Port of Stockton
Storm Water Management Plan
2013 Revision

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Storm Water Management Plan

2013 Revisions

Table of Contents

Storm Water Management Plan Acronyms v
Executive Summary 1
Section 1 - Storm Water Management Program Overview 2
Program Background 2
Permit History 2
History and Organizational Structure of the Port of Stockton 2
Scope of Activities and Land Uses at the Port of Stockton 3
Port of Stockton Physical Description and Hydrology 4
Program Objectives 7
Legal Authority 7
Program Organization 9
Fiscal Analysis and Commitment 9
Certification of the Storm Water Management Program 10
Section 2 - Program Elements 11
Construction 11
Overview 11
Objectives 11
Pollutant Source Identification 12
Review Process 13
Inspection / Enforcement 14
BMPs 16
Outreach & Training 16
Record Keeping 17
Effectiveness Assessment Tools 17
Industrial and Commercial 23
Overview 23
Objectives 23
Facility Inventory / Tracking / Prioritization 24
Inspections 25

Outreach 26
Enforcement 26
Training 28
Effectiveness Assessment 28
Municipal Operations 33
Overview 33
Objectives 36
New Development and Construction Requirement for Municipal Capital Improvement Projects 38
Facilities Pollution Prevention Plan (FPPP) for Port Operated Facilities 38
Landscape and Pest Management 39
Municipal Storm Water Conveyance System Maintenance 39
Streets and Roads Maintenance 40
Tenant Industrial Activities Management 40
Treatment and Feasibility Studies 41
Training 42
Effectiveness Assessment 43
Illicit Discharges 51
Overview 51
Objectives 51
Detection of Illicit Discharges and Illegal Connections 51
Illegal Connection Identification and Elimination 52
Investigation/Inspection and Follow-up Procedures 53
Port Tariffs 54
Training 54
Effectiveness Assessment 54
Public Outreach 58
Overview 58
Objectives 58
Public Participation 59
Hotline 60

Public Outreach Implementation 60
Effectiveness Assessment 61
Planning and Land Development Program 64
Overview 64
Objectives 65
Incorporation of Water Quality Protection Principles into Port's Procedures and Policies 65
Plan Review Sign-Off 66
Maintenance Agreement and Transfer 67
Training 67
Performance and Effectiveness Evaluation 67
Section 3 - Monitoring Program 70
Summary of the Monitoring Program for Order No. R5-2011-0005 70
Direct Discharge Monitoring 70
Receiving Water Monitoring 71
Port Owned Industrial Monitoring 72
Water Column Toxicity Monitoring 72
Dry Weather Field Monitoring 72
Ship Loading and Unloading Monitoring 73
Section 4 - Water Quality-Based Programs 74
Pesticide Toxicity Control Program 74
Low Dissolved Oxygen Plan 75
Total Mercury and Methylmercury Control Program 76
BMP Effectiveness Study 78
Retention Basin Monitoring 78
Section 5 - Program Implementation, Evaluation, and Reporting 79
Annual Work Plan 79
Annual Evaluation 79
Annual Reporting 79

Appendices:

Appendix 1 – 2011 Port of Stockton List of Tenants

Appendix 2 - Statement from the Port's Chief Legal Counsel Concerning Legal Authority

Appendix 3 – Port of Stockton Storm Water-Related Tariffs and Leases

Appendix 4 – Pesticide Plan

Appendix 5 – Storm Drainage System Maintenance Procedures

Appendix 6 – Retention Basin O&M Guidelines

Appendix 7 – Port Street-Sweeping Plan

Appendix 8 – Maintenance Practices for Sawcutting and Concrete Work

Appendix 9 – Sampling and Analysis Plan (SAP)

Appendix 10 – Quality Assurance Plan (QAP)

Appendix 11 – CD Copy of SWMP

Storm Water Management Plan Acronyms

AOC	Administrative Order on Consent
BAT	Best Available Technology Economically Achievable for non-conventional and toxic pollutants
BCT	Best Conventional Technology Economically Achievable for conventional pollutants
BMPs	Best Management Practices
CASQA	California Storm Water Quality Association
CFR	Code of Federal Regulations
CWA	Clean Water Act
D2-D11	Direct Discharge Outfalls on East Complex
DSP	Development Standards Plan
DWSC	Deep Water Ship Channel
ERP	Enforcement Response Plan
FPPP	Facility Pollution Prevention Plan
IDDE	Illicit Discharge Detection and Elimination
IPM	Integrated Pesticide Management
LRP	Legally Responsible Person
MDL	Method Detection Limit
MEP	Maximum Extent Practicable
mg/L	Milligrams per liter
MADL	Minimum Analytical Detection Level
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent to be covered by a General Permit (e.g, Construction or Industrial General Stormwater Permits)
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NTC	Notice to Correct
R1-R5	Receiving Water Stations
RB	Retention Basin
RBI	Retention Basin Inlet

ROWD	Report of Waste Discharge
RWQCB	Regional Water Quality Control Board for Central Valley Region
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SSO	Sanitary Sewer Overflow
SWAMP	Surface Water Ambient Monitoring Program
SWMP	Storm Water Monitoring Plan
SWPPP	Storm Water Pollution Prevention Plan
TSS	Total Suspended Solids
µg/L	Micrograms per liter
µmhos/cm	Micromhos Per Centimeter
USEPA	United States Environmental Protection Agency

Executive Summary

This document represents the fourth revision to the Port of Stockton's Storm Water Management Plan (SWMP). In 1997, the Central Valley Regional Water Quality Control Board (RWQCB) issued NPDES permit number CAS0084077 to the Stockton Port District as a medium-size (Phase 1) municipality to regulate discharges of storm water from the Port's Municipal Separate Storm Water Sewer System (MS4) under Order No. 97-042. On February 3, 2011, the permit was renewed as Order No. R5-2011-0005 (Permit), for which this revised SWMP is to be submitted to the RWQCB for approval. The new Permit expires on February 1, 2016, and requires that a Report of Waste Discharge (ROWD) be submitted to the RWQCB 180 days (June 25, 2016) prior to the Permit's expiration date.

Section 1 – Presents an overview of the Port of Stockton (Port) including: NPDES permitting history; Port organization and management; physical and hydrology features; activities and land uses; legal authority; and its storm water program objectives, financial commitment, and certification.

Section 2 – Presents each of the six elements of the Port's Storm Water Management Program (SWMP) including: construction; industrial and commercial; municipal operations; illicit discharges; public outreach; and planning and land development. For each program element, the SWMP presents the following:

- An overview,
- The objectives for that element,
- A performance and effectiveness evaluation of that element for the previous permit term,
- Identification of the existing Best Management Practices (BMPs) used at the Port,
- Identification of new or improved BMPs, and
- An evaluation of the Maximum Extent Practicable (MEP) standard for that element.

Section 3 – Presents the Port's storm water monitoring program. In this section, a summary is provided of the monitoring activities performed under the current Permit for the last five years. Also included in this section is a summary of analytical results from previous storm water monitoring seasons, which provides an indicator of how the Port's BMPs are meeting the goal of implementing BMPs to the MEP over time. Finally, in this section, the Port identifies modifications or improvements to the Port's BMPs for this permit term.

Section 4 – Presents recommendations for water quality-based programs for the new permit term, including plans for the monitoring and management of pesticides, low dissolved oxygen, and mercury.

Section 5 – Presents information on the Annual Work Plan, the Annual Performance and Effectiveness Evaluation, and the Annual Report.

Section 1 - Storm Water Management Program Overview

Program Background

Permit History

In 1997, the Central Valley RWQCB issued NPDES permit number CAS0084077 to the Stockton Port District as a medium-size (Phase 1) municipality to regulate discharges of storm water from the Port's MS4 under Order No. 97-042. On October 15, 2004, the permit was renewed as Order No. R5-2004-0136, which expired on October 15, 2009. Order No. R5-2004-0136 also incorporated the Port's industrial activities and corresponding storm water-monitoring program that were previously covered and required by the *NPDES General Permit for Storm Water Discharges Associated with Industrial Activities* (Industrial General Permit), Order No. 97-03-DWQ. Therefore, in 2005, the Port submitted a Notice of Termination (NOT) for the Industrial General Permit, which was accepted by the RWQCB.

In March 2008, the Port's MS4 SWMP was audited by the USEPA and the RWQCB. A summary report of the audit, dated July 9, 2008, was sent to the Port, which identified areas of the Port's program that required modifications. The Port responded to the USEPA on September 22, 2008 and identified corrective actions that would be taken by the Port to respond to the audit findings. On December 19, 2008, the Port received a letter from the USEPA stating they were encouraged by the steps that the Port proposed to take to address the audit recommendations and requested the Port to enter into an Administrative Order on Consent (AOC) to ensure full and prompt compliance with the Clean Water Act. The AOC was issued and the Port successfully completed all AOC obligations.

The Port submitted a Report of Waste Discharge (ROWD) to the RWQCB on April 17, 2009, which consisted of EPA Form 200 and a proposed SWMP revision. On February 3, 2011, the Port's new Permit, Order No. R5-2011-0005, was adopted by the RWQCB and is the currently applicable NPDES permit for the Port's storm water discharges.

History and Organizational Structure of the Port of Stockton

The Stockton Port District was created pursuant to provisions of the Harbors and Navigation Code (Chapter 2, Article 6240.3). The Port is managed by a board of seven commissioners who exercise general supervision over the Port by adopting general rules and regulations that in the Board's judgment will best promote the interests of the Port as established under State law. The commissioners are also responsible for approving the Port's operational budget. The commissioners are appointed by the City of Stockton's City Council and by the San Joaquin County Board of Supervisors and serve a term of office of four years.

The Port staff works under the leadership of the Port Director, Richard Aschieris. As the Chief Executive Officer, Mr. Aschieris directs and supervises all areas of the Port operations and makes recommendations to the Port Commission as to policy and Port development. In addition, he also acts as the Port's representative for various local, regional, and national port-related organizations. Mr. Aschieris is the authorized signatory for the NPDES permit and for SWMP certification.

The Port Environmental Manager is Jeff Wingfield. Mr. Wingfield is responsible for the implementation of the environmental compliance programs at the Port and represents the Port on behalf of environmental concerns with regulatory agencies, the Port's tenants, and in the community. Mr. Wingfield oversees Port environmental staff and contracted compliance resources to implement all aspects of the SWMP.

Scope of Activities and Land Uses at the Port of Stockton

Located on the Stockton Deep Water Ship Channel, 75 nautical miles due east of the Golden Gate Bridge, the Port owns and operates a diversified and major transportation center encompassing a 2000-acre operating area. The Port has berthing space for 17 vessels, 1.1 million square feet of dockside transit sheds and shipside rail trackage, and 7.7 million square feet of warehousing for both dry bulk and general cargos, including steel. Each warehouse is also served by rail for ease in product delivery by train.

Stockton's Deep Water Ship Channel (DWSC) has an average depth of 37 feet at average low tide (35 feet MLLW), and an average depth at high tide of 40 feet. Vessels in the 45,000 to 55,000-ton class and maximum 60,000-ton class (for certain wide-beam vessels) can use the channel fully loaded. Up to 80,000 ton class vessels can transit the channel partially loaded. No width restriction exists for vessels, and ships up to 900 feet (275 meters) in length can navigate the DWSC. Commodities that pass through the Port's docks include cement, liquid and dry fertilizers, anhydrous ammonia, steel products, molasses, bulk rice, sunflower seed, sulfur, barite ore, windmill parts, lumber, and other miscellaneous cargos.

The Port is one mile from Interstate 5 and all interconnecting major highway systems. Rail service is provided by two transcontinental railroads, Union Pacific and the Burlington Northern Santa Fe. The Port has installed three traveling, multi-purpose, 30-ton Bridge Cranes - one on Dock No. 3/4 and two on Dock No. 10/11. All three cranes handle dry bulk cargos as well as containers and steel products and are equipped with 15-cubic yard clam-shell grabs and container frames. Both facilities can handle cargo from vessels direct to truck, rail (one of two loop railroad tracks serves Dock 10/11), dockside storage, and by conveyor. As a fully operating Port, a fleet of 30,000 to 60,000-lb. fork lift trucks, slings, spreader bars, coil rams, front-end loaders, hoppers and conveyor belts and other equipment are maintained for handling and storing steel products, and other general cargos and bulk materials. The Port also offers stevedoring services to customers. The Port is well-suited and situated to

handle heavy steel and product cargos with its excellent overland transportation connections. With over 30 acres of paved surfaces, the Port facilitates assembly and pre-staging of this type of cargo. In addition to the three bridge-type cranes, floating cranes and mobile truck cranes are available to handle these cargos.

The Port maintains warehouse storage and handling facilities for both dry and liquid bulk materials, and facilities and equipment to handle break-bulk and containerized cargos by land or by sea. Immediate access to two transcontinental railroads is complemented by two loop railroads, one of which is on-dock, for accommodating unit trains for export of coal, petroleum coke, and ores, plus consolidation of rail shipments of inbound and outbound steel coils. Relative to industrial development, the Port is especially attractive to, and interested in, attracting projects that require waterborne transportation for delivery of raw or finished goods.

The Port leases out much of its 2,000-acre facility to a wide variety of businesses, which include commercial, light industrial, heavy industrial, agricultural, warehousing, transportation, educational, and office space leases. Please refer to **Appendix 1** for a copy of the current tenant list.

The Port operates and is responsible for certain sections of the 2,000-acre facility, which fall under the Port's own municipal operations. These areas include two fertilizer warehouses, the transit dock sheds, an equipment washing area, maintenance buildings, a corporate yard, fleet fueling centers with aboveground fuel storage tanks and dispensers, the main administrative building, the administrative "Annex" building, the Port police headquarters building and security buildings, as well as Port roadways and parking lots.

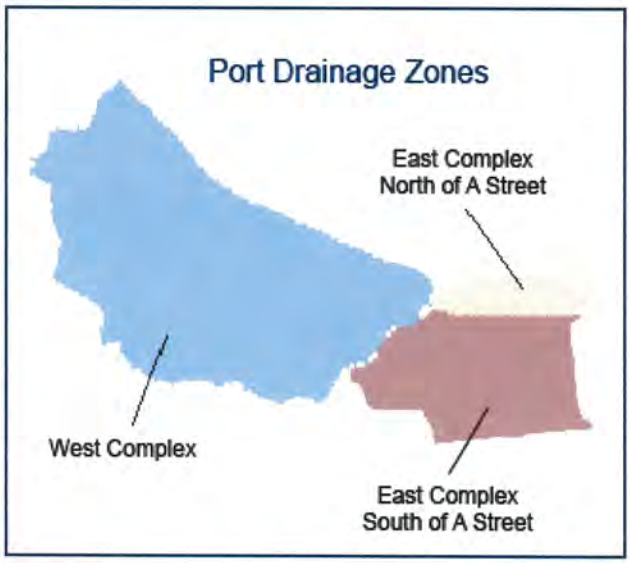
Port of Stockton Physical Description and Hydrology

The Port is located within the California Central Valley and is situated along the San Joaquin Delta Waterway connecting the San Joaquin and Sacramento Rivers to the San Francisco Bay. The Port is the largest and easternmost inland seaport in California. Located within the City of Stockton in San Joaquin County, the Port is approximately 75 miles east of San Francisco and 45 miles south of Sacramento.

Mean annual rainfall for the City of Stockton is approximately 13.95 inches, according to the Western Regional Climate Center. The general climate of the Port consists of dry, hot summers and relatively wet, cold winters. The average mean temperature is 74.6 degrees Fahrenheit. Approximately half the days of the year (184 days) are sunny.

The Port is divided into two main areas: the West Complex (formerly the United States Navy's Rough and Ready Island Base) and the East Complex. The San Joaquin River flows between the western side of the East Complex and eastern side of the West Complex before connecting into the Deep Water Ship Channel that runs along the northern edge of both complexes. The Burns Cutoff waterway surrounds the southern and western boundary of the West Complex. The West Complex is completely surrounded by waterways whereas the East Complex is only surrounded by waterways to the north (Deep Water Ship Channel) and west (San Joaquin River). Residential and industrial areas neighbor the East Complex to the south and east. The area of the West Complex is approximately 1,460 acres and the area of the East Complex is approximately 640 acres.

The subsurface geology is believed to consist of a thick sequence of alluvial deposits overlying sedimentary rocks, which in turn overlie crystalline basement rocks. The flood basin deposits attain a thickness of approximately 1,000 feet in the Stockton area and were deposited by fluviodeltaic processes. Soil profile strata generally consist of interbedded sand and clay layers. Ground surface elevations at the Port range from approximately 10 feet above mean sea level in the East Complex to approximately 3 feet below mean sea level in the West Complex. Groundwater elevations range from approximately 2 feet above mean sea level in the East Complex to approximately 9.5 feet below mean sea level in the West Complex.



The Port is separated into three distinct storm water drainage zones; the West Complex, the East Complex – north of "Road A", and the East Complex – south of "Road A".

West Complex:

At the West Complex, all storm water is drained in a southwesterly direction predominantly through a series of ditches and culverts. Once storm water reaches the western portion of the complex, it is drained into a series of swales and small channels where it is mixed with surfacing groundwater and directed to the Burns Cutoff Pump Station. An automated high level switch activates the lift station pumps to discharge storm water and groundwater to the Burns Cutoff waterway.

East Complex North of Road A:

At the East Complex, the majority of the area north of "Road A" discharges directly to the Deep Water Ship Channel through four outfalls (D2, D4, D10, and D11) that are fed by a series of storm drain inlets, sub-surface piping, and manholes.

East Complex South of Road A:

South of "Road A", the East Complex drainage generally flows in a southerly direction through a network of drains and ditches towards the Port's South Ditch. The South Ditch runs the length of the Port's southern perimeter and flows east to west. As necessary, a lift station at the west end of the South Ditch pumps water into the Retention Basin. When impounded storm water reaches a high level in the Retention Basin, it is pumped into the adjacent San Joaquin River.

Program Objectives

The overall goals of the Port's SWMP are to a) reduce the degradation of waters of the State and Waters of the United States by urban runoff and protect the waters' beneficial uses, and b) develop and implement an effective SWMP that is well understood and broadly supported by the Port's management, departments, and tenants. The objectives of the plan are to:

- Identify and control those pollutants in urban runoff that pose significant threats to the waters of the State and waters of the U.S. and their beneficial uses;
- Comply with the federal regulations to eliminate or control, to the MEP, the discharge of pollutants from the MS4 system *(Order No. R5-2011-0005 defines MEP for the Port to be equal to Best Available Technology Economically Achievable for non-conventional and toxic pollutants (BAT) and Best Conventional Technology Economically Achievable for conventional pollutants (BCT))*;
- Achieve or work toward achieving compliance with water quality standards in local waterways by reducing the contribution of pollutants by the Port;
- Develop a cost-effective program that focuses on pollution prevention of urban storm water;
- Seek cost-effective alternative solutions where pollution prevention is not a practical solution for a significant problem; and
- Coordinate implementation of feasible control measures with other agencies.

Legal Authority

The permit requires that the Port to implement a storm water management program to reduce the pollutants in storm water discharges over time to the MEP. Central to this program is the establishment and verification that the Port has adequate legal authority to regulate the discharge of pollutants to the MS4. The Port's chief legal counsel has prepared a certified statement concerning the Port's legal authority and enforcement response plan (ERP), which is included in **Appendix 2** of this SWMP.

The Port of Stockton is a legal entity with the authority to administer, implement, and enforce its SWMP within the Port's jurisdiction. As the sole property owner and legal responsible party (LRP), the Port has broad legal authority to enforce all environmental regulations including storm water, wastewater, air, solid, and hazardous materials regulations through conditions in the lease agreements signed with each tenant. The lease agreements contain the following language which provides legal authority to the Port:

> **Section 14.3 Compliance with Applicable Laws.**
>
> 14.3.1 Compliance. Tenant shall, at all times, in its use and occupancy of the Premises and in the conduct of its operations thereon, comply with all laws including, without limitation, all laws relative to the discharge or runoff of water from the Premises requiring the filing of certain notices and reports with governmental agencies including, without limitation, the California State Water Resources Control Board, and the Regional Water Quality Control Board, Central Valley Region, and the obtaining of certain permits covering Tenants' operations at the Premises from all state and federal agencies including, without limitation, the obtaining of industrial storm water permits and National Pollutant Discharge Elimination System permits. In addition to the foregoing,

Tenant shall comply immediately with any and all directives issued by Port Director or his authorized representative under authority of any laws including, but not limited to, any storm water management program implemented by Port from time to time as published in General Tariff or otherwise as directed by Port Director.

Section 6 Default, Termination, and Remedies.

6.1 Default by Tenant. The occurrence of any one or more of the following events shall constitute a material breach and default of this Lease by Tenant:

6.1.3 Failure to Observe Lease Provisions. Any failure by Tenant to observe or perform any of the covenants, conditions, or provisions of this Lease to be observed or performed by Tenant, other than those described in Subsection 6.1.2., when the failure continues for more than 30 days after written notice from Port. If the failure is of a nature that cannot reasonably be cured within 30 days, Tenant shall not be in default hereunder if Tenant commences cure within the 30 day period and diligently prosecutes cure to completion as soon as reasonably possible.

In addition, the Port of Stockton has adopted and implemented tariffs, which govern operations and conduct at the Port. Tariffs that provide legal authority to implement the Port's SWMP include the following: (A copy of these tariffs in their entirety is included in **Appendix 3**.)

Tariff 61 Dumping into Waters – This tariff prohibits the dumping of oil, oily wastes, trash, or other objectionable matter into the waters of the Inner Harbor or other navigable waters.

Tariff 1201 Pollution Prevention and Control Funding – This tariff authorizes a charge of $0.21/metric ton of cargo discharged or loaded to fund the pollution monitoring and prevention program and compliance with governmental pollution control standards.

Tariff 1202 Storm Water Program Funding – This tariff authorizes a monthly charge of $0.005/sq. ft. of rental space to all tenants other than those importing or exporting dry or liquid bulk cargos across Port wharves to fund the compliance program to meet State and Federal storm water regulation requirements.

Tariff 1203 Monitoring of Loading and Unloading Operations – This tariff establishes a requirement for tenants, stevedores, or other responsible parties to monitor each of its material loading and unloading operations at the Port which have a reasonable potential to cause a discharge into the Stockton Deep Water Channel or the San Joaquin River that could adversely affect water quality. Monitoring is defined in the tariff as both visual observation and water quality analysis.

Tariff 1204 Storm Water Tariff Definitions – Defines terms used in Tariffs 1205 and 1206.

Tariff 1205 Control of Storm Water Discharges – This tariff requires activities which are subject to the Industrial NPDES General Permit or the Construction NPDES General Permit to obtain permit coverage and comply with the terms and conditions of the permit. The tariff requires all tenants to identify and implement best management practices (BMPs) and to post a list at their facility of the BMPs that have been selected and implemented. The tariff authorizes the Port to require sampling and monitoring of any tenant at the Port's discretion.

Tariff 1206 Prohibition of Illicit Discharges – The tariff prohibits the discharge or release of all substances other than storm water and those discharges recognized as authorized non-storm water discharges in the Industrial NPDES General Permit.

Tariff 1207 Control of Non-Storm Water Discharges – The tariff requires authorized non-storm water discharges to be identified, covered by a NPDES permit (when required by the State or USEPA), and controlled through the use of appropriate BMPs. Spills or releases of unauthorized non-storm water discharges must be reported to the Port within 7 days.

Program Organization

The Port's SWMP is an integral part of the Port's overall storm water management program. The SWMP is considered to be an extension of the Port's MS4 NPDES permit. A California Superior Court has ruled that *"Because the Storm Water Management Plan is incorporated and is deemed an integral part of the Permits ... any changes to the Plan are actually changes to the Permits. Because these are changes to the Permits, the notice and comment requirements must be complied with."*[1] Other than minor administrative or editorial changes, SWMP revisions are required to be given a 30-day public notice and be placed on the RWQCB's public hearing agenda. The Port's SWMP is a publicly accessible document and may be downloaded from the Port's website: www.portofstockton.com.

The Port's SWMP is organized with the following structure:

Section 1 – Storm Water Management Program Overview

Section 2 – Program Elements, including Construction, Industrial and Commercial, and Municipal Operations, Illicit Discharge Detection and Control, Public Outreach, and Planning and Land Development.

Section 3 – Monitoring Program

Section 4 – Water Quality Based Programs

Section 5 – Program Implementation, Evaluation, and Reporting

Fiscal Analysis and Commitment

Through Tariffs 1201 and 1202, the Port attempts to secure the financial resources necessary to meet the requirements of the MS4 permit and this SWMP. Tariff 1201 authorizes a charge of $0.21/metric ton of cargo on or off loaded to fund the pollution monitoring and prevention program and compliance with governmental pollution control standards. Tariff 1202 authorizes a monthly charge of $0.005/sq. ft. on rental space to all tenants, other than those importing or exporting dry or liquid bulk cargos across Port wharves, to fund the compliance program to meet State and Federal storm water regulation requirements. During the 2009/2010 fiscal year, these two tariffs generated approximately $1,100,000 for the Port's pollution prevention and storm water programs. The Port's 2009/2010 fiscal year storm water management program budget allocation was approximately $1,000,000.

[1] San Francisco Baykeeper vs. Regional Water Quality Control Board, San Francisco Bay Region, Consolidated Case No. 500527, California Superior Court, 14 November 2003.)

Certification of the Storm Water Management Program

"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 gathered and evaluated the information submitted, except for the toxicity testing results the accuracy of which cannot be confirmed, and based on my inquiry of the person or persons who managed 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."

SIGNATURE: _____

RICHARD ASCHIERIS

PORT DIRECTOR

May 31, 2013

Section 2 - Program Elements

Construction

Overview

As the property owner and LRP, the Port authorizes and oversees all construction projects at the Port. Tenants, utility companies, and others who undertake construction projects at the Port must obtain approval from the Port prior to the commencement of the project. However, grading, excavation, and building permits are issued by the City of Stockton. The Port performs storm water compliance inspections of all construction projects and requires the responsible parties to comply with the State of California NPDES Construction General Permit and with Port lease agreements and tariffs.

Objectives

The objectives of the construction program are to:

1. Provide adequate legal authority to control pollutants to the Port's MS4 from construction sites with land disturbances greater than or equal to one acre in size;
2. Review construction and grading plans to ensure the plans contain appropriate pollution prevention, erosion, and sedimentation control measures;
3. Verify that parties performing construction at the Port are complying with the Construction General Permit;
4. Develop or designate a set of minimum BMPs and require their implementation to control sediment and pollutants leaving construction sites to enter the MS4;
5. Develop and maintain a tracking system (inventory) of all active construction sites at the Port, including the project name, location, and disturbed area of each site;
6. Develop and maintain a tracking system of all active construction sites inspected by the Port representatives, including the inspection date, and as applicable, any violations observed, enforcement responses, and any re-inspection actions taken in response to violations;
7. Inspect construction sites to ensure proper BMP implementation and compliance with Port, State, and Federal requirements;
8. Identify pollutant sources and prioritize water quality threats;
9. Implement a progressive enforcement policy/Enforcement Response Plan, in accordance with the Provisions of Section D.8.b. of the Port's Permit, for sites in violation of the Port's requirements and advise the Central Valley RWQCB of any potential violations of Construction General Permit requirements;

10. Provide regular internal and external training on applicable components of the SWMP and related Permits; and
11. Conduct an assessment as a part of the annual reporting process to determine the effectiveness of this SWMP Program Element and identify any necessary modifications; and

Pollutant Source Identification

Pollutant sources are identified by the following:

- Construction Management Fact Sheet submittal for all projects at the Port;
- Port Environmental Department SWPPP Review Process; and
- Construction Inspections / Daily Round Inspections.

Pollutant sources vary from project to project. Below is a list of activities and typical pollutants associated with construction projects at the Port of Stockton:

Activity	Potential pollutants
Grading and excavation activities	Sediment and total suspended solids
Concrete cutting	Sediment, total suspended solids, non-storm water discharges, pH altering substances
Concrete pouring and pumping	Non-storm water discharges, pH altering substances
Concrete crushing	Sediment, total suspended solids, non-storm water discharges, pH altering substances
Asphalt work	Oil and grease
Painting and surface coatings	Volatile organic carbon, semi-volatile organics, phenols, heavy metals
Structure demolishing	Debris, sediment, total suspended solids, asbestos, lead, heavy metals
Contaminated soil excavation	Volatile organic carbon, semi-volatile organics, phenols, heavy metals, sediment, total suspended solids
Waste storage	Debris, non-storm water discharges, pH altering substances
Equipment fueling	Hydrocarbons, spills to the drainage system
Over-water work and dredging activities	Oil and grease, pH altering substances, spills to the waterway
Storm drainage system work	Oil and grease, pH altering substances, spills to the drainage system
Sanitary and septic waste handling	Bacteria, pathogens, pH altering substances
Stockpiles	Sediment, total suspended solids, materials being stockpiled
Equipment cleaning, maintenance, and storage	Oil and grease, pH altering substances, sediment, total suspended solids spills to the drainage system
Storage of hazardous materials	Spills to the drainage system
Dewatering activities	Sediment, total suspended solids, groundwater contaminants
Sandblasting	Sediment, total suspended solids, heavy metals, semi-volatile organics
Landscaping	Sediment, total suspended solids nutrients, pH altering substances

Review Process

Each proposed construction project at the Port is required to be reviewed by the Port's Environmental Department. The Port uses the following mechanisms to review construction projects:

Construction Management Fact Sheets – The Port requires all tenants, contractors, developers, utility companies, other Port Departments, and other parties to notify the Port Environmental Department of every construction project, regardless of size or location, by completing a Construction Management Fact Sheet prior to commencing any field work. The Port Environmental Department tracks and documents these projects and communicates the status of the projects to the field inspectors.

Review of Permit Status and Site-Specific SWPPPs – For sites having soil disturbance of one acre or greater, the Port requires the following be submitted to the Environmental Department prior to the commencement of field activity:

- A site specific SWPPP prepared by a Qualified SWPPP Developer (QSD) conforming to the requirements of the California Construction General Permit;
- Documentation of the submittal of Permit Registration Documents (PRDs), including a Notice of Intent (NOI) for coverage under the Construction General Permit (Order No. 2009-0009-DWQ as amended by Order No. 2010-0014-DWQ);
- A vicinity map showing nearby roadways, the construction site perimeter, and the geographic features and general topography surrounding the site;
- A site map showing the construction project in detail, including the existing and planned paved areas and buildings; general topography both before and after construction; drainage patterns across the project area; and anticipated storm water discharge locations (i.e., the receiving water, any conduit to receiving water, and/or nearby drain inlets);
- A description of the type and location of erosion and sediment control BMPs, including, but not limited to, restricting grading during the wet season, and planting and maintenance of vegetation on slopes, to be employed at the site; and
- The name and telephone number of the Qualified SWPPP Practitioner (QSP) responsible for oversight and implementation of the SWPPP.

The Port reviews this submitted information to determine if the SWPPP and selected BMPs comply with the Construction General Permit and the applicable portions of the Port's MS4 Permit. Authorization to proceed will be given to projects that include proposed BMPs that meet the BAT/BCT requirement, proof of NOI submittal, and a SWPPP that conforms to permit requirements.

Inspection / Enforcement

Daily Rounds Inspections – Each week, Monday through Friday (excluding holidays), the Port has a qualified and trained inspector perform a drive-by "daily rounds" inspection of the entire Port property. This inspector, among other things, observes on-going construction activity and verifies that the activity has been communicated to the Port via a Construction Management Fact Sheet and performs a quick assessment of the general site conditions and compliance with storm water permit requirements. If the Port has not been informed of the construction activity, except in the case of emergency work, the inspector is authorized to stop the work and provide the responsible party with a Construction Management Fact Sheet form. If it appears the construction activity does not have proper BMPs or storm water control measures in place, the daily rounds inspector notifies the Port's storm water construction inspector and requests a more thorough site inspection.

Construction Site Inspections – Inspections are performed by a trained and qualified municipal storm water construction inspector at each active construction site (other than sites that have no exposure to storm water) on a frequency of twice per month during the wet season (October through May) and once per month during the dry season (June through September). The objective of the inspections is to ensure the following conditions are met:

- Sediments generated at the project site are retained using adequate BMPs;
- Construction-related materials and wastes are retained at the project site to avoid discharge to the storm drainage system and waters of the State;
- Unauthorized non-storm water runoff is prevented or contained at the project site; and
- Erosion from slopes and channels is controlled by implementing an effective combination of erosion and sediment control BMPs, such as limiting grading during the wet season; covering or otherwise protecting graded areas or slopes during rain events; and/or planting and maintenance of vegetation on slopes.

The Port construction inspectors attend at least one training class per year on sedimentation and erosion control, BMP installation and maintenance, municipal construction storm water inspections, or General Permit and SWPPP compliance.

- The Port's construction site inspectors is certified through the State-recommended organization, *Certified Erosion, Sediment and Storm Water Inspector*™ and has received the QSP certification.

Enforcement Measures – The Port will enforce the conditions of the Construction General Permit and the MS4 Permit by doing the following:

1. The Port storm water construction inspector will perform a site inspection with a checklist itemizing minor items requiring correction and stipulating a due date (no later than 7 days from the date of inspection) for resolution of the items. For significant violations or threats to water quality, the inspector will issue a Notice to Correct (NTC).
2. Within 7 days of the original inspection, the Port storm water construction inspector will perform a re-inspection to verify that the items requiring correction were satisfactorily

resolved. If the minor items were not corrected by the time of the follow-up visit, another NTC will be issued.

3. If the Port perceives there is an immediate threat to water quality and/or the responsible party will not respond in a timely manner, the Port will take preemptive action to respond to the threat and will hold the responsible party liable for all charges associated with the cleanup per the lease agreements and Port tariffs.

4. If corrective action has not been satisfactorily performed by the due date specified in the second NTC, the Port Environmental Department will issue an Administrative Enforcement Letter to the tenant describing the violation(s) and the lack of response no later than 14 days after the original corrective action due date. The letter will specify the corrective action(s) required, provide a time table for implementation of the corrective action(s), and notify the tenant/responsible parties that the construction project has been shut down until the issues specified in the NTC are resolved. Lastly, the Administrative Enforcement Letter will state that the tenant is in violation of their lease and indicate that the violation may also be referred to the Central Valley RWQCB for enforcement action under the State of California Porter-Cologne Water Quality Control Act and the Federal Clean Water Act.

5. If the tenant does not satisfactorily correct the violation(s) within the time table established in the Administrative Enforcement Letter, the tenant will be issued a Notice of Default by the Port of Stockton using the authority found in the tenant's lease agreement. The tenant will also be provided with a letter describing the violation(s) and the tenant's lack of response. The letter will specify the corrective action required and provide a time table for implementation of the corrective action(s). This letter will also reiterate that the tenant is in violation of their lease and indicate that the violation may also be referred to the RWQCB for enforcement action under the State of California Porter-Cologne Water Quality Control Act and the Federal Clean Water Act.

6. If the tenant does not satisfactorily correct the violation(s) within the time table established in the Administrative Enforcement Letter and Notice of Default, a citation will be issued and the matter will be referred for the Port Properties Department to begin the process of terminating the lease, and evicting the tenant from Port property. The violation will be referred to the Central Valley RWQCB, including a description of the violation(s), the efforts that the Port has made to attempt to resolve the violation(s), and all documentation associated with the violation(s). Additionally, the Port will issue the tenant a letter stating that the tenant's continued default has resulted in the matter being referred to the Port Properties Department to begin the process of lease termination and also that the violation has been referred to the RWQCB.

BMPs

Construction projects at the Port that disturb an acre or more of soil have mandatory minimum BMPs, which are contained in Attachment D of the Construction General Permit (Order No. 2009-0009-DWQ as amended by Order No. 2010-0014-DWQ). Site specific BMPs are identified and approved during the Port's SWPPP review process. For sites completing only a fact sheet, the Port's Daily Rounds and Construction Inspectors will verify adequate BMP protection. If BMPs are determined to be inadequate, the Port inspector will provide *California Stormwater Quality Association (CASQA)* BMP reference sheets related to any deficiencies that were observed during the inspection. The inspector's role not only includes enforcement, but also education. The inspector will help identify options for compliance at construction sites. All site deficiencies will be noted and subject to the enforcement policy outlined above.

Outreach & Training

The Port provides storm water educational information related to construction activities to developers, contractors, tenants, Port employees, and utility companies in the following ways:

- Construction resource kits are provided to all parties responsible for new construction. The Port created a resource kit for contractors and developers. The kit contains helpful information about regulatory requirements, the Construction General Permit, BMPs, Port policies and inspections, the Storm Water Development Standards Plan, educational DVDs, and other useful information. The kit is provided to new contractors or developers by the Port Properties Department.

- Annual workshops, training courses, and BMP product demonstrations will be offered through the Environmental Department on an alternating basis. The Port has found that offering various types of outreach increases attendance and interest. Each season's planned outreach event will be identified in that year's annual work plan.
- Additional educational materials, including fliers, videos, and other resources, will be obtained by the Port and provided to developers, contractors, tenants, Port employees, and utility companies.
- Annual surveys will be performed to evaluate the Port's outreach effectiveness. When possible, pre-outreach surveys will be utilized to gauge matriculation.

Record Keeping

The Port has created a database to track the following items: submitted construction management fact sheets, location of construction projects, project information, start and end dates of the project, NOI and NOT submittal dates and information, SWPPP review date, dates of construction inspections, inspection records, NTCs, corrective actions required and resolution, and sample results (if any). These records are maintained and available through the Environmental Department.

All completed annual training and outreach activities will be detailed in each season's annual report.

Effectiveness Assessment Tools

The Port follows the assessment process described in the California Storm Water Quality Association (CASQA) *Municipal Storm Water Program Effectiveness Assessment Guidance*. The CASQA guidance document identifies control measures for each of the six SWMP program elements and provides a six-tiered outcome-based assessment criteria.

The following are measureable control measures used to evaluate the effectiveness of the Port's construction element of the SWMP in which the outcome level for each is identified:

Effectiveness Outcome Levels

In performing effectiveness evaluations, the Port categorizes measureable goals into six different outcome levels. They are:

1. **Documenting activities** – the tracking of whether a control measure was performed and how many times or to what percent.
2. **Raising awareness** – the goal is to raise the target audience's awareness and understanding of an issue.
3. **Changing behavior** – documentation of a change in behavior over time.
4. **Reducing loads from sources** – demonstration of the reduction of a pollutant load from a specific source.
5. **Improving runoff quality** – demonstration of improved storm water runoff and discharge quality.
6. **Protecting receiving water quality** – demonstration of improved receiving water quality.

1. Provide adequate legal authority to control pollutants to the Port's MS4 from construction sites with land disturbance greater than or equal to one acre in size.

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Review Port tariffs and lease agreements and modify as necessary	Completion of review and modifications/adoption of revised/new tariffs and lease language	1	Confirmation: • Identify if legal review was completed. • Identify what modifications were made to legal authority, if any.

In addition to language contained in the Port's lease agreements, the following Port Tariffs provide additional legal authority:

Tariff 1205 Control of Storm Water Discharges – This tariff requires activities which are subject to the Industrial NPDES General Permit or the Construction NPDES General Permit to obtain permit coverage and comply with the terms and conditions of the permit. The tariff requires all tenants to identify and implement best management practices (BMPs) and to post a list at their facility of the BMPs that have been selected and implemented. The tariff authorizes the Port to require sampling and monitoring of any tenant at the Port's discretion.

Tariff 1206 Prohibition of Illicit Discharges – The tariff prohibits the discharge or release of all substances other than storm water and those discharges recognized as authorized non-storm water discharges in the Industrial NPDES General Permit.

Tariff 1207 Control of Non-Storm Water Discharges – The tariff requires authorized non-storm water discharges to be identified, covered by a NPDES permit (when required by the State or USEPA), and controlled through the use of appropriate BMPs. Spills or releases of unauthorized non-storm water discharges must be reported to the Port within 7 days.

2. Review construction plans and issue grading permits consistent with Port's MS4 permit requirements:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Review drawings/plans and permit applications	Number (#) of sites subjected to erosion & sediment control BMPs	1	• Compare # of sites subjected to erosion & sediment controls to # of sites incorporating controls. • # of sites year to year incorporating controls.
	Percent of sites incorporating erosion and sediment control BMPs	2	• Percentage change year to year

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
	Number of erosion and sediment control plans reviewed.	1	• Compare # of erosion and sediment control plans reviewed vs. # requiring revisions.
	Number of erosion and sediment control plans requiring minor revision; requiring major revisions.	2	• % change in plans year to year incorporating controls and not requiring revisions.
	Percent of sites incorporating erosion and sediment controls and /or % of sites using best available technology (BAT) BMPs.	2	• Compare year to year %.
	Number of review cycles required for each plan	2	• Compare review cycle % from year to year.
	Number of applications requiring proof of PRDs and SWPPPs	1	• Compare # of applications requiring NOIs and SWPPPs to the # of applications submitting NOIs and SWPPPs. • % of sites year to year submitting NOIs and SWPPPs.
Issuance of Grading Permit	Number of sites greater or equal to one acre that submitted proof of permit coverage (WDID #) and that SWPPP has been developed	2	• # of permits issues or denied from year to year.

3. Develop or designate a set of minimum BMPs and require their implementation to control sediment and pollutants from construction sites to the MS4:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Establish a set of minimum BMPs	Documentation of minimum BMPs established.	1	• Identify that minimum BMPs have been established.
Require implementation of minimum BMPs	Percent of sites incorporating the Port's minimum BMPs.	2	• % of plans year to year incorporating the Port's minimum BMPs.

4. Develop and maintain a tracking system (inventory) of all active construction sites within the Port's jurisdiction, including the project name, location, the inspection date, violations observed, enforcement responses, and any re-inspection actions taken in response to violations and disturbed area of each site:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Inventory construction sites (by drainage area or sub-watershed)	Number, location and size of public and private sites included in inventory (active and completed)	1	• Identify that the inventory was developed and is being kept up to date. • Identify any modifications needed to inventory each year.
	Number and location of sites subject to Construction General Permit as well as local erosion and sediment controls.	1	• Identify # of sites in inventory and # subject to General Permit and local erosion and sediment controls.
	Routinely audit database	1	• Identify if audit was conducted and what modification were made.
Prioritize construction sites	Identify total number of high, medium and/or low priority sites	1	• Define high, medium and low priority sites. • Identify that prioritization was completed for each site. • Identify # of high, medium, low priority sites and any priority level changes from year to year.

5. Inspect construction sites to ensure proper BMP implementation and compliance with Port, State, and Federal requirements:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Perform routine inspections	Update/revise inspection checklist as needed	1	• Identify that the inspection checklist was updated.
	Number of sites subject to inspection	1	• # of sites subject to inspection from year to year.
	Number of inspections completed	1	• Identify that inspections were completed

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
	Number of sites adequately implementing and maintaining BMPs.	3	• % of sites adequately implementing BMPs vs. sites subject to BMP requirements. • % of sites year to year incorporating controls
	Number of sites implementing BMPs that reflect BAT/BCT	3	• % of sites implementing BAT/BCT
	Available sampling results from inspection to inspection.	4	• Use monitoring and inspection data, if available, to estimate load reductions and/or determine if additional controls are necessary.
Conduct Follow Up Inspections	Number of follow-up inspections conducted	1	• Identify that follow up inspections were completed. • Compare follow up inspection results to original inspection results. •
	Number of sites adequately implementing BMPs	3	• % of sites originally not implementing or maintaining BMPs during first inspection vs. the sites implementing and maintaining BMPs after the follow up inspection.
	Compare storm water runoff sampling results from original vs. follow-up inspections	4	• Use monitoring and inspection data, if available, to identify improvements from year to year. • If possible, estimate and track annual pollutant loads.
	Number of sites referred to the RWQCB as a part of the progressive enforcement program.	1	• # of sites referred to the RWQCB from year to year.

6. Provide internal and external training on applicable components of the SWMP and the Construction General Permit:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Provide BMP and educational materials during inspections	BMP fact sheets developed	1	• Identify that the BMP Fact Sheets were developed • Used survey results to modify/improve the fact sheets. • Identify method for BMP Fact Sheets distribution. • % increase in awareness before and after the inspections.
	BMP fact sheets distributed	2	• Identify # of sheets distributed
	Survey users regarding usefulness of outreach materials	2	• Conduct survey and record results.
Conduct training for inspectors and/or developers, builders and contractors	Number of attendees at training session(s)	1	• Identify # of attendees at training sessions.
	Results of evaluation forms from attendees (was presentation effective?)	2	• Tally results from evaluation forms. •
	Results from classroom and/or field quizzes	2	• Tally results from evaluation quizzes. •
	Percent improved based on scores on before and after survey quiz.	2	• % increase in awareness before and after the training. • % awareness from year to year.

