering Operations				NS-2
25 Paving or Grinding Operations				NS-3
26 Concrete Curing/Finishing				NS-12, 14
27 Temporary Stream Crossing				NS-4
28 Illicit Connection/Illegal Discharge Reporting				NS-6
29 Vehicle and Equipment Cleaning				NS-8
30 Vehicle and Equipment Fueling				NS-9
31 Vehicle and Equipment				NS-10
32 Vehicle and Equipment Drip Pans				NS-10
33 Spill Kits				WM-4

Non-Storm Water Questions:

- a. Are materials and supplies in accordance with the SWPPP? _____
- b. Did you observe any floating materials, oil, grease, odor, toxins, and/or sediment at any outfalls, discharge points, or downstream locations? _____
- c. Is there a leak, breach or malfunction to indicate non-visible pollutant spill? If so, were the damaged or dissipated materials removed from the site? _____
- d. Are appropriate spill response personnel trained? _____

Inspection Observation and Corrective Action Summary

Observations	Date Completed	Signature

Photo Log

Photo Description	Photo	Photo	Photo

(NOAA Screenshot Forecast Weather Table Interface)

THIS PAGE INTENTIONALLY LEFT BLANK


APPENDIX K
HIGH PRIORITY STORMWATER INFRASTRUCTURE INSPECTION REPORT

THIS PAGE INTENTIONALLY LEFT BLANK

Camp Area _____
High Priority Stormwater Infrastructure
Inspection Report



Inspector(s): _____

Camp Area _____ High Priority Stormwater Infrastructure Inspection Report																				Primary Contaminants/Issues ¹							Recommended Cleaning Technique			
Structure ID	Map Grid ID	Near Bldg No.	Date Inspected (m/d/yr)	Were photos taken? (✓)	Requires Re-stenciling? (✓)	Requires Maintenance? (✓)	T (✓)	V (✓)	S (✓)	E (✓)	B (✓)	C (✓)	Grading & Excavation (✓)	Grubbing & Clearing (✓)	Hand Shovel (✓)	Vac Truck (✓)														
						<input type="checkbox"/> Yes									(✓)	(✓)	(✓)													
						<input type="checkbox"/> Yes																								
						<input type="checkbox"/> Yes																								
						<input type="checkbox"/> Yes																								
						<input type="checkbox"/> Yes																								
						<input type="checkbox"/> Yes																								
						<input type="checkbox"/> Yes																								
						<input type="checkbox"/> Yes																								
						<input type="checkbox"/> Yes																								
						<input type="checkbox"/> Yes																								
						<input type="checkbox"/> Yes																								
						<input type="checkbox"/> Yes																								

¹T = trash
E = erosion and scour
V = vegetation (leaves, grass, organic debris)
B = broken / damaged infrastructure
S = sediment, sand, rocks, etc.
C = Could not locate/access

THIS PAGE INTENTIONALLY LEFT BLANK