Industrial and Commercial

Overview

The Port of Stockton has approximately 150 industrial and commercial tenants, which are inspected by the Port's Environmental Department. As a result, the potential storm water impact from these facilities is determined and recorded within the annual inspection database. The tenants on the inspection database list are classified into one of five categories based on their facility's risk to storm water quality. The categories include no threat, low threat, medium threat, high threat, and no longer a Port tenant. Only facilities with a classification of low, medium, and high are inspected annually. Tenants that have "no threat" will only be inspected on an occasional basis to confirm that their status has not changed.

The Port currently has 22 tenants permitted under the Industrial General Permit (IGP) and one tenant with an individual NPDES permit. During annual inspections, the Port's inspector reviews the tenant's SWPPP, industrial activities, potential pollutant sources, existing BMPs, and storm water monitoring documentation. Tenants covered by the Industrial General Permit are required by the Environmental Department to submit a copy of their Annual Storm Water Report to the Port by July 1st of each year. The report is reviewed by the Environmental Department for compliance with the General Permit. If storm water sampling analytical results are above USEPA prescribed benchmark levels, the Port schedules an appointment and site inspection with the tenant to identify potential pollutant sources, review existing BMPs, and make recommendations as to other BMPs that might be implemented that meet the BAT/BCT standard.

Objectives

The objectives of the industrial / commercial program are to:

1. Provide adequate legal authority to control pollutants from industrial and commercial facilities;
2. Develop and maintain an inventory of commercial and industrial facilities located within the Port's jurisdiction;
3. Prioritize the industrial and commercial facilities within the inventory based on their threat to water quality and develop and maintain an efficient tracking system to record and document required inspection frequencies, observations, violations, and enforcement responses;
4. Require industrial and commercial facilities to select, install, implement, and maintain storm water control measures and BMPs to that meet the BAT/BCT standard;
5. Conduct inspections of the industrial and commercial facilities that pose a significant threat to water quality. The inspection frequency shall be based on the prioritization of the facility as established in the SWMP. Conduct follow-up inspections to confirm that necessary

corrective actions are taken, and, if not, to appropriately escalate its enforcement posture in accordance with the provisions of Section D.8.b. of the Port's Permit;

6. Implement a progressive enforcement policy to ensure adequate enforcement is conducted and coordinate with the RWQCB regarding referrals of potential non-filers and inspections;
7. Refer significant violations of the Port's tariffs and potential General Industrial Permit non-filers to the RWQCB. Coordinate inspections and enforcement with RWQCB staff. Establish a schedule for reporting non-filers and violations;
8. Provide regular internal and external training on components of the SWMP and related Permits; and
9. Conduct an assessment as a part of the annual reporting process, determine the effectiveness of the program element and identify any necessary modifications.

Facility Inventory / Tracking / Prioritization

The Port annually conducts industrial and commercial facility inspections of applicable tenants. The tenants are classified into a threat-based prioritization level and the frequencies of inspections are determined by the facility's storm water threat. The inspections are tracked on the inspection database.

Prioritization Level	Level Definition/Inspection Tasks	Inspection Frequency
High	Existing IGP or individually permitted tenants with pollutant materials or wastes used or stored outside. Inspections should focus on pollutant discharge potential, facility size, potential for discharges to reach receiving waters, and frequency of non-compliance issues.	Annually (Minimum)
Medium	Tenant not permitted under IGP or individual permit with some activities exposed to storm water, and with pollutant materials or waste used or stored outside. Inspections should focus on pollutants of concern for that facility, potential for discharges to reach receiving waters, frequency of non-compliance issues, and general compliance at the facility.	Annually (Minimum)
Low	Tenant not permitted under IGP or individual permit with little or no activities exposed to storm water, and with minimal pollutant materials or waste used or stored inside only. Inspection will focus generally on compliance at the facility.	Annually (Minimum)

No Threat	Tenant not permitted under IGP or individual permit with no activities exposed to storm water, and no pollutant materials or waste used or stored at site. Inspection will confirm status as no threat or whether status needs to be upgraded to low, medium or high.	Once per permit term
No Longer a Tenant	Former tenant facility no longer in operation. No inspection is needed until new tenant in place, which is characterized with the above categories.	Not required

Inspections

Daily Rounds Inspections – Each week, Monday through Friday (excluding holidays), the Port has a qualified trained inspector perform drive-by "daily rounds" to inspect the entire Port property. The inspector performs daily "spot checks" of the industrial and commercial operations for potential pollutant sources and illicit activity. The inspector ensures that the activity has been communicated to the Port and the facility by verbal, written notification (daily rounds log), or enforcement (Notice-to-Correct or NTC). Through its "daily rounds" and tenant inspections, the Port issues NTCs to tenants that are not complying with the Port tariffs, lease agreements, or State/Federal storm water regulations. The Port also issues Administrative Enforcement Letters for non-compliance issues.

Annual Report Review – With the goal to reduce the number of benchmark exceedances for discharges from the Port's tenants, the Port follows up with the tenants who submitted an Annual Report as required by the Industrial NPDES General Permit and had either no reported sampling events or had one or more benchmark exceedances. An evaluation of the facility is performed to determine if BMPs are in place that effectively prohibit non-storm water runoff and reduce pollutants in storm water runoff to the BAT/BCT standard. If it is determined that the BMPs do not meet the BAT/BCT standard, then a NTC is issued to the tenant with a corrective action due date no later than 7 days from the inspection date. If corrective action has not been satisfactorily performed by the due date specified in the NTC, the Port Environmental Department will issue an Administrative Enforcement Letter to the tenant describing the violation(s) and the lack of response no later than 14 days after the due date.

Annual General Permit Applicability Evaluation – Once a year, the Port performs an evaluation of all of its tenants to determine if there are any potential non-filers who are suspected to be subject to the Industrial NPDES General Permit, but that have not submitted a NOI. This annual evaluation is documented and reported in the Port's Annual Storm Water Report. Any tenants suspected of requiring coverage under the Industrial NPDES General Permit are notified in a letter from the Port within fourteen days of the completion of the evaluation.

Outreach

Tenant Outreach – Port inspectors will distribute storm water educational materials to industrial and commercial tenants during the annual facility inspections. These materials consist of DVDs, brochures, BMP product information sheets, and invitations to upcoming outreach events.

Annual workshops, training courses, and BMP product demonstrations will be offered through the Environmental Department on an alternating basis. The Port has found that offering various types of outreach increases attendance and interest. Each season's planned outreach event will be identified in that year's annual work plan.

Pollution prevention educational materials will be developed and distributed to ship operators in effort to minimize the discharge of materials associated with shipping, receiving, and storage activities.

Enforcement

Progressive Enforcement of Industrial Tenants – Tenants or other persons found to be responsible for storm water violations are issued a Notice to Correct. The Port will enforce the conditions of the tenant's Industrial General Permit and the Port's MS4 Permit requirement by doing the following:

1. Any tenant identified having an illicit discharge, pollutants that are exposed to storm water runoff, lack of BMPs, or a violation of the Industrial General Permit will be issued a Notice to Correct (NTC). The NTC will identify the corrective actions that must be taken by the tenant by a specified date (which is based on the threat level to receiving water quality, but requires action no later than 7 days from the original inspection date).
2. The Port will perform a re-inspection to verify that the items needing correction were satisfactorily resolved by the date specified on the NTC.
3. If the Port perceives there is an immediate threat to water quality and/or the responsible party has not responded or will not respond in a timely manner, the Port will take preemptive action to respond to the threat and will hold the tenant responsible and liable for all charges associated with the cleanup per the lease agreements and Port tariffs.
4. If corrective action has not been satisfactorily performed by the due date specified in the NTC, the Port Environmental Department will issue an Administrative Enforcement Letter to the tenant describing the violation(s) and the lack of response no later than 14 days after the due date. The letter will specify the corrective action required, and provide a time table for implementation of corrective action. Lastly, the Administrative Enforcement Letter will state that the tenant is in violation of their lease and indicate that the violation may also be referred to the Central Valley RWQCB for enforcement under the State of California Porter-Cologne Water Quality Control Act and the Federal Clean Water Act.
5. If the tenant does not satisfactorily correct the violation within the time table established in the Administrative Enforcement Letter, the tenant will be issued a Notice of Default by the Port using the authority found in the tenant's lease agreement. The tenant will also be provided with a letter describing the violation(s) and the tenant's lack of response. The letter

will specify the corrective action required and provide a time table for implementation of the corrective action. This letter will state that the tenant is in violation of their lease and indicate that the violation may also be referred to the Central Valley RWQCB for enforcement under the State of California Porter-Cologne Water Quality Control Act and the Federal Clean Water Act.

6. If the tenant does not satisfactorily correct the violation within the time table established in the Administrative Enforcement Letter and Notice of Default, a citation will be issued and the matter will be referred for the Port Properties Department to begin the process of terminating their lease, and evicting the tenant from Port property. The violation will also be referred to the Central Valley RWQCB including a description of the violation(s), the efforts that the Port made to attempt to resolve the violation, and all documentation associated with the violation(s). Additionally, the tenant will be issued a letter stating that their continued default has resulted in the matter being referred to the Port Properties Department to begin the process lease termination and that the violation has been referred to the RWQCB.

The following lease terms and tariffs provide the Port with legal authority necessary to enforce the storm water program element related to industrial and commercial facilities:

LEASE TERMS

Section 14.3 Compliance with Applicable Laws.

14.3.1 Compliance. Tenant shall, at all times, in its use and occupancy of the Premises and in the conduct of its operations thereon, comply with all laws including, without limitation, all laws relative to the discharge or runoff of water from the Premises requiring the filing of certain notices and reports with governmental agencies including, without limitation, the California State Water Resources Control Board, and the Regional Water Quality Control Board, Central Valley Region, and the obtaining of certain permits covering Tenants' operations at the Premises from all state and federal agencies including, without limitation, the obtaining of industrial storm water permits and National Pollutant Discharge Elimination System permits. In addition to the foregoing, Tenant shall comply immediately with any and all directives issued by Port Director or his authorized representative under authority of any laws including, but not limited to, any storm water management program implemented by Port from time to time as published in General Tariff or otherwise as directed by Port Director.

Section 6 Default, Termination, and Remedies.

6.1 Default by Tenant. The occurrence of any one or more of the following events shall constitute a material breach and default of this Lease by Tenant:

6.1.3 Failure to Observe Lease Provisions. Any failure by Tenant to observe or perform any of the covenants, conditions, or provisions of this Lease to be observed or performed by Tenant, other than those described in Subsection 6.1.2., when the failure continues for more than 30 days after written notice from Port. If the failure is of a nature that cannot reasonably be cured within 30 days, Tenant shall not be in default hereunder if Tenant commences cure within the 30 day period and diligently prosecutes cure to completion as soon as reasonably possible.

TARIFFS

Tariff 61 Dumping into Waters – This tariff prohibits the dumping of oil, oily wastes, trash, or other objectionable matter into the waters of the Inner Harbor or other navigable waters.

Tariff 1205 Control of Storm Water Discharges – This tariff requires activities which are subject to the Industrial NPDES General Permit or the Construction NPDES General Permit to obtain permit coverage and comply with the terms and conditions of the permit. The tariff requires all tenants to identify and implement best management practices (BMPs) and to post a list at their facility of the BMPs that have been selected and implemented. The tariff authorizes the Port to require sampling and monitoring of any tenant at the Port's discretion.

Tariff 1206 Prohibition of Illicit Discharges – The tariff prohibits the discharge or release of all substances other than storm water and those discharges recognized as authorized non-storm water discharges in the Industrial NPDES General Permit.

Tariff 1207 Control of Non-Storm Water Discharges – The tariff requires authorized non-storm water discharges to be identified, covered by a NPDES permit (when required by the State or USEPA), and controlled through the use of appropriate BMPs. Spills or releases of unauthorized non-storm water discharges must be reported to the Port within 7 days.

Training

Annual workshops, training courses, and BMP product demonstrations will be offered through the Environmental Department on an alternating basis. The Port has found that offering various types of outreach increases attendance and interest. Each season's planned outreach event will be identified in that year's annual work plan.

Effectiveness Assessment

The following are measureable control measures used to evaluate the effectiveness of the Port's industrial/commercial element of the SWMP in which the outcome level for each is identified:

1. Provide adequate legal authority to control pollutants for industrial and commercial facilities at the Port:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Review Port tariffs and lease language and modify as necessary	Completion of review and modifications of revised tariffs and lease language	1	• Identify if legal review was completed • Identify what modifications were made

2. Develop and maintain an inventory of commercial and industrial facilities located within the Port's jurisdiction and prioritize the industrial and commercial facilities within the inventory based on their threat to water quality and develop and maintain an efficient tracking system to record and document required inspection frequencies, observations, violations, and enforcement responses:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Inventory industrial and commercial sites (by drainage area or sub-watershed)	Number and location of industrial and commercial sites included in inventory	1	• Identify that the inventory was developed • Identify any modifications
	Number of industrial sites subject to Industrial General Permit	1	• Identify # of sites in inventory and # subject to General Permit
	Number of industrial sites that submitted an NOI and developed a SWPPP	1	• % sites year to year submitting NOIs and developing SWPPPs
	Routinely audit database	1	• Identify if audit was conducted and what modifications were made.
Prioritize sites by threat to water quality for inspection purposes	Identify total number of high, medium and/or low priority sites	1	• Identify that prioritization was completed. • Identify # of high, medium, low priority sites and what modifications were made.
Develop a Delta Water Friendly Incentive Program for Port Tenants	Number of businesses qualifying for "green" award	3	• Track % of businesses qualifying for program • Estimate load reductions
	Number of materials removed from waste stream due to "green" practices	4	• Estimate load reductions
Perform routine inspections	Update/revise inspection checklist as needed	1	• Identify that checklist was updated
	Number of sites subject to inspection	1	• Identify that inspections were completed
	Number of inspections completed	1	• # of inspections completed year to year. • % of sites year to year incorporating controls
	Number of sites adequately implementing and maintaining BMPs	3	• % of sites adequately implementing BMPs vs. sites subject to BMP requirements

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
	Available sampling results from inspection to inspection	4	• Use monitoring and inspection data to estimate load reductions and/or determine if additional controls are necessary

3. Conduct inspections of the industrial and commercial facilities that may pose a significant threat to water quality. The inspection frequency shall be based on the prioritization of the facility as established in the SWMP. Conduct follow-up inspections to confirm that necessary corrective actions are taken, and, if not, to appropriately escalate its enforcement posture in accordance with the Provisions of Section D.8.b. of the Permit;

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Conduct Follow Up Inspections	Number of follow-up inspections conducted	1	• Identify that follow up inspections were completed • Compare follow up inspection results to original inspection results
	Number of sites adequately implementing BMPs	3	• % of sites originally not implementing or maintaining BMPs during the first inspection vs. the sites that are implementing and maintaining BMPs after the follow up inspection
	Compare storm water runoff sampling results from original vs. follow-up inspection	4	• Use monitoring and inspection data to identify improvements from year to year • Estimate and track annual pollutant loads

4. Implement a progressive enforcement policy to ensure adequate enforcement is conducted and coordinate with the Central Valley RWQCB regarding referrals of potential non-filers and inspections. Refer significant violations of the Port's storm water tariffs and potential General Industrial Permit non-filers to the RWQCB. Coordinate inspections and enforcement with the RWQCB. Establish a schedule for reporting non-filers and violations.

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Progressive Enforcement Policy	Develop enforcement policy/mechanisms	1	• Identify that follow up inspections were completed

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
	Number and types of corrective and enforcement actions	1	• Identify # and types of enforcement actions taken • % of enforcement actions that were major (NTC issued) vs. minor (Corrective action without NTC)
	Number and referrals made to RWQCB	1	• Identify # of referrals made to RWQCB and # of repeat offenders/problem areas identified
	Number of repeat offenders and/or problem areas identified	2	• Identify change in number of enforcement actions from year to year

5. Provide regular internal and external training on components of the SWMP and related Permits; and

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Provide BMP and educational materials during inspections	BMP fact sheets developed	1	• Identify that the BMP Fact Sheets were developed • Used survey results to modify/improve the fact sheets • Identify method for BMP Fact Sheets distribution • % increase in awareness before and after the inspections.
	BMP fact sheets distributed	2	• Identify # of BMP Fact Sheets distributed
	Survey users regarding usefulness of outreach materials	2	• Conduct survey and tally results
Conduct training for inspectors and/or site owner/operators	Number of attendees at training session(s)	1	• Identify # of attendees at training sessions
	Results of evaluation forms from attendees (was presentation effective?)	2	• Results from evaluation forms
	Results from classroom and/or field quizzes	2	• Results from evaluation quizzes

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
	Percent improved before and after survey/quiz	2	• % increase in awareness before and after the training • % awareness from year to year

Municipal Operations

Overview

The Municipal Operations program element of the SWMP covers pollution prevention and storm water control measures associated with the Port-owned and operated portions of the facility.

The Port's municipal operations include the operation and management of all Port roads, railroad tracks, and the following areas under the management of Port personnel:

Location	Description	Activity	Parking Facility[2] (Yes / No)	Pesticide, Herbicide, or Fertilizers Used in this Area? (Yes / No)
East Complex				
Near gate, behind Lehigh Cement	Dirt lot	Port dirt stockpile area	No	No
Dock 8	Dock 8 warehouse	Storage / office	No	No
Dock 9	Boat dock	Police boat storage	No	No
Dock 9	Dock 9 warehouse	Storage of Port vehicles and equipment	No	No
Dock 9-14	Dock area, crane, conveyer tower	Ship off loading / loading of sulfur, steel, fertilizer, barium ore, etc.	No	No
West of Warehouse 6A	Wash Pad	Equipment washing	No	No
Warehouses 5 & 6	Fertilizer storage warehouses and truck loading bays	Storage and handling of fertilizers	No	No
Warehouses 5 & 6	Dirt lot	Storage of fertilizer conveyers and unloading equipment	No	No
Port Road B, west of sulfur conveyor tunnel	Maintenance shop	Mechanical shop, bathroom, shower	No	No
Washington Street /Rd. 13 at Main Port Entrance	Administrative building	Port offices and landscaped area	Yes	Yes
North of Administrative Building, on Rd. G, south of Annex	Fuel station	Vehicle fueling tanks and dispensers	No	No
North of Administrative Building, on Rd. G	The Annex – additional Port offices	Port offices and landscaped area	No	Yes

[2] *"Parking Facility" for purposes of the Port's Storm Water Management Program is defined as an impervious area of more than 5,000 square feet and 25 or more delineated parking spaces, which has runoff draining into the Port's MS4 system that discharges from one of the Port's MS4 outfalls or to the East Complex Retention Basin.*

Location	Description	Activity	Parking Facility[2] (Yes / No)	Pesticide, Herbicide, or Fertilizers Used in this Area? (Yes / No)
North of the Commercial Exchange Club, Rd. F and Rd. 13	Port Side Room	Conference room and landscaped areas	No	Yes
Rd. 14 and Rd. G	Port Maintenance Building and Corporate Yard	Maintenance shops, equipment and vehicle storage, hazardous and non-hazardous waste storage	No	Yes
South of Washington Street at Rd. 22	Fire reservoir	Pump station	No	Yes
West of Navy Drive on Rd. N	Retention Basin pump station	Pump Station/holding pond	No	Yes
Southern perimeter of the East Complex	South Ditch easement and storm water channel	Right of way and storm water drainage system	No	Yes
West Complex				
West Complex entrance, Fyffe Ave. and Hooper Dr.	Parking lot, guard shack, Police offices	Police boat storage, truck staging, bus stop	Yes	Yes
Approach to the West Complex	Port owned golf course	Recreational area, parking lot, equipment and maintenance supply storage	No	Yes
Adjacent to the golf course	Commander's House	Event location	No	Yes
West Complex entrance, Fyffe Ave. and Hooper Dr.	Electrical Sub-Station	Communications tower facility	No	Yes
North Pier, north end of Hooper Dr.	Boat House	Boat / Equipment storage	No	Yes
North Pier, north end of Hooper Dr.	Boat Ramp / Dock	Boat launch and parking lot	No	Yes
Hooper Rd. and Gilliss Rd.	Communications building	Misc. storage	Yes	Yes
Hooper Rd. and Gilliss Rd.	Fuel Station	Vehicle fueling	No	Yes
Hooper Rd. and Gilliss Rd.	Waste storage area	Haz-waste accumulation area	No	Yes
West Complex Outfall, west end of Fyffe Ave.	West Complex pump house	Operation and maintenance of pumps	No	No
Fyffe Ave., Building 315, between Davis Ave. and Boone Dr.	Port Police field office	Police vehicle parking / office and landscaped area	No	Yes
Fyffe Ave, Building 717, between Davis Ave. and Ellesberg Dr.	Port Carpenter shop	Carpentry activities, tools and equipment	No	No

Location	Description	Activity	Parking Facility[2] (Yes / No)	Pesticide, Herbicide, or Fertilizers Used in this Area? (Yes / No)
West Complex docks along Embarcadero Dr.	Docks and all sheds on pier	Loading and unloading of rice, steel, windmill parts, and other products; transit sheds for transloading to/from trucks; rail spur on docks for transloading to/from railcars	No	Yes
Northwest corner of the West Complex, Embarcadero Dr. and Humphries Ave.	Old Weyerhaeuser office	Police training area	No	Yes

Control measures included in this program element are intended to cover the following activities performed by Port personnel:

- Operation and maintenance of the sanitary sewer system;
- Operation and maintenance of the electrical utilities;
- Maintenance, operation, and storage of Port-owned equipment and vehicles;
- Application of pesticides, herbicides, and fertilizers on areas maintained by Port staff or contractors working for the Port;
- Storm drainage system maintenance and storm drain labeling;
- Street-sweeping;
- Fertilizer, steel, and barium ore unloading, storage, and handling at Docks 11 and 12 and Warehouses 5 and 6;
- Equipment washing and wash pad operation and maintenance;
- Equipment fueling at the East and West Complex fuel stations;
- Port-sponsored construction and facility maintenance projects including roadwork, utility repairs and installation, infrastructure improvements, and capital improvement projects; and
- Emergency situations that may impact storm water quality or the receiving waters, such as fire fighting discharges, spills, or other releases and the contaminants that result from such incidents.

Objectives

The objectives of the municipal program element are to:

1. Implement development standards that require source and treatment control BMPs to reduce pollutants from Port-owned construction projects;
2. Implement pollution prevention BMPs for Port-owned facilities (e.g., corporation yards) and maintain a Facility Pollution Prevention Plan (FPPP) for Port-owned facilities to minimize or eliminate pollutant discharges to the storm drain system, including but not limited to good housekeeping practices, material storage control, vehicle leak and spill control, and illicit discharge control;
3. Implement a standardized protocol for routine and non-routine storage, usage, and disposal of pesticides, herbicides (including pre-emergents), and fertilizers on Port-owned property that:
    - Is consistent with the State Board's guidelines and monitoring requirements for application of aquatic pesticides to surface waters (WQ Order 2013-0002-DWQ);
    - Implements requirements and procedures prohibiting application of pesticides or fertilizers immediately before, during, or immediately after a predicted rain event or when water is flowing off the application area;
    - Implements requirements and procedures prohibiting application or storage of banned or unregistered pesticides;
    - Requires staff applying the pesticides to be licensed by the California Department of Pesticide Regulation, or under the direct supervision of a certified pesticide applicator;
    - Implements procedures to encourage planting of native vegetation and reduces water, fertilizer, and pesticide needs;
    - Requires the storage of fertilizers and pesticides indoors or under cover on impervious surfaces or use of secondary containment;
    - Minimizes the use, storage, and handling of hazardous materials to reduce the potential for spills; and
    - Requires the regular inspection of pesticide and fertilizer storage areas. This includes procedures for identification, outreach, inspection, filling, disposal and application. Specifically, when these services are contracted to vendors, procedures need to be implemented to effectively communicate, and require adherence to Port-developed protocols.
4. Consideration and promotion of the use of Integrated Pesticide Management (IPM) methods and less toxic alternatives;
5. Update and implement maintenance procedures for catch basins and sumps that include the following:

- Prioritizing catch basins and sumps for cleaning based on accumulation of waste and presence or absence of BMPs;
- Developing and implementing an inspection and cleaning schedule for removal of accumulated waste (e.g., sediment, trash, debris, and other pollutants) based on a water quality risk-based prioritization. At a minimum, cleaning of prioritized catch basins and sumps shall occur prior to the rainy season;
- Recordkeeping of cleaning and overall quantity of waste removed;
- Properly disposing of waste removed pursuant to applicable laws; and
- Implementing measures to eliminate waste discharges during storm sewer maintenance and cleaning activities.

6. Continue to implement BMPs of storm drain maintenance that include:
   - Visually monitoring Port-owned open channels and associated drainage structures for a build up of debris at least annually before the wet weather season (October 1); clean as needed based on visual inspections; and identify and prioritize problem areas for more frequent inspections;
   - Reviewing current maintenance activities to ensure that appropriate storm water BMPs are being used to protect water quality;
   - Minimizing the discharge of pollutants during storm sewer maintenance and clean outs;
   - Properly disposing of material removed; and
   - Accurate recordkeeping for cleaning and maintenance of open channels and associated drainage structures.
7. Ensure that catch basin inlets are properly stenciled, permanently imprinted, or have legible curb markers to discourage illicit discharges into the storm drain system. The Port will continue to promote the 24-hour hotline number;
8. Update and implement guidelines for operating and maintaining retention basins. These guidelines shall consider, at a minimum, the following: (1) inspection frequency; (2) maintenance frequency for removal of accumulated sediment and debris; and (3) maintenance and stabilization of basin side slopes to prevent erosion and incorporation of additional sediment into outflow. Additionally, the Port will document the required inspections, monthly during the wet season and once during the dry season, in accordance with its stated procedures and notify the RWQCB within two weeks if evidence of berm seepage is discovered;
9. Continue to implement and update BMPs for streets and road maintenance that at a minimum include:

- Conducting appropriate street sweeping frequencies for streets, material handling and storage areas, and docks. Develop a plan and tracking system that includes routes, frequencies, and quantity of material removed;
- Reviewing and revising its maintenance practices to include the following:
  - Sawcutting waste shall be recovered and disposed of properly and that, in no case, will waste be left on a roadway or allowed to enter the storm sewer;
  - Concrete and other street and road maintenance materials and wastes will be managed to prevent discharge to the storm sewer; and
  - Concrete truck and chute washout will only occur in designated areas; concrete rinse shall not be discharged to the storm sewer, open ditches, or streets.

10. Clean and inspect Port-owned parking facilities[3] to minimize the build-up and discharge of pollutants to the storm drain system;
11. Provide annual training for its employees in targeted positions (whose interactions, jobs, and activities may affect storm water quality) regarding the requirements of the SWMP in order to (1) promote a clear understanding of the potential for maintenance activities to pollute storm water, and (2) identify and select appropriate BMPs; and
12. Conduct an assessment as part of the annual reporting process, determine the effectiveness of the municipal operations program element, and identify any necessary modifications.

New Development and Construction Requirement for Municipal Capital Improvement Projects

Port Compliance with the DSP - The Development Standards Plan (DSP) prepared by the Port applies not only to tenant construction projects, but also to Port-owned and sponsored projects. The Port will assure that all of its own capital improvement projects are consistent with the DSP requirements.

Facilities Pollution Prevention Plan (FPPP) for Port Operated Facilities

Facility Pollution Prevention Plan (FPPP) - The FPPP (formerly called the Storm Water Pollution Prevention Plan or SWPPP) was prepared and is maintained for the Port's fertilizer warehouse, equipment wash slab, fleet fueling area, and the maintenance shop area. The FPPP identifies

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[3] *"Parking Facility" for purposes of the Port's Storm Water Management Program is defined as an impervious area of more than 5,000 square feet and 25 or more delineated parking spaces, which has runoff draining into the Port's MS4 system that discharges from one of the Port's MS4 outfalls or to the East Complex Retention Basin.*

pollutants of concern, areas of industrial activities, and associated best management practices. The FPPP is reviewed annually and revised as needed.

The FPPP has been revised to include additional areas, such as the dock sheds and warehouses, the Port Police buildings, Port operated parking lots, and other Port owned and operated facilities.

Landscape and Pest Management

Pesticide Plan - A written Pesticide Plan was initially prepared in 2000, revised during the 2008/2009 storm water year; and again updated for the new Permit. The plan identifies appropriate chemical handling, storage, and use protocols and incorporates and promotes the use of less toxic Integrated Pest Management (IPM) methods. Port maintenance staff supervises the implementation of the management plan and the selection, review, and program adherence evaluation of pesticide and landscape contractors. The plan has been provided to all pesticide contractors and Port personnel who apply these materials. The Pesticide Plan is presented in **Appendix 4**.

Municipal Storm Water Conveyance System Maintenance

Drain Maintenance Program - The Port has developed a maintenance program to inspect and clean all of the storm drain inlets, drainage swales and culverts, and underground piping systems. BMPs in and around the drain inlets are checked and cleaned on a routine basis. The Port staff service storm drain inlet filters and remove sediment and debris.

A written storm drainage system maintenance manual was developed by the Environmental Department. The manual includes instructions for installation and servicing of specific BMPs and includes a routine preventative maintenance schedule. The maintenance manual also includes information on the location of BMPs; recommended inspection frequency; the life expectancy of the BMPs; replacement information; information on the characterization and management of wastes generated from the cleaning of the drainage system and drain inlet filters; and health and safety concerns.

A database is used to schedule and track the cleaning of the storm drains and document the amount of debris removed. Information from the inspection and servicing of each storm drainage system component is inputted into the database. Storm drain maintenance procedures are presented in **Appendix 5**.

Retention Basin Inspections – A written procedure detailing the inspection, operation, and maintenance of the East Complex retention basin was prepared and implemented during the previous permit term. This procedure was revised to include characterization of sediments before sediment removal activity is performed and to include procedures for the maintenance and operation of the East Complex South Ditch storm water culvert and lift station, which pumps storm water into the Retention Basin. The procedure includes information about the maintenance and operation of the West Complex drainage swales and pump station. The inspection and maintenance activities of the Retention Basin are documented in the Port's storm drainage system

maintenance database. Retention Basin operations and maintenance guidelines are presented in **Appendix 6**.

Streets and Roads Maintenance

Street-Sweeping Program – The Port performs street-sweeping Monday through Friday during business hours, but excluding holidays. Sweeping is conducted predominately in the vicinity of the Port's fertilizer warehouses, docks, wash slab, main Port roads, and parking areas. Included in **Appendix 7** of this SWMP is the Port's Street Sweeping Plan, which includes frequencies and sweeping routes. In order to ensure that the street-sweeping route and frequency are accurately documented, the Port uses a GPS device to track the street-sweeper's route and display the information in a graphical format, which includes the date and time for each location. In addition, a written log is maintained by the street sweeper operator to summarize the frequency for sweeping each route and location.

During the 2007/2008 storm water year, improvements to the storage area for the street-sweeping waste material were made. Since 2008, the waste material has been emptied from the sweeper onto a covered concrete pad area. This material is then transferred to a 20-yard covered bin and disposed of once the bin is full. At the time of disposal, the waste hauler delivers a new bin to replace the full bin.

Sanitary Sewer System Management Plan (SSMP) - Pursuant to the requirements of the State Water Board's Sanitary Sewer Overflow (SSO) waste discharge requirements, the Port prepared and maintains a written SSMP that includes an SSO response plan and a training program on which Port Maintenance Department employees are trained annually. The Port maintains an adequate supply of pneumatic and mechanical plugs for isolating and protecting the storm water system in the event that an SSO occurs on Port property.

Drain Labeling Program - The Port has successfully labeled nearly all of its storm drains with a warning and numbering system label. In addition to the application of these labels, the drains were each assigned a drain number and GPS coordinates were recorded. The Port will continue to inspect these labels and replace them as needed. Drain labels that were missed or inaccessible during previous rounds of labeling will be completed in the near future. Each drain type, location and number has been entered in the Port's environmental database system.

Tenant Industrial Activities Management

The Port conducts drive-by inspections ("daily rounds") of the Port owned and operated municipal facilities each week, Monday through Friday, during the storm water year and during business hours. The inspectors look for illicit discharges, illegal dumping, activities that may threaten storm water quality, and spills or pollutant sources from ship loading and unloading practices.

Treatment and Feasibility Studies

Feasibility Studies - During the last permit term, the Port voluntarily began performing feasibility studies of several treatment BMPs. The following describes what was done during the last permit term and how these studies will be completed during this permit term:

BAT/BCT Pilot Treatment System – During the previous permit term, the Port performed a study to evaluate the feasibility of installing flow meters at the Port's East Complex gravity flow outfalls. The feasibility study was included in the 2004/2005 annual storm water report. The study concluded that during the evaluation, none of the outfalls in their current condition were found to be suitable for flow measurement. However, the study reported that, in the case of most of the outfalls, it appeared to be feasible to install a lift station or vault to intercept the storm water runoff and pump it to the receiving water; which would provide for reliable flow measurement. The study also reported that a vault system would allow the Port to obtain samples that are more representative, capture illicit non-storm water discharges and spills, and provide a way for the Port to incorporate BAT/BCT control measures into the storm water system. The 2004/2005 annual report stated that during the 2005/2006 storm water year, the Port would commence an engineering analysis to specify the appropriate sizing and features of the proposed control measures; a cost estimate for the engineering, purchase, installation, and operation of the control measures; and a time schedule and prioritization for the completion of the proposed project. The engineering analysis was performed and, in August 2006, a presentation was made to the Port Environmental Department on the progress of the engineering and the selection of the control technology. The Port Environmental Department authorized a pilot study to be done during the 2006/2007 wet season consisting of constructing a small scale trailer-mounted system using the proposed Contech StormFilter™ technology. The storm water treatment system trailer was built and initially placed into operation at the Port's D2 direct discharge outfall, an area that has cement handling tenants. Because of the lower than normal amount of rainfall during the 2007/2008 storm season, the pilot study continued during the 2008/2009 season. Based on field data obtained during the 2009/2010 storm season, design changes and modifications were made to the pilot system. The BMP treatment study will be completed during this permit term and a recommendation will be made concerning the permanent use of this technology at the Port.

South Ditch Check Dams – During the last permit term, the Port installed a series of temporary check dams in the East Complex South Ditch. The South Ditch receives all of the storm water runoff from the East Complex south of A Street. Water flows east to west in the South Ditch to an automated lift station, which pumps water from the South Ditch to the Retention Basin. The purpose of the check dams was to facilitate the settling of solids within the South Ditch rather than in the Retention Basin. Analytical testing has shown the solids include sediment, particulates of heavy metals, and sulfur. The Port has found that it is much easier to remove sediment from the South Ditch than the Retention Basin, and by minimizing the amount of pollutants reaching the Retention Basin, the water quality of the Retention Basin discharges has improved. During the last permit term, runoff water samples were collected before and after

each check dam and the results were encouraging. The Port has already made several modifications to the check dams to improve their durability and performance. Based on the results of this feasibility study, during this permit term, the Port will prepare an improvement plan for the South Ditch that will establish a plan of action, schedule, and budget to address issues associated with the South Ditch. The feasibility study will include a plan to stabilize banks and erodible surfaces; remove debris and material that can contaminate storm water runoff; specify the construction of permanent check dams supported by water-tolerant plants to slow and filter runoff; identify a sediment removal and maintenance procedure and schedule; and define the proper operation of the lift station pumps so that, to the extent possible, water levels and flow rates are maintained to assure maximum benefit from the designed control measures and to prevent erosion and damage to the banks and control measures.

Fertilizer Area Runoff Testing and Diversion - During the previous permit term, devices to allow for the impoundment of storm water runoff were installed in four of the drain inlets located in and around the fertilizer warehouses. Storm water in this area is impounded until it can be tested with a conductivity field instrument and a nitrate field test kit. The Port Environmental Department tests the impounded storm water runoff and determines whether or not it can be released into the storm water drainage system. If electrical conductivity is found to be greater than 1,000 umhos/cm and/or nitrate is found to be greater than 10 mg/L (which levels represent applicable receiving water standards), the impounded water is not allowed to enter the storm drainage system, but is instead pumped to a wastewater tank at the nearby equipment wash slab.

Training

Community Outreach and Education Programs – In an effort to educate the Port's tenants, contractors, and staff, the Port plans various storm water outreach events and programs each year.

- During the annual inspections of the Port's tenants, the Port provides each tenant with information concerning pollution prevention and the Port's storm water management requirements. Informational materials and a completed inspection checklist with recommendation for improvement are also provided to the tenants.
- The Port provides on-going education to its tenants, employees, and contractors about the 24-hour spill / incident reporting system. The reporting system currently consists of the Port's 24-hour main phone number (209) 946-0246.
- Periodically, the Port's Environmental Department hosts a Storm Water Manager's workshop open to all of its tenants and the community. Information concerning pollution prevention, the State's General Industrial Permit, sample collection and analysis, and other aspects of the Port's storm water program is provided to the attendees. The Port also invites the regulatory community to attend and participate in the workshop.
- The Port conducts outreach to ship operators that dock at the Port. The outreach includes information on the international agreements concerning ballast water intake and discharge; vessel, equipment, and deck washing; spill prevention and reporting programs; and unloading and loading BMPs. The Port provides the ship operators with informational brochures and a completed inspection checklist with recommendations for corrective action.

Training of Port Employees – Port Maintenance, Operations, and Police Departments receive annual storm water training on BMPs related to their specific activities and areas of responsibility.

- The Port provides annual training on the Herbicide, Pesticide and Fertilizer Management Plan and on Integrated Pest Management methods to the Port Maintenance Department and the pest control and landscaping contractors that work with these types of chemicals on Port property.
- The Port has a 24-hour emergency contact number, which connects directly with the Port Police; this number is publicized to the Port community for reporting illicit discharges into the storm drainage system. The Port trains the Police in the handling of illicit discharge or spill notification calls. These calls are documented, verified, and categorized regarding their threat to receiving water quality. Response time will depend upon the threat to the receiving water quality, staff availability, and time of day.

Effectiveness Assessment

The following are measureable control measures used to evaluate the effectiveness of the Port's municipal operations element of the SWMP in which the outcome level for each is identified:

1. Implement pollution prevention BMPs for Port-owned facilities (e.g., corporation yards) and maintain a Facility Pollution Prevention Plan (FPPP) for Port-owned facilities to minimize or eliminate pollutant discharges to the storm drain system, including but not limited to good housekeeping practices, material storage control, vehicle leak and spill control, and illicit discharge control:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Implement pollution prevention measures at corporation yards and/or municipal facilities	Develop Facility Pollution Prevention Plan (FPPP) for site.	1-2	• Confirm that FPPP was developed and present on site. • Identify if audit/inspection was conducted
	Identify pollutant generating activities and develop site map	2	• Confirm that pollutant generating activities and site map were developed.
	Implement BMPs for pollutant generating activities.	3	• Identify #, type, and location of BMPs
	Identify and eliminate non-storm water discharges	2-3	• Identify # and type of non-storm water discharges • Determine # of non-storm water discharges eliminated
	Conduct audit of site for conformance with storm water management plan.	1-3	• Identify # of BMPs implemented and maintained, and % change year to year

2. Update and implement maintenance procedures for catch basins and sumps that include the following:

    - Prioritizing catch basins and sumps for cleaning based on the accumulation of waste and the presence or absence of BMPs;
    - An inspection and cleaning schedule for removal of accumulated waste (e.g., sediment, trash, debris, and other pollutants) based on the Port's prioritization effort. At a minimum, cleaning of prioritized catch basins and sumps shall occur prior to the rainy season each year;
    - Record keeping of cleaning and overall quantity of waste removed;
    - Proper disposal of waste removed pursuant to applicable laws; and
    - Measures to eliminate waste discharges during storm sewer maintenance and cleaning activities.

    Continue to implement BMPs for storm drain maintenance that include:

    - Visually monitoring open channels and associated drainage structures for debris at least annually before the wet weather season (October 1);
    - Cleaning channels and drains as needed based on visual inspections;
    - Identifying and prioritizing problem areas of illicit discharge of additional inspections;
    - Conducting a review of current maintenance activities to ensure that appropriate storm water BMPs are being used to protect water quality;
    - Minimizing the discharge of pollutants during storm sewer maintenance and clean outs;
    - Properly disposing of material removed; and
    - Adequate record keeping for cleaning and maintenance of open channels and associated drainage structures.

    Ensure that catch basin inlets are properly stenciled, are permanently imprinted, or have legible curb markers to discourage illicit discharges into the storm drain system. Continue to promote the 24-hour hotline number;

    Update and implement guidelines for operating and maintaining retention basins. These guidelines shall consider, at a minimum, the following: (1) inspection frequency; (2) maintenance frequency for removal of accumulated sediment and debris; and (3) maintenance and stabilization of basin side slopes to prevent erosion and incorporation of additional sediment into outflow. Additionally, the Port must document the required inspections, once a year during the dry season and monthly during the wet season, in accordance with the Port's stated procedures and notify the RWQCB within two weeks if evidence of berm seepage is discovered.

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Inventory drainage system (by drainage area or sub-watershed)	Develop inventory/map of drainage system. Identify the location and size of drainage system including catch basins, pump stations, detention basins, etc.	1	• Identify total # of catch basins and number directly draining to receiving water • Provide map of drainage system
	Compile cleaning records for drainage system	1	• Identify that the inventory was developed and include in Port database.
Prioritize drainage system by threat to water quality for cleaning purposes	Quantify drain system for cleaning frequency	1	• Identify total # of catch basins and number directly draining to receiving water • Provide map of drainage system
Develop and implement cleaning schedule and protocols	Develop protocols for cleaning	1-2	• Identify that protocols were developed
	Number of catch basins, drain pipe, pump stations, etc. cleaned	2-4	• # of areas cleaned and estimate of waste removed.
Maintain Labels on Storm Drain Inlets	Number of labels added or replaced	1-2	• # of new drains labeled • # of labels replaced.
Continue to promote the 24-hour hotline number	Identify ways the hotline was promoted	1	• Identify ways the hotline was promoted (calls into the hotline are addressed in the Illicit Discharge program element of the SWMP)
Retention Basin Maintenance and Inspections	Identify the number and type of inspections and maintenance activities performed at the Retention Basin	1	• # of inspections • List of corrective actions • # of observations of seepage from the Retention Basin • # of reporting made of seepage to the RWQCB

3. Continue to implement and update BMPs for streets and road maintenance that, at a minimum, include:
    - Conducting appropriate street sweeping frequencies for streets, material handling and storage areas, and docks within its jurisdiction. Develop a plan and tracking system that includes routes, frequencies, and quantity of material removed;
    - Reviewing and revising maintenance practices to include the following:

- Sawcutting waste is recovered and disposed of properly and not left on a roadway or allowed to enter the storm sewer (note that maintenance procedures for sawcutting and concrete work are presented in **Appendix 8**);
- Managing concrete and other street and road maintenance materials and wastes to prevent discharge to the storm sewer; and
- Allowing concrete truck and chute washout only in designated areas; and ensuring concrete rinse is not discharged to the storm sewer, open ditches, or streets.

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Inventory street cleaning program (by drainage area or sub-watershed)	Location and frequency of street cleaning.	1	• Provide map overlay of street cleaning areas
	Compile street sweeping records	1	• Identify that the inventory was developed
Prioritize streets by threat to water quality and aesthetics for cleaning purposes	Prioritize street segments and corresponding cleaning frequency	2	• Identify that prioritization was completed • Identify # of streets/segments proposed for prioritized cleaning.
Develop and implement cleaning schedule and protocols	Develop protocols for cleaning	2	• Identify that protocols were developed • Estimate of waste removed.
	Number of street miles cleaned	3	• Record # of street miles cleaned
	Estimates of waste removed through implementation of program	4	• Determine quantity of material collected per mile
	Improvement in runoff/ MS4 discharge quality	5	• Demonstrate charge in water quality (reduced TSS or other constituents)

4. Clean and inspect Port-owned parking facilities to minimize the build-up and discharge of pollutants to the storm drain system:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Develop inventory of parking lots	Number, size, and type of parking lots	1	• Identify that the inventory was developed • Provide map overly of area maintained
	Determine frequency of cleaning	2	• Keep cleaning log
Develop and implement cleaning schedule and protocols	Develop protocols for municipal staff and contractors	2	• Identify that protocols were developed.
	Quantify area cleaned	3	• Estimate area of parking lot cleaned
	Estimates of waste removed through implementation of program	4	• Total amount of waste removed from parking lots.

5. Implement a standardized protocol for routine and non-routine storage, usage, and disposal of pesticides, herbicides (including pre-emergents), and fertilizers on Port-owned property that:
    - Meets the State Board's guidelines and monitoring requirements for application of aquatic pesticides to surface waters (WQ Order No. 2001-12 DWQ);
    - Implements requirements and procedures prohibiting application of pesticides or fertilizers immediately before, during, or immediately after a predicted rain event or when water is flowing off the application area;
    - Implements requirements and procedures prohibiting application or storage of banned or un-registered pesticides;
    - Requires that staff workers that apply pesticides are licensed by the California Department of Pesticide Regulation or under the direct supervision of a certified pesticide applicator;
    - Implements procedures to encourage planting of native vegetation to reduce water, fertilizer, and pesticide needs;
    - Requires the storage of fertilizers and pesticides indoors or under cover on paved surfaces with the use of secondary containment;
    - Minimizes the use, storage, and handling of hazardous materials to reduce the potential for spills;

- Requires the regular inspection of pesticide and fertilizer storage areas. This includes procedures for identification, outreach, inspection, filling, disposal and application. Specifically, when these services are contracted to vendors, procedures need to be implemented to effectively communicate, and require adherence to, Port-developed protocols; and
- Considers and promotes the use of IPM methods and less toxic alternatives.

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Develop pesticide, herbicide, and fertilizer application protocols	Develop application protocols for Port staff and contractors	1-2	• Verify that protocols were developed
	Track annual use of herbicides and pesticides by active ingredient and total area for application	2-4	• # of times materials applied and total acreage
	Track annual use of fertilizers by element (e.g. nitrogen) applied and total area for application	2-4	• Estimates of materials applied and reductions over time
	Audit implementation of protocols	3	• Audit implementation by contractors • Identify if protocols were implemented
Develop and implement integrated pest management program	Develop IPM strategy/protocols for municipal staff and contractors	1-2	• Verify that protocols were developed • Provide map overlay of areas • Identify if protocols were implemented
	Track areas and types of IPM measures that are being implemented	2-3	• Track IPM use by total area applied and types of IPM
Develop and implement green waste reuse and erosion control program	Implement program for Port Maintenance Staff and contracted work	1	• Verify that program was developed and implemented
	Track use (tonnage and area served) of green waste compost and implementation of erosion controls	3	• Estimate tonnage of green waste used and percentage of open space with adequate erosion controls

6. Implement development standards that require source and treatment control BMPs to reduce pollutants from Port-owned construction projects:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Require municipal capital improvement projects (CIP) to comply with the Port's Development Standards Plan	Track review of CIP with the DSP	1-2	• Verify that standards are included in CIP review checklist
	Track CIP compliance with New Development Standards	3	• Track % compliance of CIP with standards
Require Port construction projects to comply with construction general permit	Track review of CIP with construction general permit requirements	3	• Verify that general permit requirements are included in CIP review checklist • Audit implementation of requirements • Identify common non-compliance issues
	Inspect CIP compliance with construction general permit	3	• Track % compliance of CIP with requirements
Develop minimum erosion and sediment control measures for Port owned projects.	Establish control measures (BMPs)	2	• Verify that control measures were developed
	Inspect projects for conformance with control measures	3	• Track % compliance of projects with measures • Identify common non-compliance issues

7. Provide annual training for Port employees in targeted positions (whose interactions, jobs, and activities may affect storm water quality) regarding the requirements of the SWMP and to (1) promote a clear understanding of the potential for maintenance activities to pollute storm water (2) identify and select appropriate BMPs:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Provide reference material for municipal field staff based on involvement in activities listed above	BMP fact sheets/protocols developed	1	• Identify that the BMP Fact Sheets were developed

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
	BMP fact sheets distributed	1	• # of BMP fact sheets distributed
	Survey users regarding usefulness of educational materials	2	• Used survey results to modify/improve the fact sheets • % increase in awareness before and after fact sheets
Conduct training modules for Port staff involved in activities listed above	Training modules developed	1	• Identify training modules were developed
	Number of attendees at training session(s)	1	• Identify # of attendees at training sessions
	Results of evaluation forms from attendees (was presentation effective?)	2	• Results from evaluation forms
	Results from classroom and/or field quizzes	2	• Results from evaluation quizes
	Percent improved based on scores from before and after survey/quiz	2	• % increase in awareness before and after the training • % awareness from year to year

Illicit Discharges

Overview

The Port has implemented an Illicit Discharge Detection and Elimination (IDDE) program that includes methods of detecting illicit discharges, and ensuring prompt response, public education, and the training and use of Port Police and field staff to detect illicit discharges.

Objectives

The objectives of the IDDE program are to:

1. Provide adequate legal authority to control and/or prohibit pollutants from being discharged to the municipal storm drain system;
2. Proactively detect illicit discharges and illegal connections through a variety of mechanisms including, but not limited to, public reporting, dry weather monitoring (including at closed/eliminated outfall discharge points), and field crew inspections;
3. Upon identification of an illegal connection, investigate and eliminate the connection through a variety of mechanisms including, but not limited to, permitting or plugging the connection;
4. Upon identification of an illicit discharge, investigate the discharge and conduct any necessary follow up actions to prevent and mitigate the impacts of the discharge;
5. Provide adequate legal authority and implement a progressive enforcement policy to ensure that adequate enforcement is conducted;
6. Conduct training for Port employees responsible for identification, investigation, termination, cleanup, reporting, and enforcement of illicit discharges and illegal connections; and
7. As a part of the annual reporting process, conduct an assessment to determine the effectiveness of the program element and identify any necessary modifications.

Detection of Illicit Discharges and Illegal Connections

Daily Rounds Inspections – Each week, during business hours on Monday through Friday (excluding holidays), the Port's qualified and trained inspectors perform drive-by "daily rounds" to inspect the entire Port property. The inspectors, among other things, look for illicit discharges, illegal dumping, and spills or pollutant sources from ship loading and unloading practices. The inspectors facilitate communication between the Port and the discharging party through verbal, written (daily rounds log), or enforcement (Notice to Correct) communications. The inspectors also serve in the first responder capacity by either discovering the illicit discharge or being the first on the scene. The Daily Rounds Inspectors' vehicle is equipped with spill control and clean up equipment and tools. If clean up is required, the inspectors will convey to the discharger the level of clean up expected on behalf of the Port.

Teaming up with Port Police to Detect and Eliminate Illicit Discharges - The Port Police have agreed to assist the Port Environmental Department in the "front-line" detection and elimination of illicit discharges. Port Police receive annual training on illicit discharges, including not allowing vehicle washing and unauthorized mobile car/truck washers at the Port. The Port only allows vehicle washing to occur off-site or with the use of an approved mobile washing company that captures all of their wash water and adequately documents its proper disposal. Police vehicles and other Port staff vehicles have been equipped with a small spill kit. Police and other Port field staff have been trained on notification requirements for spills and illicit discharges.

Field Screening Inspections (Dry Weather Inspections) – In accordance with the IDDE Field Screening Work Plan, the Port conducts comprehensive screenings scheduled during the summer months. In addition to the comprehensive screenings, spot screenings are performed on varied days and time intervals throughout the dry season. The IDDE Field Screening Work Plan is revised annually and submitted with the Annual Work Plan.

Storm Drain Identification Markers – "No Polluting...Flows to the River" is stated on the front of the drain labels that have been placed on more than 95% of the drains within the Port of Stockton. This serves as a visual BMP educating the general public to allow only rain down the drain. The Port maintains a drain labeling program by installing labels on newly discovered drains, and replacing damaged, or missing labels. Each label includes a unique number, which is referenced in the database and on the facility storm drainage map. These reference numbers assist the tenants, Port Police, and others to accurately report a problem and assist our maintenance and environmental departments to quickly find and respond to any reported or discovered problem.

Illegal Connection Identification and Elimination

Identification and Elimination - Upon the reporting or discovery of an illicit connection or discharge, the Port initiates an investigation as soon as possible, but no later than within two business days, to determine the source of the connection, the nature and volume of the discharge, and the responsible party for the connection. The Port staff ensures that the illicit connection is terminated, redirected, or plugged as soon as possible, but not later than within 5 business days of its discovery.

Response to Illicit Discharges and Progressive Enforcement – Tenants or other persons thought to be responsible for an illicit discharge are issued a Notice to Correct. The Port enforces the conditions of the IDDE permit requirements by doing the following:

1. Any potentially responsible party identified having an illicit discharge is issued a Notice to Correct (NTC). The NTC identifies abatement, investigative, and clean-up activities that must be taken and paid for by that party by a specified date (based on the threat level to receiving water quality, but no later than 7 days from the date of the initial inspection date).

2. The Port performs a re-inspection to verify that the items needing correction were satisfactorily resolved by the date specified on the NTC.
3. If the Port perceives there is an immediate threat to water quality and/or the responsible party will not respond in a timely manner, the Port will take preemptive action to respond to the threat and will hold the responsible party liable for all charges associated with the cleanup per the lease agreements and Port tariffs.
4. If corrective action has not been satisfactorily performed by the due date specified in the NTC, the Port Environmental Department will issue an Administrative Enforcement Letter to the tenant describing the violation and the lack of response no later than 14 days after the due date. The letter will specify the corrective action required, and provide a time table for implementation of the corrective action. Lastly, the Administrative Enforcement Letter will state that the tenant is in violation of their lease and indicate that the violation may also be referred to the RWQCB for enforcement action under the State of California Porter-Cologne Water Quality Control Act and the Federal Clean Water Act.
5. If the tenant does not satisfactorily correct the violation within the time table established in the Administrative Enforcement Letter, the tenant will be issued a Notice of Default by the Port of Stockton, using the authority found in the tenant's lease agreement. The tenant will also be provided with a letter describing the violation and the tenant's lack of response. The letter will specify the corrective action required and provide a time table for implementation of the corrective action. This letter will state that the tenant is in violation of their lease and indicate that the violation will also be referred to the RWQCB for enforcement action under the State of California Porter-Cologne Water Quality Control Act and the Federal Clean Water Act.
6. If the tenant does not satisfactorily correct the violation(s) within the time table established in the Administrative Enforcement Letter and Notice of Default, a citation will be issued and the matter will be referred for the Port Properties Department to begin the process of terminating the lease, and evicting the tenant from Port property. The violation will be referred to the RWQCB, including a description of the violation(s), the efforts that the Port has made to attempt to resolve the violation(s), and all documentation associated with the violation(s). Additionally, the Port will issue the tenant a letter stating that the tenant's continued default has resulted in the matter being referred to the Port Properties Department to begin the process of lease termination and also that the violation has been referred to the RWQCB.

Investigation/Inspection and Follow-up Procedures

All reported illicit discharges and the Port's response measures will be entered into a database to track the response and elimination of the discharge.

Port Tariffs

The following are the Port tariffs which address illicit discharges:

Tariff 61 Dumping into Waters – This tariff prohibits the dumping of oil, oily wastes, trash, or other objectionable matter into the waters of the Inner Harbor or other navigable waters.

Tariff 1206 Prohibition of Illicit Discharges – The tariff prohibits the discharge or release of all substances other than storm water and those discharges recognized as authorized non-storm water discharges in the Industrial NPDES General Permit.

Tariff 1207 Control of Non-Storm Water Discharges – The tariff requires authorized non-storm water discharges to be identified, covered by a NPDES permit (when required by the State or USEPA), and controlled through the use of appropriate BMPs. Spills or releases of unauthorized non-storm water discharges must be reported to the Port within 7 days.

Training

- The Port has a 24-hour emergency contact number, (209) 946-0246, which connects with the Port Police after hours. The Environmental Department publicizes this number for reporting illicit discharges into the storm drainage system. The Port annually provides training to the Port Police in the handling of illicit discharge and spill notification calls. These calls will be documented, verified, and categorized regarding their threat to receiving water quality. Response time will depend upon the threat to the receiving water quality.
- Additional educational materials including fliers, videos, and other resources will be obtained by the Port and provided to tenants, Port employees, and Port Police.

Effectiveness Assessment

The following are measureable control measures used to evaluate the effectiveness of the Port's illicit discharge, detection, and elimination element of the SWMP in which the outcome level for each is identified:

1. Provide adequate legal authority to control and/or prohibit illicit discharges or spilled materials from being discharged to the municipal storm drain system:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Review Port tariffs and modify as necessary	Completion of review and modifications/adoption of revised/new tariffs	1	• Identify if legal review was completed • Identify what modifications were made

2. Proactively detect illicit discharges and illegal connections through a variety of mechanisms including, but not limited to, public reporting, dry weather monitoring (including at closed/eliminated outfall discharge points), and field crew inspections:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Establish and maintain a public reporting mechanism (hotline and/or website form)	Establish and maintain a hotline and/or website form	1	• Identify that the hotline/website form was developed and is being maintained • Identify # of calls made and forms submitted
	Number of complaints submitted via the hotline	2	• # of complaints submitted year to year • # of complaints submitted year to year correlated with trainings/education • % of complaints year to year that were verified as water pollution incidents
	Number of complaints submitted via the website form	2	• # of complaints submitted year to year • # of complaints submitted year to year correlated with trainings/education • % of complaints year to year that were verified as water pollution incidents
Conduct dry weather monitoring to identify chronic discharges or "hot spots"	Number and locations of problem areas identified through the monitoring program	1-4	• Identify that monitoring was completed • Identify # of locations monitored • Identify # of and location of problem areas or "hot spots" • % area that were identified as problem areas from year to year • Use monitoring data to estimate load reductions
Use field crews to identify IDIC issues while conducting their normal activities	Number and location of problem areas identified	1,2	• Identify # of and location of problem areas of "hot spots

3. Upon identification of an illegal connection, investigate and eliminate the connection through a variety of mechanisms including, but not limited to, permitting or plugging the connection:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Investigate and eliminate reported illicit connections	Number of inspections conducted	1	• Identify that inspections were completed
	Number of sites with illicit connections	1-4	• % sites with illicit connections • % sites year to year with illicit

			connections • Use monitoring and inspection data to estimate load reductions
Review plans	Number of plans reviewed	1	• Compare # of plans reviewed vs. # with identified illicit connections
	Number of plans with illicit connections	2	• % plans year to year with illicit connections

4. Upon identification of an illicit discharge, investigate the discharge and conduct any necessary follow up actions to mitigate the impacts of the discharge:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Respond to complaints of illegal discharges	Number and location of responses conducted	1	• Identify that responses were completed
	Types and estimated quantity of pollutants and activities involved in the complaints	1	• Types of pollutants and activities involved in the incidents.
	Number and location of responses requiring cleanup	1,2	• % responses requiring cleanup
	Number and location of responses requiring follow up inspections	3	• % responses requiring additional follow up • % responses by type of pollutant and activity (source of pollutant)
	Available sampling results responses	4	• Use monitoring and inspection data to estimate load reductions

5. Provide adequate legal authority and implement a progressive enforcement policy to ensure that adequate enforcement is conducted:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Progressive Enforcement Policy	Develop enforcement policy/mechanisms	1	• Identify that the policy was developed
	Number and types of corrective and enforcement actions	1	• Identify # and types of enforcement actions taken • % enforcement actions major vs. minor

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
	Number of repeat offenders and/or problem areas identified	2	• Identify # of repeat offenders/problem areas identified • Identify % change in enforcement actions from year to year

6. Conduct training for Port employees who are responsible for identification, investigation, termination, cleanup, reporting, and enforcement of illicit discharges and illegal connections:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Conduct training for inspectors/ responders	Training modules developed	1	• Identify training modules were developed
	Number of attendees at training session(s)	1	• Identify # of attendees at training sessions
	Results of evaluation forms from attendees (was presentation effective?)	2	• Results from evaluation forms
	Results from classroom quizzes	2	• Results from evaluation quizzes
	Percent improved before and after survey/quiz	2	• % increase in awareness before and after the training • % awareness from year to year

Public Outreach

Overview

The Port of Stockton has continually invested in the education of its tenants, staff, and the general public during the previous permit term. The Port has utilized various methods to convey storm water information to its target audiences, such as:

- Workshops;
- DVDs;
- Brochures; and
- Events.

Objectives

The Port implements a public outreach program using all media as appropriate to: 1) measurably increase the knowledge of the targeted communities regarding the Port's MS4, impacts of urban runoff on receiving waters, and potential BMP solutions for the target audience; and 2) change the behavior of targeted communities, thereby reducing the likelihood of pollutant releases into the Port's MS4 and the environment. The "targeted communities" at the Port of Stockton include tenants, developers, contractors, utility companies, ship operators, stevedores, and Port staff. To accomplish the Port's public outreach goals, the following are the objectives addressed in this SWMP program element:

1. Encourage the public to actively participate in the implementation of the storm water program, as well as the various outreach events;
2. Promote the use of the 24-hour public reporting hotline;
3. Implement a public education strategy for the overall program that includes the following efforts:
    - Developing and distributing materials (BMP fact sheets, brochures, etc.),
    - Conducting mixed media campaigns (DVDs, website, print ads, signage, etc.),
    - Participating in community outreach events,
    - Conducting public opinion surveys to gauge the level of awareness and behavior change within a community and/or target audience, and
    - Coordinating with other local agencies (City of Stockton, County of San Joaquin, etc.) to share messaging programs.
4. Implement a business outreach program; and

5. Conduct an annual assessment for the Annual Progress Report to determine the effectiveness of the Public Outreach Program Element and identify any necessary modifications.

Public Participation

General Outreach – General outreach is directed to all of the above mentioned groups and anyone else visiting the Port. General outreach that the Port plans to conduct during the permit term includes:

- **Storm Water Workshops** – Prior to the first day of the wet season (October 1st), the Port's Environmental Department hosts a Storm Water Manager's workshop for all of its tenants and the community. Information concerning pollution prevention, the State's General Industrial Permit, sample collection and analysis, and other aspects of the Port's storm water program is provided to the attendees. The Port also invites the regulatory community (RWQCB staff) to attend and to participate in the workshop.
- **Got SWPPP? Storm Water Workshop** – "Got SWPPP?", a successful annual storm water workshop, is hosted each year by the Port of Stockton. This event is open to Port employees, Port tenants, local industrial facilities, and storm water industry individuals. The purpose of the "Got SWPPP?" event is to provide storm water education to personnel from industrial facilities, commercial facilities, construction contractors, and Port operations staff. Each event's theme changes to focus on a different aspect of industrial/commercial, construction, or municipal activities.
- **Coastal Cleanup Day** – Annually, the Port's Environmental Staff participates in the California Coastal Cleanup Day held every September. During these events, Port staff and other volunteers work together to remove trash and debris from area roadways and waterways.

  Ship Operator Outreach - The Port conducts outreach to ship operators that dock at the Port. This outreach includes information on the international agreements concerning ballast water intake and discharge; vessel, equipment, and deck washing; spill prevention and reporting programs; and unloading and loading BMPs. The Port provides ship operators with informational brochures and a completed inspection checklist with recommendations for corrective action.

- **General Public Events** – The Port's Environmental Department continues to participate in several large venue events for the general public and present storm water educational materials and information. Past events have included the Stockton Chamber of Commerce Rexpo, the Stockton Asparagus Festival, Earth Day events in Stockton, Green Day events at the Stockton Ports' minor league baseball games, and Green Night events at the Stockton Thunder minor league hockey games.
- **Regional Storm Water MS4 Partnership Group** – The Port participates with the San Joaquin Storm Water Quality Partnership in order to collaborate with other local MS4s in outreach events, feasibility studies, and other compliance activities. This collaboration allows for storm water communications to reach larger audiences.

Hotline

The Port of Stockton educates its tenants, employees, and contractors about the 24-hour spill / incident reporting system. The reporting system consists of the Port's 24-hour main phone number (209) 946-0246 and information posted on the Port's Website, [www.portofstockton.com].

Public Outreach Implementation

Tenant Inspections – Outreach to the Port's tenants includes handing out brochures, DVDs, BMP information, and communication between field inspectors and tenants to address any questions and concerns. The Port estimates that over 400 tenant inspections and outreach visits were conducted during the previous permit term.

During the annual inspection of the Port's tenants, the Port provides each tenant with information concerning pollution prevention and the Port's storm water management requirements. Informational brochures and other materials (including a completed inspection checklist with recommendations for improvement) are provided to each tenant that is inspected.

Construction Inspections - Outreach to the ongoing construction projects at the Port includes handing out brochures, DVDs, and BMP cut-sheets, and recommendations from the inspector on BMP sizing, questions, or concerns. The Port estimates that over 500 construction inspections and outreach visits were conducted during the previous permit term.

Port Employee Training Sessions – The Environmental Department provides annual storm water training to the Port Police, Maintenance Department, stevedores, and environmental personnel during the permit term. The focus of the storm water training classes includes:

- Best Management Practices / Good Housekeeping Techniques;
- Illicit Discharge Detection and Elimination;
- Sampling and Monitoring Protocol; and
- Erosion and Sediment Control.

Effectiveness Assessment

The following are measureable control measures used to evaluate the effectiveness of the Port's public outreach element of the SWMP in which the outcome level for each is identified:

1. Encourage the Port "public" to actively participate in the implementation of the storm water program, as well as, the various outreach events and promote the use of the 24-hour public reporting hotline. The Port's "public" includes the various Port departments, employees, and the tenants.

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Review of the storm water program by the Port departments, employees, and tenants	Completion of the public review of the proposed SWMP and resulting modifications	1	• Identify if the SWMP public review was completed • Identify what modifications were made based on the public review
Organize and participate in clean up events	Solicit volunteers	1	• Identify how volunteers were solicited
	Number of events and volunteers participating in the events	1	• # of events and volunteers from year to year
	Total volume and types of trash/materials removed during clean up events	2-4	• Volume and types of materials removed from year to year (% change over time) • Amount of material disposed of correctly

2. Implement a public education strategy for the overall program that includes the following efforts:
    - Developing and distributing materials (BMP fact sheets, brochures, etc.),
    - Conducting mixed media campaigns (DVDs, website, print ads, signage, etc.),
    - Participating in community outreach events,
    - Conducting public opinion surveys to gauge the level of awareness and behavior change within a community and/or target audience, and
    - Coordinating with other local public entities to increase audience reached.

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Develop public education strategy	Develop comprehensive public education strategy for overall program	1	• Identify if the SWMP public review was completed
	Functionally update strategy periodically (about every 3 years)	1	• Identify what modifications were made during the update.
Develop and distribute materials (BMP fact sheets, brochures, magnets, etc.)	Develop materials for outreach campaigns	1	• Identify that materials were developed • Identify any modifications
	Number of materials distributed	1	• Identify # of types of materials distributed • # of impressions made
	Number of website hits	2	• # of website hits • # of impressions made
Conduct mixed media campaigns (DVDs, website, print ads, signage, etc.)	Number and types of campaigns conducted	1	• Identify # and types of campaigns • # of impressions made
Community outreach events	Number of events program participates in	1	• Identify # of impressions year to year • % impressions by type of activity
Number of impressions	Identify total number of impressions made by the program (distribution of materials, mixed media campaigns, and outreach events)	2	• Identify # of impressions year to year • % impressions by type of activity
Public surveys	Conduct public surveys periodically (about every 3 years)	1-3	• Identify that surveys were completed • Identify changes in results from year to year • % awareness from baseline/other surveys • % awareness for particular issues • Identify linkages between survey results and impressions • Identify linkages between media campaigns and survey results

3. Implement a business outreach program:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Develop and distribute materials to businesses (BMP fact sheets, brochures, etc.)	Develop BMP fact sheets/ brochures	1	• Identify that materials were developed
	Number of fact sheets/brochures distributed	1	• Identify # of types of materials distributed
	Provide surveys/ short quizzes to businesses	2	• % awareness from baseline/ other surveys
Conduct site visits (may be conducted as part of the industrial and commercial program)	Number of site visits	1	• Identify that site visits were completed
	Number of sites adequately implementing BMPs	3	• % sites implementing and maintaining BMPs

Planning and Land Development Program

Overview

The purpose of the Development Standards program element is to establish storm water related standards for new development and areas of significant redevelopment at the Port. These standards require that construction and post-construction storm water control measures be incorporated into the design of the new development or facility improvement project. The control measures, which include mandatory minimum BMPs, drainage zone specific BMPs, and mandated treatment options for the *State of California Priority Categories* and Port-specified industries, are specified in the Port's Development Standards Plan (DSP). The DSP became effective on February 17, 2006. The Port's renewed MS4 Permit (Order No. R5-2011-0005) required the Port to revise the DSP and submit a revised DSP to the RWQCB by February 3, 2012, or one year after the adoption of the SWMP, whichever is later. Since the SWMP has not yet been approved, the DSP due date has not yet arrived.

Construction projects at the Port are required to go through the City of Stockton plan check and permitting process. The Port also reviews all proposed construction projects for applicability to the DSP. The Port has incorporated the following control measures to assure that projects are reviewed and appropriately conditioned with the DSP requirements.

1. The Port Properties Manager has been assigned the responsibility to determine the applicability of the Port's DSP to proposed projects.
2. The Port has contracted with an engineering firm to review DSP submittals and construction plans for proposed projects to determine their conformance to the design standards and criteria in the Port's DSP.
3. A database is used to track information on all new development and redevelopment projects including applicability, potential pollutants, and selected control measures and BMPs.
4. A section addressing the DSP applicability has been added to the Construction Management Fact Sheets which are required of all construction projects at the Port, regardless of size.

Objectives

The objectives of the Planning and Land Development Program are as follows:

1. Provide a framework and a process to incorporate water quality and watershed protection principles into the Port's policies and planning procedures early in the development process;
2. Develop a program that covers initial project planning through design, construction and completion, including requirements for long-term maintenance of post-construction storm water controls;
3. Ensure storm water quality components have been addressed during the initial design and CEQA processed and verified as complete during the development plan process;
4. Ensure that selected post-construction storm water controls will remain effective upon project completion by requiring a maintenance agreement and transfer for all priority development projects;
5. Develop a formal system to track the deployment, ownership, and maintenance history of BMPs to ensure adequate long-term maintenance of the BMPs;
6. Ensure that storm water quality controls are properly selected and required during the development plan review process to minimize storm water quality impacts to the MEP;
7. Ensure that appropriate selected post-construction storm water controls are chosen on the basis of project- and site-specific conditions and land use characteristics, as well as receiving water impacts;
8. Provide regular internal training on applicable components of the SWMP; and
9. As a part of the annual reporting process, conduct an assessment (at least annually) to determine the effectiveness of the Program Element and identify any necessary modifications.

Incorporation of Water Quality Protection Principles into Port's Procedures and Policies

The Port has incorporated water quality and watershed protection principles into its planning procedures and policies, and requires implementation of consistent water quality protection measures for all development projects. These principles and policies are designed to protect natural water bodies, reduce impervious land coverage (such as through low impact development design), slow runoff to prevent hydromodification of waterways, and where feasible, maximize opportunities for infiltration of rainwater into soil. Many of the following water quality and watershed protection principles and policies have been incorporated into the DSP approved by the RWQCB in 2006. The Port will modify its DSP to include the balance of these principles and policies within one year after the approval of the Port's SWMP:

- Minimize the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment and, where feasible, maximize on-site infiltration of runoff (e.g., low impact development practices).
- Implement pollution prevention methods supplemented by pollutant source controls and potentially treatment. Use strategies that control the sources of pollutants or constituents (i.e., the point where water initially meets the ground) to minimize the transport of urban runoff and pollutants offsite and into the MS4.
- Preserve, and where possible, create or restore areas that provide important water quality benefits, such as riparian corridors, wetlands, and buffer zones.
- Minimize disturbances of natural water bodies and natural drainage systems caused by development including roads, highways, and bridges.
- Use methods available to estimate increases in pollutant loads in runoff flows resulting from projected future development. Require incorporation of structural and non-structural BMPs to mitigate the projected increases in pollutant loads.
- Identify and avoid development in areas particularly susceptible to erosion and sediment loss; and establish and implement development standards that protect areas from erosion and sediment loss.
- Coordinate with local traffic management programs to reduce pollutants associated with vehicles and increased traffic resulting from development.
- Implement source and/or treatment controls to protect downstream receiving water quality from increased pollutant loads in runoff flows that may occur from new development and significant redevelopment.
- Control the post-development peak storm water run-off discharge rates and velocities to prevent or reduce downstream erosion, and to protect stream habitat (reducing hydromodification).
- Develop a low impact development (LID) program and incorporate into the DSP.

Plan Review Sign-Off

Engineering Review - The Port has contracted with an engineering firm to review all current and future development and significant re-development projects for DSP applicability and ensure that all future project plans are adequately conditioned and implemented for compliance with the Development Standards Plan.

Maintenance Agreement and Transfer

The Port requires a written maintenance plan and signed transfer agreement to be submitted with each DSP submittal. The maintenance plans and post-construction BMP inspections are documented in the Port's environmental database.

Training

The Port provides annual training to employees in targeted positions to ensure those employees are knowledgeable about the DSP requirements, policies, and process.

Performance and Effectiveness Evaluation

The following are measureable control measures used to evaluate the effectiveness of the Port's development standards element of the SWMP in which the outcome level for each is identified:

1. Provide a framework and a process to incorporate water quality and watershed protection principles into the Port's policies and planning procedures early in the development process:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Review/revise Port-wide development plans	Completion of review and modification of the Port's development plans.	1	• Identify if incorporation of principles was completed.
Review/revise CEQA checklist	Completion of review and modification of CEQA checklist as necessary	1	• Identify if legal review was completed
Review tariffs and lease language; and modify as necessary	Completion of review and modification/adoption of revised/new codes/ordinances	1	• Identify what modification(s) were made

2. Develop a program that covers all phases of a project from initial project planning through design, construction and completion, including requirements for long-term maintenance of post-construction storm water controls:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Develop Guidance	Development of a Guidance Document	1	• Identify if documents were completed • Identify any modifications

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Develop Design Standards	Development of Design Standards to provide detailed information	1	• Identify if Design Standards were completed • Identify any modifications

3. Ensure storm water quality components have been addressed during the initial design and CEQA processes and verified as completed during the development plan process. Ensure that storm water quality controls are properly selected and required during the development plan review process to minimize storm water quality impacts over time to the MEP. Ensure that appropriate selected post-construction storm water controls are chosen on the basis of project- and site-specific conditions and land use characteristics, as well as receiving water impacts:

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Develop conditions of approval	Development of conditions of approval	1	• Identify if documents were completed • Identify any modifications needed
Develop/modify review checklist	Development /modification of plan review checklist	1	• Identify if checklist was completed • Identify any modifications
Review project plans and prioritize projects	Number of plans submitted	1	• Compare # of projects submitted to # priority
	Number, types, size and locations of priority projects	1	• Compare # of projects reviewed vs. # of projects requiring revisions year to year • # of types of controls incorporated year to year • # and types of controls incorporated year to year
	Number and types of projects requiring revisions	2	• % of plans year to year incorporating controls and not requiring revisions • % of plans requiring major vs. minor revisions • # of review cycles per plan needed
	Number and types of site design, source controls and treatment controls incorporated into plans	2-3	• # of sites year to year incorporating various types of controls
	Total number of projects approved	2-3	• # of approved projects year to year
	Total acreage covered by total number of projects and priority projects	1	• # of sites year to year approved/total acreage

4. Ensure that selected post-construction storm water controls remain effective upon project completion by requiring a maintenance and transfer agreement for all priority development projects. Develop a formal system to track the deployment, ownership, and maintenance history of BMPs to ensure adequate long-term maintenance of the BMPs;

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Develop storm water maintenance agreement	Development of maintenance agreement and incorporation into project approval process	1	• Identify if documents were completed • Identify any modifications needed
	Number of plans approved submitting maintenance agreements	1-2	• # of plans with maintenance agreements year to year
	Number of maintenance agreements executed	1	• # of agreements executed year to year

5. Provide regular internal training on applicable components of the SWMP; and

Task	Data Collected	Outcome Level	Assessment Method and Comparison with Goals and Baselines
Conduct training for planners, inspectors and developers	Training module developed	1	• Identify training modules were developed
	Number of attendees at training session(s)	1	• Identify # of attendees at training sessions
	Results of evaluation forms from attendees (was presentation effective?)	2	• Results from evaluation form
	Results from classroom and/or field quizzes	2	• Results from evaluation quizzes
	Percent improved before and after survey/quiz	2	• % increase in awareness before and after the training • % awareness change from year to year

Section 3 - Monitoring Program

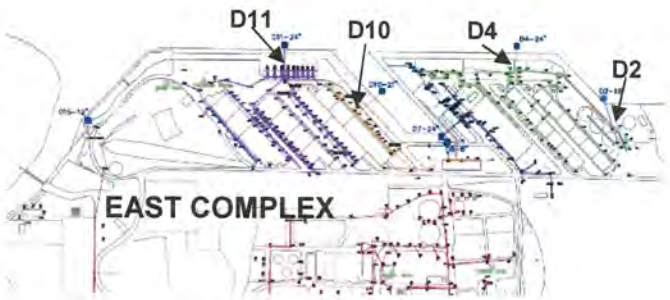
Summary of the Monitoring Program for Order No. R5-2011-0005

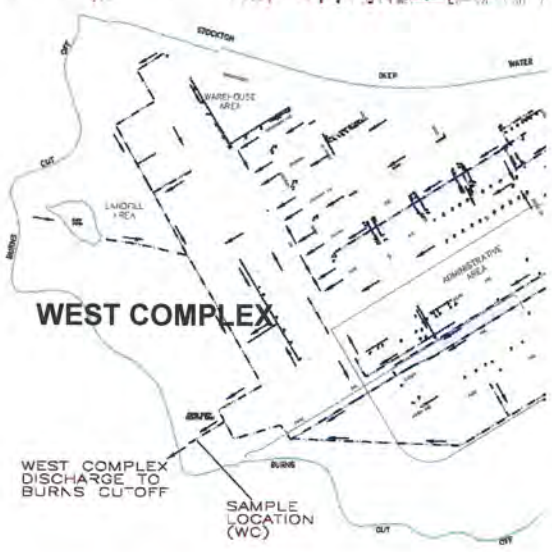
The following is a summary of the Monitoring and Reporting Program (MRP) required by the Port's Permit, Order No. R5-2011-0005. Refer to the Sampling and Analysis Plan (SAP) presented in **Appendix 9**, and the Quality Assurance Plan (QAP) presented in **Appendix 10**, for detailed information about the monitoring program including sampling logistics, procedures, rules of engagement, quality assurance / quality control features, maps, equipment lists, and the sampling training program.

Direct Discharge Monitoring

The Port currently has five direct discharge monitoring locations: East Complex outfalls D2, D4, D10, and D11; and the West Complex outfall/pump station (WC). During the 2007/2008-season, the Port successfully eliminated direct discharge monitoring locations D7, D8, and D15. Each direct discharge sampling station is located at the last manhole or drain inlet and is fitted with a sample collection tube, which allows storm water runoff to be pumped from the storm drainage pipe prior to discharging to the receiving water.

The Port attempts to obtain samples of MS4 runoff and the surrounding receiving waters every year during three qualifying storm events and two dry weather monitoring events as specified in the MRP for the Port's MS4 permit. A qualifying event is defined as a rain event that is preceded by at least 30 dry weather days for the first flush event, 3 dry weather days for subsequent storm events, and 7 preceding dry days for a dry weather monitoring event. Monitoring will only occur during normal daylight business hours (when the Port Docks are open for business), except for the first-flush, even if the rain event occurs on weekends and holidays. A qualifying storm event must produce enough precipitation to produce a continuous discharge of storm water for an hour or more to be considered a significant and representative discharge.



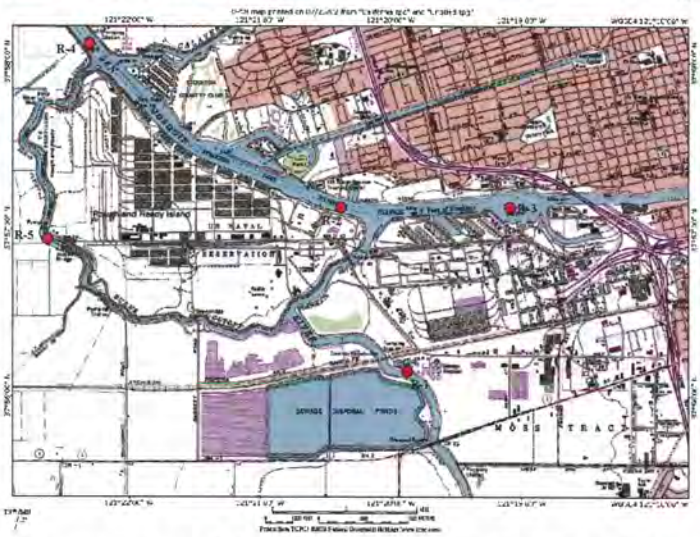


Direct discharge samples are collected in the manner prescribed in the MRP as either grab or composite samples. To the extent possible, grab samples are collected within the first 60 minutes of

discharge to the receiving water. If it is impracticable to collect a sample within the first hour, samples are collected as soon as possible and the reason for the delay is documented on the field sampling log sheet. Composite samples are manually collected by taking three equal aliquots during the first three hours of discharge. However, if it is not possible to collect the composite sample in this time frame or obtain all three aliquots because of the termination of the storm or daylight hours, the composite sample is collected in a shorter time period with less aliquots or as a grab sample. Deviations are documented on the field sampling log sheet. Samples are collected in accordance with the *EPA Stormwater Sampling Guidance Document (EPA 833-8-92-001)*. The direct discharge composite and grab samples are analyzed for the parameters specified in the MRP.

Receiving Water Monitoring

The receiving water samples (identified as locations R1 – R5) are collected from the locations specified in the MRP whenever there is a qualifying direct discharge sampling event during business hours when it is safe to do so. Samples are collected from mid-stream of the water body by lowering a submersible centrifugal pump from a boat to approximately the mid-depth level. The boat typically used for sampling is equipped with a depth meter. The samples are collected during daylight hours within a representative window of the commencement of the discharge to the receiving water. During the 2005/2006 season, the RWQCB staff communicated to the Port that there is little value in collecting direct discharge samples without receiving water samples, because of the importance of comparing these analytical results. The Port has found that a minimum of one hour of daylight is needed to collect the receiving water samples and two hours of daylight is needed if toxicity samples are to be collected. Since the receiving water samples are required to be collected in a manner representative of the commencement of the urban runoff discharge, the Port will not commence direct discharge sampling if storm water discharge starts less than three hours before sunset. In summary, for storm events in which 0.1" of rain falls more than three hours before sunset, the direct discharge and receiving water samples are collected that same day. For storm events in which 0.1" of rain falls within three hours of sunset, or after sunset and before sunrise, the Port samples both the direct discharge outfalls and receiving water beginning at sunrise if the storm event did not cease during the night.



Port Owned Industrial Monitoring

The MRP requires sampling of the following areas of Port-owned industrial activity.

Maintenance Shop;

- Fleet Fueling Area;
- Equipment Wash Pad; and
- Fertilizer Warehouses.

The Port's Environmental Department has prepared and implemented a Facility Water Pollution Prevention Plan (FPPP) that covers these areas. Each May, the Port Environmental Department performs an Annual Comprehensive Site Compliance Evaluation (ACSCE) that includes an inspection of these Port-operated industrial activities and a review of the FPPP.

The monitoring program includes monthly storm water observations of qualifying discharges, quarterly non-storm water observations, and twice-a-year sampling of qualifying storm events. The monitoring results are submitted with the municipal Annual Report.

Water Column Toxicity Monitoring

The Permit requires that toxicity samples be collected from each upstream / downstream water monitoring station (locations R1, R2, R3, R4 and R5), the West Complex pump station (WC), and the Retention Basin (when it discharges to the San Joaquin River) for three qualifying storm events separated by 7 days of dry weather, and for two dry weather monitoring events (if a discharge is occurring). The Permit specifies that toxicity receiving water samples be collected at mid-depth and in mid-stream of the receiving water locations. Toxicity sampling is required to be performed for two of the five years (and not back-to-back years) of the Permit's term during the same three municipal monitoring events for which receiving water and runoff discharge are monitored. Due to the fact that the Retention Basin does not discharge into the receiving water during every storm event, or even every year; the Retention Basin toxicity testing does not necessarily coincide with the direct discharge-related toxicity samples. Retention Basin toxicity samples are collected from water impounded in the Retention Basin and the upstream and downstream receiving water (R1 and R2) in the San Joaquin River for discharge events occurring during the toxicity testing years.

Dry Weather Field Monitoring

The Port conducts dry weather screenings to identify and eliminate unauthorized non-storm water discharges. If non-storm water discharges are occurring, representative up-gradient locations and outfalls having sufficient flow will be field-tested for temperature, chlorine, specific conductance (EC), turbidity, and pH; and laboratory analyzed for phenols, total copper, and Methyl Blue Activated Substances (MBAS, i.e. detergents/ surfactants). In addition, two dry-season discharges per year from MS4 discharge outfalls (If a discharge is observed) will be tested for the constituents listed on Table B1 of the MRP. The Port will provide follow-up investigation to verify the presence of an illicit connection if the following action levels on Table E are exceeded:

Table E. Dry Weather Field Screening Action Levels

Constituent	Units	Action Levels
Phenols	mg/L	>0.017
Total copper	mg/L	>2
Electrical Conductivity	µmhos/cm	>700
Methyl Blue Activated Substances (MBAS)	mg/L	>0.275
Turbidity	NTU	>55

Ship Loading and Unloading Monitoring

A Port environmental representative inspects all loading/unloading equipment and conducts daily inspections of ship loading and unloading activity. A ship loading/unloading BMP checklist has been incorporated into the Port's Daily Rounds inspection form. Any abnormal conditions or equipment issues, such as equipment repairs and suggested corrective measures, are noted on the last page of the checklist. Follow-up inspections are performed for inspections that were marked as needing corrective measures. If the product being loaded/unloaded has been released to the receiving water, the Port samples the receiving water at the point of release and also upstream and downstream of the release to determine the impacts, if any, of the release.

Section 4 - Water Quality-Based Programs

The Port will continue to implement the target pollutant identification and prioritization processes as described within this SWMP. Target pollutant identification and prioritization will continue through key evaluation criteria to determine pollutants that may cause or contribute to exceedances of water quality standards in the receiving waters and known or probable impairment of beneficial uses. During this permit term, the following programs will be developed and then implemented if pollutants are determined to be found in significant quantities in the Port's storm water discharges. As required by the MRP, the Port will include a comprehensive analysis of these Water Quality-Based Programs in the Port's 2016 Annual Report.

Pesticide Toxicity Control Program

- The Port will implement and update its Pesticide, Herbicide, and Fertilizer Management Plan, including addressing internal use and use within the Port jurisdiction of pesticides (including use restrictions on diazinon and chlorpyrifos).
- IPM procedures will be integrated into the Port's municipal operations by the following:
    - Implementing pesticide, herbicide, and fertilizer application protocols at Port maintained sites, landscaped medians, and the golf course;
    - Implementing the IPM program;
    - Maintaining and expanding internal inventory on pesticide use;
    - Implementing landscaping practices promoting native plants and IPM; and
    - Providing routine training for Port employees on IPM practices and the IPM Policy.
- The Port will plan the following IPM public outreach program:
    - The Port will coordinate with the County Agriculture Commission, UC Cooperative Extension program, and/or interested stakeholders, and provide targeted information concerning proper pesticide use and disposal, potential adverse impacts on water quality, and alternative, less toxic or non-toxic methods of pest prevention and control, including IPM;
    - The Port will coordinate with the San Joaquin household and small business hazardous waste collection agency to support, enhance, and help publicize programs for proper pesticide disposal;
    - The Port will continue mechanisms to encourage the consideration of pest-resistant landscaping and design features in the design, landscaping, and/or environmental reviews of proposed development projects. Education programs shall target individuals responsible for these reviews and focus on factors affecting water quality impairment; and

- The Port conducted and submitted an assessment that reviewed whether the Port's MS4 discharge was causing an exceedance of water quality standards and/or TMDL allocations for diazinon and chlorpyrifos. MS4 discharges were determined not to be causing or contributing to any exceedance, so the Port did not need to determine the relative effect of the MS4 discharge to diazinon and chlorpyrifos levels in waters within its jurisdiction that are identified as toxic hot spot (per § 13394 of Porter-Cologne) or are on the CWA 303(d) list.
- The Port, through the San Joaquin Storm Water Quality Partnership, will support and participate in efforts to influence pesticide regulatory activities by state and federal agencies, with respect to promoting adequate evaluation and regulation of pesticide uses that may have a significant potential to impact receiving waters through discharges of urban runoff.
- The Port will work with the pesticide control stakeholders and other municipal storm water management agencies (such as the San Joaquin Storm Water Quality Partnership) to assess which pesticide products and uses pose less risk to surface water quality. When applicable, such products will be incorporated into the Pesticide Plan.

Low Dissolved Oxygen Plan

The Port of Stockton has been active in participating in research, studies, pilot systems, and stakeholders groups that have been working towards improving the dissolved oxygen (DO) levels in the San Joaquin River and the Stockton Deep Water Ship Channel. The Port will continue to implement a Low Dissolved Oxygen Plan, relative to its MS4 discharge. The Low Dissolved Oxygen Plan is presented in the SAP located in **Appendix 9**.

- The Port actively participates in studies, modeling, and aeration projects with the San Joaquin River Dissolved Oxygen Technical Working Group. The following website (http://www.sjrdotmdl.org/index.html) includes a list of relevant meetings, research, studies and other resources.
- In accordance with RWQCB Order No. R5-2006-0078 (Dredging Permit), the Port constantly monitors the dissolved oxygen levels in the Deep Water Ship Channel and, at predetermined seasonally variable low dissolved oxygen periods, the Port operates its aeration unit to inject specified amounts of dissolved oxygen into the channel as required in the Port's dredging permit.
- The Port coordinates with other aerator operators such as the California Department of Water Resources (DWR) in the sharing of information, monitoring results, studies, and resources to assist with their aeration projects.

As a part of its ongoing Low Dissolved Oxygen work, the Port will continue to perform the above functions and will also do the following:

- Identify areas and/or activities, which contribute, via urban runoff, to low DO concentrations in the receiving water, such as areas of natural vegetation, animal and bird wastes, discharges of food wastes, fertilizer and other oxygen demanding substances and their

precursors, or direct discharges from existing collection systems due to sanitary sewer system overflows or blockage.

- Continue participation in the San Joaquin River DO TMDL Technical Working Group (TWG).
- Coordinate with other aerator operators and agencies/organizations performing dissolved oxygen monitoring programs in the Delta waters in the sharing of information, monitoring results, studies, and resources.
- By September 1, 2011, the Port completed an assessment to determine if MS4 discharge was causing an exceedance of water quality standards and/or the TMDL allocation for DO. The data was included in the 2010-2011 Annual Report and showed no evidence of the Port contributing to D.O. exceedances. If MS4 discharge had been causing an exceedance, then the Port would have determined the relative effect of MS4 discharge to low DO levels in waters within its jurisdiction that are identified on the CWA section 303(d) list, and compiled a report that identified the BMP approach that would have been implemented to address areas and/or activities. However, because no DO problems were demonstrated in relation to stormwater discharges, this work was unnecessary.
- Despite the findings in 2011, the Port continues to implement the Port's Dissolved Oxygen Monitoring Plan, including monitoring dissolved oxygen during sampling events in the receiving water and urban storm water discharges.

Total Mercury and Methylmercury Control Program

Whether or not the Port is determined to be a contributor of mercury and/or methylmercury, the Port has developed and is implementing a mercury pollution prevention program. The goal of the mercury control program is to reduce methylmercury exposure to humans and wildlife in the Delta due to potential contributions from the Port. The following program elements are being undertaken for mercury pollution prevention:

Mercury Collection and Recycling Implemented throughout the Port District – The Port will promote, facilitate, and/or participate in collection and recycling of mercury containing devices and equipment for the tenants and businesses within the Port. The Port will also promote and facilitate the collection, recycling and/or diversion of mercury-containing waste products (e.g. gauges, batteries, fluorescent and other lamps, switches, relays and sensors) from the waste stream from industrial and commercial entities. The Port, when possible, will collaborate with the County of San Joaquin to achieve compliance.

- Port will evaluate reduction of mercury-containing devices from its municipal operations.
- The Port will describe alternative ways to establish or improve proper handling, disposal and recycling.
- The Port will report on the above efforts in the Annual Report and will include an estimate of the mass of mercury collected and diverted.

- **Public Education, Outreach and Participation Program** – The Port will add mercury pollution prevention messages to the Public Outreach and Education Element designed to reach the commercial and industrial tenants that use or have sources of mercury-containing products or emissions. The messages will include information about mercury contamination in fish and Department of Public Health fish consumption advisories.

  As part of the mercury control programs, the Port will:

  - Coordinate with the county-wide universal waste management strategy.
  - Explore participation with other organizations to develop programs to reduce or eliminated sources of mercury.
  - Include all efforts related to mercury pollution prevention control (e.g. fluorescent bulb collections, public outreach, sustainable funding mechanisms, and U-waste tonnage tracking) in the Annual Report. Activities, along with an effectiveness evaluation of the mercury control programs, and recommendations for amendments and improvements.

- **Monitor Methylmercury** – The Port will either solely or jointly with other municipalities in runoff discharges with the objective to investigate drainages to obtain seasonal information and assess methylmercury concentrations.
  - The Port will analyze grab samples already being collected for total mercury analysis for methylmercury as specified in the MRP and SAP.
  - The Port began reporting monitoring results annually beginning with the 2012 Annual Report.

Additional program elements will be developed if the Port is determined to be a contributor, including the following:

- **Methylmercury Control Studies** – Once the US EPA approves the Delta Mercury Control Program, the Port will conduct methylmercury control studies. The studies will quantify methylmercury loads and loads reduced through source control, treatment and other management measures.
  - The Port will plan on submitting a Control Study Workplan within nine months of the US EPA Delta methylmercury TMDL approval date.
  - The Port will submit the following reports in compliance with the timeline outlined by the RWQCB:
    - Control Studies progress report (Four years after the US EPA Delta methylmercury TMDL approval date)
    - Control Studies and Final Report (Seven years after US EPA Delta methylmercury TMDL approval date)

- **Methylmercury Exposure Reduction Program** – Once US EPA approves the Delta Mercury Control Program, the Port will participate in the Mercury Exposure Reduction Program (MERP). If it is determined the Port is a substantial contributor based on the annually estimated loads and additional participation is required, then the Port may complete an Exposure Reduction Strategy as follows:
    - Within one year after the US EPA Delta methylmercury TMDL approval date, the Port will plan to work with the RWQCB staff, and local public health agencies and other stakeholders to develop a recommendation on how the Port will be responsible for participating in an ERP. [In addition, the Port will set performance measures, and propose a collaborative process for developing, funding and implementing the program.]
    - Within two years after the US EPA Delta methylmercury TMDL approval date, the Port will submit an Exposure Reduction Workplan for Executive Officer.
    - The Port will implement the Workplan within six months after Executive Officer's approval of the Workplan.
    - Within three years after the Workplan implementation and every three years after, the Port will submit progress reports to the Executive Officer. The Port will participate in the Exposure Reduction Program until compliance is achieved with all requirements related to the methylmercury allocation.

BMP Effectiveness Study

As described in Section 2 under the sub-section "Municipal Operations" of this SWMP, the Port will continue to conduct the BMP effectiveness and feasibility studies started last permit term. These studies will monitor the reduction of pollutants of concern in storm water. Monitoring will be continued until the effectiveness can be determined. The BMP evaluation will include requirements for installation and maintenance costs. Recommendations will be made for appropriate BMPs for the reduction of pollutants of concern in storm water at the Port.

Retention Basin Monitoring

The Port has prepared a Retention Basin Monitoring Work Plan, which is included in the SAP in **Appendix 9** of this SWMP. The work plan is designed to perform inflow, outflow, and sediment chemistry/toxicity monitoring of one retention basin serving multiple land uses. Monitoring will be designed to evaluate the effectiveness of the retention basin(s) in removing pollutants of concern and determining whether retention basin(s) stimulate methylmercury production.

Section 5 - Program Implementation, Evaluation, and Reporting

Annual Work Plan

By April 1 of each year, the Port will submit a Work Plan of proposed activities for the upcoming storm water year (July 1 – June 30.) The Work Plan will conform to the program commitments contained in the SWMP, but may contain additional actions the Port will be taking or additional detail on commitments made in this SWMP.

Annual Evaluation

Each year, in preparation for the annual reporting process, the Port will perform an effectiveness assessment and reporting evaluation of its MS4 program. This assessment will be done in accordance with the guidelines established in the *California Stormwater Quality Association* (CASQA) Municipal Stormwater Program Effectiveness Assessment Guidance (May 2007.) CASQA recommends the use of a six tiered effectiveness evaluation, which was demonstrated for the last permit term in each of the program elements presented in this SWMP. The highest goal is obtaining the sixth level where the MS4 can demonstrate protection of receiving water quality. The Port will present the evaluation results in the annual report for each year. Towards the end of the last year of the permit term and in conjunction with the ROWD preparation, the Port will perform this same evaluation for the entire permit term.

Annual Reporting

The annual report for the Port's SWMP will be submitted by September 1 of first four years of the permit term and will cover the previous storm water year, July 1 through June 30. During the last year of the permit term, a ROWD will be submitted to the RWQCB no later than 180 days prior to the expiration of the permit and will be in lieu of the annual report. The ROWD will consist of a cover letter, EPA Form 200 NPDES Permit Renewal Application, and a draft revised SWMP.

Appendix 1

Port of Stockton List of Tenants

2011 List of Tenants
Port of Stockton

Company	Complex	Sector	PhysicalLocation	Bldg. #	Whse. Sect.	Suite	First	Last	Phone	Fax	Email	Address1	Address2	City	State	Zip
ADA Inc	West	40	One acre of land on the corner of Daggett Rd. & McCloy Rd.		N/A		Michael	Vilarino	(209) 461-6420	(209) 461-6424	vilarino@earthlink.net	743 W. Anderson St.		Stockton	CA	95206
Advanced Polymer Technologies	West	50	Warehouse 510	510	West		Steven	Kessler	(209) 464-2701	(209) 464-5760	skessler@aptllc.net	510 Gilmore Ave., Suite C		Stockton	CA	95203
Alco Iron & Metal Co.	East	130	Area A-1		N/A		Kem	Kantor	(510) 562-1107	(510) 562-1354	KemKantor@aol.com	1091 Doolittle Drive		San Leandro	CA	94577
Alco Iron & Metal Co.	East	130	Area A-1		N/A		Joe	Simi	(209) 939-9310	(209) 939-9311	joesimi@alcometals.com	1091 Doolittle Drive		San Leandro	CA	94577
Alfalfa Supply	West	40	Warehouse 818	818	East		Glenn	DeJong	(209) 599-5015	(209) 599-5631	glenn.asi@verizon.net	P.O. Box 51		Ripon	CA	95366
All Fire Protection	West	40	518 B McCloy Ave.	518B	N/A		Frank	Vetter	(209) 465-6193			2136 E. Fremont Street		Stockton	CA	95206
American Biodiesel, Inc.	West	20	west end of 809 & 2 acres of land	809	West		Chris	Young	(209) 466-4823	(760) 943-6696	cyoung@communityfuels.com	P.O. Box 23-4249		Encinitas	CA	92023
American Containers, Inc.	West	20	Warehouse 813 - west & center	813	Combination		Javier	Rocha	(209) 460-1127	(209) 460-1126	jrocha@acontainers.com	813 Luce Ave. P.O. Box 2		Stockton	CA	95203
American River Ag., Inc	West	50	whse. 510	510	All		Craig	Walker	(916) 941-7134	(916) 941-7135	craig@americanriverag.com	P.O. Box 4452		El Dorado Hills,	CA	96762
American River Ag., Inc	West	20	east end of 709	709	East		Craig	Walker	(916) 941-7134	(916) 941-7135	craig@americanriverag.com	P.O. Box 4452		El Dorado Hills,	CA	96762
American River Ag., Inc	West	50	east and center of 610	610	Combination		Craig	Walker	(916) 941-7134	(916) 941-7135	craig@americanriverag.com	P.O. Box 4452		El Dorado Hills,	CA	96762
America's Recycler, Inc.	West	50	East end of 412	412	East		Jim	Mellinger	(209) 982-4066	(209) 982-9148	jmell@mac.com	1702 Paloma Ave.		Stockton	CA	95209
America's Recycler, Inc.	West	50	Center Section of 412	412	Center		Jim	Mellinger	(209) 982-4066	(209) 982-9148	jmell@mac.com	1702 Paloma Ave.		Stockton	CA	95209
Baker Landscape	West	30	900 sq. ft. of storage space	216	N/A		Dean	Baker	(209) 474-2154	(209) 474-1348	jbaker8021@sbcglobal.net	2149 West Hammer Lane		Stockton	CA	95209
Best Logistics, Inc. - East	East	130	340 Port Rd. 22		Combination		Erin	Jenkins	(209) 762-6212	(209) 234-2977	erinjenkins@bestlogistics.net	P.O. Box 1410		Stockton	CA	95201
Best Logistics, Inc. - East	East	130	340 Port Rd. 22		Combination		Greg	Artlip	(209) 762-6212	(209) 234-2977	gregartlip@bestlogistics.net	P.O. Box 1410		Stockton	CA	95201
Best Logistics, Inc. - East	East	130	340 Port Rd. 22		Combination		Bert	Artlip	(209) 762-6212	(209) 234-2977	bertartlip@bestlogistics.net	P.O. Box 1410		Stockton	CA	95203
Blair Grain Company	East	120	World Trade Building		N/A	C	Karen	Rose	(209) 948-4466	(209) 948-0614	BGrain01@aol.com	2321 W. Washington St. Ste C		Stockton	CA	95203
BP West Coast Products	East	10	3.12 acres off of Washington St.		N/A		Mike	Peterson	(209) 466-4408	(209) 948-6672	michael.peterson3@bp.com	2700 West Washington Street		Galt	CA	95632
Building Materials Distributors	West	10	Warehouse 1005 & 5 acres of land	1005	All		Charlie	Graham	(209) 465-5154	(209) 465-5564	cgraham@bmdusa.com	P.O. Box 606		Stockton	CA	95207
Calamco	East	90	Port Rd. 13		N/A		Pam	Martin			pam.martin@calamco.com	1776 W. March Lane, Suite 420		Stockton	CA	95207
Calamco	East	90	Port Rd. 13		N/A		Robert	Brown	(209) 982-1000	(209) 983-0822	bob.brown@calamco.com	1776 W. March Lane, Suite 420		Stockton	CA	95201
Calaveras Cement Company	East	110	North of Port Rd. A, East of Port Rd. 2		N/A		Abel	Martir	(209) 465-1921	(209) 465-2625	amartir@lehighcement.com	P.O. Box 2378		Stockton	CA	95201
Calaveras Cement Company	East	110	2.55 acres between dock 2 & Rd. 2		N/A		Abel	Martir	(209) 465-1921	(209) 465-2625	amartir@lehighcement.com	P.O. Box 2378		Stockton	CA	95203
California Agri Inspection Co., Ltd.	East	120	2403 W. Washington St.		N/A		Anthony	Kohn	(209) 462-2471	(209) 462-1798	stockton@california-agri.com	2403 West Washington Street, Room 50		Stockton	CA	95203
California Portland Cement	East	110	Corner of Port Rd. 4 & Port Rd. B		N/A		Warren	Burchett	(209) 469-0109	(209) 469-0145	wburchett@calportland.com	2201 West Washington Street #6		Stockton	CA	95203
California Steam Specialties	West	30	Building 315	315	N/A	P	Hector	Arroyo	(209) 462-3500	(209) 462-3551	harroyo@ca-ss.com	315 Fyffe Avenue, Suite P		Stockton	CA	95203
Capital Feed	West	20	Center & East Sections of 807	807	Combination		Todd	Lush	(209) 466-3333	(209) 466-3336	todd@capitalfeed.com	807-B Cromwell Ave.	Rough & Ready Island	Stockton	CA	95203
Capital Feed	West	20	East Section of 806	806	East		Todd	Lush	(209) 466-3333	(209) 466-3336	todd@capitalfeed.com	807-B Cromwell Ave.	Rough & Ready Island	Stockton	CA	95203
Carry Transit - East	East	120	2.3 acres Port Rd. 13 - former Cargill Site		N/A		Rick	VanDyke	(209) 465-2639	(209) 465-2384	rvandyk@carrytransit.com	217 Fyffe Ave., Suite 106		Bridgeview	IL	60455
Carry Transit - West	West	40	railroad classification yard		N/A		Richard	VanDyk	(209) 465-2468	(209) 465-2384	rvandyk@carrytransit.com	7830 West 71st Street		Bridgeview	IL	60455
Carry Transit - West	West	50	Center section	214	West		Richard	VanDyk	(209) 465-2468	(209) 465-2384	rvandyk@carrytransit.com	7830 West 71st Street		Bridgeview	IL	60455
Carry Transit - West	West	30	Building 217	217	N/A		Richard	VanDyk	(209) 465-2468	(209) 465-2384	rvandyk@carrytransit.com	7830 West 71st Street		Stockton	CA	95219
Catch All Baseball	West	20	East end of 712	712	East		Joe	Moreno	(209) 957-3006	(209) 957-3006	catchallbaseball@aol.com	6387 Riverbank Circle		Stockton	CA	95201
Cencal Recycling, LLC	East	130	Area B1 & B2		N/A		Tim	Erlandson	(209) 546-8000	(209) 546-8006	tim@cencalrecycling.com	P.O. Box 30	P.O. Box 30	Stockton	CA	95213
Central California Railcar Repair	East	110	Bricks A & Adjacent track	A	N/A		Keith	Looney	(209) 465-2236	(209) 465-4830	ccrqa@aol.com	P.O.Box 31062		Stockton	CA	95203
Central California Traction Company	East	120	Port Road A, Former Scale house		N/A		Dave	Buccolo	(209) 466-6927	(209) 466-1204	dbuccolo@cctrailroad.com	2201 West Washington Street #12		Stockton	CA	95203
Chemstation of Northern California	West	20	Warehouse 713	713	East		Matt	Mascara	(209) 943-7478	(209) 943-7479	mmascara@chemstation.net	Rough & Ready Island 11A		Stockton	CA	95201
Child Abuse Prevention Council	West	40	Warehouse 618	618	East		Lyndee	Turner	(209) 644-5311	(209) 464-2272	lturner@nochildabuse.org	P.O. Box 1257		Stockton	CA	95202
City of Stockton	East	90	Firearms center - 7.75 acres on Navy Drive		N/A		Kevin	O'Rourke	(209) 937-8212	(209) 937-7149	City.Manager@ci.stockton.ca.us	425 N. El Dorado Street		Stockton	CA	95202
Clearwire, LLC	West	60	20x20 area adjacent to the water tank		N/A		John	Lambeth	(530) 886-0616			4400 Carillon Point		Kirkland	WA	98033
C-Trans	West	50	Warehouse 214	214	East		Jim	Whitney	(209) 464-2548	(209) 464-2648	jwhitney@ctrans.net	P.O. Box 24432		Oakland	CA	
Custom Spraying	West	50	410	410	All		Tom	Melden	(209) 464-0173		melden@clearwire.net	P.O. Box 6364		Stockton	CA	95206
Cynthia Revel	Other	140	North Spud Island parcels 18 & 58		N/A		Cynthia	Revel	(415) 203-8516		cindy@kkmi.com	2414 W. Kettleman Lane, Ste. 210 #2202		Lodi	CA	95242
D.B. Western	East	100	2650 W. Washington Street		N/A		John	Bingham	(209) 937-9530	(209) 937-9529	dbwc@dbwestern.com	2650 W. Washington Street		Stockton	CA	95203
Delroy's Deli	West	30	Building 17	17	N/A		Delroy	Sibblis	(209) 463-3968		delroysdeli@yahoo.com	Rough & Ready Island	Buliding 17, Box 6	Stockton	CA	95203
Delta Yacht Club	Other	140	Tule Island		N/A		Tracy	Fitzgerald	(916) 984-4939		tracyf13@att.net	3499 Brookside Rd., Suite F-331		Stockton	CA	95219
Dement Farms	Other	40	Roberts Island		N/A		Rod	Dement	(209) 969-9400			3761 Brook Valley Circle		Stockton	CA	95219
Dennis Sorensen	West	30	Building 217, suite 152	217	N/A	152	Dennis	Sorensen	(209) 951-5316		dennislsorensen@yahoo.com	2717 Tamarisk Ave.		Stockton	CA	95207-1346
Denny Ah-Tye	West	30	Bldg. 217 suites 109 & 110	217	N/A	109	Denny	Ah-Tye			dahtye@msn.com	8332 Mason Dr.		Stockton	CA	95209
Department of Water Resources	West	10	west complex		N/A		Allan	Davis			aldavis@water.ca.gov	P.O. Box 942836		Sacramento	CA	94236-001
Door Fabrication Services, Inc.	West	20	Warehouse 810	810	All		Donald	Ruhstaller	(209) 942-5658	(209) 469-9416	druhstaller@masonite.com	Rough & Ready Island, #810	Gilmore Avenue	Stockton	CA	95203
DTE Stockton, LLC	East	10	2526 W. Washington Street		N/A		John	Reis			reisj@dteenergy.com	2526 W. Washington Street		Stockton	CA	95203
Ferguson Enterprises	West	20	24.19 paved yard		N/A		Jason	Billings	(209) 942-0254	(209) 942-2735	jason.billings@ferguson.com	12500 Jefferson Avenue		Newport News	VA	23602-4314
Ferguson Enterprises	West	20	3.184 acres vacant land		N/A		Jason	Billings	(209) 942-0254	(209) 942-2735	jason.billings@ferguson.com	12500 Jefferson Avenue		Newport News	VA	23602-4314
Ferguson Enterprises	West	20	Warehouse 805	805	All		Jason	Billings	(209) 942-0254	(209) 942-2735	jason.billings@ferguson.com	12500 Jefferson Avenue		Newport News	VA	23602-4314
Ferguson Enterprises	West	40	Daggett Road		N/A		Toby	Jenkins	(209) 943-8361	(209) 942-2735	Tobey.Jenkins@ferguson.com	12500 Jefferson Ave.		Newport News	VA	23602-4314
Ferguson Enterprises, Inc. - Distribution	West	20	Center section of 611	611	Center		James	Pope	(209) 466-8193	(415) 255-9107	pope_james@hotmail.com	540 Fillmore Street		San Francisco	CA	94117
Green Horizon MFG, Inc.	West	30	Building 217	217	N/A	136	Gurmeet	Bazaz	(209) 462-6134	(209) 462-6901		Rough & Ready Island	P.O. Box 26-2	Stockton	CA	95203
Gurmeet Bazaz	West	90	3.8 ac., sulfur storage and 1.83 ac., new facility		N/A		Chuck	DeJong	(209) 943-0478	(209) 943-5470	cdejong@bakerbro.com	P.O. Box 2089		Stockton	CA	95201
H.J. Baker & Bro., Inc.	East	30	fenced area adjacent to 617		N/A		Richard	Hendrix	(209) 969-4044	(209) 943-5124		P.O. Box 5217		Stockton	CA	95205
Hendrix Forklift Service	West	140	Roberts Island II Parcel 14-S		N/A		Greg	Burgin	(209) 465-8413	(209) 465-1979	gregburgin@sbcglobal.net	P.O. Box 187		Holt	CA	95234
Holt Repair & Manufacturing Inc.	Other	140	Rail tracks 857 & 853		N/A		Chris	Stotka	(510) 724-1117	(510) 724-7078	chris.stotka@industrialrailways.com	890 San Pablo Ave.		Pinole	CA	94564-2333
Industrial Railways Corp.	East	40	Warehouse 618	618	East		Kathy	Lutz	(209) 933-6161		lutz@sonic.net	P.O. Box 7363		Stockton	CA	95267
Junior Aid of Stockton	West	20	West section of 808	808	West		John	Little	(209) 938-0750		jlittle@kot.com	Rough & Ready Island Box 25 #4		Stockton	CA	95203
Keep on Trucking	West	20	907 Cromwell		N/A		John	Little	(209) 938-0750		jlittle@kot.com	Rough & Ready Island Box 25 #4		Stockton	CA	95203
Keep on Trucking	West	10	A-509, storage space		N/A		John	Little	(209) 938-0750		jlittle@kot.com	Rough & Ready Island Box 25 #4		Stockton	CA	95203
Keep on Trucking	West	10	A-705 1 acre; A-1201 7 acres		N/A		John	Little	(209) 938-0750		jlittle@kot.com	Rough & Ready Island Box 25 #4		Stockton	CA	95203
Keep on Trucking	West	10	A-720, storage space		N/A		John	Little	(209) 938-0750		jlittle@kot.com	Rough & Ready Island Box 25 #4		Stockton	CA	95203
Kustom Materials Laminators, Corp.	West	40	Warehouse 619	619	East		William	Wanker	(209) 943-2912	(209) 943-6955	leo@kmlcorp.com	1616 St. Paul Avenue		Tacoma	WA	98421
L.C. Contractors	West	60	Quarters C		N/A		Leonard	Campbell	(209) 546-0158	(209) 546-0178	lc4401@leonardcampbellinc.com	P.O. Box 471		Stockton	CA	95201
L.C. Contractors	East	90	Sulfur area		N/A		Leonard	Campbell	(209) 546-0158	(209) 546-0178	lc4401@leonardcampbellinc.com	P.O. Box 471		Stockton	CA	95201
L-1 Enrollment Services	West	30	315 Fyffe Ave., suite C	315	N/A	C	Ruthie	Woodworth	(209) 462-1550			15 Century Blvd., Suite 500		Nashville	TN	97214
Lesovsky-Donaldson Architects	West	40	Warehouse 618	618	East		Brent	Lesovsky	(209) 943-0405	(209) 943-0415	dlesovsky@ldarchitects.net	4 South Central Court		Stockton	CA	95204
Lovotti Air	West	30	Building 217 suites 148-151	217	N/A	148-151	Scott	Lovotti	(209) 931-2100	(209) 931-0883		8439 Leale Ave.		Stockton	CA	95212
Lovotti Air	West	20	T-705	T705	N/A		Scott	Lovotti	(209) 931-2100	(209) 931-0883		8439 Leale Ave.		Stockton	CA	95212
Lowe's HIW	West	30	512, 612 and 20 acres	512 & 612	All		William	James	(209) 513-9560	(209) 513-9561	william.p.james@lowes.com	CSC West - P.O. Box 1111		N. Wilkesboro	NC	28656-0001
M & L Commodities	East	110	2323 Port Rd. A		N/A		Daniel	Gregory	(209) 942-2323		dgregory@cccold.com	P.O. Box 795		Modesto	CA	95353
MacSpecialties	West	30	Building 217,suite 111,112,112,114,121,122,123	217	N/A		Ronald	Hurick	(209) 948-4222	(209) 954-9541	macstk@aol.com	P.O. Box 690875		Stockton	CA	95269
Macsteel	East	130	10.986 ac of land including 3,812 sq. ft. of office space off Port Rd. 23		N/A		Mark	Chewning	(209) 943-3223	(209) 943-3229	mchewning@macsteelusa.com	P.O. Box 1050		Stockton	CA	95201
Marine Terminals Corp.	West	30	Building 217	217	N/A	107 & 108	Chuck	Spahr	(209) 466-6284	(209) 466-6306	clayton.spahr@portsamerica.com	1550 Harbor Blvd., #211		West Sacramento	CA	95691
Marine Terminals Corp.	West	50	Lot 410-A and office on lot	410	N/A		Chuck	Spahr	(209) 466-6284	(209) 466-6306	clayton.spahr@portsamerica.com	1550 Harbor Blvd., #211		West Sacramento	CA	95691
Martin Operating Partnership	East	90	4.68 acres north of Wash., South of Port Rd. A		N/A		Steve	Arnett	(209) 943-3414	(209) 943-3411	steve.arnett@martinmlp.com	2717 West Washington Street		Stockton	CA	95201
METROPCS	West	50	Antenna towers		N/A		Karen	Lienert	(916) 984-4827	(916) 984-2660	inovothy@metropcs.com	P.O. Box 740845		Dallas	TX	75374
Metropolitan Stevedore	East	120	World Trade Building		N/A	J	Tom	Mogan	(209) 943-7252	(209) 943-2656	thomas.mogan@metsteco.com	P.O. Box 986		Stockton	CA	95201
MT Railcars, Inc.	West	40	Center office	718	Center		David	Mairs	(209) 460-1014	(209) 460-1234	davmrail@aol.com	Rough & Ready Island, #9		Stockton	CA	95203

2011 List of Tenants
Port of Stockton

Company	Complex	Sector	PhysicalLocation	Bldg. #	Whse. Sect.	Suite	First	Last	Phone	Fax	Email	Address1	Address2	City	State	Zip
My Power Books	East	120	World Trade Building Suite D & E	WTB	N/A	D&E	Peter	Holtz	(209) 941-0189	(209) 941-2066	pholtz@greatvalleyfinancial.com	2321 W. Washington Street, Suite D		Stockton	CA	95203
Norman Penberthy	West	50	East end of 511	511	East		Jay	Penberthy	(209) 403-1955			514 W. Rialto St.		Stockton	CA	95207
North American Composites	West	20	Warehouse 611	611	West		Lee Roy	Smith	(209) 932-0396	(209) 932-0915		300 Apollo Drive		Lino Lakes	MN	55014
Northern California College of Construction	West	60	Forrestall Village		N/A		Jerry	McGinnis	(209) 242-5400	(209) 242-5415	Jerry.mcginnis@ok-cc.com	315 Fyffe Ave, Suite A		Stockton	CA	95203
Northern California College of Construction	West	60	Suites A & L	315	N/A	A&L	Jerry	McGinnis	(209) 242-5400	(209) 242-5415	Jerry.mcginnis@ok-cc.com	315 Fyffe Ave, Suite A		Stockton	CA	95203
Onions Etc.	West	10	Southern Section	1003	N/A		Derrell	Kelso	(209) 943-3600	(209) 943-3610	dwkelso@onionsetc.com	P.O. Box 55267		Stockton	CA	95205
Onions Etc.	West	10	Warehouse 1003	1003	Center		Derrell	Kelso	(209) 943-3600	(209) 943-3610	dwkelso@onionsetc.com	P.O. Box 55267		Stockton	CA	95205
Online Logistics	East	120	Port Road 21		N/A		Debbie	Medford	(209) 952-3989	(209) 952-8938	debbiemedford@sbcglobal.net	4223 Yacht Harbor Drive		Stockton	CA	95204
Pacific Custom Materials	East	90	1.53 acres with 800 ft of rail		N/A		Bruce	Brazil	(209) 948-0529			c/o TXI Boulder Division	11728 Hwy. 93	Boulder	CO	80303
Pacific Ethanol	East	70	99 acres		N/A		Royce	Todd	(209) 235-0370	(209) 235-0376	rtodd@pacificethanol.net	400 Capitol Mall	Suite 2060	Sacramento	CA	95814
Pelton-Shepherd Industries	West	20	Warehouse 812	812	Center		Pat	shepherd	(209) 460-0893	(209) 460-1009	sales@peltonshepherd.com	P.O. Box 30218		Stockton	CA	95213
Pereira Studios	West	30	Building 217	217	N/A	115	Steve	Pereira	(209) 466-0022	(209) 464-2424	steve@stevepereira.us	2201 West Washington Street #2		Stockton	CA	95203
Quality Office Liquidations	West	20	West section	713	West		Bill	Leach	(209) 464-4388	(209) 334-1824		15 N. Orange Avenue		Lodi	CA	95240
Ramsey Express	West	40	East end of 719	719	East		Dave	Ramsey	(209) 460-1627	(209) 460-1821	badrig1@aol.com	Rough & Ready Island #10		Stockton	CA	95203
Ramsey Express	West	40	Warehouse 618	618	West		Dave	Ramsey	(209) 460-1627	(209) 460-1821	badrig1@aol.com	Rough & Ready Island #10		Stockton	CA	95203
Ramsey Express	West	40	Whse 719 east end	719	East		Dave	Ramsey	(209) 460-1627	(209) 460-1821	badrig1@aol.com	Rough & Ready Island #10		Stockton	CA	95203
Rarin Federal Credit Union	West	40	Building 218	218	N/A		Cindy	Hodson	(209) 933-9275	(209) 933-9279	rarinfcu@aol.com	Rough & Ready Island	Building 218	Stockton	CA	95203
Recology Stockton	East	130	Port Rd. 23		N/A		Eric	Horton	(209) 939-1315	(209) 939-1315	ehorton@recology.com	235 N. First Street		Dixon	CA	95620
Rice Terminals	East	80	1.83 acres So. Of Bulk Terminal & .681 acres in oil terminal area		N/A		Bettie	Rice	(209) 465-8032	(209) 931-4606	bettie@melrice.com	2706 Madrone Dr.		Lodi	CA	95242
Riverside Cement	East	90	2845 W. Washington St.		N/A		Bruce	Brazil	(209) 948-0529	(209) 948-8427	bbrazil@txi.com	2845 West Washington Street		Stockton	CA	95203
Roof Rangers	West	30	3,000 sq. ft. outside of 916	916	N/A		Pat	Maples	(209) 745-5753		roofrangers@hotmail.com	P.O. Box 5114		Galt	CA	95632
Ross Island Sand & Gravel	West	50	Transit Shed 16	16	N/A		Kevin	Harlan	(209) 933-0609	(209) 933-0610	randysteed@ridredge.com	P.O. Box 82249		Portland	OR	97282
Royal White Cement, Inc.	West	20	West end of 610	610	West		Marcel	El Fadi	(713) 676-0000	(713) 676-1081	marcelf@royalwhitecement.com	8316 East Freeway		Houston	TX	77029
Royal White Cement, Inc.	West	20	West end of 610	610	West		Robert	Fowler	(209) 334-2112	(209) 367-0572		8316 East Freeway		Houston	TX	77029
RubyNova, Inc.	West	30	Suite 142 in Bldg. 217	217	N/A	142	Mike	Jacobs	(408) 857-8888			19640 Redberry Drive		Los Gatos	CA	95030
San Joaquin County Sheriff	West	20	Warehouse 813	813	East		Ed	Ward	(209) 468-0976	(209) 468-4780		7000 Michael Canlis Blvd.		French Camp	CA	95231
Sandee Russell	Other	140	2.5 Acres, North Spud Island		N/A		Sandee	Russell	(951) 500-7793	(209) 367-5951	sandeerussell@aol.com	34199 Nandina Ct.		Lake Elsinore	CA	92532
SFPP, L.P.	East	10	Navy Drive , Oil terminal area		N/A		Ken	Yeo	(209) 465-7369	(209) 465-7371	yeok@kindermorgan.com	2947 Navy Drive		Stockton	CA	95206
Sheedy Drayage Co.	East	130	East End of area B-2		N/A		Ed	Hollenbeck	(209) 943-7171	(209) 943-7175	ehollenbeck@sheedycrane.com	515 Port Road 21		Stockton	CA	95203
Silk Road Exclusive	West	20	Warehouse 713	713	Center		Tom	Huang	(209) 943-1126	(209) 943-2821	tom@silkroadexclusive.com	1810 Field Avenue, Suite 4		Stockton	CA	95203
Soli-Bond	West	20	Warehouse 707	707	Center		Joel	Alvarado	(209) 463-5908		esalyards@msn.com	Rough & Ready Island, Box 15		Stockton	CA	95203
SSA Marine, Inc.	East	120	World Trade Building		N/A	H	Dan	Speers	(209) 547-9100	(209) 547-1040	daniel.speers@ssamarine.com	2321 West Washington Street, Suite H		Stockton	CA	95203
ST Services/NuStar Energy	East	100	16.465 acres in the oil terminal area		N/A		Dan	Thomas	(209) 943-5662	(209) 943-0653	daniel.thomas@nustarenergy.com	2941 Navy Drive		Stockton	CA	95206
Stockton Civic Theatre	West	40	Warehouse 618	618	East		Jim	Coleman	(209) 473-2400	(209) 473-1502	jcoleman@sctlivetheatre.org	2312 Rose Marie Lane		Stockton	CA	95207
Stockton Police Department	West	30	Building 315	315	N/A	T	Mike	Evans	(209) 937-8352	(209) 937-8475	michael.evans@ci.stockton.ca.us	22 E. Market Street		Stockton	CA	95202
Stockton Police Officers Association	West	30	Building 217 A & 217 C	217 A&C	N/A		Mark	McLaughlin	(209) 937-7279	(209) 937-8387	stocktonpoa@yahoo.com	22 E. Market Street		Stockton	CA	95202
Stockton Professional Firefighters	West	30	Building 117	117	N/A		Dan	Morris	(209) 929-3212			P.O. Box 69-2201		Stockton	CA	95269
Sunshine Cement	East	120	World Trade Building		N/A	I	Nader	Dajani	(209) 467-8325	(209) 467-8065	ndajani@cti-grp.com	2321 W. Washington Street, Suite I		Stockton	CA	95203
Sunshine Cement	East	120	World Trade Building		N/A	I	Randy	Snyder	(209) 467-8325	(209) 467-8065	rsnyder@SunshineCement.com	2321 W. Washington Street, Suite I		Stockton	CA	95203
Tamarii Matairea	West	40	Suite C in 518	518	N/A	c	Yolanda	Amen	(209) 639-5510		yoferd@aol.com	P.O. Box 944		French Camp	CA	95231
TBM Sand & Storage Logistics, LLC	West	20	East end of 808	808	East		Ramon	West			ramon@tbmsand.com	4750 Kimberly Farms Drive		Anderson	CA	96007
Tesoro Refining Market & Supply	East	100	3.44 acres on Navy Drive		N/A		John	Walker	(209) 466-8800	(209) 464-7066	john.h.walker@tsocorp.com	3003 Navy Drive		Stockton	CA	95206
The Learner Company	East	100	Navy Drive		N/A		Terry	Loeser	(209) 948-3498	(209) 941-2574	learnerco@aol.com	222 N. Poinsettia		Manhattan Beach	CA	90266
Tradco, Inc.	West	30	Building 217	217	N/A	100	Thomas	Crum	(209) 467-7377	(209) 467-7376	tradcostockton@aol.com	9400 Bamboo Road		Houston	TX	77041
Transhold, Inc.	West	50	Whse 214 - west end	214	West		Ron	Coale	(209) 462-0220	(209) 462-0188	ron.coale@ssamarine.com	Rough & Ready Island, P.O. Box 25 #12		Stockton	CA	95203
Transhold, Inc.	West	50	313 - center	313	Combination		Ron	Coale	(209) 462-0220	(209) 462-0188	ron.coale@ssamarine.com	Rough & Ready Island, P.O. Box 25 #12		Stockton	CA	95203
Transload Solutions LLC	West	10	Track 861 & 864		N/A		Michael	Vilarino	(209) 932-0495	(209) 932-0873	vilarino@earthlink.net	P.O. Box 1688		Stockton	CA	95206
Transmarine Navigation	East	120	2321 W. Washington St. - World Trade Bldg.	WTB	N/A	K	Bill	Nickson	(209) 465-9599	(209) 465-0665	stockton@transmarine.com	2321 West Washington Street	Suite K	Stockton	CA	95203
Turner Photography	West	30	Building 217 - suites 155 & 156	217	N/A	155&156	Rich	Turner	(209) 460-1050	(209) 460-1051	richt@turnerphoto.com	Rough & Ready Island, Box 25 #16		Stockton	CA	95203
Turning Basin Business Park	Other	0	NW edge of turning basin		N/A		Roy	Fowler	(209) 948-4037		N4999c@gmail.com	405 Edison St.		Stockton	CA	95203
UDB Enterprises	West	30	Building 217 Suites 143 & 142 a	217	N/A	143/142a	Neil	Jackson	(209) 462-1160	(209) 462-2163	udbe@earthlink.net	217 W. Fyffe Ave. #143		Stockton	CA	95203
US Border Patrol - Customs	West	30	Building 317	317	N/A		Lisa	Jang	(209) 946-6296	(209) 946-6138	theresa.jang@dhs.gov	Building 317		Stockton	CA	95203
Weber Point Yacht Club	Other	140	North Spud Island		N/A		Robert	Werner	(415) 970-2215	(415) 970-2215	robertj19@juno.com	889 Duncan St.		San Francisco	CA	94131
Westway Terminal	East	110	2219 Port Road A		N/A		Rick	Gomez	(209) 547-0575	(209) 547-0566		2219 Port Road A		Stockton	CA	95203
Westway Trading Corporation	East	80	Pipeline		N/A		Ed	Cordell	(209) 462-2565	(209) 462-9185	edc@westway.com	2130 West Washington Street		Stockton	CA	95203
Westway Trading Corporation	East	130	Industrial Area		N/A		Ed	Cordell	(209) 462-2565	(209) 462-9185	edc@westway.com	2130 West Washington Street		Stockton	CA	95203
Weyerhaeuser Company	West	10	18 acres of paved land and office space in Bldg. 1002	1002	N/A		Denis	Martin	(209) 942-4973	(209) 942-1860	denis.martin@weyerhaeuser.com	Rough & Ready Island, #15		Stockton	CA	95203
Weyerhaeuser Company	West	10	Land west of Whse 1004		N/A		Denis	Martin	(209) 942-4973	(209) 942-1860	denis.martin@weyerhaeuser.com	Rough & Ready Island, #15		Stockton	CA	95203
Weyerhaeuser Company	West	10	Whse 1004 south & Center sections	1004	Combination		Denis	Martin	(209) 942-4973	(209) 942-1860	denis.martin@weyerhaeuser.com	Rough & Ready Island, #15		Stockton	CA	95203
Yara North America, Inc. - East	East	10	Oil Terminal Area		N/A		Lorenzo	Escarsega	(209) 466-0942	(209) 466-3149	lorenzo.escarsega@yara.com	P.O. Box 1370		Stockton	CA	95203
Yara North America, Inc. - West	West	50	Whse 312 and area 212	312	All		Steve	Hillestad	(209) 462-8094	(209) 462-8094	steve.hillestad@yara.com	P.O. Box 1370		Stockton	CA	95203

Appendix 2

Statement from the Port's Chief Legal Counsel Concerning Legal Authority

Port of Stockton
Legal Authority Statement

This Statement is provided on behalf of the Port of Stockton pursuant to Waste Discharge Requirements Order R5-2011-0005/ NPDES NO. CAS0084077/Waste Discharge Requirements For Stockton Port District Facility-Wide Storm Water Discharges From Municipal Separate Storm Sewer System And Non-Storm Water Discharges From The Port Of Stockton San Joaquin County issued by California Regional Water Quality Control Board, Central Valley Region, on **3 February 2011** (hereafter referred to as the "Order"). Section D.8. of the Order requires the preparation of a statement "certified by its Legal Counsel," verifying that adequate authority exists to implement the terms of the Order and requirements of federal stormwater regulations.

Legal Authority References - The Port of Stockton is a legal entity formed pursuant to California Harbors and Navigation Code § 6200. Harbors and Navigation Code Section 6309 establishes that the Port has the power to "adopt all ordinances necessary for the regulation of the district with respect to ... prohibiting the pumping of raw sewage or waste into port waters." Accordingly, the Port has the legal authority to administer, implement, and enforce the storm water management program within the Port's jurisdiction.

As the sole property owner and legal responsible party (LRP), the Port also has broad legal authority to enforce all environmental regulations including storm water, wastewater, air, solid, and hazardous materials regulations through conditions in the lease agreements signed with each tenant. The lease agreements contain the following language which provides legal authority to the Port:

> **Section 14.3 Compliance with Applicable Laws.**
>
> 14.3.1 Compliance. Tenant shall, at all times, in its use and occupancy of the Premises and in the conduct of its operations thereon, comply with all laws including, without limitation, all laws relative to the discharge or runoff of water from the Premises requiring the filing of certain notices and reports with governmental agencies including, without limitation, the California State Water Resources Control Board, and the Regional Water Quality Control Board, Central Valley Region, and the obtaining of certain permits covering Tenants' operations at the Premises from all state and federal agencies including, without limitation, the obtaining of industrial storm water permits and National Pollutant Discharge Elimination System permits. In addition to the foregoing, Tenant shall comply immediately with any and all directives issued by Port Director or his authorized representative under authority of any laws including, but not limited to, any storm water management program implemented by Port from time to time as published in General Tariff or otherwise as directed by Port Director.
>
> **Section 6 Default, Termination, and Remedies.**
>
> 6.1 Default by Tenant. The occurrence of any one or more of the following events shall constitute a material breach and default of this Lease by Tenant:
>
> 6.1.3 Failure to Observe Lease Provisions. Any failure by Tenant to observe or perform any of the covenants, conditions, or provisions of this Lease to be observed or performed by Tenant, other than those described in Subsection 6.1.2., when the failure continues for more than 30 days after

written notice from Port. If the failure is of a nature that cannot reasonably be cured within 30 days, Tenant shall not be in default hereunder if Tenant commences cure within the 30 day period and diligently prosecutes cure to completion as soon as reasonably possible.

In addition, the Port of Stockton has adopted and implemented tariffs, which govern operations and conduct at the Port. Tariffs that provide legal authority to the Port's storm water management program include the following: (A copy of these tariffs in their entirety is included in **Appendix 1**)

Tariff 61 Dumping into Waters – This tariff prohibits the dumping of oil, oily wastes, trash, or other objectionable matter into the waters of the Inner Harbor or other navigable waters.

Tariff 1201 Pollution Prevention and Control Funding – This tariff authorizes a charge of $0.21/metric ton of cargo discharged or loaded to fund the pollution monitoring and prevention program and compliance with governmental pollution control standards.

Tariff 1202 Storm Water Program Funding – This tariff authorizes a monthly charge of $0.005/sq. ft. of rental space to all tenants other than those importing or exporting dry or liquid bulk cargos across Port wharves to fund the compliance program to meet State and Federal storm water regulation requirements.

Tariff 1203 Monitoring of Loading and Unloading Operations – This tariff establishes a requirement for tenants, stevedores, or other responsible parties to monitor each of its material loading and unloading operations at the Port which have a reasonable potential to cause a discharge into the Stockton Deep Water Channel or the San Joaquin River that could adversely affect water quality. Monitoring is defined in the tariff as both visual observation and water quality analysis.

Tariff 1204 Storm Water Tariff Definitions – Defines terms used in Tariffs 1205 and 1206.

Tariff 1205 Control of Storm Water Discharges – This tariff requires activities which are subject to the Industrial NPDES General Permit or the Construction NPDES General Permit to obtain permit coverage and comply with the terms and conditions of the permit. The tariff requires all tenants to identify and implement best management practices (BMPs) and to post a list at their facility of the BMPs that have been selected and implemented. The tariff authorizes the Port to require sampling and monitoring of any tenant at the Port's discretion.

Tariff 1206 Prohibition of Illicit Discharges – The tariff prohibits the discharge or release of all substances other than storm water and those discharges recognized as authorized non-storm water discharges in the Industrial NPDES General Permit.

Tariff 1207 Control of Non-Storm Water Discharges – The tariff requires authorized non-storm water discharges to be identified, covered by a NPDES permit (when required by the State or USEPA), and controlled through the use of appropriate BMPs. Spills or releases of unauthorized non-storm water discharges must be reported to the Port within 7 days.

Enforcement Response Plan – Upon discovery of a violation, a Notice to Correct is issued to tenants, contractors, or other persons found to be responsible for an illicit discharge or other activity in violation of the Port's lease agreements or tariffs. The Port's enforcement response plan includes the following:

1. Any responsible party identified as having an illicit discharge or in violation of one or more of the Port's lease agreements or tariffs is issued a Notice to Correct (NTC). The NTC identifies abatement, investigative, and clean-up activities that must be taken and paid for by the responsible party by a specified date (which is based on the threat level to receiving water quality

but no later than 7 days from the date of the initial inspection date). For tracking purposes, routine inspections and any NTCs issued are inputted into the Port's storm water database.

2. The Port performs a re-inspection within 7 days to verify that the items needing correction were satisfactorily resolved by the date specified on the NTC. The re-inspection is documented and entered into the Port's storm water database.
3. If the Port perceives there is an immediate threat to water quality and/or the responsible party will not respond in a timely manner, the Port will take preemptive action to respond to the threat and will hold the responsible party liable for all charges associated with the cleanup per the lease agreements and Port tariffs.
4. If corrective action has not been satisfactorily performed by the due date specified in the NTC, the Port Environmental Department will issue an Administrative Enforcement Letter to the tenant describing the violation and the lack of response no later than 14 days after the due date. The letter will specify the corrective action required, and provide a time table for implementation of the corrective action. The Administrative Enforcement Letter will state that the tenant is in violation of their lease and indicate that the violation may also be referred to the Regional Board for enforcement action under the State of California Porter-Cologne Water Quality Control Act and the Federal Clean Water Act.
5. If the tenant does not satisfactorily correct the violation within the time table established in the Administrative Enforcement Letter, the tenant will be issued a Notice of Default by the Port of Stockton, using the authority found in the tenant's lease agreement. The tenant will also be provided with a letter describing the violation and the tenant's lack of response. The letter will specify the corrective action required and provide a time table for implementation of the corrective action. This letter will state that the tenant is in violation of their lease and indicate that the violation will also be referred to the State of California Regional Water Quality Control Board, Central Valley Region for enforcement action under the State of California Porter-Cologne Water Quality Control Act and the Federal Clean Water Act.
6. The Port will refer the non-compliant tenant to the Regional Water Quality Control Board.
7. The Port will also seek injunctive relief from the court system and will evict the non-compliant tenant through an unlawful detainer action. The non-compliant

tenant will have the opportunity to contest or appeal any such relief through the court system.

Based on the foregoing discussion and subject to the exceptions described herein, I respectfully submit this certification.

Executed on the 2nd day of August, 2011, at Stockton, California.

STEVEN A. HERUM,
General Counsel for the Port of Stockton

Appendix 3

Port of Stockton's Storm Water-Related Tariffs and Lease Language

STANDARD TERMS AND CONDITIONS

Item	Subject	Application
59	Payment of Charges, Cargo Statements Required (Cont'd)	presented and must be paid regardless of when the vessel, its owners and agents are reimbursed. Bills must be paid when presented, and errors, if any will be rectified by the Port of Stockton. Claims in excess of $10.00 will require specific approval of the Port Director before refund is made. The Port of Stockton reserves the right to estimate and collect in advance all charges which may accrue against vessels, their owners and agents, or against cargo loaded or discharged by such vessel, or from other users of the facilities of the Port of Stockton whose credit has not been properly established with the Port of Stockton or who are habitually on the delinquent list. Use of the facilities may be denied until such advance payments or deposits are made.
60	Finance Charges	A finance charge of 1-1/2% per month will be charged on all unpaid balances outstanding over thirty (30) days from invoice date.
61	Dumping Into Waters	The dumping of oil, oily wastes, trash or other objectionable matter into the waters of the Inner Harbor or other navigable waters is prohibited.
62	Freight or Cargo Liable To Damage Other Freight Or Cargo	If, in the opinion of the Port Director, any freight or cargo is likely to damage other freight or cargo, it may be moved to another shed or warehouse or to private facilities at the risk and expense of the owner, without the necessity of prior notice to the owner.
63	Fire Fighting Apparatus	No person shall obstruct or interfere with the free and easy access to, or remove, or in any manner disturb any fire extinguisher, fire hose, fire hydrant or any other fire fighting apparatus or watchman's key station installed in or upon any property of the Port of Stockton.
64	No Smoking	No person shall smoke or have in their possession any fire or lighted material on or upon the wharves or in the warehouses, sheds or other structures set apart for the unloading or loading of vessels, or for the storage or warehousing of their cargoes, or other merchandise; nor shall any person smoke upon any truck, dray, float, automobile or vehicle of any kind when using the structures

(Cont'd next page)

Item	Subject	Application
68	Wharf Cleaning And/or Obstruction Of (Cont'd)	Pallets may not be stacked and stored on aprons, against warehouse or in open areas used for cargo storage. Pallets allowed to remain in above areas will be removed by Port of Stockton personnel and appropriate firm billed at cost plus 25% for work entailed.
69	Removal of Articles Dropped Into Channel	Stages must be set in such manner as to prevent cargo or scrap from falling into the channel. In the event stevedores or others responsible do not set stages properly, the Port of Stockton reserves the right to stop loading or unloading of vessels until stages are properly placed. Stevedores and/or agents shall be liable for the removal of any articles dropped in basin or channel and the Port of Stockton reserves the right to remove such articles on the basis of cost plus 20% at the expense of the user of the equipment.
70	Traffic Via Motor Carrier	Shippers picking up and delivering cargo to the Port by truck are required to give 24 hours advance notice. Unscheduled trucks will be unloaded on an opportune basis only.
71	Lights at Night	All vessels, barges, or other water craft, while anchored or moored in the waterways of the Port of Stockton, must at all times of the night show proper lights.
72	Storage Shut-Out Cargo	The steamship line will be held liable for storage charges for cargo shut-out by a vessel. Steamship lines will be required to furnish statement of cargo shut-out within five (5) days after departure of vessel.

Item	Subject	Rates and Conditions
1201	Pollution Prevention and Control	In order to effectively monitor compliance with governmental pollution control standards for handling of both liquid and dry bulk cargoes, the Port of Stockton maintains a Pollution Monitoring and Prevention Program. A secondary purpose of this program is to ensure both the Port's and cargo owner's minimal exposure to risk should an accident or spill occur. The charge for this service is $ .21 per metric ton of cargo discharged or loaded.
1202	Stormwater Discharge	In order to ensure compliance with federal and state regulations associated with monitoring and testing stormwater discharge, and to defray the cost attendant thereto, the Port will assess a fee of one-half (1/2 ¢) per square foot of rental space monthly to all tenants other than those importing or exporting dry or liquid bulk cargoes across port wharves (see item 1201). For purposes of this part, an importer or exporter is defined as having shipped liquid or dry bulk cargoes across port wharves within the current calendar year.
1203	Monitoring of Loading and Unloading Operations	Each tenant, stevedore, or other responsible party is required to monitor, or cause to be monitored, each of its material loading and unloading operations at the Port of Stockton which have a reasonable potential to cause a discharge into the Stockton Deepwater Channel or the San Joaquin River and that could adversely affect water quality. The terms "monitor" and "monitored" as used in this Item, are defined to include visual observation and water quality analysis. The requisite water quality analysis shall include sampling the receiving waters for relevant pollutants. Prior to conducting any loading or unloading of material, each tenant, stevedore, or other responsible party shall submit a plan for monitoring to the Port Director for approval.

POLLUTION PREVENTION

Item	Subject	Rates and Conditions
1204	Definitions	a) "Industrial Activities Storm Water General Permit" means California State Water Resources Control Board Water Quality Order No. 97-03-DWQ, as it may be amended or replaced. b) "Authorized non-storm water discharges," "best management practices," and "non-storm water discharge" have the same meaning as they do under the Industrial Activities Storm Water General Permit. "Storm water discharge associated with industrial activity" has the same meaning as in 40 C.F.R. section 122.26(b)(14). c) "Premises" means 1) all areas at the Port of Stockton that a person occupies, improves, works on, or manages, whether as lessee or sublessee; and 2) all areas at the Port of Stockton that a person owns, if that person conducts activities in the area and does not lease the area to another person. d) "Fiscal year" means the period from July 1 until June 30 of the following year. e) "Person" has the same meaning as it does under the Federal Water Pollution Control Act, 33 U.S.C. section 125 et seq. f) "Port Director" means the Port Director, the acting Port Director, or any person or persons designated by the Port Director.
1205	Control of Storm Water Discharges	a) All persons conducting industrial activities, including construction activities, at the Port of Stockton shall comply with all applicable laws concerning a storm water discharge associated with industrial activity b) All persons not subject to the provisions of paragraph (a) shall implement best management practices to control storm water discharges associated with their activities at the Port of Stockton. The Port Director shall have authority to require that any person conducting activities at the Port of Stockton: (Cont'd next page)

Item	Subject	Rates and Condition
1205	Control of Storm Water Discharges (Cont'd)	1) Prepare a list of best management practices in place to control and to minimize the discharge of materials associated with its activities at the Port together with inspection records indicating the implementation of best management practices. 2) Maintain a copy of the list of best management practices at the premises where activities are conducted at the Port. 3) Submit a copy of the initial list of best management practices to the Port Director for review, and make the list, along with any revisions, available for inspection by the Port Director. 4) Review, and as necessary, revise its list of best management practices: and 5) Maintain, for at least five years, lists of best management practices it has implemented. c) The Port Director shall have authority to require that any person conducting activities at the Port of Stockton monitor and report on storm water discharges from its activities at the Port of Stockton as described in this paragraph. 1) During at least one storm event per fiscal year, each person required to sample under this paragraph shall monitor and sample storm water discharges from its activities. Samples shall be taken at each location within a person's premises where storm water enters the Port of Stockton's storm water conveyance system at drop inlets and/or as sheet flow into Port drainage ditches. 2) Each person required to sample under this paragraph shall: i) Conduct the sampling using the protocols required under the Industrial Activities Storm Water General Permit, including the requirements for the number of dry working days preceding the sampling event; (Cont'd next page)

Item	Subject	Rates and Condition
1205	Control of Storm Water Discharges (Cont'd)	ii) Sample for constituents as required under the Industrial Activities Storm Water General Permit and additional parameters if required by the Port; and iii) Prepare a visual observation report, in the form prescribed by the Industrial Activities Storm Water General Permit, describing the character of the storm water discharge. 3) In the event that a person's premises at the Port of Stockton do not contain a point of entry into the Port of Stockton's storm water conveyance system either through discharge into a drop inlet or sheet flow discharge into a drainage ditch, the person need only prepare the report required under (2) (iii) of this paragraph. 4) Each person required to sample under this paragraph shall submit a copy of the sampling reports and visual observations prepared under this paragraph to the Port Director by the last day of each fiscal year. d) The Port Director shall have the authority to require that any person conducting activities at the Port of Stockton monitor, sample, or analyze non-storm water discharges associated with its activities. e) Failure to conduct monitoring sampling or analysis required by the Port Director is a violation of this tariff item. The Port Director may issue a citation for any violation of this tariff item. Each day a person remains in violation of this tariff item is grounds for a separate citation. The provisions in this tariff item are in addition to the requirements under the Porter-Cologne Water Quality Control Act (Water Code section 13000 et seq.) and the Federal Water Pollution Control Act (33 U.S.C. section 1251 et seq.). Any citation issued under this paragraph shall contain the following language: You have been issued this citation for a violation of the Port of Stockton's tariff items governing storm water discharges. The tariff items are in addition to your responsibilities under the Porter-

(Cont'd next page)

POLLUTION PREVENTION

Item	Subject	Rates and Condition
1205	Control of Storm Water Discharges (Cont'd)	Cologne Water Quality Control Act (Water Code section 13000 et seq.) and the Federal Water Pollution Control Act (33 U.S.C. section 1251 et seq.). Copies of this citation may be forwarded to the Regional Water Quality Control Board, Central Valley Region and/or to the California Attorney General's Office for review and additional enforcement.
1206	Prohibition of Illicit Discharges	a) No person shall discharge, release, or allow the discharge or the release of any substance other than storm water to the storm water conveyance system of the Port of Stockton, except as provided in this tariff item. b) The prohibition in paragraph (a) does not apply to discharges or releases when the responsible person has notified the Port Director and received written authorization from the Regional Water Quality Control Board, Central Valley Region. 1) For discharges, releases, or connections existing on the effective date of this tariff item, the person responsible shall notify the Port Director within 30 days of the adoption of this tariff item and obtain written authorization from the Regional Water Quality Control Board, Central Valley Region that the discharge is permitted under applicable laws. The notification and authorization must include a description of the discharge or release. 2) For discharges, releases, or connections not existing on the effective date of this tariff item, the person responsible shall notify the Port Director at lease 30 days prior to the proposed discharge or release and obtain written authorization from the Regional Water Quality Control Board, Central Valley Region that the discharge is permitted under applicable laws. The notification and authorization must include a description of the discharge or release.

(Cont'd next page)

Item	Subject	Rates and Condition
1206	Prohibition of Illicit Discharges (Cont'd)	3) Any person obtaining an authorization from the Regional Board pursuant to this paragraph (b) shall forward a copy of the authorization to the Port Director. 4) The requirements of this paragraph (b) are in addition to all obligations under Tariff Item 1207 concerning non-storm water discharges. c) The Port Director may issue a citation for any violation of this tariff item. Each day a person remains in violation of this tariff item is grounds for a separate citation. The provisions in this tariff item are in addition to the requirements under the Porter-Cologne Water Quality Control Act (Water Code section 13000 et seq.) and the Federal Water Pollution Control Act (33 U.S.C. section 1251 et seq.). Any citation issued under this paragraph shall contain the following language: You have been issued this citation for a violation of the Port of Stockton's tariff items governing storm water discharges. The tariff items are in addition to your responsibilities under the Porter-Cologne Water Quality Control Act (Water Code section 13000 et seq.) and the Federal Water Pollution Control Act (33 U.S.C. section 1251 et seq.). Copies of this citation may be forwarded to the Regional Water Quality Board, Central Valley Region and/or to the California Attorney General's Office for review and additional enforcement.
1207	Control of Non-Storm Water Discharges	a) No person shall cause or allow any substance other than storm water to enter the storm water conveyance system of the Port of Stockton, except as provided in this tariff item.

(Cont'd next page)

Item	Subject	Rates and Condition
1207	Control of Non-Storm Water Discharges	b) Discharges otherwise prohibited under paragraph (a) are permitted provided that i) the discharge qualifies as an authorized non-storm water discharge; or ii) the discharge is permitted by a National Pollutant Discharge Elimination System ("NPDES") permit and the permittee complies with all conditions of the NPDES permit. 1) Any person responsible for an authorized non-storm water discharge shall implement best management practices to minimize the amount of non-storm water reaching the storm water conveyance system; 2) Any person responsible for a discharge authorized pursuant to an NPDES permit shall submit a copy of the NPDES permit to the Port Director. 3) Any person responsible for a discharge authorized pursuant to any other authority shall provide a description of each discharge and a copy of the authorization permitting the discharge. c) Other than as authorized in paragraph (b), any person who causes or allows a substance other than storm water to enter the storm water conveyance system of the Port of Stockton shall submit within 7 days of the initial discharge a written report to the Port Director identifying the following: 1) The chemical nature of the substance(s) discharged; 2) The estimated amount of substance(s) discharged to the storm water conveyance system; 3) The cause of the discharge; 4) The practices in place prior to the discharge to prevent or minimize the discharge; 5) The steps taken to eliminate the discharge: and 6) The additional practices that will be implemented to prevent further discharges.

(Cont'd next page)

Item	Subject	Rates and Condition
1207	Control of Non-Storm Water Discharges (Cont'd)	d) The Port Director may issue a citation for any violation of this tariff item. Each day a person remains in violation of this tariff item is grounds for a separate citation. The provisions in this tariff item are in addition to the requirements under the Porter-Cologne Water Quality Control Act (Water Code section 13000 et seq.) and the Federal Water Pollution Control Act (33 U.S.C. section 1251 et seq.). Any citation issued under this paragraph shall contain the following language: You have been issued this citation for a violation of the Port of Stockton's tariff items governing storm water discharges. The tariff items are in addition to your responsibilities under the Porter-Cologne Water Quality Control Act (Water Code section 13000 et seq.) and the Federal Water Pollution Control Act (33 U.S.C. section 1251 et seq.). Copies of this citation may be forwarded to the Regional Water Quality Control Board, Central Valley Region and/or to the California Attorney General's Office for review and additional enforcement.

Table of Contents

Page

1. Lease and Definitions. 2
   1.1. Lease of Premises 2
   1.2. Definitions 2
      1.2.1. Adjustment Date 2
      1.2.2. Code 2
      1.2.3. Code Violation 2
      1.2.4. Commencement Date 2
      1.2.5. Controlled Entity 3
      1.2.6. CPI 3
      1.2.7. Default 3
      1.2.8. Laws 3
      1.2.9. Lease Year 3
      1.2.10. Parties 3
      1.2.11. Party 3
      1.2.12. Port Director 3
      1.2.13. Port and Port Persons 3
      1.2.14. Premises 3
      1.2.15. Tenant and Tenant Persons 3
2. Premises. 3
   2.1. General Description of Premises 3
   2.2. Legal Description 4
   2.3. Reservations 4
      2.3.1. Utility Rights of Way 4
      2.3.2. Port of Stockton Tariffs 4
      2.3.3. Streets and Highways 4
      2.3.4. Prior Exceptions 4
      2.3.5. Surface Reservation 4
   2.4. Inspection 5
      2.4.1. Suitability 5
      2.4.2. No Warranty 5
      2.4.3. Required Additions and Improvements at Tenant's Expense 5
   2.5. No Easement for Light, Air or View 5
   2.6. Relocation 5
3. Term. 6
   3.1. Length 6
   3.2. Nondelivery of Possession 6
   3.3. Early Possession 7
   3.4. Holdover. 7
      3.4.1. Port Director Approval 7
      3.4.2. Rent During Holdover 7
4. Rent. 7
   4.1. Amount 7

Table of Contents
(continued)

Page

4.2. Proration 8
4.3. Late Charge 8
4.4. Escalation of Rent. 8
4.4.1. Initial Escalation 8
4.4.1.1. Computation of Adjustment 8
4.4.1.2. Conversion of Index Figure 9
4.5. Taxes; Assessments. 9
4.5.1. On Real and Personal Property 9
4.5.2. No Prorations 9
4.5.3. Tenant's Right To Contest 9
4.5.4. Exceptions 10
4.5.5. Proof of Compliance 10
4.6. Records and Accounts 10
4.6.1. Records to be Kept 10
4.6.2. Inspection Records 10
4.6.3. Confidential 10
4.7. Accord and Satisfaction; Receipt of Money. 11
4.7.1. Accord and Satisfaction 11
4.7.2. Receipt of Money 11
5. Use. 11
5.1. Principal Use 11
5.2. Manner of Use 11
5.3. Failure to Obtain Permits 12
5.4. Waiver 12
5.5. Land Use Restrictions 12
5.6. Prohibited Uses 12
5.7. Additional Prohibited Uses 13
5.8. Backup Beepers 13
5.9. Noise Fences 13
5.10. Notice of Violation 14
6. Default, Termination and Remedies. 14
6.1. Default by Tenant 14
6.1.1. Abandonment 14
6.1.2. Failure to Pay 14
6.1.3. Failure to Observe Lease Provisions 14
6.1.4. Bankruptcy 14
6.2. Default by Port 14
6.3. Bankruptcy or Insolvency. 14
6.3.1. Events of Bankruptcy 15
6.3.1.1. Insolvent 15
6.3.1.2. Voluntary Petition 15

Table of Contents
(continued)

Page

6.3.1.3. Receiver 15
6.3.1.4. Involuntary Petition 15
6.3.1.5. Assignment 15
6.3.2. Termination as Result of Bankruptcy 15
6.3.3. Following Petition 16
6.3.3.1. Performance 16
6.3.3.2. Payment 16
6.3.3.3. Abandonment 16
6.3.3.4. Actions 16
6.3.3.5. Automatic Rejection 16
6.3.4. Assumption or Assignment in Bankruptcy 16
6.3.4.1. Rights 16
6.3.4.2. Minimum Criteria 17
6.3.4.3. Failure By Tenant 18
6.3.5. Damages 18
6.3.6. No Default Waived 18
6.3.7. Lease 19
6.3.8. Obligations 19
6.3.8.1. Cure 19
6.3.8.2. Security Deposit 19
6.3.8.3. Use 19
6.3.8.4. Competence 19
6.3.8.5. Mortgage 19
6.3.8.6. Physical Changes 19
6.4. Remedies 19
6.4.1. Termination 19
6.4.2. Re-entry 19
6.4.3. Collection of Rents 20
6.4.4. Alternate Termination 20
6.5. No Termination 20
6.6. Termination 20
6.6.1. Rent Earned at Time of Termination 20
6.6.2. Rent Earned After Termination 20
6.6.3. Rent for Balance of Term 20
6.6.4. Other Compensation 20
6.6.5. Other Amounts 21
6.6.6. Worth 21
6.6.7. Worth as Used in Subsection 6.6.3 21
6.7. Remedies Not Limited 21
6.8. Destruction of Premises. 21
6.8.1. Port to Repair if Insured 21

Table of Contents
(continued)

Page

6.8.2. Destruction During Last 12 Months of Term 21
6.8.3. Destruction Not Insured 21
6.8.4. Rent Proportioned 22
6.8.5. Failure to Complete Repair 22
7. Improvements. 22
7.1. Duty to Construct 22
7.2. New Improvements 22
7.2.1. Improvements and Modifications To and For Existing Facilities 23
7.2.2. Tenant's Property 23
7.3. Conditions of Major Construction 23
7.3.1. Preparation and Submission of Plans 23
7.3.1.1. Information 23
7.3.1.2. Working Drawings 24
7.3.2. Port's Approval of Plans 24
7.3.3. Notice of Intent to Construct 24
7.3.4. Port's Approval of General Contractor 24
7.3.5. Performance Bonds 25
7.3.6. Required Governmental Permits 25
7.4. Grant of Easements 25
7.5. Completion 25
7.5.1. Diligent Prosecution to Completion 25
7.5.2. Notice of Changes in Plans 26
7.5.3. Notice of Completion 26
7.6. Compliance With Applicable Laws 26
7.7. Soil Management 26
7.8. Contractor and Subcontractor 27
7.9. Protection of the Port Against Cost or Claims 27
7.10. Port's Right to Discharge Lien 27
7.11. Ownership 27
8. Maintenance and Restoration 27
8.1. Maintenance. 27
8.1.1. Normal Maintenance 28
8.1.2. Repairs 28
8.1.3. Exclusion 28
8.1.4. Cure 28
8.2. Delivery 29
8.3. Port Maintenance 29
8.3.1. Roof 29
8.3.2. Roof Structures 29
8.3.3. Utilities 29
8.3.4. Driveways 29

Table of Contents
(continued)

Page

8.3.5. Damage to the Premises 29
8.4. Tenant's Limitations 29
8.5. Legal Requirements. 30
8.5.1. Definitions 30
8.5.2. Responsibility 30
8.6. Restoration and Surrender of Premises 30
8.7. Service and Utilities 31
8.8. Inspection of Premises 31
8.9. Signs 31
8.10. Surety Bond for Restoration 31
8.11. Interruption of Services 31
9. Tenant's Liability for Operations on Premises and Insurance. 32
9.1. Indemnity 32
9.1.1. Condition of Premises 32
9.1.2. Use of Hazardous Materials 32
9.1.3. Act, Omission, or Negligence 32
9.1.4. Failure to Comply 32
9.1.5. Claims 32
9.1.6. Lack of Port Authorization 33
9.1.7. In Addition 33
9.2. Tenant's Liability for Damages to Port 33
9.3. Insurance. 33
9.3.1. Payment For Insurance 33
9.3.2. Liability Insurance. 33
9.3.2.1. Carried by Tenant 33
9.3.2.2. Carried by Port 34
9.3.3. Property Insurance – Building, Improvements. 34
9.3.3.1. Building and Improvements 34
9.3.3.2. Tenant Insured Items 34
9.3.3.3. Builder's Risk 34
9.3.3.4. Boiler and Machinery 35
9.3.3.5. Workers' Compensation 35
9.3.4. Adjacent Premises 35
9.3.5. Tenant's Property 35
9.3.5.1. Property Damage 35
9.3.5.2. No Representation of Adequate Coverage 35
9.4. Waiver of Subrogation 35
9.5. Exemption of Port from Liability 36
9.6. Other Insurance Provisions. 36
9.6.1. Change 36
9.6.2. Additional Insurance 36

Table of Contents
(continued)

Page

9.6.3. Standards for Insurance....36
9.6.3.1. Payable....37
9.6.3.2. Waiver....37
9.6.3.3. Primary....37
9.6.3.4. Notice....37
9.6.3.5. Policies....37
9.6.3.6. Failure to Insure....38
9.6.3.7. Mortgage Holder....38
9.6.3.8. Required Endorsement....38
Report of Loss....38
10. Assignment and Sublease....39
10.1. Prohibition Against Assignment or Subletting....39
10.2. Tenant's Permitted Assignment or Subletting....40
10.2.1. Controlled Entity....40
10.2.2. Sublease....40
10.3. Information on Potential Assignee or Subtenant....40
10.3.1. Name....40
10.3.2. Nature of Business....40
10.3.3. Space....40
10.3.4. Terms and Provisions....40
10.3.5. Financial Information....40
10.4. Conditions of Assignment or Sublease....41
10.4.1. Terms of Notice....41
10.4.2. Additional Costs....41
10.4.3. Consistent and Compatible....41
10.4.4. Executed Copy....41
10.4.5. Consideration to Port....41
10.5. No Merger; Sub-Subletting: Documentation....42
10.5.1. Termination....42
10.5.2. Assignment to Port....42
10.6. No Release of Tenant....42
10.7. Payment of Port's Expenses....43
10.8. Notice of Occupancy....43
11. Estoppel Certificate; Subordination....43
11.1. Tenant's Certificate....43
11.2. Port's Certificate....43
11.3. Failure to Furnish Certificate....43
11.4. Subordination....43
11.4.1. Subordinate to Debt Security....43
11.4.2. Tenant to Execute Documents....44
12. New Financing....44

Table of Contents
(continued)

Page

13. Hazardous Materials. 44
13.1. Prohibition of Storage 44
13.1.1. Clean-up 45
13.1.2. Business 45
13.2. Termination of Lease 46
13.3. Assignment and Hazardous Materials 46
13.3.1. Prohibited 46
13.3.2. Prior Removal 46
13.3.3. Enforcement Order 47
13.4. Environmental Audit 47
13.4.1. Required 47
13.4.2. Environmental Audit Defined 47
13.4.2.1. Records 48
13.4.2.2. Releases 48
13.4.2.3. Processes 48
13.4.2.4. Permits 48
13.4.2.5. Other Information 48
13.4.2.6. Sampling and Testing 48
13.4.2.7. Final Environmental Audit 48
13.5. Port's Right to Perform Tests 49
13.6. Tenant's Obligations 49
13.7. Health and Safety Code Section 25359.7 49
13.8. Definition of "Hazardous Materials" 49
13.8.1. CERCLA 49
13.8.2. Waste US 50
13.8.3. Waste California 50
13.8.4. Toxic Substances 50
13.8.5. Air Pollutant 50
13.8.6. Water Pollution 50
13.8.7. Safe Drinking Water 50
13.8.8. Cancer Causing 50
13.8.9. Petroleum 50
13.8.10. Asbestos 50
13.8.11. Other Substance 50
13.9. Pre-Existing Conditions 50
14. Miscellaneous Provisions 51
14.1. Interpretation and Applicable Laws 51
14.2. Corporate Authority 51
14.3. Compliance with Laws. 51
14.3.1. Compliance 51
14.3.2. Discrimination 52

Table of Contents
(continued)

Page

14.4. License Fees and Taxes 52
14.5. Invalidity 52
14.6. Waiver of Claims 52
14.7. Conflict of Interest 52
14.8. Visitors 53
14.9. Attorneys' Fees. 53
14.9.1. Fees 53
14.9.2. Expenses 53
14.9.3. Unlawful Detainer 53
14.10. Notices 54
14.11. Waivers of Performance 55
14.12. Integration 55
14.13. Time of Essence 55
14.14. Extensions 55
14.15. Use of Port's Name 55
14.16. Force Majeure 55
14.17. Brokers 56
14.18. Joint and Several 56
14.19. Representations by Port 56
14.19.1. No Violation 56
14.19.2. Code Violations 56
14.19.3. Actual Knowledge 56
14.20. Reasonable and Reasonably 57
14.21. Approval 57

PORT OF STOCKTON
STANDARD LEASE - WEST COMPLEX

_____ NO. _____

GRANTED BY THE STOCKTON PORT DISTRICT

TO _____

PORT OF STOCKTON
STANDARD LEASE - WEST COMPLEX

_____NO._____

LEASE BY THE STOCKTON PORT DISTRICT

TO_____

☐ This Lease is made and entered into on _____, 20__ by and between THE STOCKTON PORT DISTRICT, a California Port District with municipal powers organized pursuant to Harbors and Navigations Code section 6200 et seq. ("Port"), and _____, a

☐ _____ ("Tenant").

1. Lease and Definitions.

1.1. Lease of Premises. Port hereby delivers, and Tenant hereby accepts, the Premises hereinafter described, subject to the terms and conditions provided herein. This Lease is subject to the terms, covenants, and conditions set forth herein, and Tenant covenants that a material part of the consideration for this Lease is to keep and perform each and all of the terms, covenants, and conditions by it to be kept or performed, and this Lease is made upon the express condition of that performance.

1.2. Definitions.

1.2.1. Adjustment Date. "Adjustment Date" means the date defined in Section 4.4.1.

1.2.2. Code. "Code" means any applicable planning, zoning, building, fire or safety code, regulation or ordinance.

1.2.3. Code Violation. "Code Violation" means any deviation from a Code which is a violation thereof and which requires correction whether or not there is a change in use conducted on the Premises or any construction work performed on the Premises.

1.2.4. Commencement Date. "Commencement Date" means the date on which the lease commences; the Commencement Date is set forth in Subsection 3.1.

1.2.5. Controlled Entity. "Controlled Entity" means any corporation, partnership, or other entity, including but not limited to affiliates and subsidiaries, controlling, controlled by or under common control with Tenant. "Control" as used in the preceding sentence means the ownership of at least 51% of the voting interest in any corporation, partnership or other entity.

1.2.6. CPI. "CPI" means the Consumer Price Index for all Urban Consumers for the U.S. City Average based on the year 1982-84 = 100 as published by the U.S. Department of Labor's Bureau of Labor Statistics.

1.2.7. Default. "Default" means the events described in Subsections 6.1 and 6.2.

1.2.8. Laws. "Laws" means any Federal, State, regional, or local statute or ordinance, including but not limited to the Tariffs of the Port of Stockton, and includes any regulation or rule adopted under any of the foregoing which is applicable to the particular circumstances and the Party involved.

1.2.9. Lease Year. "Lease Year" means each year during the term commencing with the Commencement Date and ending on the day prior to the anniversary of the Commencement Date.

1.2.10. Parties. "Parties" means both of the two parties to this Lease.

1.2.11. Party. "Party" means either of the two parties to this Lease.

1.2.12. Port Director. "Port Director" means the Port Director of the Stockton Port District.

1.2.13. Port and Port Persons. "Port and Port Persons" means the Port, Port's Board of Commissioners, officers, agents, representatives, contractors, employees, and invitees.

1.2.14. Premises. "Premises" means the property described in Subsection 2.1 and more particularly described in EXHIBIT "A" and EXHIBIT "B" referenced by Subsection 2.2.

1.2.15. Tenant and Tenant Persons. "Tenant and Tenant Persons" means Tenant and Tenant's officers, agents, employees, contractors, subleases, licenses, and invitees.

2. Premises.

2.1. General Description of Premises. The Premises consist of _____.

2.2. Legal Description. The Premises subject to this Lease are described in EXHIBIT "A," and shown on the drawing marked EXHIBIT "B." The term "Premises," as used in this Lease, shall include the land and structures owned by or under the control of Port, as the structures are described and shown in EXHIBITS "A" and "B"; no other land or structures shall be considered part of the Premises.

2.3. Reservations. This Lease and the Premises are subject to the following:

2.3.1. Utility Rights of Way. Rights-of-way for sewers, pipelines, conduits, telephone, cable, electricity, gas, and any other utilities as may from time to time be determined to be necessary by Port, whether Port or others, provide the utility service, including the right to enter upon, above, below or through the surface to construct, maintain, replace, repair, enlarge or otherwise utilize the Premises for the purpose, without compensation or abatement of rent, provided that except in the case of an emergency, Port first gives reasonable advance notice, and the access takes place during reasonable times with as little interference to Tenant's operations as is reasonably feasible, and the Premises shall be restored to the extent feasible, to the condition previously existing.

2.3.2. Port of Stockton Tariffs. The current provisions, from time to time, of the Tariffs of the Port of Stockton, provided that changes to the Tariffs are given 30 days public notice prior to adoption. To the extent inconsistent with the provisions hereof, the provisions of this Lease shall take precedence and control over the Tariffs.

2.3.3. Streets and Highways. Rights-of-way for streets, highways, railroads, and other means of transportation which are apparent from a visual inspection of the Premises or which are specifically reserved.

2.3.4. Prior Exceptions. All exceptions, reservations, grants, easements, leases or licenses as they appear of record in the Office of the Recorder of San Joaquin County, California, or in official Port records.

2.3.5. Surface Reservation. The right of Port to occupy, and to grant to others the right to use, portions of the Premises, for all purposes reasonably incident to exploring for, drilling for, producing, processing, storing and transporting oil, gas or other hydrocarbons and associated substances; provided that the use shall not materially interfere with Tenant's use hereunder and provided further, that the rental herein designated shall be adjusted proportionately to compensate for the surface areas used.

2.4. Inspection. Tenant has inspected the Premises prior to occupying them for the permitted uses and agrees that:

2.4.1. Suitability. The Premises, including any improvements existing thereon covered by this Lease, are suitable for Tenant's intended uses.

2.4.2. No Warranty. Port and Port Persons have not made any representation or warranty with respect to the Premises, including improvements existing thereon, unless the nature and extent of the representation or warranty is incorporated in this Lease or is described in writing and attached as a lettered exhibit, to this Lease. Except as specifically provided in this Lease, no warranty of any kind is made with respect to the Premises or improvements.

2.4.3. Required Additions and Improvements at Tenant's Expense. Any modification, improvement, or addition to the Premises and any equipment installation lawfully required by the Stockton Fire Department, the Stockton Community Development Department, the San Joaquin Valley Unified Air Pollution Control District, the Regional Water Quality Control Board, Central Valley Region, the Coast Guard, the California Department of Fish & Game, the United States Fish & Wildlife Service, the United States Environmental Protection Agency or any other local, regional, state or federal agency and any modification, improvement or addition to the Premises and any equipment installation required by Laws to be made to the Premises including, without limitation, any repairs, alterations, additions, improvements or installations required by The Americans with Disabilities Act of 1990 and all regulations promulgated pursuant thereto, in connection with Tenant's use, shall be constructed and installed at Tenant's sole expense.

2.5. No Easement for Light, Air or View. No easement for light, air or view is a part of this Lease. Accordingly, any diminution or shutting off of light, air or view by any structure which may be erected on lands in the vicinity of the Premises shall not affect this Lease or impose any liability upon Port.

2.6. Relocation. Port reserves the right to substitute other Premises within the Building or other Port Property for the Premises for all uses and purposes as though originally leased to Tenant by this Lease, upon One Hundred Eighty (180) days' written notice to Tenant. The substituted Premises shall contain at least the same square footage and substantially the same improvements as the original

Premises without increase of rental. Port shall pay all reasonable moving expenses of Tenant incident to a substitution of Premises, including, without limitation, personnel downtime, the cost of dismantling and reassembling equipment, the cost of moving inventory and stationery and similar expenses incurred as a result of the relocation. If Tenant is so relocated, Port and Tenant shall amend this Lease to reflect the changed terms of this Lease. All other provisions of this Lease shall remain in full force and effect.

3. Term.

☐ ☐ ☐ ☐

3.1. Length. The term of this Lease shall be for a period of_____ year(s) and shall commence on _____ and expire on _____. If Tenant is not in Default of any of its obligations, Tenant shall have the option to extend the term of this Lease, on all the provisions contained in this Lease, except for rental, for _____ additional _____ year periods, the options to be exercised by Tenant giving to Port not less than 90 days written notice prior to the expiration of the previous term. If Tenant is in Default as to obligation under this Lease on the date of giving notice, the notice shall be totally ineffective. If Tenant is in Default on the date the extended term is to commence, the extended term shall not commence and this Lease shall expire at the end of the previous term. The rent for the option periods shall be determined in accordance with Section 4, including Subsection 4.4. Except as set forth above, Tenant shall have no right to extend the term of this Lease.

3.2. Nondelivery of Possession. Notwithstanding the Commencement Date, if for any reason Port cannot deliver possession of the Premises to Tenant on the specified date, Port shall not be subject to any liability therefor, nor shall the failure affect the validity of this Lease or the obligations of Tenant or extend the term, however, the rent shall be abated one day for each day of delay from the Commencement Date until Port delivers possession of the Premises to Tenant. If Port shall not have delivered possession of the Premises within 90 days from the Commencement Date, Tenant may, at Tenant's option, by written notice to Port, terminate this Lease. If Port shall not have delivered possession of the Premises within one year from the Commencement Date, Port may, by notice to the Tenant within 10 days thereafter, terminate this Lease. If either party terminates this Lease as provided above, Port shall return any money previously deposited by Tenant, and the Parties shall be discharged from all obligations under this Lease.

3.3. Early Possession. If Port shall permit Tenant to occupy the Premises prior to the Commencement Date, the occupancy shall be subject to all of the provisions of this Lease. Early possession shall not change the expiration date of this Lease.

3.4. Holdover.

3.4.1. Port Director Approval. This Lease shall terminate without further notice upon expiration of the term, or upon expiration of the extended term, as the case may be. Any holdover by Tenant after expiration shall not constitute a renewal or extension or give Tenant any rights except as otherwise expressly provided in this Lease. Tenant may holdover only by obtaining the prior written approval of the Port Director. Any holdover shall be deemed an extension of this Lease on a month-to-month basis, terminable on 30 days written notice given by either party, at a rate of rent equal to 120% of the monthly rent for the last month of the term, or extended term, of this Lease and shall otherwise be upon the same terms and conditions as set forth in this Lease.

3.4.2. Rent During Holdover. Rent during a holdover period shall be at a ate equal to 120% of the monthly rent for the last month of the term, or extended term, of this Lease and shall otherwise be upon the same terms and conditions as set forth in this Lease. In the event that during any holdover by Tenant, Port and Tenant agree to extend the term of this Lease, or enter into a new lease for the Premises or for substantially the same Premises described in this Lease, the rent for the period of any holdover by Tenant shall be at the rate provided in the extension or new lease. The payments of rent for any holdover by Tenant to Port at the rates provided in this Lease shall be credited against the rent payable under the extension or new lease and Tenant shall pay to Port, or Port shall credit Tenant against future rent as the case may be, the difference, if any, between the rent paid at the rate herein provided and the rent due pursuant to the extension or new lease within 30 days after the effective date of the extension or new lease.

4. Rent.

4.1. Amount. Tenant shall pay in advance to Port rent in the sum of_____ Dollars each and every month, subject to adjustment in accordance with Subsection 4.4. The specified rent shall be due and payable on or before the first day of each month during the term and shall be made payable to "Stockton Port District" and mailed to the following address:

Port of Stockton
P.O. Box 2089
Stockton, California 95201
Attn: Accounting Manager

4.2. Proration. Should the Commencement Date occur on a day other than the first day of a calendar month, the rent for the first fractional month shall be prorated and paid on the Commencement Date, together with the rent for the month beginning immediately thereafter. The rent for the last fractional month shall be prorated and paid in advance together with the rent for the last full month of the term of this Lease.

4.3. Late Charge. Tenant acknowledges that late payment by Tenant to Port of rent will cause Port to incur costs not contemplated by this Lease, the exact amount of the costs being impracticable to fix. The costs include, without limitation, processing and accounting charges, and late charges that may be imposed on Port by the terms of any encumbrance and note secured by any encumbrance covering the Premises. Therefore, if any installment of rent due from Tenant is not received by Port within 10 days after the date when due, Tenant shall pay to Port, in addition to interest at the rate of 10% per annum, an additional sum of 5% of the overdue rent as a late charge. The Parties agree that this late charge represents a fair and reasonable estimate of the costs that Port will incur by reason of late payment by Tenant. Acceptance of any late charge shall not constitute a waiver of Tenant's Default with respect to the overdue amount, or prevent Port from exercising any of the other rights and remedies available to Port.

4.4. Escalation of Rent.

4.4.1. Initial Escalation. The annual rent for the Premises, payable in monthly installments, shall be adjusted upward, but not downward, as of the first day of each Lease Year starting with the first full calendar year as follows.

4.4.1.1. Computation of Adjustment. The base for computing the adjustment is the index figure for the month in which the Commencement Date occurs ("index month"), as shown by the CPI. The annual rental for the Premises during each year shall be set by multiplying the annual rent for the preceding year by a fraction, the numerator of which is the index figure for the 3

months prior to the Adjustment Date, and the denominator of which is the index figure for the index month.

4.4.1.2. Conversion of Index Figure. If the index figure for the adjustment month is calculated from a basis other than the base year 1982-84 = 100 used for the index figure for the index month, that index figure shall first be converted under a formula supplied by the Bureau. If the CPI is discontinued or revised during the term of this Lease, any other governmental index or computation with which it is replaced shall be used in order to obtain substantially the same results as would have been obtained if the CPI had not been discontinued or revised.

4.5. Taxes; Assessments.

4.5.1. On Real and Personal Property. Tenant shall be responsible for payment of all real and personal property taxes, general and special assessments, and other charges of every Description levied on or assessed against the Premises, improvements located on the Premises, personal property located on or in the land or improvements, the leasehold estate, or any sub-let estate, including any property taxes on any possessory interest that may be created by this Lease or the occupancy of Tenant, to the extent of all installments falling due during the term, whether belonging to or chargeable against Port or Tenant. Tenant shall make all payments directly to the taxing authority not later than 5 days before delinquency and before any fine, interest or penalty shall become due or be imposed by operation of Laws for nonpayment. If Laws expressly permit the payment of any or all of the above items in installments, whether or not interest accrues on the unpaid balance, Tenant may, at Tenant's election, utilize the permitted installment method, but shall pay each installment with interest before delinquency.

4.5.2. No Prorations. No payments of taxes or assessments or both, shall be prorated for any Lease Year less than a full calendar year. For permitted installment payments, Tenant shall pay all installments falling due during the term of this Lease. If the payments falling due during the term of this Lease are for periods prior to or after expiration of the term of this Lease, Tenant shall make all those payments and may seek reimbursement only from the taxing authority and not from Port.

4.5.3. Tenant's Right To Contest. Tenant may contest the legal validity or amount of any taxes, assessments or charges for which Tenant is responsible under this Lease, and may

institute proceedings as Tenant considers necessary. If Tenant contests any tax, assessment or charge, Tenant may withhold or defer payment or pay under protest but shall protect Port and the Premises from any lien by adequate surety bond or other appropriate security approved by Port.

4.5.4. Exceptions. Tenant's obligation to pay taxes or assessments levied or charged against the Premises or improvements or against specified personal property or against the possessory interest created by this Lease shall not include the following: taxes levied on business income, rents, franchise, profits or transfer taxes levied or assessed against Port by a federal, state or other governmental agency unless levied as a substitute for ad valorem taxes in which case the substitute taxes shall be treated under Subsection 4.5.1.

4.5.5. Proof of Compliance. Tenant shall furnish to Port, at least two days before the date when any tax, assessment, or charge would become delinquent, receipts or other appropriate evidence of payment. Tenant may comply with the requirement by retaining a tax service to notify Port as to whether the taxes have been paid.

4.6. Records and Accounts.

4.6.1. Records to be Kept. Tenant shall keep at the Premises full and accurate books of account, records and other pertinent data to the satisfaction of Port Director covering all transactions and operations under this Lease including, but not limited to, the payment of taxes. Records relating to the derivation of gross income shall be kept if a portion of the rent is paid based on gross income. Books of account, records, and other pertinent data shall be kept for a period of 10 years after the end of each Lease Year. The receipt by Port of any statement, or any payment of percentage rent for any period, shall not bind Port as to the correctness of the statement or the payment.

4.6.2. Inspection Records. Port shall be entitled during the term and within 3 months after expiration or termination of this Lease, upon reasonable notice, to inspect, examine, audit, copy and transcribe all Tenant's books of account, records or other pertinent data. Tenant shall cooperate fully with Port in making the inspection.

4.6.3. Confidential. Except as required otherwise by Laws, Port shall keep any information gained from Tenant's statements and from inspections confidential and shall not disclose it

other than to carry out the purposes of this Lease, except that Port shall be permitted to divulge the contents of any statements in connection with any financing arrangements.

4.7. Accord and Satisfaction; Receipt of Money.

4.7.1. Accord and Satisfaction. No payment by Tenant or receipt by Port of a lesser amount than the basic rent and additional rent, if any, (jointly together "rent" in this Subsection) herein stipulated shall be deemed to be other than on account of the earlier stipulated rent due and not yet paid, nor shall any endorsement or statement on any check or any letter accompanying any check or payment as rent be deemed an accord and satisfaction, and Port may accept the check or payment without prejudice to Port's right to recover the balance of the rent or pursue any other remedy..

4.7.2. Receipt of Money. No receipt of money by Port from Tenant after the termination of this Lease, after the service of any notice relating to the termination of this Lease, after the commencement of any suit or after final judgment for possession of the Premises, shall reinstate, continue to extend the term of this Lease or affect any notice, demand, suit or judgment.

5. Use.

5.1. Principal Use. Tenant shall use the Premises during the term of this Lease only for

☐ the following purpose or purposes: _____.

5.2. Manner of Use. Tenant shall not use or permit the Premises to be used for any other purpose without the prior written consent of Port. Unless expressly and specifically set forth in Subsection 5.1. Tenant may not load, unload, transport, treat, store, refine, modify, alter, repair, improve or otherwise handle any product at or through the Premises without the prior written consent of Port. Tenant represents, warrants and agrees that its use of the Premises will at all times be conducted in a manner compatible with the image and reputation of the Port as a first-class Port facility and will be compatible with the Port's existing tenants and their operations and cargoes. It is specifically agreed that Tenant will not handle any materials or conduct its operations in or about the Premises in any manner which would constitute a hazardous, unsafe or dangerous condition, or which would endanger the life or property of any person. Tenant agrees to use the Premises, and to conduct all activities on or about the Premises, in a careful, non-negligent manner, with due regard for the life and property of all persons and to cause all persons entering the Premises to so conduct themselves.

5.3. Failure to Obtain Permits. In the event Tenant's anticipated use shall require a use permit or other governmental approval and after Tenant's reasonable and diligent efforts to procure the permit or approval Tenant is unable to procure a permit or approval, Tenant may, by written notice to Port, terminate this Lease at any time prior to _____.

5.4. Waiver. The Parties shall not be liable to each other for any damage to the other Party or its successors, assigns, agents, servants, employees, contractors, sublicensees, licensees or invitees or the property of any of the foregoing from any cause, except where the damage is caused by the other Party's, or its agents' or employees' gross negligence or willful misconduct. The Parties waive all claims against each other for damage to persons or property arising for any reason, except as to claims arising by reason of the other Party's, or its agents' or employees' gross negligence or willful misconduct. Each Party also hereby waives any claims against each other and its officers, agents or employees for damages or loss caused by any suit or proceeding directly or indirectly challenging the validity of the Lease or any part thereof, or by any judgment or award in any suit or proceeding declaring this Lease null or voidable or delaying the same or any apt thereof from being carried out.

5.5. Land Use Restrictions. Tenant may enter into agreements restricting use or granting easements over the Premises or obtain conditional use permits or other approvals, provided they are limited to the term of this Lease. Tenant must obtain Port's prior written consent to any restrictions on the land, its use or its alienation, for periods extending beyond the term. Port shall, at Tenant's written request, join Tenant in applications and proceedings to obtain necessary use permits or other approvals, without cost to Port.

5.6. Prohibited Uses. Tenant shall not do or permit anything to be done in or about the Premises, nor bring or keep anything thereon which will cause the cancellation of fire or other insurance covering the Premises or its structures, or which shall in any way conflict with any Laws affecting the occupancy and use of the Premises which are or may hereafter be enacted or promulgated by any public authority. Tenant shall not in any way obstruct or interfere with the rights of other tenants of the Port, or injure or annoy them or cause a condition which is a nuisance to or for other tenants of the Port or owners or occupants of nearby properties. Tenant shall not allow the Premises to be used for any improper, unlawful or objectionable purposes or for any purpose prohibited by any insurance policy covering the Premises or its structures. Tenant agrees that if Tenant's use of the Premises in any manner, even if its

use is for a purpose enumerated herein, increases any premium for insurance of the Port for the Premises, adjacent Premises or any Premises owned by Port, Tenant will pay any and all increases in the premium. Tenant shall take reasonable precautions to prevent light from shining at or onto residential properties including properties north of the Stockton Deepwater Channel.

5.7. Additional Prohibited Uses. The Premises may not be put to any of the following uses: a residence, including any mobile home or factory built housing, used as residential human habitation; a hospital for humans; a public or private school for persons under 18 years of age; a day care center for children; any use that would restrict investigation activities remedial actions, or long term maintenance and operations; or any use of the Premises in a manner that causes the covering or disturbing of groundwater monitoring wells, or any use of the Premises in a manner that restricts access to groundwater monitoring wells. There shall be no alteration of groundwater conditions within the Premises through activities such as construction of any well, extraction, use or consumption of groundwater from wells within the boundary of the Premises, nor any use of any groundwater within the boundary of the Premises, construction or creation of any groundwater recharge area, unlined surface impoundments or disposal trenches, unless specifically approved by the State of California. No use of the Premises shall be made that impedes or impairs any surface, underground or groundwater cleanup.

5.8. Backup Beepers. To the extent permitted by Laws, Tenant and persons operating on the Premises by permission of Tenant shall not use trucks, forklifts, or other equipment equipped with backup beepers or other automatic audible alarms and the equipment shall be equipped with alternate safety devices as allowed by Laws. The preceding sentence shall not apply to equipment owned by Tenant at the time of execution of this Lease. As to equipment equipped with backup beepers and owned by Tenant at the time of execution of this Lease, when the equipment is brought to the Port, to the extent allowed by Laws and to the extent reasonably practical, the backup beepers shall be replaced with alternate safety equipment and/or the backup beepers shall be used to the minimum extent, including both volume and frequency, allowed by Laws.

5.9. Noise Fences. If necessary, in the judgment of the Port Director, in order to reduce any noise which might be heard by residents north of the Stockton Deepwater Channel, Tenant shall at its sole cost and expense erect noise fences at locations reasonably determined by the Port Director with the

configuration reasonably determined by the Port Director. The foregoing sentence shall not apply to longshore operations aboard ships or at a dock nor to operations of the Port Belt Line Railroad.

5.10. Notice of Violation. Tenant shall notify Port in writing immediately whenever Tenant receives notice from any regulatory agency that Tenant is or may be in violation of the terms of any Laws. Tenant's notice to Port shall include a copy of the notice from the regulatory agency.

6. Default, Termination and Remedies.

6.1. Default by Tenant. The occurrence of any one or more of the following events shall constitute a material breach and Default of this Lease by Tenant:

6.1.1. Abandonment. The vacating or abandonment of the Premises by Tenant.

6.1.2. Failure to Pay. Any failure by Tenant to make any payment of rent or any other payment required to be made by Tenant under this Lease when due, if the failure continues for 10 days after the payment is due.

6.1.3. Failure to Observe Lease Provisions. Any failure by Tenant to observe or perform any of the covenants, conditions, or provisions of this Lease to be observed or performed by Tenant, other than those described in Subsection 6.1.2, when the failure continues for more than 30 days after written notice from Port. If the failure is of a nature that cannot reasonably be cured within 30 days, Tenant shall not be in Default hereunder if Tenant commences cure within the 30 day period and diligently prosecutes cure to completion as soon as reasonably possible.

6.1.4. Bankruptcy. The occurrence of an Event of Bankruptcy, or if Tenant takes advantage of any Insolvency Laws, all as described in Subsection 6.3 herein.

6.2. Default by Port. Notwithstanding anything contained in this Lease to the contrary, if Port shall be in Default in the performance of any of its obligations under this Lease, and the Default continues for a period of more than 30 days after receipt of written notice from Tenant specifying the Default, or if the Default is of a nature to require more than 30 days to cure and the Default continues beyond the time reasonably necessary to cure, unless Port has undertaken procedures to cure the Default within the 30 day period and diligently pursues the effort to cure to completion. Tenant may exercise any remedies available to Tenant.

6.3. Bankruptcy or Insolvency.

6.3.1. Events of Bankruptcy. For purposes of this Lease, the following shall be deemed "Events of Bankruptcy" of Tenant:

6.3.1.1. Insolvent. If Tenant becomes "insolvent", as defined in Title 11 of the United States Code, entitled "Bankruptcy", 11 U.S.C. Section 101 et seq. as amended, or any successor statute (hereinafter called the "Bankruptcy Code"), or under the insolvency laws of any state, district, commonwealth or territory of the United States of America ("Insolvency Laws"); or

6.3.1.2. Voluntary Petition. If Tenant files a voluntary petition under the Bankruptcy Code or Insolvency Laws; or

6.3.1.3. Receiver. If a receiver or custodian is appointed for any or all of Tenant's property or assets, or if there is instituted a foreclosure action on any of Tenant's property; or

6.3.1.4. Involuntary Petition. If there is filed an involuntary petition against Tenant as the subject debtor under the Bankruptcy Code or Insolvency Laws, which is not dismissed within thirty (30) days of filing, or results in issuance of an order for relief against the debtor; or

6.3.1.5. Assignment. If Tenant makes or consents to an assignment of its assets, in whole or in part, for the benefit of creditors, or a common law composition of creditors.

6.3.2. Termination as Result of Bankruptcy. Upon the occurrence of an Event of Bankruptcy, or if Tenant takes advantage of any Insolvency Laws, then in that event Port at its option and sole discretion may terminate this Lease at any time by written notice to Tenant (subject, however, to applicable provisions of the Bankruptcy Code or Insolvency Laws during the pendency of any action thereunder involving Tenant as the subject debtor). If this Lease is terminated under this Subsection, Tenant shall immediately surrender and vacate the Premises, waives all statutory or other notice to quit, and agrees that Port's obligations under this Lease shall cease from the termination date, and Port may recover possession by process of law or in any other lawful manner. Furthermore, if this Lease terminates under this Subsection, Port shall have all rights and remedies against Tenant provided in case of default of Tenant in the payment of rent. Tenant hereby acknowledges that it has abandoned all of its personal property remaining on or in the Premises after Tenant surrenders possession of the Premises, and Tenant hereby authorizes Port to dispose of Tenant's personal property in any manner Port deems

appropriate without accounting to Tenant or its legal representative for the proceeds. Notwithstanding the foregoing, Port retains the right to assert an administrative claim and a general unsecured claim that result from a breach of this Lease including, without limitation, the cost to remove Tenant's personal property from the Premises and to restore the Premises after Tenant surrenders possession.

6.3.3. Following Petition. Upon the filing of a petition by or against Tenant under the Bankruptcy Code or Insolvency Laws, and if this Lease is not terminated pursuant to Subsection 6.3.2 herein, Tenant, as debtor and as debtor in possession, and any trustee who may be appointed, agree as follows:

6.3.3.1. Performance. To perform each and every obligation of Tenant under this Lease until this Lease is either rejected or assumed by order of the United States Bankruptcy Court;

6.3.3.2. Payment. To pay monthly in advance on the first day of each month as reasonable compensation for use and occupancy of the Premises an amount equal to all rental and other charges otherwise due pursuant to this Lease;

6.3.3.3. Abandonment. To give at least 30 days prior written notice of any abandonment of the Premises, and any abandonment shall be deemed a rejection of this Lease;

6.3.3.4. Actions. To do all other things of benefit to Port otherwise required under the Bankruptcy Code or the Insolvency Laws;

6.3.3.5. Automatic Rejection. To be deemed to have rejected this Lease in the event of the failure to comply with any of the above;

6.3.4. Assumption or Assignment in Bankruptcy.

6.3.4.1. Rights. If Tenant becomes the subject debtor in a case pending under the Bankruptcy Code, Port's right to terminate this Lease under this Section shall be subject to the applicable rights (if any) of the Trustee in Bankruptcy to assume or assign this Lease as then provided for in the Bankruptcy Code. However, the Trustee in Bankruptcy must give to Port and Port must receive proper written notice of the Trustee's assumption or rejection of this Lease within 60 days after the entry of the Order for Relief, or upon the effective date of the Bankruptcy Abuse Prevention and Consumer Protection Act of 2005, then upon 120 days after the entry of the Order for Relief, or the date of the entry

of an order confirming a chapter 11 plan (or such other applicable period as is provided for in the Bankruptcy Code). It is further agreed that failure of the Trustee to give notice of the assumption within the specified period shall conclusively and irrevocably constitute the Trustee's rejection of this Lease and waiver of any rights of the Trustee to assume or assign this Lease. The Trustee shall not have the right to assume or assign this Lease unless the Trustee:

6.3.4.1.1. Promptly and fully cures all defaults under this Lease;

6.3.4.1.2. Promptly and fully compensates Port and any party other than Tenant to the Lease for all monetary damages and any actual pecuniary loss to each party incurred as a result of the default;

6.3.4.1.3. The Bankruptcy Court (or other court of competent jurisdiction) enters an order authorizing the assumption or assignment;

6.3.4.1.4. The assumption or assignment is not prohibited under applicable law, including, but not limited to, Section 365 of the Bankruptcy Code;

6.3.4.1.5. Provides to Port "adequate assurance of future performance" (as defined below) of the Lease.

6.3.4.2. Minimum Criteria. Port and Tenant hereby agree in advance that "adequate assurance of future performance," as used in Subsection 6.3.4.1 above shall mean that all of the following minimum criteria must be met:

6.3.4.2.1. Tenant's gross receipts in the ordinary course of its business during the 30 days immediately preceding the initiation of the case under the Bankruptcy Code must be at least ____ ( ) times greater than the next installment of rent due under this Lease;

6.3.4.2.2. Both the average and median of Tenant's monthly gross receipts in the ordinary course of its business during the 6 months immediately preceding initiation of the case under the Bankruptcy Code must be at least ____ ( ) times greater than the next installment of rent due under this Lease;

6.3.4.2.3. Tenant must pay in advance to Port all rentals and other sums payable by Tenant hereunder including, but not limited to, its share (as estimated by Port) of the

cost of all services provided by Port (whether directly or through agents or contractors, and whether or not the cost of the services is to be passed through to Tenant), in advance of the performance or provision of the services; and

6.3.4.2.4. Tenant must agree (by writing delivered to Port) that Tenant's business shall be conducted in a first class manner, and that no liquidating sales, auctions, or other non-first class business operations shall be conducted on the Premises, and that the use of the Premises as stated in this Lease will remain unchanged, and that the assumption or assignment of this Lease will not violate or adversely affect the rights of other tenants located at the Port of Stockton facility.

6.3.4.3. Failure By Tenant. In the event Tenant is unable to:

6.3.4.3.1. Cure its defaults;

6.3.4.3.2. Reimburse Port or any other party to this Lease for its monetary damages or actual pecuniary loss to a party resulting from the defaults;

6.3.4.3.3. Pay the rents due under this Lease or any other payments required of Tenant under this Lease on time; or

6.3.4.3.4. Meet the criteria and obligations imposed by Subsections 6.3.4.2.1 through 6.3.4.2.4 in the previous Subsection, then Tenant hereby agrees in advance that it has not met its burden to provide adequate assurance of future performance and therefore cannot assume or assign this Lease, and this Lease may be immediately terminated by Port in accordance with Subsection 6.3.2 above.

6.3.5. Damages. It is further agreed that, notwithstanding any provision herein to the contrary, in the event of the termination of this Lease by the happening of any event described in Subsection 6.3, Port shall forthwith, upon termination, become entitled to recover the damages specified in Subsection 6.6.

6.3.6. No Default Waived. No Default of this Lease by Tenant, either prior to or subsequent to the filing of a bankruptcy petition, shall be deemed to have been waived unless expressly done so in writing by Port.

6.3.7. Lease. It is understood and agreed that this Lease is a lease of real property as a lease is described in the Bankruptcy Code.

6.3.8. Obligations. Included within and in addition to any other conditions or obligations imposed upon Tenant, or its successor in the event of assumption and/or assignment, in accordance with this Section 6 are the following obligations:

6.3.8.1. Cure. The cure of any monetary Defaults and the reimbursement of pecuniary loss immediately upon assumption and or assignment;

6.3.8.2. Security Deposit. The deposit of a sum equal to 3 months' rent to be held as a security deposit;

6.3.8.3. Use. The use of the Premises as set forth in this Lease; and

6.3.8.4. Competence. The reorganized debtor or assignee of the debtor in possession or of Tenant's trustee must demonstrate in writing that it has sufficient background including, but not limited to, substantial experience in managing operations of comparable type and size and the financial ability to operate the business out of the Premises in the manner contemplated in this Lease and to meet all other reasonable criteria of Port as did Tenant upon execution of this Lease; and

6.3.8.5. Mortgage. The prior written consent of any mortgagee to which this Lease has been assigned as collateral security; and

6.3.8.6. Physical Changes. No physical changes of any kind may be made to the Premises unless in compliance with the applicable provisions of this Lease.

6.4. Remedies. In the event of any Default or breach by Tenant, in addition to any and all other remedies available to Port at law and in equity, Port shall have the right at any time thereafter, with or without notice or demand:

6.4.1. Termination. To declare this Lease terminated and to reenter the Premises and take possession thereof and remove all persons therefrom, and Tenant shall have no further claim thereon or thereunder; or

6.4.2. Re-entry. Without declaring this Lease terminated, to reenter the Premises and occupy, relet or sublet the whole or any part thereof for and on account of Tenant and to collect the rent and other sums that may thereafter become due and payable; or

6.4.3. Collection of Rents. Without declaring this Lease terminated, to collect rents and other sums, including but not limited to interest and late charges, as they become due and payable; or

6.4.4. Alternate Termination. To reenter the Premises pursuant to Subsection 6.4.2. above and thereafter elect to terminate this Lease and all of the rights of the Tenant in or to the Premises.

6.5. No Termination. In the event Port has reentered the Premises under the provisions of Subsection 6.4.2 or obtained possession of the Premises by service of a notice pursuant to California Code of Civil Procedure Section 1161 or abandonment by Tenant, Port shall not be deemed to have terminated this Lease, unless Port shall have notified Tenant in writing.

6.6. Termination. In the event Port elects to terminate this Lease under the provisions of this Section 6, Port may recover from Tenant as damages:

6.6.1. Rent Earned at Time of Termination. The worth at the time of award of any unpaid rent which had been earned at the time of termination; plus

6.6.2. Rent Earned After Termination. The worth at the time of award of the amount by which the unpaid rent which would have been earned after termination until the time of award exceeds the amount of the rental loss Tenant proves could have been reasonably avoided; plus

6.6.3. Rent for Balance of Term. The worth at the time of award of the amount by which the unpaid rent for the balance of the term after the time of award exceeds the amount of the rental loss for the same period that Tenant proves could be reasonably avoided; plus

6.6.4. Other Compensation. Any other amount necessary to compensate Port for all damage proximately caused by Tenant's failure to perform its obligations under this Lease or which in the ordinary course of events would be likely to result therefrom including, but not limited to, any costs or expenses incurred by Port in recovering possession of the Premises, in maintaining or preserving the Premises after the Default, in preparing the Premises for reletting to a new tenant, in making any repairs or alterations to the Premises for the reletting, in leasing commissions, and other costs necessary or appropriate to relet the Premises and reasonable attorneys' fees and costs incurred in enforcing or carrying out its rights hereunder; plus

6.6.5. Other Amounts. At Port's election, in addition to or in lieu of the foregoing other amounts permitted from time to time by applicable California or Federal Laws.

6.6.6. Worth. As used in Subsection 6.6.1 and 6.6.2, the "worth at the time of award" is computed by allowing interest at the rate of 10% per year.

6.6.7. Worth as Used in Subsection 6.6.3. As used in Subsection 6.6.3, "worth" is computed by discounting the amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of the award, plus 1%.

6.7. Remedies Not Limited. The remedies given Port in this Section 6 shall be in addition and supplemental to all other rights or remedies which Port may have under the Laws then in force, and all remedies may be exercised alternatively, cumulatively, concurrently and/or consecutively.

6.8. Destruction of Premises.

6.8.1. Port to Repair if Insured. Unless this Lease is terminated as provided in Subsection 6.8.2 below, if the Premises are damaged and destroyed by any casualty covered by Port's fire and special extended coverage insurance policy, Port shall repair the damage as soon as reasonably possible, and this Lease shall continue in full force and effect.

6.8.2. Destruction During Last 12 Months of Term. In the event the Premises are destroyed to the extent of more than 50% of the replacement value of the buildings and other improvements which are a part of the Premises during the last 12 months of the term, either party may terminate this Lease by notice to the other party given, in writing, within 60 days after the date of damage. If Port terminates this Lease, Tenant may exercise any remaining option to extend this Lease within 10 days after Port's notice of the termination. And in that case this Lease shall remain in full force and effect and Port shall restore the Premises as provided in Subsection 6.8.1.

6.8.3. Destruction Not Insured. If at any time during the term the buildings and other improvements which are a part of the Premises are damaged to the extent of 15% or more of the replacement value of the Premises and the damage was caused by a casualty not covered under Port's insurance policy specified in Subsection 9.3.3.1, or not fully covered under Port's insurance policy, Port may, at its option, either repair the damage as soon as reasonably possible at Port's expense, in which event this Lease shall continue in full force and effect, or cancel and terminate this Lease as of the date of

the occurrence of the damage, by giving Tenant written notice of Port's election to do so within 30 days after the date of occurrence of the damage, in which event this Lease shall so terminate unless within 30 days thereafter Tenant agrees to pay for Port's repair of the damage or otherwise agrees to accept the condition of the Premises as is.

6.8.4. Rent Proportioned. In the event of damage or destruction to the Premises, the rent and other charges payable shall be proportionately reduced during the period of damage and any repair or restoration pursuant to this Lease, the reduction to be based upon the extent to which the damage or the making of the repairs or restoration shall interfere with Tenant's business conducted on the Premises.

6.8.5. Failure to Complete Repair. In the event Port does not complete its repair and restoration work within 180 days after the damage or destruction, Tenant, at its Option, may terminate this Lease by giving written notice thereof to Port at any time thereafter prior to completion of reconstruction by giving Port at least 30 days advance written notice.

7. Improvements.

7.1. Duty to Construct. Tenant shall construct or cause to be constructed on the Premises according to the terms and conditions specified in this Section and as described under the Scope of Development Schedule attached as Exhibit "C."

7.2. New Improvements. Tenant may not construct or otherwise make new improvements on any part or all of the Premises, nor demolish, remove, replace, alter, relocate, reconstruct or add to any existing improvements in whole or in part, nor modify or change the contour or grade, or both, of the land, without the prior written consent of Port, which consent shall not be unreasonably withheld. Tenant shall not undertake any action described in the preceding sentence if Tenant is in Default under any condition or provision of this Lease or if the improvements following the work will not be at least equal in value to any improvements as they were before being demolished, removed, replaced, altered, relocated, reconstructed, modified or changed. All salvage from Port approve projects shall belong to Tenant.

7.2.1. Improvements and Modifications To and For Existing Facilities. To accommodate Tenant's operations, it is contemplated that certain improvements/modifications, hereinafter 'work', will be made to the Premises, as necessary, as follows, as shown in the Scope of Development Schedule attached as Exhibit "C." The foregoing work shall be done in accordance with drawings and specifications to be coordinated jointly by Port and Tenant, and shall be approved in writing by Port and Tenant, each to the other, prior to the commencement of the work.

7.2.2. Tenant's Property. Tenant shall retain the ownership interest of any and all personal property or trade fixtures installed at Tenant's expense during the term of this Lease whether or not affixed to the realty. Tenant shall, notwithstanding anything to the contrary in this Section 7, have the right to the insurance proceeds arising from the destruction of the improvements. Tenant shall retain ownership interest of all signs, trade fixtures and equipment throughout the term. Tenant may remove any alterations or fixtures at any time during the term, provided that Tenant repairs any damage to the Premises caused by removal.

7.3. Conditions of Major Construction. Before any work of major construction, alteration or repair is commenced on the Premises, where the total cost of construction, alteration or repair shall exceed $100,000.00, and before any building materials have been delivered to the Premises by Tenant or under Tenant's authority, Tenant shall comply with all the following conditions, or procure Port's prior written waiver of the condition or conditions specified in the waiver:

7.3.1. Preparation and Submission of Plans. Tenant shall, at Tenant's own cost and expense, engage a licensed architect or engineer to prepare plans and specifications for the building project and shall submit the plans and specification to Port for approval:

7.3.1.1. Information. Within 90 days after execution of this Lease as to construction under Subsection 7.1 and within 90 days after obtaining Port's consent under Subsection 7.2, two copies of:

7.3.1.1.1. Drawings. Drawings and materials in the form of plans, elevations, sections and rendered perspectives sufficient to convey the architectural design of the building project to Port; and

7.3.1.1.2. Costs. A Statement of probable construction costs of the building project prepared by the architect or engineer for the project.

7.3.1.2. Working Drawings. Within 90 days after approval by Port of the items specified in Subsection 7.3.1.1 and the obtaining by Tenant of any variance, use permits or rezoning required for the building project, two copies of:

7.3.1.2.1. Plans. Detailed working drawings, plans and specifications for the building project;

7.3.1.2.2. Costs. A final statement of probable construction costs of the project prepared by the architect or engineer for the Project.

7.3.2. Port's Approval of Plans. Within 30 days after receipt by Port of any of the documents submitted to Port for approval pursuant to Subsection 7.3.1, Port shall either approve the documents by endorsing Port's approval on each document and returning one set of the documents to Tenant, or Port shall give written notice to Tenant of any objections Port may have to the documents. Port's failure to give written notice to Tenant within the 30 days of any objections Port may have shall constitute approval of the documents by Port. Within 30 days after the written notice of Port's objections, Tenant may deliver corrective amendments to the documents to Port and Port shall within 10 days after receiving the corrective amendments give written notice to Tenant of Port's approval or rejection of the documents as so amended. Failure of Port to give written notice to Tenant within the 10 day period after receipt of the corrective amendments shall constitute approval by Port of the documents as amended.

7.3.3. Notice of Intent to Construct. Tenant shall notify Port of Tenant's intention to commence a work of improvement at least 10 days before commencement of any work or delivery of any materials. The notice shall specify the approximate location and nature of the intended improvements. Port shall have the right to post and maintain on the Premises any notices of nonresponsibility provided for under Laws, and to inspect the Premises in relation to the construction at all reasonable times.

7.3.4. Port's Approval of General Contractor. Tenant shall furnish Port with a true copy of Tenant's contract with the general contractor and with evidence of the general contractor's

financial condition for Port's approval. The contract shall give Port the right but not the obligation to assume Tenant's obligations and rights under that contract if Tenant should Default. Port may disapprove by written notice given within 10 days following receipt of a copy of the contract. The notice shall specify the grounds for disapproval. Port shall not unreasonably disapprove and shall be considered to have approved in the absence of notice of disapproval given within 10 days after receipt of the contract and evidence specified above.

7.3.5. Performance Bonds. No construction costing in excess of $100,000.00 shall be commenced upon the Premises by Tenant until Tenant has secured and submitted to Port, at Tenant's sole cost and expense, a performance bond and labor and material bonds in the amount of the total estimated construction cost of the improvement to be undertaken by Tenant. Port will accept the performance and labor and material bonds supplied by Tenant's contractor or subcontractors, provided that Port is expressly named as an additional obligee or beneficiary thereunder with all rights and privileges of Tenant thereunder. All bonds must be issued by a company qualified to do business in the State of California and must be in a form, and by a surety, acceptable to Port.

7.3.6. Required Governmental Permits. Tenant shall procure and deliver to Port at Tenant's expense evidence of compliance with all then applicable Laws and requirements for permits and approvals including, but not limited to, a grading permit, building permits, zoning and planning approvals and San Joaquin Valley Unified Air Pollution Control District permits to construct.

7.4. Grant of Easements. Port, upon the reasonable written request of Tenant, shall grant to public entities or public service corporations, for the purpose of serving the Premises, rights of way or easements on or over the Premises for poles or conduits, or both, for telephone, electricity, water, sanitary or storm sewers, and for other utilities and municipal or other utility services.

7.5. Completion.

7.5.1. Diligent Prosecution to Completion. Once the work is begun, Tenant shall with reasonable diligence prosecute to completion all construction of improvements, additions or alterations. Construction required at the inception of the Lease shall be commenced within 15 months after the Commencement Date and shall be substantially completed within 30 months after the Commencement Date, subject to permissible delays. It is understood that the Port is entering into this

Lease anticipating wharfage, dockage and related revenues. Thus, delays in completion of construction shall be deemed to constitute a material breach of this Lease and will entitle Port to receive consequential damages equal to the lost wharfage, dockage and related revenues or, at Port's election, to terminate this Lease. The obtaining of necessary permits shall not be a condition precedent to the payment of rent required under this Lease. All work shall be performed in a good and workmanlike manner, shall substantially comply with plans and specifications submitted to Port as required by this Lease, and shall comply with all applicable governmental permits and Laws.

7.5.2. Notice of Changes in Plans. Tenant shall give Port written notice of all changes in plans or specifications made during the course of the work and shall obtain Port's prior written approval of any material changes from the plans and specifications originally approved by Port.

7.5.3. Notice of Completion. On completion of any major work of construction during the term, Tenant shall file or cause to be filed a notice of completion. Tenant hereby appoints Port as Tenant's attorney-in-fact to file the notice of completion on Tenant's failure to do so after the work of construction has been substantially completed. In addition, immediately upon the completion of the construction, Tenant shall notify Port in writing of the date of the completion and shall, within 30 days after the completion, file with Port a statement, verified by the oath of Tenant or its duly authorized representative, setting forth the cost of the labor and material used. Tenant shall also file with Port, in a form acceptable to Port, a set of "as built" plans for the completed construction.

7.6. Compliance With Applicable Laws. Every work, structure or improvement constructed, or alteration or change of grade made by Tenant, shall conform with the plans and specifications as approved by Port and shall conform in all respects to Laws including, without limitation, The Americans with Disabilities Act of 1990. Any approval of Port given as provided in this Section 7 shall not constitute a representation or warranty as to conformity.

7.7. Soil Management. Tenant shall consult with the Port prior to the start of any activities that will disturb the soil (e.g., excavation, grading, removal, trenching, filling, or earth movement). If applicable, Tenant shall prepare a Soil Management Plan and a Health and Safety Plan approved by the State.

7.8. Contractor and Subcontractor. Tenant shall require by contract that its construction contractors and subcontractors comply with all Laws.

7.9. Protection of the Port Against Cost or Claims. Tenant shall pay or cause to be paid the total cost and expense of all works of improvement, as that phrase is defined in the Mechanics' Lien Laws in effect when the work begins. No payment shall be construed as rent. Tenant shall not suffer or permit to be enforced against the Premises or any part of it any mechanic's, materialman's, contractor's or subcontractor's lien arising from any work of improvement, however it may arise. However, Tenant may in good faith and at Tenant's own expense contest the validity of any asserted lien, claim or demand, provided Tenant has furnished the bond provided for in California Civil Code Section 3143, or any comparable statute hereafter enacted for providing a bond freeing the Premises from the effect of a lien claim. Tenant shall hold harmless and indemnify Port against all liability and loss of any type arising out of work performed on the Premises by Tenant, together with reasonable attorneys' fees and all costs and expenses incurred by the Port in negotiating, settling, defending or otherwise protecting against claims.

7.10. Port's Right to Discharge Lien. If Tenant does not cause to be recorded the bond described in California Civil Code Section 3143 or otherwise protect the Premises under any alternative or successor statute, and a final judgment has been rendered against Tenant by a court of competent jurisdiction for the foreclosure of a mechanic's, materialman's, contractor's or subcontractor's lien claim, and if Tenant fails to stay the execution of the judgment by lawful means or to pay the judgment, Port shall have the right, but not the duty, to pay or otherwise discharge, stay or prevent the execution of any judgment or lien or both. Tenant shall reimburse the Port for all sums paid by Port under this Subsection 7.10, together with all of Port's reasonable attorneys' fees and costs, plus interest on those sums, fees and costs at the rate of 10% per year from the date of payment by Port until the date of reimbursement by Tenant.

7.11. Ownership. All improvements, works and structures made or erected by Tenant upon the Premises shall be and remain the property of Tenant during the term of the Lease, unless otherwise specified herein and otherwise, subject to the terms and conditions contained herein.

8. Maintenance and Restoration.

8.1. Maintenance.

8.1.1. Normal Maintenance. Tenant shall repair, maintain and keep the Premises, including landscaping, and all works, structures and improvements thereon, whether a part of the Premises or made by Tenant, in a safe, clean, wholesome, sanitary and attractive condition, as is appropriate for the subject structure, facility or area, and in conformance with all Laws. The appearance of the Premises shall be maintained to the reasonable satisfaction of Port Director. Tenant shall not permit any refuse or offensive matter or any substance constituting an unnecessary, unreasonable or unlawful fire hazard, or material detrimental to the public health, to be or remain on the Premises.

8.1.2. Repairs. Except as provided by any other provisions of this Lease, Tenant shall promptly and diligently repair, restore and replace as required to maintain or comply as above, or to remedy all damage to, or destruction of, all or any part of the improvements or other structures on the Premises. The completed work of maintenance, compliance, repair, restoration, or replacement shall be equal in value, quality and use to the condition of the improvements or structures before the event giving rise to the work, except as expressly provided to the contrary in this Lease. Except as provided by other provisions of this Lease, Port shall not be required to furnish any services or facilities or to make any repairs or alterations of any kind in or on the Premises. Port's election to perform any obligation of Tenant under this provision on Tenant's failure or refusal to do so shall not constitute a waiver of any right or remedy of Port for Tenant's Default. Tenant shall promptly reimburse, defend and indemnify Port against all liability, loss, cost and expense arising from Port's performance of an obligation of Tenant.

8.1.3. Exclusion. Nothing in this Subsection 8.1 defining the duty of maintenance shall be construed as limiting any right given elsewhere in this Lease to alter, modify, demolish, remove or replace any improvement or structure, or as limiting provisions relating to damage or destruction during the final year or years of the term. No deprivation, impairment or limitation of use resulting from any event or work contemplated by this Section 8 shall entitle Tenant to any offset, abatement or reduction in rent nor to any termination or extension of the term.

8.1.4. Cure. In the event Tenant fails to repair, maintain and keep the Premises and improvements as required by this Lease, Port may give 30 days written notice to Tenant to correct any Default, except that no notice shall be required if in the opinion of Port, the failure creates a hazard to

persons or property. If Tenant fails to cure the Default within the time specified in the notice, or if Port determines that a hazard to persons or property exists due to the failure, Port may enter upon the Premises and cause repairs or maintenance to be made, and the costs, including labor, materials, equipment and administrative overhead, to be charged against Tenant. Charges shall be due and payable with the next rent payment. Maintenance activity by Port shall not be deemed a constructive or actual eviction or entitle Tenant to any abatement or reduction of rent.

8.2. Delivery. Port agrees to deliver to Tenant possession of the Premises on the Commencement Date in an as-is condition, except that the Premises shall be broom clean, with all existing heating, air conditioning, ventilating, lighting and utility systems in good working order.

8.3. Port Maintenance. Except in the event that Tenant's activities on the Premises or elsewhere cause injury or damage requiring repair or maintenance, notwithstanding anything in this Lease to the contrary, Port shall at all times, at its sole cost and expense, keep, replace and maintain in good condition and repair:

8.3.1. Roof. Roof, gutters and downspouts of all structures that are a part of the Premises;

8.3.2. Roof Structures. All roof structures and supports, including Tenant's interior ceiling damaged from leaking, and, all structural portions of the Premises, including, but not limited to the foundation and structural supports, exterior and load-bearing walls and floors, but not floor coverings;

8.3.3. Utilities. all utilities to the point of entry to the Premises;

8.3.4. Driveways. All paved driveways, paved parking areas and. all other paved surfaces; and

8.3.5. Damage to the Premises. Any damage to the Premises caused by any omission or negligence of the Port, its agents, employees, contractors or licensees.

8.4. Tenant's Limitations. Notwithstanding anything in this Lease to the contrary, Tenant shall not be required to perform any repairs, restoration or replacements in or to any portion of the Premises with respect to any damage or condition which is covered under any warranties of contractors or subcontractors, latent defects, repairs required to be made by Port pursuant to this Lease, or which

result from the elements or acts of God or any causes insured under the insurance carried or required to be carried by Port.

8.5. Legal Requirements.

8.5.1. Definitions. Notwithstanding anything contained in this Lease to the contrary, Tenant shall not be obligated to comply with any Laws ("Legal Requirements") which require any changes to be made in the Premises unless the same are made necessary by any act or work performed by Tenant or by the particular nature of Tenant's use or by the particular manner of the conduct by Tenant or its permitted use shall be referred to as "Tenant Generated". If any Legal Requirements are made necessary by any act or work performed by Port or its agents, the same shall be referred to as "Port Generated". If the Legal Requirements are neither Tenant Generated nor Port Generated, then the requirements shall be referred to as "General Requirements".

8.5.2. Responsibility. Tenant shall be responsible for compliance with Legal Requirements which are Tenant Generated, whether the same are of a structural or non-structural nature. Port shall be responsible for compliance with Legal Requirements which are Port Generated, whether the same are of a structural or non-structural nature. Port shall be responsible for General Requirements pertaining to the Premises.

8.6. Restoration and Surrender of Premises. At the expiration of this Lease, Tenant shall surrender all rights in and to the Premises and all permanent buildings, works, structures, pipelines and other improvements of any kind, erected, installed or made, under, through, because of or pursuant to the terms of this Lease, or any prior agreement, ("improvements") to Port and the improvements shall automatically become the property of Port free and clear of any claim of any kind or nature of Tenant or its successors in interest or, at Port's option, Port can require Tenant to remove, at Tenant's sole cost and expense, the improvements, and if Port requires removal, Tenant shall repair all damage caused by the removal of the improvements and shall leave the surface of the ground in a clean, level, graded condition with no excavations, holes, hollows, hills or humps. Upon the expiration of the term of this Lease or any sooner termination thereof, Tenant shall quit and surrender possession of the Premises to Port in at least as good and usable a condition, acceptable to Port Director, as the same were in at the time of the first

occupation thereof by Tenant under this Lease or any prior agreement, lease or permit, ordinary wear and tear excepted. Tenant shall remove all product and all debris from the Premises.

8.7. Service and Utilities. Unless otherwise provided for herein, Tenant shall pay all charges for services furnished to the Premises or used in connection with its occupancy including, but not limited to, heat, gas, electricity, telephone, water, and janitorial services, and pay all deposits, connection fees, charges and meter rentals required by the supplier of any service, including Port.

8.8. Inspection of Premises. Port Director and his duly authorized representatives shall have the right to enter the Premises, and improvements constructed by Tenant at any reasonable time during the term of this Lease for the purpose of determining compliance with the terms and conditions of this Lease or for any other purpose incidental to the rights of Port. The right of inspection reserved shall impose no obligation upon Port to make inspections to ascertain the condition of the Premises, and shall impose no liability upon Port for failure to make the inspections. By reserving the right of inspection Port assumes no responsibility or liability for loss or damage to the property of Tenant or property under the control of Tenant, whether caused by fire, water or other causes. Port does not assume responsibility for any shortages of cargo handled by Tenant on the Premises or of inventory kept on the Premises.

8.9. Signs. Tenant shall not erect or display or permit to be erected or displayed on the Premises, or upon works, structures and improvements made by Tenant, any advertising matter of any kind, including signs, without first obtaining the written consent of Port. Tenant shall post, erect and maintain on the Premises signs as Port may reasonably direct.

8.10. Surety Bond for Restoration. Tenant shall furnish to Port a cash deposit, certificate ☐ of deposit or surety bond acceptable to Port in the amount of _____ to guarantee the performance of the restoration requirements set forth in Subsection 8.6 hereof. Port may increase or decrease the amount of the deposit or the bond required upon 30 days written notice.

8.11. Interruption of Services. Port shall not be liable for any failure to furnish, stoppage of, or interruption of the services or utilities described in Subsection 8.7, whether furnished by Port or others, when the failure is caused by blackouts, accident, breakage, repairs, strikes, lockouts, labor disputes, labor disturbances, governmental regulation, civil disturbances, acts of war, moratorium or other governmental action, or other cause beyond Port's reasonable control. In the case of an event described in the preceding sentence, Tenant shall not be entitled to any damages nor shall any failure or interruption

abate or suspend Tenant's obligation to pay rent and additional payments required under this Lease or constitute or be construed as a constructive or other eviction of Tenant or termination of this Lease. Tenant waives any right under any existing or future Laws to terminate Lease due to any stoppage of or interruption of the services or utilities provided in Subsection 8.7. In the event any governmental authority or public utility promulgates or revises any Laws, or issues mandatory controls or voluntary controls relating to the use or conservation of energy, water, gas, electricity, other services, the reduction of automobile, industrial or other emissions. Port may take any reasonable appropriate action to comply.

9. Tenant's Liability for Operations on Premises and Insurance.

9.1. Indemnity. Tenant shall at all times relieve, indemnify, protect and hold harmless Port and Port Persons, from any and all liability, claims, damages, judgments and expenses, including attorney's fees and costs, caused or arising directly or indirectly by reason of:

9.1.1. Condition of Premises. Any dangerous, hazardous, unsafe or defective conditions, in or on the Premises, of any nature whatsoever, arising from or related to any act, omission, neglect, or any use or occupation of the Premises by Tenant, including, without limitation, the use, handling, storage, disposal or other activity involving Hazardous Materials.

9.1.2. Use of Hazardous Materials. Any operation, specifically including, but not limited to, any operations conducted upon the Premises, or any use or occupation of the Premises by Tenant, under or pursuant to the provisions of this Lease or otherwise, involving Hazardous Materials;

9.1.3. Act, Omission, or Negligence. Any act, omission or negligence of Tenant, specifically including, but not limited to, any conditions arising from or related to the use, handling, storage, disposal or other activity involving Hazardous Materials;

9.1.4. Failure to Comply. Any failure of Tenant, to comply with any of the terms or conditions of this Lease or any Laws, specifically including, but not limited to, any law, ordinance, rule or regulation governing the use, handling, storage, disposal or other activity involving Hazardous Materials;

9.1.5. Claims. Any claim by a third party of nuisance or otherwise arising or relating to a violation by Tenant of any of the Provisions of Section 5.

9.1.6. Lack of Port Authorization. The conditions, operations, use, occupation, acts, omissions or negligence referred to in Subsections 9.1.1 through 9.1.5 existing or conducted upon or arising from the use of or occupation by Tenant, of any other Port-owned Premises without the express written authorization of Port.

9.1.7. In Addition. The provisions of this Subsection 9.1 shall be in addition to any other obligations and liabilities Tenant may have to Port at law or in equity and shall survive the termination of this Lease.

9.2. Tenant's Liability for Damages to Port. Tenant also agrees to be responsible to Port for all damages or losses suffered by Port including, but not limited to, damage to or loss of Port's property, to the extent not insured by Port, and loss of Port revenue from any source, caused by or arising out of the conditions, operations, uses, occupations, acts, omissions or negligence referred to in Subsections 9.1.1. through 9.1.5.

9.3. Insurance.

9.3.1. Payment For Insurance. Tenant shall pay for all insurance required under this Section 9 except costs attributable to insurance to be carried by Port. Premiums for policy periods commencing prior to or extending beyond the Lease term shall be prorated to correspond to the Lease term.

9.3.2. Liability Insurance.

9.3.2.1. Carried by Tenant. Tenant shall obtain and keep in force a Commercial General Liability Policy of Insurance protecting Tenant and Port against claims for bodily injury, personal injury and property damage based upon or arising out of the ownership, use, occupancy or maintenance of the Premises and all areas appurtenant thereto. The insurance shall be on an occurrence basis providing single limit coverage in an amount not less than $_____ per occurrence with an "Additional Insured-Managers or Ports of Premises Endorsement" and contain the "Amendment of the Pollution Exclusion Endorsement" for damage caused by heat, smoke or fumes from a hostile fire. The Policy shall not contain any intra-insured exclusions as between insured persons or organizations, but shall include coverage for liability assumed under this Lease as an "insured contract" for the performance of Tenant's indemnity obligations under this Lease. The limits of the insurance shall

not, however, limit the liability of Tenant nor relive Tenant of any obligation hereunder. All insurance carried by Tenant shall be primary to and not contributory with any similar insurance carried by Port, whose insurance shall be considered excess insurance only.

9.3.2.2. Carried by Port. Port shall keep in force liability insurance as described in Subsection 9.3.2.1, in addition to, and not in lieu of, the insurance required to be maintained by Tenant. Tenant shall not be named as an additional insured.

9.3.3. Property Insurance – Building, Improvements.

9.3.3.1. Building and Improvements. Port shall obtain and keep in force a policy or policies in the name of Port, with loss payable to Port, insuring loss or damage to the Premises. The amount of the insurance shall be equal to the full replacement cost of the Premises, as the same shall exist from time to time, but in no event more than the commercially reasonable and available insurable value.

9.3.3.2. Tenant Insured Items. Tenant owned alterations and utility installations, trade fixtures, and Tenant's personal property, including but not limited to machinery shall be insured by Tenant rather than by Port. If the coverage is available and commercially appropriate, the policy or policies shall insure against all risks of direct physical loss or damage (except the perils of flood and/or earthquake), including coverage for debris removal and the enforcement of any applicable requirements requiring the upgrading, demolition, reconstruction or replacement of any portion of the Premises as the result of a covered loss. The policy or policies shall also contain an agreed valuation provision in lieu of any coinsurance clause, waiver of subrogation and inflation guard protection causing an increase in the annual property insurance coverage amount by a factor of not less than the adjusted CPI. If the insurance coverage has a deductible clause, the deductible amount shall not exceed $10,000.00 per occurrence without the prior written approval of Port, and Tenant shall be liable for the deductible amount in the event of an insured loss.

9.3.3.3. Builder's Risk. Before commencement of any demolition or construction, Tenant shall procure, and shall maintain in force until completion and acceptance of the work, builder's "all risks" insurance including but not limited to vandalism and malicious mischief, in form and with a company reasonably acceptable to Port, covering improvements in place and all material and equipment at the job site furnished under contract, but excluding contractor's, subcontractor's and

construction manager's tools and equipment and property owned by contractor's or subcontractor's employees, with limits sufficient to provide adequate reimbursement for any covered loss at the job site. Permission is granted for a deductible, which shall not exceed $10,000.00 without the prior written approval of Port.

9.3.3.4. Boiler and Machinery. Tenant shall procure and maintain in force boiler and machinery insurance, if at any time, or from time to time, the equipment is located on the Premises.

9.3.3.5. Workers' Compensation. Tenant shall, during the term of this Lease, keep in full force and effect a policy or policies of workers' compensation insurance, with coverage and statutory limits as required by the State of California, and employer's liability coverage with limits of not less than $2,000,000.00 for each occurrence.

9.3.4. Adjacent Premises. If the Premises are part of a larger building, or of a group of buildings owned by Port which are adjacent to the Premises, Tenant shall pay for any increase in the premiums for the property insurance of the building or buildings if the increase is caused by Tenant's acts, omissions, or use or occupancy of the Premises.

9.3.5. Tenant's Property.

9.3.5.1. Property Damage. Tenant shall obtain and maintain insurance coverage on all of Tenant's personal property, Trade Fixtures, and Tenant Owned Alterations and Utility Installations. The insurance shall be full replacement cost coverage with a deductible of not to exceed $10,000.00 per occurrence. The proceeds from the insurance shall be used by Tenant for the replacement of personal property, trade fixtures and lessee owned alterations and utility installations. Tenant shall provide Port with written evidence that the insurance is in force.

9.3.5.2. No Representation of Adequate Coverage. Port makes no representation that the limits or forms of coverage of insurance specified herein are adequate to cover Tenant's property or obligations under this Lease.

9.4. Waiver of Subrogation. Without affecting any other rights or remedies, Tenant and Port each hereby release and relieve the other, and waive their entire right to recover damages against the other, for loss of or damage to its property arising out of or incident to the perils required to be insured

against herein. The effect of the releases and waivers is not limited by the amount of insurance carried or required, or by any deductibles applicable hereto. The Parties agree to have their respective property damage insurance carriers waive any right to subrogation that the companies may have against Port or Tenant, as the case may be.

9.5. Exemption of Port from Liability. Port shall not be liable for injury or damage to the person or goods, wares, merchandise or other property of Tenant and Tenant Persons or any other person on or about the Premises, whether the damage or injury is caused by or results from fire, steam, electricity, gas, water or rain, or from the breakage, leakage, obstruction or other defects or pipes, fire sprinklers, wires, appliances, plumbing, HVAC or lighting fixtures, or from any other cause, whether the injury or damage results from conditions arising upon the Premises or upon other portions of the Building of which the Premises are a part, or from other sources or places. Port shall not be liable for any damages arising from any act or neglect of any other tenant of Port. Notwithstanding Port's negligence or breach of this Lease, Port shall under no circumstances be liable for injury to Tenant's business or for any loss of income or profit or any consequential damage of any kind.

9.6. Other Insurance Provisions.

9.6.1. Change. Port, at its discretion, may increase or decrease amounts and types of insurance coverage required hereunder at any time during the terms hereof by giving 90 days prior written notice to Tenant, provided that the amounts and types of insurance required are customary and standard for facilities of the type located on the Premises and are compatible with prevailing industry standards.

9.6.2. Additional Insurance. Tenant may procure and maintain any insurance not required by this Lease, but all insurance shall be subject to all other provisions of this Lease pertaining to insurance and shall be for the mutual benefit of Tenant and Port.

9.6.3. Standards for Insurance. All insurance required by express provisions of this Lease shall be carried only with insurance companies which are licensed to do business in California and which have a Best's rating of A VIII, except for underwriters with Lloyd's of London. All policies shall be non-assessable and shall contain language, to the extent reasonably obtainable, to the effect that:

9.6.3.1. Payable. Any loss shall be payable notwithstanding any act or negligence of Port that might otherwise result in a forfeiture of the insurance;

9.6.3.2. Waiver. The insurer waives the right of subrogation against Port or Port persons;

9.6.3.3. Primary. The policies of Tenant are primary and non-contributing with any insurance that may be carried by Port; and

9.6.3.4. Notice. The policies cannot be canceled, non-renewed or materially changed except after 30 days written notice by the insurer to the Port Director. Tenant shall furnish Port with copies of all policies promptly on receipt of them, and with certificates evidencing the insurance and providing for the 30 days written notice of cancellation, non-renewal or material change and copies of all endorsements specifically required hereunder. If Port so elects, at the expiration of the term, Port shall reimburse Tenant pro rata for all prepaid premiums on insurance required to be maintained by Tenant, and Tenant shall assign all Tenant's right, title and interest in that insurance to Port. Tenant may provide by blanket insurance covering the Premises and any other location or locations any insurance required or permitted under this Lease, provided it is reasonably acceptable to Port.

9.6.3.5. Policies. Tenant shall deliver to Port, in the manner required for notices, copies of certificates of all insurance policies required by this Lease, together with evidence satisfactory to Port of payment required for procurement and maintenance of the policy, within the following time limits:

9.6.3.5.1. At Commencement. For insurance required to be in effect at the commencement of this Lease, prior to occupancy of any portion of the Premises by Tenant or prior to the Commencement Date whichever is earlier;

9.6.3.5.2. Later Requirement. For insurance required to be in effect at a later date, at least 30 days before the requirement takes effect;

9.6.3.5.3. Modifications. For insurance changes required by Port pursuant to Subsection 9.5.6.1, within 10 days after the new requirement takes effect;

9.6.3.5.4. Renewal. For any renewal or replacement of a policy already in existence, at least 10 days before expiration or other termination of the existing policy.

9.6.3.6. Failure to Insure. If Tenant fails or refuses to procure or to maintain insurance as required by this Lease or fails or refuses to furnish Port with required proof that the insurance has been procured and is in force and paid for, Port shall have the right, at Port's election and on 15 days notice, to procure and maintain the insurance. The premiums paid by Port shall be treated as added rent due from Tenant with interest at 10% per year, to be paid on the first day of the month following the date on which the premiums were paid. Port shall give notice of the payment of premiums pursuant to this Subsection 9.6.3.6, stating the amounts paid and the names of the insurer or insurers, and interest shall run from the date of the notice. Port's right to procure and maintain insurance as provided herein shall not limit any other remedies of Port. Without limiting the foregoing, Port shall have the right to terminate this Lease if Tenant does not comply in all respects with Tenant's obligations under this Subsection 9.6.

9.6.3.7. Mortgage Holder. Tenant may include the holder of any security on the leasehold as a loss payee.

9.6.3.8. Required Endorsement. Each policy must also contain an endorsement reading as follows:

> "Notwithstanding any inconsistent statement in the policy to which this endorsement is attached, or any endorsement or certificate now or hereafter attached, it is agreed that the Stockton Port District, its Board of Port Commissioners, their officers, officials, directors, agents and employees, are additional insureds hereunder, and that coverage is provided for all operations, uses, occupations, acts and activities of the insured under the Lease between Stockton Port District and _____ dated _____ and under amendments, modifications, extensions or renewals of the lease, regardless of whether the operations, uses, occupations, acts and activities occur on the Premises or elsewhere."

9.6.3.9. Report of Loss. Tenant shall report in writing to Port within 5 days after it, its officers or managing agents have knowledge of any accident or occurrence involving death of or major injury to any person or persons, or damage in excess of $25,000.00 to property of Port, Tenant, or others, occurring upon the Premises, or elsewhere within the property of the Stockton Port District, if Tenant and Tenant Persons are involved in the accident or occurrence. The report shall contain to the extent available:

9.6.3.9.1. Name. The name and address of the person(s) involved,

9.6.3.9.2. Statement. A general statement as to the nature and extent of injury or damage,

9.6.3.9.3. Date. The date and hour of the occurrence,

9.6.3.9.4. Witnesses. The names and addresses of known witnesses, and

9.6.3.9.5. Other Information. Other relevant information relating to the accident or occurrence as may be known to Tenant, and Tenant persons.

10. Assignment and Sublease.

10.1. Prohibition Against Assignment or Subletting. Except as expressly permitted in this Section 10 Tenant shall not, either voluntarily or by operation of law, assign, transfer, convey, mortgage, pledge, hypothecate or encumber this Lease or any interest herein, and shall not sublease the Premises, or any part thereof, or any right or privilege appurtenant thereto, or permit the use or occupancy of the Premises by any other party, other than Tenant and Tenant's officers, employees, agents, licensees, visitors, customers and invitees, without the prior written consent of Port. Port shall have no liability for failing to consent but if Port does refuse to consent and Tenant believes the refusal is unreasonable, Tenant may seek a judicial determination. Any sublease, assignment, transfer, encumbrance or occupancy without consent shall be void and shall, at the option of Port, terminate this Lease. No inference shall be drawn from any conduct or inaction on the part of Port that consent has been given. Should Tenant attempt to make or allow to be made any transfer, assignment, subletting, encumbrance or occupancy, except with Port's prior written consent, or should any of Tenant's rights under this Lease be sold or otherwise transferred by or under court order or legal process or otherwise, then, and in any of the foregoing events, Port may, at its option, treat the act as a non-curable Default by Tenant under the provisions of this Lease. Any transfer of Tenant's interest in this Lease or in the Premises from Tenant by merger, consolidation, dissolution, or liquidation shall be deemed a prohibited assignment within the meaning of this Section 10. Unless Tenant's stock is listed on a recognized stock exchange, any transfer or transfers of Tenant's capital stock or partnership interests (whether of record or beneficially) subsequent to the date of this Lease which, in any one calendar year, amount to 10% or more of the

capital stock or partnership interests of Tenant shall also be deemed a prohibited assignment within the meaning of this Section 10.

10.2. Tenant's Permitted Assignment or Subletting. Notwithstanding anything to the contrary contained in this Lease:

10.2.1. Controlled Entity. Tenant shall have the right without Port's consent to assign this Lease or sublet the Premises to a corporation, partnership, individual or other entity controlling, controlled or under common control with Tenant. For purposes hereof, the term 'control" shall mean the ownership of the right to vote at least 51% of the voting interest in any corporation, partnership or other entity. The provisions of this Lease granting Port certain rights to take effect precedent to, in the event of, or subsequent to assignment or sublet, shall not apply to an assignment or sublet within the scope of this Subsection 10.2.

10.2.2. Sublease. In the event of a sublease by Tenant, subtenant shall be liable for the performance and observance of only those agreements, covenants, conditions and provisions to be performed and observed by Tenant under this Lease, to the extent the same pertain to the portion of the Premises being sublet and during the term of the sublease.

10.3. Information on Potential Assignee or Subtenant. If at any time during the term of this Lease, Tenant desires to assign this Lease or sublet all or any part of the Premises, Tenant shall give prior written notice to Port setting forth:

10.3.1. Name. The name of the proposed assignee or subtenant;

10.3.2. Nature of Business. The nature of the proposed assignee's or subtenant's business to be carried on in the Premises;

10.3.3. Space. The space to be assigned or sublet;

10.3.4. Terms and Provisions. The terms and provisions of the proposed sublease or assignment; and

10.3.5. Financial Information. The financial information as Port may reasonably request concerning the proposed assignee or subtenant including, but not limited to, certified financial statements.

10.4. Conditions of Assignment or Sublease. Any assignment or sublease must, at a minimum, conform to the following conditions:

10.4.1. Terms of Notice. The assignment or sublease shall be on the same terms set forth in Tenant's written notice given to Port;

10.4.2. Additional Costs. Tenant or the proposed assignee or subtenant agrees to pay Port, upon demand, as additional rent, a sum equal to the additional costs, if any, incurred by Port for maintenance and repair as a result of any change in the nature of the occupancy caused by the assignment or subletting;

10.4.3. Consistent and Compatible. The occupancy resulting from the assignment or subletting shall be consistent and compatible with the general character of the businesses carried on by lessees of Port, shall not cause a diminution in the reputation of the property owned or controlled by Port, shall conform to the use restrictions set forth in this Lease, and shall not violate any rights or options held by any other lessee of Port;

10.4.4. Executed Copy. An executed copy of the assignment or sublease must be delivered to Port containing a copy of this Lease and expressly providing that Tenant and assignee or subtenant are jointly and severally liable for the payment of all sums due under this Lease and the performance and observance of all the agreements, covenants, conditions and provisions to be performed and observed by Tenant under this Lease as and when performance and observance are due and that Port shall have the right to enforce the agreements, covenants, conditions and provisions directly against Tenant and/or assignee or subtenant, and each of them. Notwithstanding the foregoing, Tenant shall have the duty and responsibility to take actions as are necessary to ensure that the assignee or subtenant fully complies with all the terms and provisions of this Lease; and

10.4.5. Consideration to Port. Any and all sums or other economic consideration received by Tenant as a result of the assignment or subletting, whether denominated rentals under the assignment or sublease or otherwise, which exceed, in the aggregate, the total sums which Tenant is obligated to pay Port under this Lease, prorated to reflect obligations allocable to that portion of the Premises subject to the assignment or sublease, shall be payable to Port by Tenant, or if Port gives its

prior written consent, directly by the assignee or subtenant to Port, and shall be additional rental under this Lease and shall not affect or reduce any other obligation of Tenant under this Lease.

10.5. No Merger; Sub-Subletting; Documentation. The voluntary or other surrender of this Lease by Tenant or a mutual termination hereof shall not work a merger, and shall, at Port's option, either:

10.5.1. Termination. Terminate all or any existing subleases or subtenancies or

10.5.2. Assignment to Port. Operate as an assignment to Port of Tenant's interest under the sublease or subtenancies. Any subtenant or assignee at any tier shall also be subject to all provisions of this Section 10 if it wishes to sub-sublet or sub-assign. All rights of Port under this Section 10 as well as any obligations hereunder on the part of Tenant, or any subtenant or assignee of Tenant, shall prevail over any inconsistent language in the documentation for any sublease or assignment to which Port has consented, unless the inconsistent language is in a document which has been signed by Port.

10.6. No Release of Tenant. Regardless of Port's consent, no assignment, transfer, conveyance, pledge, hypothecation, encumbrance, subletting, occupation or use by another person shall release Tenant of Tenant's obligations hereunder or alter the primary liability of Tenant to pay the rental and to perform all other obligations, agreements, covenants, conditions and provisions to be performed by Tenant under this Lease. The acceptance of rental by Port from any other person shall not be deemed to be a waiver by Port of any provision of this Lease. Any consent by Port shall not be deemed consent to any subsequent assignment, transfer, conveyance, mortgage, pledge, hypothecation, encumbrance, subletting, occupation or use by another person. In the event of Default by any assignee, subtenant or any other successor of Tenant in performance of any of the terms of this Lease, Port may proceed directly against Tenant without the necessity of exhausting remedies against the assignee, subtenant or successor. Port may consent to subsequent assignments or subletting of this Lease or amendments or modifications to this Lease with any assignee or subtenants of Tenant, without notifying Tenant or any successor of Tenant, and without obtaining its or their consent, and the action shall not relieve Tenant of any liability under this Lease.

10.7. Payment of Port's Expenses. If Tenant requests Port's consent to assignment or subletting, then Tenant shall pay Port's reasonable expenses including, without limitation, reasonable attorneys' fees, incurred in connection therewith. Tenant agrees to fully defend and indemnify Port with respect to all costs, including attorneys' fees expended by Port in connection with the claims, and liability for compensation claimed by any broker or agent employed by Tenant in connection with any assignment, subletting or other transfer of Tenant's interest under this Lease.

10.8. Notice of Occupancy. On each anniversary of the Commencement Date, Tenant shall confirm in writing to Port the identity of all the persons or entities occupying the Premises, or any portion thereof, and the activities conducted by the persons or entities on the Premises.

11. Estoppel Certificate; Subordination.

11.1. Tenant's Certificate. Tenant shall at any time upon not less than 10 days prior notice from Port execute, acknowledge, and deliver to Port a certificate certifying that this Lease is unmodified and in full force and effect or, if modified, stating the nature of the modification and certifying that this Lease, as modified, is in full force and effect and the date to which the rent, security deposit, and any other charges are paid in advance. The certificate shall further acknowledge that there are not, to Tenant's knowledge, any uncured Defaults on the part of Port hereunder, or specifying the Defaults, if any, which are claimed and shall certify any other information concerning this Lease or the Premises reasonably requested by Port. Any certificate may be conclusively relied upon by any prospective purchaser or encumbrancer of the Premises.

11.2. Port's Certificate. Upon Tenant's request, Port shall deliver a certificate to Tenant in similar form and content and within the time periods set forth in Subsection 11.1.

11.3. Failure to Furnish Certificate. Tenant's failure to deliver a certificate within the time shall be conclusive upon Tenant that this Lease is in full force and effect, without modification except as may be represented by Port; that there are no uncured Defaults in Tenant's performance; that not more than 1 month's rent has been paid in advance and that all other information concerning this Lease and the Premises reasonably included by Port in the certificate is true and correct.

11.4. Subordination.

11.4.1. Subordinate to Debt Security. This Lease, at Port's option, shall be subordinate to any mortgage, deed of trust, security agreement, or any other hypothecation for security

now or hereafter placed by Port upon the real property of which the Premises are a part and to any and all advances made on the security thereof, and to all renewals, modifications, consolidations, replacements and extensions. Notwithstanding the subordination, Tenant's right to quiet possession of the Premises shall not be disturbed if Tenant is not in material Default and so long as Tenant shall pay the rent and observe and perform all of the provisions of this Lease, unless this Lease is otherwise terminated pursuant to its terms. If any mortgagee, trustee or secured party shall elect to have this Lease prior to the lien of its mortgage, deed of trust or security agreement and shall give notice thereof to Tenant, this Lease shall be deemed prior to the mortgage, deed of trust or security agreement, whether this Lease is dated prior or subsequent to the date of the mortgage, deed of trust or security agreement or the date of recording.

11.4.2. Tenant to Execute Documents. Tenant agrees to execute any documents required to effectuate a subordination or to make this Lease prior to the lien of any mortgage, deed of trust or security agreement, as the case may be, and failing to do so within 10 days after written demand does hereby make, constitute and irrevocably appoint Port as Tenant's attorney-in-fact and in Tenant's name, place and stead to do so. If any proceedings are brought to foreclose or if the power of sale is exercised under any mortgage or deed of trust made by Port covering the Premises, Tenant shall attorn to the purchaser upon foreclosure or sale and recognize the purchaser as Port under this Lease.

12. New Financing. If Port desires to finance or refinance the Premises, or any part thereof, Tenant hereby agrees to deliver to any lender designated by Port the financial statements of Tenant as may be reasonably required by the lender. The statements shall include the past 3 years financial statements of Tenant as well as other documents as may be reasonably required by the lender. All financial statements shall be received by Port in confidence and shall be used only for the purpose of this Section. Tenant shall be required to deliver only financial statements for these periods and in the form that Tenant customarily prepares for its business.

13. Hazardous Materials.

13.1. Prohibition of Storage. Tenant shall not cause or permit any Hazardous Materials to be brought upon, kept or used in, on, or about the Premises by Tenant and Tenant Persons, or invitees in a manner or for a purpose prohibited by, or which could result in liability under, any Laws. Tenant shall comply with all legal requirements concerning Hazardous Materials. If Tenant breaches the obligation

stated in the preceding sentences, or if the presence of Hazardous Materials on the Premises caused or permitted by Tenant, including Hazardous Materials specifically permitted and identified below, results in a release of a Hazardous Material, a discharge of a pollutant or contaminant or any other contamination of the Premises resulting in a potential violation of or incurrence of liability under any Laws, or if contamination of the Premises by a Hazardous Material otherwise occurs for which Tenant is liable to Port or any third party including, without limitation, any governmental agency, under any principal of law or equity, whether contractual, statutory or otherwise, for resulting damage, then Tenant shall indemnify, defend and hold Port and Port Persons harmless from any and all claims, judgments, damages, penalties, fines, costs, liabilities, injunctive actions or orders, or losses (including, without limitation diminution in value of the Premises, damages for the loss or restriction on use of rentable or usable space or of any amenity of the Premises, damages arising from any adverse impact on marketing of space in the Premises and sums paid in settlement of claims, "response costs" as defined in the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), attorneys' fees, consultant fees and expert fees) which arise during or after the term of this Lease as a result of the contamination.

13.1.1. Clean-up. The indemnification of Port by Tenant pursuant to Subsection 13.1 includes, without limitation, costs incurred in connection with any investigation of site conditions or any cleanup, remedial, removal, or restoration work required by any Federal, State, regional or local governmental agency or political subdivision because of the Hazardous Materials present in the soil or ground water on or under the Premises or emanating from the Premises. Without limiting the foregoing, if the presence of any Hazardous Materials on the Premises caused or permitted by Tenant results in any contamination of the Premises, Tenant shall promptly take all actions, at its sole expense, as are necessary to return the Premises to the condition existing prior to the introduction of Hazardous Materials to the Premises or as required by Laws or authorities with respect to any Hazardous Materials, provided that Port's approval of the action shall first be obtained, which approval shall not be unreasonably withheld as long as the actions would not potentially have any material adverse long-term or short-term effect on the Premises.

13.1.2. Business. Port acknowledges that it is not the intent of this Subsection 13.1 to prohibit Tenant from operating its business as described above. Tenant may operate its business

so long as the use or presence of Hazardous Materials is strictly and properly controlled and monitored according to all applicable governmental requirements. As a material inducement to Port to allow Tenant to use Hazardous Materials in connection with its business, Tenant agrees to deliver to Port prior to the Commencement Date a list identifying each type of Hazardous Materials to be present on the Premises and setting forth any and all governmental approvals or permits required in connection with presence of Hazardous Materials on the Premises ("Hazardous Materials List"). Tenant shall deliver to Port an updated Hazardous Materials List at least once a year and shall also deliver an updated list before any new Hazardous Materials are brought onto the Premises or on or before the date Tenant obtains any additional permits or approvals.

13.2. Termination of Lease. Notwithstanding the provisions of Subsection 13.1 above, Port shall have the right but not the duty to terminate the Lease in Port's sole and absolute discretion if any anticipated use of the Premises by Tenant involves the generation or storage, use, treatment or disposal of Hazardous Materials in a manner or for a purpose prohibited by any governmental agency or authority; or if Tenant has been required by any lender or governmental authority to undertake removal or remedial action in connection with any Hazardous Materials on the Premises if the presence of Hazardous Materials resulted from Tenant's actions or use of the Premises (unless Tenant is in full compliance with all requirements connected with the removal or remedial action); or if Tenant is subject to an enforcement order issued by any governmental authority in connection with the use, disposal or storage of Hazardous Materials on the Premises (unless Tenant is in full compliance with the terms of the enforcement order).

13.3. Assignment and Hazardous Materials. Notwithstanding the provisions of Subsection 13.1 above, if:

13.3.1. Prohibited. Any use of the Premises by any proposed assignee or subtenant involves or reasonably could involve the generation or storage, use, treatment or disposal of Hazardous Materials in a manner or for a purpose prohibited by Laws.

13.3.2. Prior Removal. The proposed assignee or subtenant has been required by any prior landlord, lender or governmental authority to undertake removal or remedial action in connection with any Hazardous Materials on a property where the presence of the Hazardous Materials resulted from the proposed assignee's or subtenant's action or use of the property in question or,

13.3.3. Enforcement Order. The proposed assignee or subtenant is subject to an enforcement order issued by any governmental authority in connection with the use, disposal or storage of Hazardous Materials.

Then it shall not be unreasonable for Port to withhold its consent to an assignment or subletting to the proposed assignee or subtenant. This Subsection 13.3. shall not preclude other grounds for Port's rejection of a sublease or assignment pursuant to any other provisions of this Lease.

13.4. Environmental Audit.

13.4.1. Required. From time to time during the term of this Lease, at Port's written request, which requests shall be delivered not more often than once each calendar year, Tenant shall prepare, at Tenant's sole cost and expense, an environmental audit of the Premises ("Audit") prepared by a qualified, licensed and independent environmental consultant or engineer, reasonably acceptable to Port. The Audit shall be delivered to Port within 60 days of Tenant's receipt of Port's request to prepare the Audit. Within 30 days of the receipt of the Audit, Port may notify Tenant of deficiencies in the Audit or of actions to be taken by Tenant to respond to matters addressed in the Audit. Failure of Port to comment or otherwise respond to the Audit shall not constitute a waiver by Port of any rights under this Lease or otherwise. Tenant shall respond in writing to any notification within 15 days of receipt. If, in Port's sole discretion, the Audit remains deficient, Port may prepare or cause to be prepared a new or revised Audit at Tenant's sole expense. Tenant shall fully reimburse Port for any costs or expenses incurred by Port in connection therewith within 30 days of the date on which Port notifies Tenant of the costs incurred. Failure to reimburse this amount shall constitute a breach of this Lease as if Tenant had failed to pay rent. In addition to any other rights of Port to access the Premises, Tenant shall permit Port or its agents all reasonable access to the Premises and to Tenant's operations and records to allow an Audit to be conducted.

13.4.2. Environmental Audit Defined. The term "environmental audit" or "Audit" as used herein shall mean a survey and report addressing Tenant's compliance with any and all environmental Laws or orders prepared by a qualified, licensed and independent environmental

consultant or engineer reasonably acceptable to Port. The Audit will be conducted in accordance with all then accepted environmental auditing practices. At a minimum, the Audit shall contain the following:

13.4.2.1. Records. A review of Tenant's records to determine if any unpermitted or unauthorized releases of Hazardous Materials have occurred;

13.4.2.2. Releases. A report of all the releases, the circumstances surrounding them, and the steps taken to correct or respond to them;

13.4.2.3. Processes. A review of Tenant's industrial processes, material handling and other activities to ensure that all necessary permits and other authorizations have been obtained and are current;

13.4.2.4. Permits. A list and copies of all permits; and

13.4.2.5. Other Information. All other information relevant to Tenant's compliance with all applicable environmental Laws, including, as relevant: total water consumption; an inventory of Hazardous Materials used in Tenant's operation, including the total amounts brought onto the Premises, and an accounting of their disposition; a copy of Tenant's environmental policies manual, training procedures, and any emergency response plans; any risk assessments, risk management prevention plans or similar documents as required by any Laws or order; all emissions inventories prepared pursuant to Laws or otherwise; and any reports or documents submitted to regulatory agencies not previously submitted to Port.

13.4.2.6. Sampling and Testing. If necessary, an Audit shall include samplings of the air, soil or groundwater at or about the Premises and the conduct of any emissions or effluent testing. Additionally Tenant will furnish Port with a true copy of any audit or report prepared by the Department of Health Services or the California Environmental Protection Agency or the United States Environmental Protection Agency or any other governmental and permitting agencies within 30 days of receipt by Tenant.

13.4.2.7. Final Environmental Audit. In addition to the conduct of periodic Audits during the term of this Lease, and regardless of when the last Audit was conducted, Port shall have the right to require Tenant, at Port's sole option, to conduct an Audit, at Tenant's expense, within the final 30 days of the term of this Lease in an effort to determine the environmental status and condition

of the Premises upon the expiration of this Lease. All terms and conditions of this Subsection 13.4 shall apply to the conduct, delivery, review, and further inquiry of the final Audit.

13.5. Port's Right to Perform Tests. In addition to the above audit right of Port at any time prior to the expiration of the term of this Lease, Port shall have the additional right to enter upon the Premises in order to conduct appropriate tests of water and soil and to deliver to Tenant the results of the tests to demonstrate that levels of any Hazardous Materials in excess of permissible levels has occurred as a result of Tenant's use of the Premises. Tenant shall further be solely responsible for and shall defend, indemnify and hold Port and Port Persons harmless from and against all claims, costs and liabilities including actual attorneys' fees and costs, arising out of or in connection with any removal, remediation, clean up, restoration and materials required by applicable Laws, orders or authorities hereunder to return the Premises and any other property of whatever nature to their condition existing prior to the appearance of the Hazardous Materials.

13.6. Tenant's Obligations. Tenant's obligations under this Section 13 shall survive the termination of this Lease. During any period of time used by Tenant after the termination of this Lease to complete the removal from the Premises, or remediation of, Hazardous Materials, Tenant shall continue to pay full rental in accordance with this Lease, which rental shall be prorated daily.

13.7. Health and Safety Code Section 25359.7. Tenant recognizes its obligations under California Health and Safety Code Section 25359.7 to notify Port of any release of any Hazardous Materials that Tenant knows or has reason to believe has or will come to be located on or beneath the Premises.

13.8. Definition of "Hazardous Materials". The term "Hazardous Materials" as used in this Lease shall mean any toxic or hazardous substance, material or waste or any pollutant or contaminant or infectious or radioactive material including, but not limited to, those substances, materials or wastes regulated now or in the future under any of the following Laws.

13.8.1. CERCLA. Any "hazardous substance" within the meaning of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. Section 9601 et seq. or the California Hazardous Substance Account Act, Cal. Health & Safety Code Section 25300 et seq.;

13.8.2. Waste US. Any "hazardous waste" within the meaning of the Resource Conservation and Recovery Act, 42 U.S.C. Sections 6901 et seq.;

13.8.3. Waste California. Any "hazardous waste" or "extremely hazardous waste" within the meaning of the California Hazardous Waste Control Law, Cal. Health & Safety Code Section 25100 et seq.;

13.8.4. Toxic Substances. Any "hazardous chemical substance or mixture" or "imminently hazardous chemical substance or mixture" within the meaning of the Toxic Substances Control Act, 15 U.S.C. Sections 2601 et seq.;

13.8.5. Air Pollutant. Any "hazardous air pollutant" within the meaning of the Federal Clean Air Act, 42 U.S.C. Section 7400 et seq.

13.8.6. Water Pollution. Any "toxic pollutant" or "oil or hazardous substance" within the meaning of the Federal Water Pollution Control Act, 33 U.S.C. Section 1250 et seq.;

13.8.7. Safe Drinking Water. Any "contaminant" within the meaning of the Safe Drinking Water Act, 42 U.S.C. Section 300i;

13.8.8. Cancer Causing. Any "chemical known to the state to cause cancer or reproductive toxicity" within the meaning of the Safe Drinking Water and Toxic Enforcement Act of 1986 ("Proposition 65"), Cal. Health & Safety Code Section 25249.5 et seq.;

13.8.9. Petroleum. Petroleum or any fraction thereof;

13.8.10. Asbestos. Asbestos; or

13.8.11. Other Substance. Any other substance, chemical, waste, toxicant, pollutant or contaminant regulated by any Laws for the protection of health or the environment.

13.9. Pre-Existing Conditions. If the Premises, or any existing leasehold improvements located therein, contains any Hazardous Materials prior to the date this Lease is executed by Port in quantities requiring removal or remediation pursuant to any Laws and Hazardous Materials have not been released onto the Premises by Tenant, or by other persons at Tenant's direction or request, or Port elects to do so, Port shall, at its sole cost, promptly after Port receives notice of a need for the removal or remediation thereof, perform the removal or remediation of the Hazardous Materials. Furthermore, Port

hereby agrees to indemnify and hold harmless Tenant and Tenant Persons or successors to Tenant's interest in the Premises, their directors, officers, employees and agents, from and against any and all losses, claims, damages, penalties and liability, including all out-of-pocket litigation costs and the reasonable fees and expenses of counsel, and including all foreseeable and all unforeseeable consequential damages, directly or indirectly arising out of the use, generation, storage, release or disposal of any Hazardous Material by Port, its agents or contractors or by any prior owner or operator of the property underlying the Premises, and including, without limitation, the costs of any required or necessary repair, cleanup, or detoxification and the preparation of any closure of other required plans, whether the action is required or necessary prior to or following the commencement of the term of this Lease, to the full extent that the action is attributable, directly or indirectly, to the presence of use, generation, storage, release, threatened release, or disposal of any Hazardous Material by any person other than Tenant and Tenant Persons, agents, assignees or subtenants on, under or in the property underlying the Premises prior to execution of this Lease. Port's obligations and liabilities under this Subsection 13.9 shall survive the expiration of this Lease.

14. Miscellaneous Provisions.

14.1. Interpretation and Applicable Laws. In all cases the language in all parts of this Lease shall be construed simply, according to its fair meaning and not strictly for or against Port or Tenant. It is expressly understood and agreed that this Lease and all questions arising thereunder shall be construed under the Laws of the State of California.

14.2. Corporate Authority. If Tenant is a corporation, it shall deliver to Port upon execution of this Lease a certified copy of a resolution of its board of directors authorizing the execution of this Lease and naming the officer or officers that are authorized to execute this Lease on behalf of the corporation. Each person signing this Lease on behalf of Tenant covenants, represents and warrants that the person is duly authorized to sign this Lease and that this Lease is a valid, binding obligation of Tenant.

14.3. Compliance with Laws.

14.3.1. Compliance. Tenant shall, at all times, in its use and occupancy of the Premises and in the conduct of its operations thereon, comply with all Laws including, without limitation, all Laws relative to the discharge or runoff of water from the Premises requiring the filing of certain

notices and reports with governmental agencies including, without limitation, the California State Water Resources Control Board, and the Regional Water Quality Control Board, Central Valley Region, and the obtaining of certain permits covering Tenants' operations at the Premises from all state and federal agencies including, without limitation, the obtaining of industrial storm water permits and National Pollutant Discharge Elimination System permits. In addition to the foregoing, Tenant shall comply immediately with any and all directives issued by Port Director or his authorized representative under authority of any Laws including, but not limited to, any storm water management program implemented by Port from time to time as published in General Tariff or otherwise as directed by Port Director.

14.3.2. Discrimination. Tenant agrees not to discriminate in its employment practices against any employee or applicant for employment because of the applicant's race, religion, national origin, ancestry, sex, age or physical handicap. All subcontracts awarded under or pursuant to this Lease shall contain the provision set forth in the preceding sentence.

14.4. License Fees and Taxes. Tenant shall pay all taxes and assessments of whatever character levied upon or charged against the interest of Tenant, if any, created by this Lease in the Premises or upon works, structures, improvements or other property thereon, or upon Tenant's operations hereunder or upon any possessory interest of Tenant. Tenant shall also pay license and permit fees required for the conduct of its operations hereunder.

14.5. Invalidity. If any term or provision of this Lease or the application thereof to any person or circumstance shall be invalid or unenforceable to any extent by a final judgment of any court of competent jurisdiction, the remainder of the Lease or the application of the term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable shall not be affected thereby and shall continue in full force and effect.

14.6. Waiver of Claims. Each Party hereby waives any claims against each other and its officers, agents or employees for damages or loss caused by any suit or proceeding directly or indirectly challenging the validity of this Lease, or any part thereof, or by any judgment or award in any suit or proceeding declaring this Lease null, void or voidable or delaying the same or any part thereof from being carried out.

14.7. Conflict of Interest. It is hereby understood and agreed that the Parties to this Lease have read and are aware of the provisions of section 6275 of the California Harbors and Navigation Code

and section 87100 et seq. of the California Government Code relating to conflict of interest of public officers and employees. All Parties hereto agree that they are unaware of any financial or economic interest of any public officer or employee of Port relating to this Lease. Notwithstanding any other provision of this Lease, it is further understood and agreed that if a financial interest does exist and is known by Tenant at the inception of this Lease, Port may terminate this Lease by giving written notice.

14.8. Visitors. Tenant shall allow Port Director and his designated representatives access to the Premises for the purpose of showing the Premises and works, structures and improvements made by Tenant to visitors upon giving reasonable notice to Tenant; provided, however, that entry shall not unreasonably interfere with Tenant's operations.

14.9. Attorneys' Fees.

14.9.1. Fees. If any action shall be instituted by either of the Parties hereto for the enforcement or interpretation of any of its rights or remedies in or under this Lease, the prevailing party shall be entitled to recover from the losing party all costs incurred by the prevailing party in the action and any appeal therefrom, including, without limitation, reasonable attorneys' fees, costs and expenses for trial, appellate proceedings, out-of-court negotiations, or for enforcement of rights under any state or federal statute, including, without limitation, reasonable attorneys' fees, costs and expenses incurred to protect any Port's security, and attorneys fees, costs and expenses incurred in bankruptcy and insolvency proceedings such as (but not limited to) in connection with seeking relief from stay in a bankruptcy proceeding or seeking adequate protection.

14.9.2. Expenses. The term "expenses," as used in this Subsection 14.9, means any expenses incurred by the prevailing party in connection with any of the state, federal or bankruptcy proceedings, or any of the out-of-court matters, referenced above, including but not limited to the fees and expenses of any appraisers, consultants and expert witnesses retained or consulted by the prevailing party in connection therewith.

14.9.3. Unlawful Detainer. For purposes of this Subsection 14.9, in any unlawful detainer or other action or proceeding instituted by Port based upon any Default or alleged Default by Tenant hereunder, Port shall be deemed the prevailing party if judgment is entered in favor of Port, or if

prior to trial or judgment Tenant pays all or any portion of the rent and charges claimed by Port, eliminates the condition(s), ceases the act(s) or otherwise cures the act(s), condition(s) or omission(s) claimed by Port to constitute a Default by Tenant hereunder. Further, should Port be made a party to any litigation between Tenant and any third party, then Tenant shall pay all costs, expenses and attorneys' fees incurred by or imposed upon Port in connection with the litigation.

14.10. Notices. Except as otherwise expressly provided herein, all notices and demands pursuant to this Lease shall be in writing and sent by certified mail, return receipt requested, addressed, postage prepaid, or are to be delivered by a nationally recognized overnight delivery service, for example Federal Express, to the addresses set out below, or other addresses as may hereafter be designated by the Parties by written notice to the other party.

To Port:	Port of Stockton General Offices 2201 West Washington St., 95203 P.O. Box 2089 Stockton, CA 95201-2089 Attn: Port Director
With a copy to:	Neumiller & Beardslee P.O. Box 20 (95201-3020) 509 W. Weber Ave. Stockton, CA 95203 Attn: Thomas J. Shephard, Sr.
If to Tenant:	_____ _____ _____ _____
With a copy to:	_____ _____ _____ _____

Any notice so sent shall be deemed given or served upon receipt or rejection.

14.11. Waivers of Performance. No waiver by either party at any time of any of the terms, conditions, covenants or agreements of this Lease shall be deemed or taken as a waiver at any time thereafter of the same or any other term, condition, covenant or agreement herein contained, nor of the strict and prompt performance thereof by the proper party. The subsequent acceptance of rent by Port shall not be deemed to be a waiver of any other breach by Tenant of any term, covenant, or condition of this Lease other than the failure of Tenant to timely make the particular rent payment so accepted, regardless of Port's knowledge of any other breach. No delay, failure or omission of either party to execute any right, power, privilege or option arising from any Default, nor subsequent acceptance or guarantee then or thereafter accrued, shall impair any right, power, privilege or option, or be construed to be a waiver of any Default or relinquishment thereof, or acquiescence therein. No notice by either party shall be required to restore or revive a time is of the essence provision, nor shall any right, power, remedy or privilege of either party be construed as being exhausted or discharged by exercise. It is agreed that each and all of the rights, powers, options or remedies given to Port by this Lease are cumulative, and no one of them shall be exclusive of the other or exclusive of any remedies provided by Laws, in that the exercise of one right, power, option or remedy by Port shall not impair its right to any other right, power, option or remedy.

14.12. Integration. This Lease constitutes the whole agreement between Port and Tenant. There are no terms, obligations or conditions other than those contained herein. No modification of this Lease shall be valid and effective unless evidenced by an agreement in writing.

14.13. Time of Essence. Time is expressly declared to be of the essence in this Lease.

14.14. Extensions. Port shall have the right to grant reasonable extensions of time to Tenant for any purpose or for the performance of any obligation of Tenant hereunder.

14.15. Use of Port's Name. Tenant shall not, without Port's prior written consent, use the name of Port for any purpose other than as part of Tenant's address, and in no event shall Tenant acquire any right in or to the name.

14.16. Force Majeure. If the performance of any obligation hereunder by Tenant or Port is prevented or delayed by act of God, war, labor disputes, or any other similar or dissimilar cause beyond Tenant's or Port's reasonable control, the time for performance or observance will be extended for the period that the action is delayed or prevented by the cause.

14.17. Brokers. In the event either party has employed a broker, the party by whom any broker, salesperson or other person was employed or was otherwise in contract with shall indemnify and hold harmless the other party from any claim for any commission, finder's fee or other charge based upon the lease to Tenant of the Premises or any other items or interests contemplated by this Lease and all liabilities, costs and expenses relating thereto, including reasonable attorneys' fees, which may be incurred by the other party in connection with the claim.

14.18. Joint and Several. If Tenant consists of more than one person or entity, their obligations under this Lease shall be joint and several.

14.19. Representations by Port. Port represents and warrants to Tenant as follows:

14.19.1. No Violation. This Lease does not violate the provisions of any ground lease, mortgage, the recorded covenants, conditions, restrictions, or any other agreement to which it is subordinate. Further, no underlying agreement will prevent Tenant from using the Premises for the purposes permitted hereunder; and

14.19.2. Code Violations. As of the date of execution of this Lease, Port has not received any written notice of, nor does Port have any actual knowledge of, any existing Code Violations. In the event of any breach of Port's representation contained in this Subsection 14.19.2, or if there shall arise any written notice or Port Director's actual knowledge of Code Violations in existence on the date the Premises are delivered to Tenant, then Port shall pay for the correction and/or removal of the Code Violation(s). With reference to the foregoing, "Code" shall be defined and understood to mean: any applicable planning, zoning, building or safety Code, regulation or ordinance, and a "Code Violation" shall mean any deviation from Code which is a violation thereof and which requires correction whether or not there is a change in use conducted at the Premises, or any construction work performed at the Premises.

14.19.3. Actual Knowledge. For purposes of Subsections 14.19.2, the terms, Port's actual knowledge" shall mean only that information actually known by the Port Director and shall imply no duty whatsoever to investigate the actual state of facts or conditions regarding the existence of Code Violations on or about the Premises prior to the date of execution.

14.20. Reasonable and Reasonably. Notwithstanding anything contained in this Lease to the contrary, wherever pursuant to this Lease the consent or approval of one Party, or specifically of the Port Director, is required or requested with respect to the performance by the other party of any term, covenant, condition or provision of this Lease or the doing of any act in connection therewith or in connection with the Premises, it is agreed and understood that consent or approval shall not be unreasonably withheld, conditioned or delayed. Further, Port agrees to exercise all rights reserved or granted to Port hereunder in a manner which does not unreasonably interfere with the reasonable operation of Tenant's business at the Premises and any direction to Tenant by the Port or specifically by the Port Director shall be reasonable. Any action required or permitted by either Party shall be taken reasonably. The provisions of this Subsection 14.290 shall be applicable whether or not a particular Section or Subsection or clause contains the words "reasonable" or "reasonably."

14.21. Approval. Whenever the approval of either party is required that party shall not unreasonably withhold consent.

IN WITNESS WHEREOF, the Parties hereto have executed this Lease on the date first hereinabove written.

STOCKTON PORT DISTRICT by
its Board of Port Commissioners

By _____
Port Director

Attest: _____
Secretary

APPROVED AS TO FORM:

_____
Counsel for Port

PORT OF STOCKTON
STANDARD LEASE - WEST COMPLEX

TENANT

By: _____

Title: _____

APPROVED AS TO FORM:

_____
Counsel for Tenant

PORT OF STOCKTON
STANDARD LEASE - WEST COMPLEX

SUMMARY OF BASIC LEASE PROVISIONS

1. Date of Lease:

2. Owner: Stockton Port District

3 Tenant:
Address:
Telephone Number
State of Incorporation:

4. Premises:

5. Permitted Use of Premises:

6. Period of Term:

7. Estimated Commencement Date:

8. Expiration Date:

9. Annual Basic Rent:

10. Rental Adjustment:

Appendix 4

Pesticide Plan

PESTICIDE PLAN

PORT OF STOCKTON

EAST and WEST COMPLEX

Developed by
WGR SOUTHWEST, Inc.
For the
Port of Stockton Environmental Department
(Revised April 2013)

PESTICIDE PLAN

PORT OF STOCKTON
FOR PORT OWNED AND OPERATED PROPERTIES

TABLE OF CONTENTS

1.0 Introduction 1

1.1 Objective of the Pesticide Plan 1
1.2 Site Information 1
1.3 Pesticide Management Responsibility 1

2.0 Pests and Nuisance Plants of Concern 2

2.1 Disease Vectors and Other Health-Related Pests 2
2.2 General Household and Nuisance Pests 3
2.3 Structural Pest 4
2.4 Weed Control 4
2.5 Vertebrate Pests 5

3.0 Pesticide Management Requirements 6

3.1 Integrated Pest Management 6
3.2 Pesticide Handling and Use Guidelines 7
3.2.1 Pesticide Application Protocol 7
3.2.2 Restricted Use and Prohibited Pesticides 8
3.2.3 Pesticide Spill Control 9
3.2.4 Pesticide Storage and Disposal 9
3.3 Pesticide Monitoring Plan 10
3.4 Outreach and Training 10

4.0 Program Participants and Affiliates 10

4.1 Port of Stockton Environmental Department 10
4.2 Pest and Vegetation Control Contractors 11

5.0 Health and Safety Measures 11

5.1 Hazard Communication 11
5.2 Pest Management Personnel 12
5.3 Port Personnel 12
5.4 General Public 12
5.5 Required Personal Protective Equipment 12
5.6 Pest Management Vehicles 13

PESTICIDE PLAN

PORT OF STOCKTON
FOR PORT OWNED AND OPERATED PROPERTIES

Appendices:

Appendix A – Maps and Figures

- Figure 1 - Vicinity Map
- Figure 2 – West Complex
- Figure 3 – East Complex
- Figure 4 – Pesticide Plan Flow Chart

Appendix B - Pest Control Contractor Information

- State of California Certificates
- DOT Numbers
- City of Stockton Business Licenses
- Roster of Trained Employees and Current Training Certificates with Expiration Dates
- Copy of Contract with Port of Stockton

Appendix C – California Restricted Use Materials List

Appendix D - Manufacturer Labels and Instructions

PESTICIDE PLAN

PORT OF STOCKTON
FOR PORT OWNED AND OPERATED PROPERTIES

RECORD OF REVISIONS

Rev. No.	Date	Revised By	Reason for Revision	Sections Revised
0	10/10/00	J. Teravskis WGR Southwest	Initial Preparation	All
1	10/10/05	J. Teravskis WGR Southwest	Update of Information	Sections 1 and 3
2	03/3/06	J. Gonsalves WGR Southwest	Incorporated East Complex into the plan	All
3	5/5/08	C. Strong WGR Southwest	Update of Information	All
4	7/29/11	C. Strong WGR Southwest	Revision for 2011-2016 Permit	All
5	4/29/13	J. Teravskis WGR Southwest	Updated for SWMP Revisions 2013	All

1.0 Introduction

1.1 Objective of the Pesticide Plan

This Pesticide Plan seeks to ensure compliance with the Municipal Separate Storm Sewer System (MS4) NPDES Permit, Order No. R5-2011-0005 (Permit) issued by the Regional Water Quality Control Board for the Central Valley Region (RWQCB). The purpose of the plan is to provide a framework through which pesticides and other chemicals at the Port of Stockton (Port) can be managed effectively to prevent or reduce any adverse impacts to surrounding waters. The plan describes the general landscape standards and pesticide application protocols; pests common to the Port; an Integrated Pest Management (IPM) program; the training program for pesticide applicators; coordination with related agencies; public awareness and outreach programs; and an ongoing efficiency assessment of the Pesticide Plan.

1.2 Site Information

The Port is located in Northern California, in San Joaquin County, bordering the west side of the City of Stockton. The Port is divided into two sections, the East Complex and the West Complex. The East Complex is situated on approximately 650 acres. The West Complex sits on what was previously known as Rough and Ready Island, which covers approximately 1450 acres. Refer to **Figure 1** and **Figure 2** in **Appendix A** for vicinity map.

1.3 Pesticide Management Responsibility

The pesticide, herbicide, rodenticide, and fungicide management responsibility at the Port is divided between the Port and all of its tenants and current users. This Pesticide Plan covers pest control activities performed by the Port's pest control contractors on common areas (such as roadways, open areas, and perimeters) and on non-leased properties. Tenants are responsible for pest management within their leased areas. This plan will be a working document and will be updated as-needed to reflect actual pest management practices.

The program uses certified and licensed contractors to control pests. (Refer to **Appendix B** for information concerning the Port's pest control contractors.)

2.0 Pests and Nuisance Plants of Concern

The following describes several of the pests that may be encountered at the Port. Pest control measures are dependent on the severity of the infestation and other environmental and safety concerns.

2.1 Disease Vectors and Other Health-Related Pests

a. **Mosquitoes** are the primary disease vector pests at the Port. Although some mosquito breeding may take place at the Port (e.g., in artificial containers and small temporary pools of water), most of the mosquitoes come from the extensive waterways surrounding and adjacent to the boundary of East and West Complexes.

West Nile Virus (WNV) is a mosquito borne virus first detected in California in 2003. Since then, California has became the epicenter for WNV with 451 confirmed clinical cases and 16 deaths, the highest of any state, except Texas. (http://www.cdc.gov/ncidod/dvbid/westnile/surv&controlCaseCount12_detailed.htm). Mosquitoes acquire the virus from infected birds and pass it on to other birds, animals and humans.

The San Joaquin County Mosquito and Vector Control District (SJMVD) aggressively monitors the county for West Nile Virus and also works to control the mosquito population. The San Joaquin County conducts year round surveillance throughout the county and takes steps as the mosquitoes become more active.

At the Port, the SJMVD releases mosquito fish into the storm water retention basin on the East Complex and tank farms along Navy Drive as the weather becomes warmer. The storm water overflow basin leading to the pump house on the West Complex has water year round and supports a constant habitat for mosquito fish.

Mosquito fish (*Gambusia affinis)*, are small, guppy-like fish ranging in size from approximately ¾ to 1 ½ inches long. As its name implies, this fish is a natural predator of mosquito larvae.

Gambusia affinis is a voracious predator. A large female Gambusia

is able to consume 225 larvae within a one hour period, and a pair of half-grown Gambusia is capable of consuming over 5000 larvae in 11 weeks. All sizes of Gambusia feed on mosquito larvae; even recently hatched fish only a few hours old will attack young mosquito larvae.

b. **Black widow spiders** (*Latrodectus Mactans*) are often found in undisturbed places in warehouses, housing storage areas, and in/around other buildings. Historically, few problems to personnel have been encountered from these pests. However, spiders are treated on an as-needed basis by localized pesticide application.

c. **Bees and wasps** are found throughout both complexes. The stings are painful and can cause allergic reactions in some people. These insects are a minor problem and are handled on an as-needed basis by hive removal and/or local pesticide application.

Contact information for local beekeepers:

John Silveria	4700 South Sperry Rd., Denair CA 95316	(209) 668-9367
John Teravskis	11780 N. Hwy 99, Lodi CA 95240	(209) 649-0877
Pollination Contracting	1044 Tioga Way, Manteca, CA 95337	(209) 823-1386

2.2 General Household and Nuisance Pests

General household and nuisance pests include **cockroaches, beetles, ants, crickets, moths, and other such insects**. The Port is responsible for controlling these pests in common areas and in non-leased buildings. Tenants will be responsible for pest control inside of their buildings or within their leased areas. The management of these pests will be either on an as-needed basis or by a scheduled maintenance program.

Ornamental plant and turf pests can damage lawns and the golf course, and will be controlled in a similar manner as the household pests.

2.3 Structural Pest

Real property pests (structural/wood destroying pests), such as subterranean **termites** (*Isopetera Rhinotermitidae*), that cause damage to wooden buildings and other structures on the Port will be treated, when necessary, upon discovering pest infestation during pest screenings.

The Port will consider on a case-by-case basis the best approach to eradicating and controlling such pests including the use of non-chemical controls, such as microwave and freezing techniques.

2.4 Weed Control

Undesirable vegetation, such as blackberry bushes, weeds and invasive species, which occur along fence lines, on road shoulders, and paved surfaces (including railway and pipeline areas) and in open fields require control using appropriate herbicides. Some control of unwanted plants is done mechanically (mowing, cutters, tilling, etc.). Noxious weeds historically have not been a major problem. However, potential noxious weed infestations include a variety of thistles found on the Port. These weeds are either pulled manually or treated with herbicides specific to the plant type being treated.

Aquatic weeds such as water hyacinth represent a problem for the entire Delta. Water Hyacinth is an attractive floating aquatic plant with shiny green leaves and delicate lavender flowers. This extremely prolific aquatic weed can quickly become a dense floating mat of vegetation up to six feet thick. This weed grows faster than any other known plant, doubling in size every ten days in hot weather. It can potentially grow to cover 50,000 surface acres. Water hyacinth was first reported in the Delta during the late 1940s and early 1950s. The invasion of water hyacinth in the Delta was slower than in the southeast, probably due to water flow stabilization and the more temperate climate in the Delta. The Department of Boating and Waterways (DBW) is the lead agency for the control of water

hyacinth in the Sacramento-San Joaquin Delta. DBW's initial control plan utilized both short and long term methods, involving chemical, mechanical and biological control measures. The primary and most successful control measure was chemical spraying; however, this lead to other problems because the water hyacinth was left behind to die and decompose. This biological reaction caused an increase in oxygen demand and created a decrease in dissolved oxygen in the water. Alternative solutions to control the water hyacinth surrounding the Port are currently being investigated by the Port Environmental and Regulation Department. Should application of aquatic pesticides to Delta surface waters be necessary, routine and non-routine application shall be consistent with the California State Board's guidelines according to WQ Order 2001-12 DWQ, or revisions thereto.

2.5 Vertebrate Pests

Vertebrate pests such as **rodents** may infest buildings and storage sheds. In addition, gophers and other small mammals, such as ground squirrels, may burrow in improved lawn areas, fields, and levees. Baiting has been found to be the most effective way to control these pests. Reportedly, non-chemical methods, such as trapping, have proven to not be as effective.

Vertebrate pests may also carry disease. The urine and feces from the deer mouse have been found to be a source of the potentially fatal Hantavirus. Outbreaks of this virus have occurred in San Joaquin County. Human infection may occur by inhalation of tiny airborne droplets of fresh or dried rodent excretions, by direct contact with rodents or rodent-contaminated materials, by ingestion of contaminated food or water, or by being bitten by a virus-carrying rodent. The Hantavirus is normally found in rural and semi-rural settings and is not normally found in urban centers. Illnesses have been associated mostly with rural activities, such as cleaning barns, sheds, and other outbuildings; occupying previously vacant buildings; planting or harvesting field crops; and camping and hiking. A simple disinfectant (such as bleach) sprayed on dead rodents, nesting material, or their droppings will kill the virus within 15 to 30 minutes. Prior to occupying or cleaning an area with a significant amount of rodent droppings, the Port's Environmental Department should be contacted. It is not recommended to perform sweeping, vacuuming or other dust producing activities in such areas without adequate ventilation and personal protective equipment.[1]

[1] Hantavirus Pulmonary Syndrome, by Rodney Powers, NAVORDCEN PACDIV, FBDET

3.0 Pesticide Management Requirements

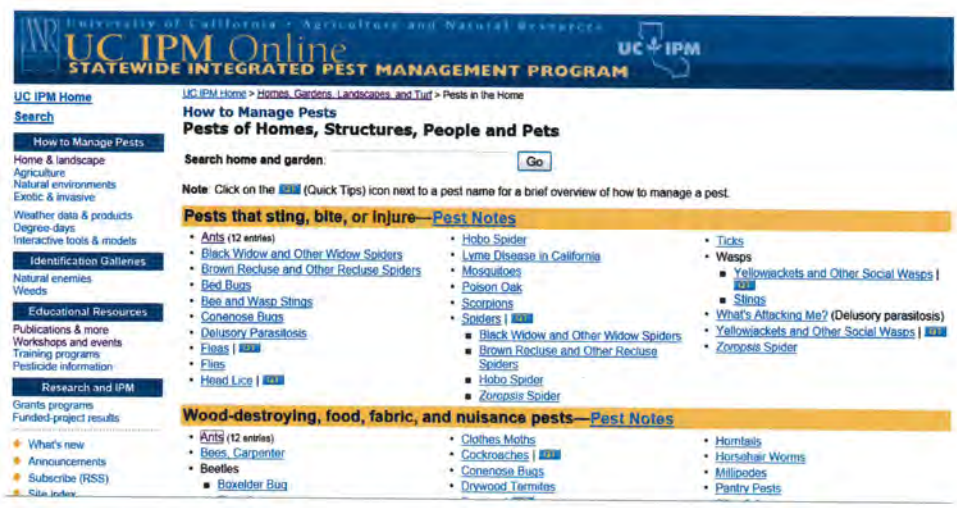
It is vital that the Port manage the use of pesticides, herbicides, rotenticides, and fungicides (collectively referred to in this document as "pesticides") to protect the environment, the public, and those persons performing the application of these chemicals. The Port's management program consists of following:

- Using good IPM practices;
- Specifying procedures for the application, storage, spill response, and disposal of waste product and product containers;
- Prohibiting the use of restricted products;
- Training Port personnel, applicators, and the Port tenants; and
- Monitoring storm water runoff and the retention basin to observe for the presence of pesticides in the water column and retention basin floor sediment.

3.1 Integrated Pest Management

IPM represents a landscaping and pest control method that promotes healthy landscapes and various natural processes to control pests so that the use of toxic chemicals can be avoided or minimized. Pesticides and other toxic chemicals are intended to be used as a last resort after natural and/or non-toxic methods have been applied. This section of the Pesticide Plan lays out the Port's IPM program and describes various requirements from the Permit.

The Port encourages the tenants, as well as, the landscapers and pest control contractors the Port hires to utilize good IPM practices. The Port refers them to the on-line University of California Statewide Integrated Pest Management Program (http://ipm.ucdavis.edu/PMG/menu.house.html).



The Port encourages tenants to use native and drought resistant vegetation and good IPM practices through the design review process, which includes conditioning projects by means of the storm water Development Standards Plan (DSP) and the California Environmental Quality Act (CEQA) processes. Likewise, Port projects are reviewed and conditioned with similar requirements.

3.2 Pesticide Handling and Use Guidelines

3.2.1 Pesticide Application Protocol

Pesticides and herbicides are applied so as to not come in direct contact with storm water collection systems (i.e. catch basins, swales, and retention basins). Unless specifically approved by the Port's Environmental Department, pesticides and herbicides are not to be applied just before or during storm events, or directly to standing water. Pesticides and herbicides are not to be applied immediately adjacent to groundwater wells. If visual observations of storm water runoff and/or discharges indicate that the application of chemicals may be impacting surface water quality, the practice will be stopped until additional appropriate Best Management Practices (BMPs) can be incorporated to prevent the contamination of surface water.

Environmental conditions (weather and site conditions) and restrictions for application of pesticides, fertilizers and herbicides are specified on the manufacturer's label. Site conditions are determined by visually (V) observing the area for situations, or by collecting information from recognized weather forecasting (F) organizations. For example, storm events can be tracked by using any internet web link that forecasts rainfall (e.g., http://forecast.weather.gov/ and indicating Stockton, CA).

The following Table 3-1 sets forth a guide for applicators where weather or site conditions may impact the application of the pesticide, fertilizer, or herbicide. Weather / site conditions must be verified for all listed conditions. Forecasting may be used for other weather / site conditions, but is necessary to establish a 24-hour timeframe prior to actual rainfall. A "Yes" answer in the below table indicates that weather/site conditions are acceptable for the application of pesticides, fertilizers, and herbicides. A "No" answer indicates that weather/site conditions are not acceptable for the application of pesticides, fertilizers, and herbicides.

Table 3-1

Weather/Site Conditions	Form of Determining Weather/Site Conditions	Application Allowed
Wind-free (winds will not cause spray drift from point of application) or winds below 9 miles per hour	V	Yes
12 hours prior to a predicted storm event (where there is a 30% or higher probability)	F	No
Storm events (when precipitation is occurring or has occurred within the last 4 hours)	V	No
Within one day of the end of a storm event having equal or greater than 0.10 inches	V	No (except for application of pre-emergents)
Water is running off-site	V	No
Rising groundwater	V	No
Ground is saturated	V	No

3.2.2 Restricted Use and Prohibited Pesticides

Restricted use pesticides – Products listed on **Appendix C** can only be applied by a certified pesticide contactors or persons under their direct supervision. Restricted use pesticides are assigned to pesticide products with a relatively high degree of potential human and/or environmental hazard even when used according to label directions.

General use pesticides are those that, when applied properly, will not cause adverse effects on the environment and can be applied by anyone.

Pesticides of concern - Pesticides of concern include: organophosphorous pesticides (chlorpyrifos and diazinon, which are both prohibited at the Port, and malathion); pyrethroids (bifenthrin, cyfluthrin, beta-cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambdacyhalothrin, permethrin, and tralomethrin); carbamates (e.g., carbaryl); and fipronil. The use of any of these pesticides must be closely monitored and documented as to the amounts applied, the exact locations, the application dates, and weather conditions at the time of the application. ***Prior to using any of these pesticides of concern, an explanation needs to be provided in writing of IPM alternatives and justification as to why the alternatives do not represent a viable option in lieu of the pesticide application.***

Prohibited pesticides – All banned pesticides and products containing **diazinon** and **chlorpyrifos** are prohibited to be stored at the Port or used by Port employees, contractors, or tenants.

Environmentally Sensitive Area Restrictions - The Port has adopted mandatory pesticide application restrictions for environmentally sensitive areas. **No aerial spraying is allowed due to concerns about drift, and no spraying is allowed around Elderberry plants where the Valley Elderberry Longhorn Beetle may reside.** The Valley Elderberry Longhorn Beetle is protected as is its natural habitat, the Elderberry (bush) tree and surrounding vegetation. This beetle is associated with Elderberry trees (*Sambucus* spp.) in California's Central Valley during its entire life cycle. The adults emerge from pupation inside the wood of these trees in the spring as their flowers begin to open. The exit holes made by the emerging adults are distinctive small oval openings. Often these holes are the only clue that the beetles occur in an area. The adults eat the Elderberry foliage until about June, when the beetles mate. The females lay eggs in crevices in the bark. Upon hatching, the larvae then begin to tunnel into the tree where they will spend 1-2 years eating the interior wood, which is their sole food source.

3.2.3 Pesticide Spill Control

Because all pesticide application is performed by an outside contractor, the prevention and clean-up of the spills of chemicals is primarily the responsibility of the contractor. Pest control contractors are required to carry spill control and clean up kits in their vehicles that are capable of controlling the largest liquid container carried on their vehicle. The Port's Environmental Department must be immediately notified of any spill.

The Port does not allow the rinsing, washing, or disposal of used pesticide containers on the Port property. The contractor must haul off all empty containers, any unused products, and all associated waste materials.

3.2.4 Pesticide Storage and Disposal

Fertilizers, herbicides, pesticides and other landscape maintenance chemicals are not stored at the Port under normal conditions, but are supplied by the pest control and/or landscaping contractor on the day used. Occasionally, a small volume of such chemicals may be temporarily stored at the Port. When that is the case, they are stored indoors or under cover in a secure location that is on paved surfaces or within areas containing secondary containment.

3.3 Pesticide Monitoring Plan

A pesticide monitoring plan is presented in the Port's Storm Water Management Plan. Please refer to the Port's Sampling and Analysis Plan in the Special Studies section (Section C).

3.4 Outreach and Training

The Port provides training and educational outreach to the Port Maintenance personnel, pest control contractors, landscaping contractors, and Port tenants on the pesticide program. Training topics include the following:

- Prohibited products are not used at the Port;
- Port requirements for using a *pesticide of concern*;
- Good IPM practices;
- Application restrictions;
- Environmentally-safe pesticide handling practices;
- Preventing excessive fertilizer application;
- Documentation requirements; and
- Certification requirements.

4.0 Program Participants and Affiliates

The following sets forth a narrative description of the roles and responsibilities of the various parties involved with the Port's Pesticide Plan. **Figure 3,** attached in **Appendix A,** provides a flow chart of Pesticide Plan responsibilities at the Port.

4.1 Port of Stockton Environmental Department Responsibilities

The Port is responsible for selecting and contracting with qualified and licensed pest control contractors. The Port will assure that contractors perform their duties in a safe and environmentally responsible manner. During application of chemicals, contractors that are Qualified Applicator Certificate (QAC) and Qualified Application License (QAL) holders, will be present onsite to apply or directly supervise application. The Port will annually review and approve a list of chemicals that the pest control contractor has selected to use in the mitigation of pests and unwanted weeds. The Port also will also annually review the list of chemicals and amounts actually used by the contractor.

The Port's Environmental Department will maintain on-site the inspection records and reports from the contracted pest management companies.

4.2 Pest and Vegetation Control Contractors

The contracted pest management companies must annually complete and submit to the Port for approval a listing of all pesticides and herbicides that may potentially be used during the year. At the end of the year, the contractor must provide a follow-up list of chemicals and the amounts that were actually used. The pest contractors will be responsible for the training of his personnel on proper application techniques, health and safety issues, and compliance with federal, state and local regulations for the chemicals used at the Port.

Port Approved Contractors:

Clark Pest Control Inc.	405 W. Pine Street, Lodi, CA 95240	License # 02802 00000
Alexander Custom Spraying	PO Box 6364, Stockton, CA 95206	License # 06-00048400
Valley Crest	701 Lincoln Ave., Modesto CA 95354	QAL # 109091

5.0 Health and Safety Measures

5.1 Hazard Communication

The Port assures that all persons involved with the application of pesticides and herbicides and all persons that may come in contact with the applied chemicals are made aware of and protected from hazards associated with those chemicals. Banned or unregistered pesticides as listed by EPA or DPR shall not be used or stored at the Port. Hazard communication is performed by reviewing and utilizing the Material Safety Data Sheets (MSDS), chemical labels, signs and notices, and temporary entry restrictions. The MSDS, labels, and manufacturer application instructions and warnings are to be maintained by contractors on an annual basis and provided to the Port as requested.

Manufacturer's labels shall be legibly placed on all containers with the following information: common name and trade name, active ingredient, EPA registration number, signal words, first aid, directions for use, and storage/disposal. Secondary containment shall be legibly labeled with the full name of the materials in the container, the concentration of the solution or mixture, the date and the name or initials of the person making the solution or repackaging the material.

The following describes specific hazard communication directed towards the pest contractor personnel, Port personnel, and the general public.

5.2 Pest Management Personnel

The pest contractors are responsible for communication to their own personnel of biological, chemical, and physical hazards that may be encountered during the performance of their duties while at the Port. The contractor is responsible for the training of their own personnel in the following: the proper and safe preparation of pesticides, application, clean-up and disposal of chemicals, sufficient knowledge of applicable laws and regulations, use of MSDS, and proper use of Personal Protective Equipment. The contractor is responsible to update the Port on the training of personnel, including annually submitting current training certificates (current certificates are located in **Appendix B**). The contractor must also assure that personnel applying chemicals have and use appropriate personal protective equipment to protect those workers. The contractor is also responsible for medical surveillance of his personnel to monitor them for chemical-related illnesses that may be caused by exposure to chemicals used during the performance of their duties.

5.3 Port Personnel

Through the use of signs, memoranda, and restricted entrances, personnel are made aware of pest control applications in and around areas that they may be working. Areas of active or recent pest control activity are posted and, when necessary, entry is restricted until it is safe to enter. Personnel are made aware of what chemicals are being applied in their work area, the method of application, the associated hazards, and the location of the applicable MSDS for the chemicals being used.

5.4 General Public

If necessary, the general public will be restricted from entering parts of the Port in areas where they could come into contact with the chemicals being applied. MSDS are available for review by the general public at the Port's Environmental Department located in the Annex building. The security personnel at the entry guard gate will be made aware by the pest control contractors of dates, times, locations, and access restrictions related to pesticide / herbicide applications.

5.5 Required Personal Protective Equipment

Personal protective equipment will be used in accordance with MSDS and label instructions. Each pest control contractor will be responsible to supply appropriate and adequate personal protective equipment to its personnel and is responsible for training his personnel on the appropriate use of such equipment.

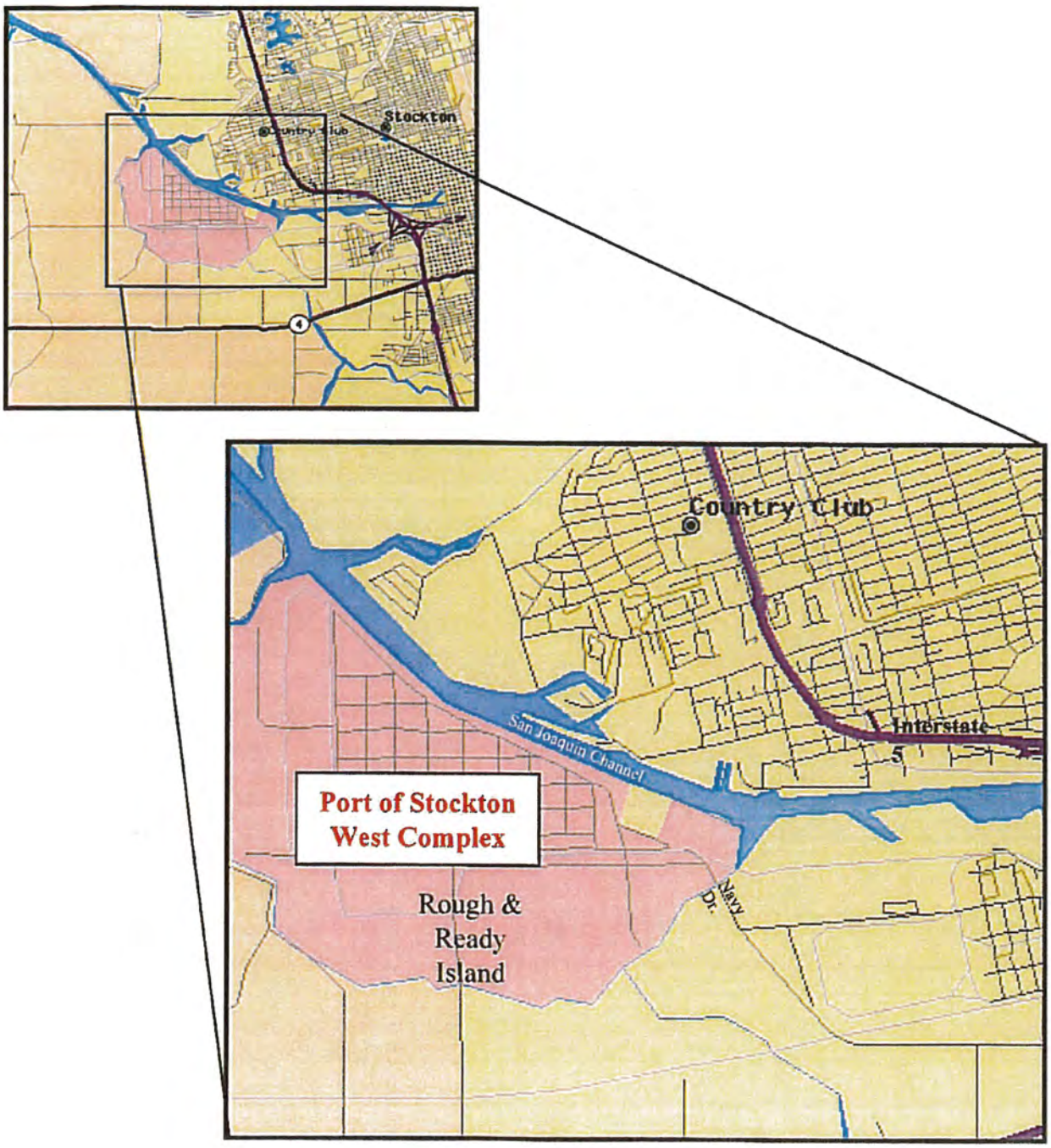
5.6 Pest Management Vehicles

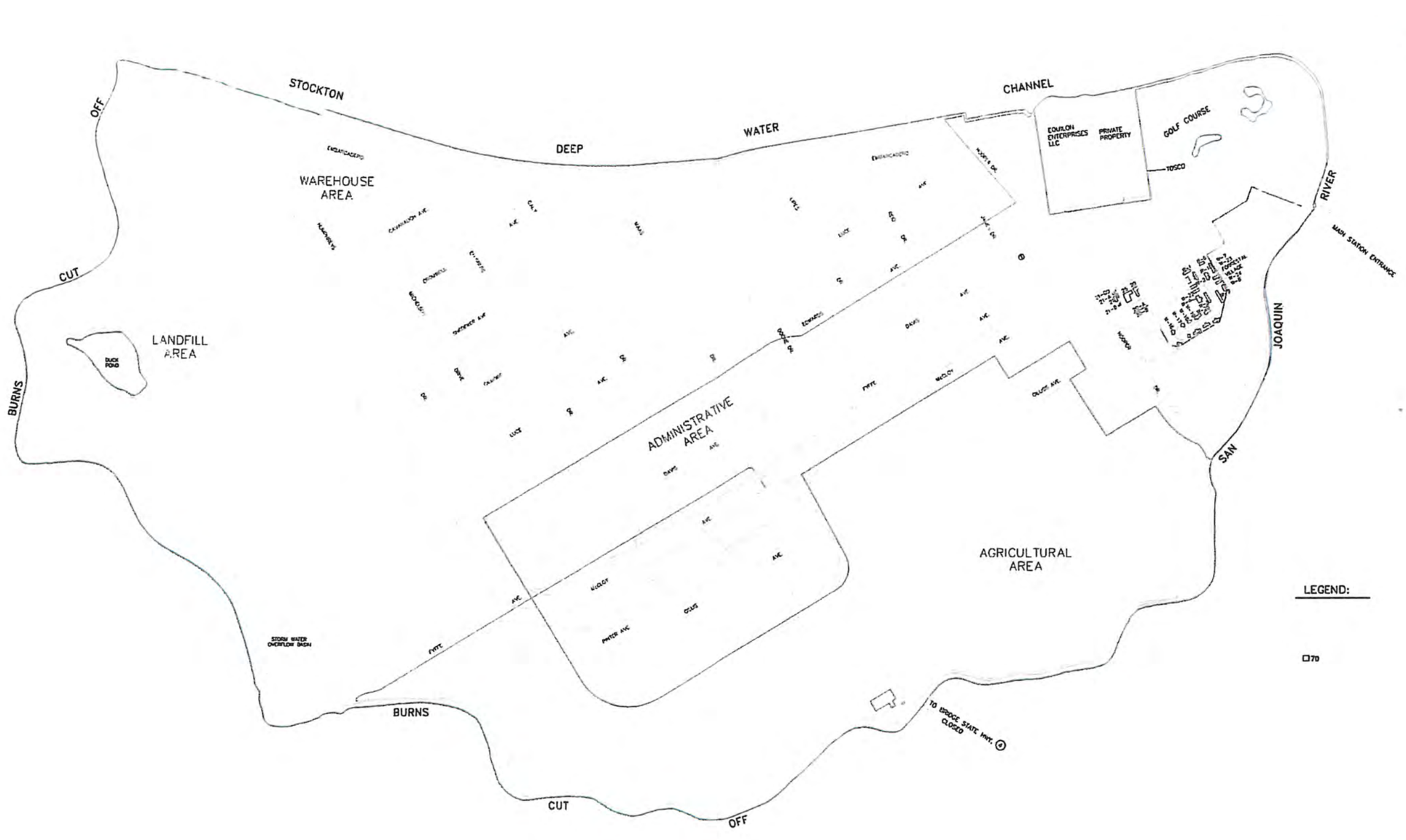
The transport of pesticides may pose a risk of accidents and spills of potentially hazardous substances. Vehicle safety and security is a priority at the Port. Vehicles must meet federal and state Department of Transportation (DOT) regulations governing registration, licensing, and inspection requirements, as well as, regulations concerning equipment power sprayers and pesticide holding tanks. Vehicles must meet Occupational Safety and Health Administration (OSHA) requirements for pesticide transportation. All pesticides must be stored in locked compartments and the vehicle must be secured when not occupied. A vehicle's appearance should be clean and free from chemical residue. The contractor's vehicle must be equipped with emergency eyewash, a first-aid kit, and a fire extinguisher. All transport vehicles need to have a spill containment and cleanup kit capable of controlling the largest container of liquid chemical carried on that vehicle.

APPENDIX A – FIGURES

- Figure 1 - Vicinity Map
- Figure 2 – East Complex
- Figure 3 – West Complex
- Figure 4 – Pesticide Plan Flow Chart

PORT OF STOCKTON
PEST MANAGEMENT PLAN VICINITY MAP
PORT OF STOCKTON WEST COMPLEX
Figure 1





DWG. NUMBER	REFERENCE DRAWING DESCRIPTION	REV. NO.	DATE	REVISION DESCRIPTION	BY	CHK.	ENGR	APP.	REV. NO.	DATE	REVISION DESCRIPTION	BY	CHK.	ENGR	APP.

FORMER DRAWING NUMBER | LOCATION CODE

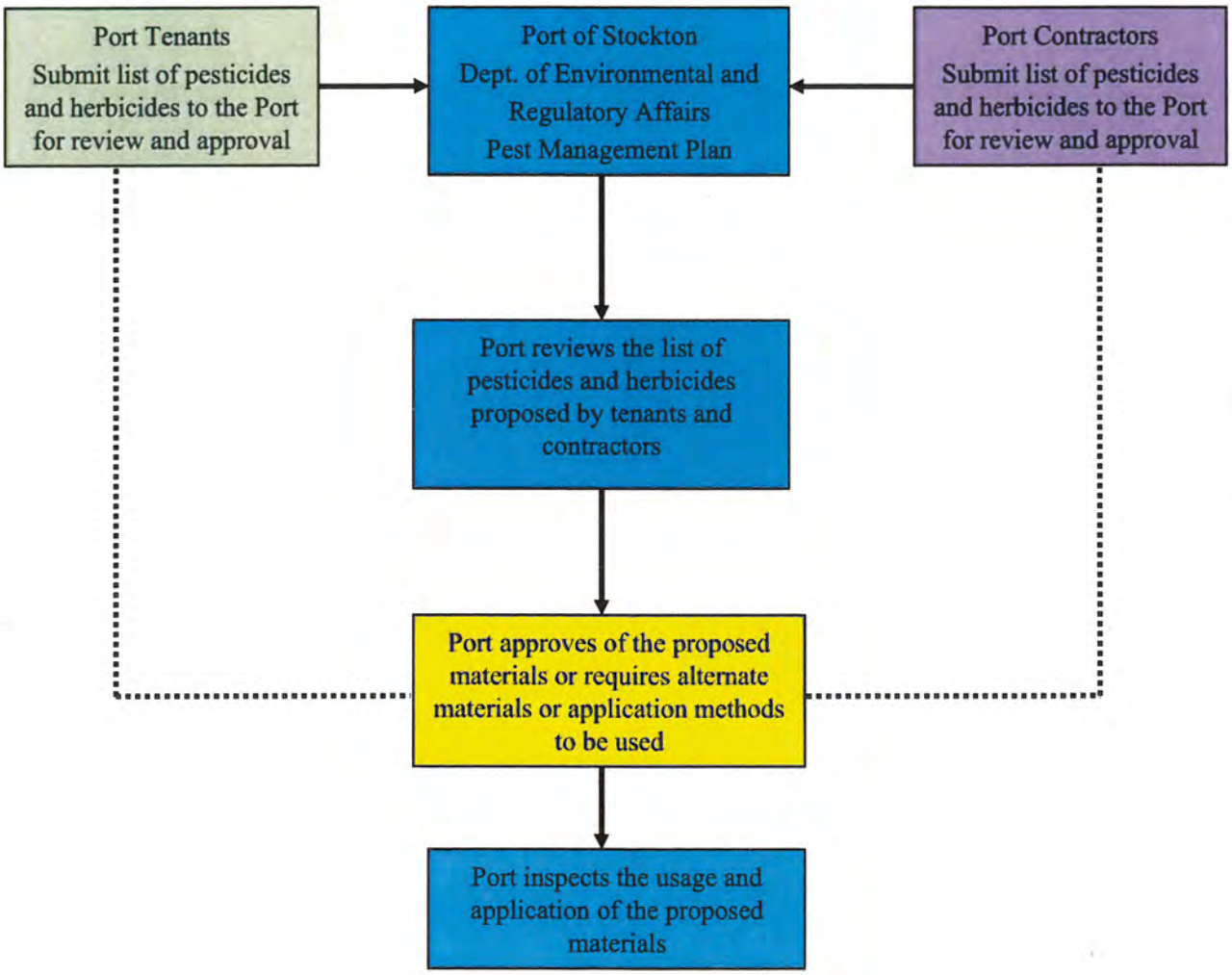
PORT OF STOCKTON

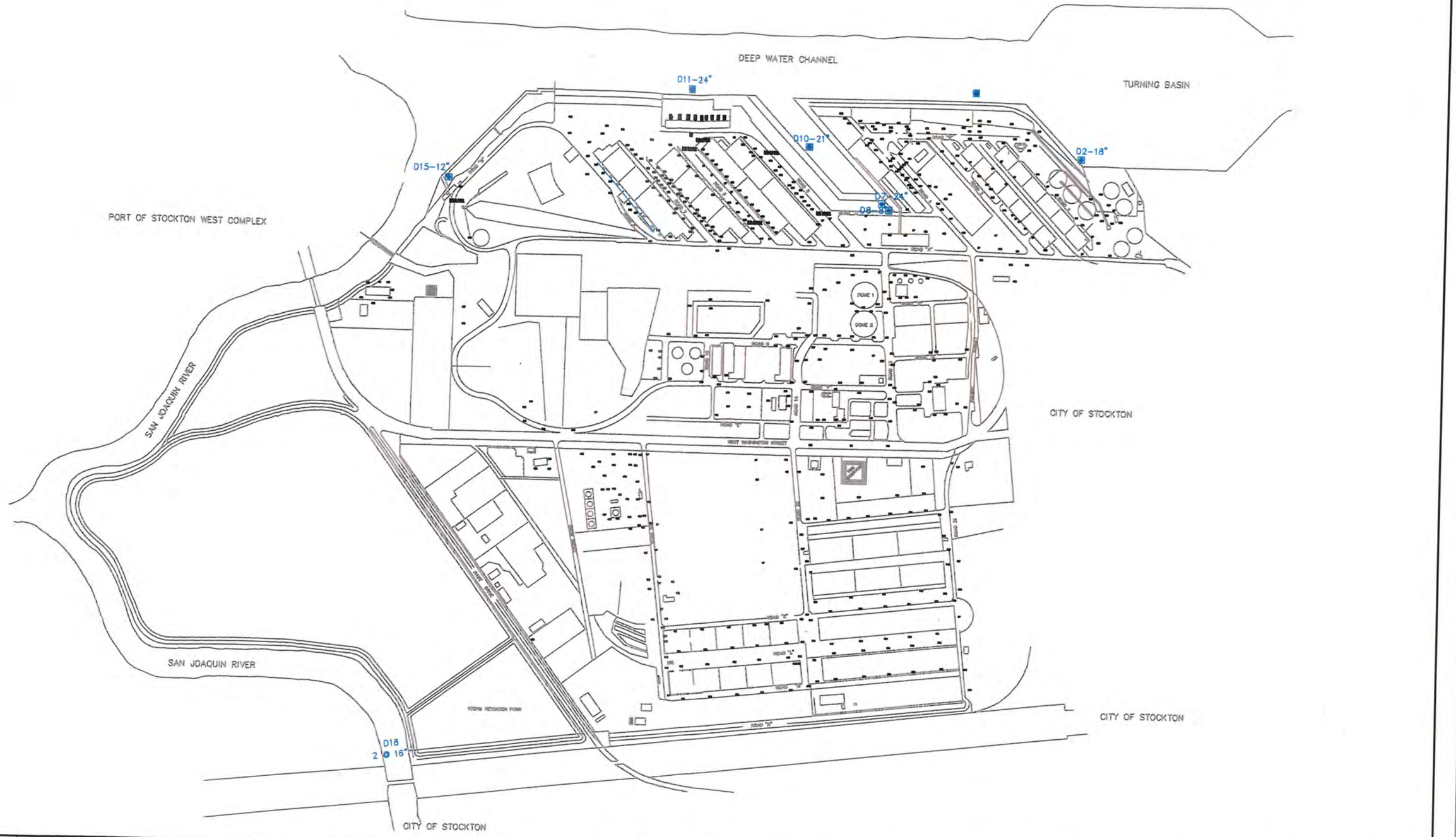
WEST COMPLEX
SITE MAP
PEST MANAGEMENT PLAN
2201 W. WASHINGTON STREET
SAN JOAQUIN COUNTY, CA STOCKTON

SCALE: AS SHOWN | DATE:
DRAWN: JMT

FIGURE 2 | REV. 0

PORT OF STOCKTON
PEST MANAGEMENT PLAN FLOW CHART
FOR THE PORT OF STOCKTON WEST COMPLEX
Figure 4





DWG. NUMBER	REFERENCE DRAWING DESCRIPTION	REV. NO.	DATE	REVISION DESCRIPTION	BY	CHK.	ENGR	APP.	REV. NO.	DATE	REVISION DESCRIPTION	BY	CHK.	ENGR	APP.

FORMER DRAWING NUMBER	LOCATION CODE

PORT OF STOCKTON

EAST COMPLEX
MUNICIPAL SEPARATE STORM SEWER SYSTEM

2201 W. WASHINGTON STREET
SAN JOAQUIN COUNTY, CA
STOCKTON

SCALE: AS SHOWN
DRAWN: JMT
DATE:

FIGURE 3

REV. 0

APPENDIX B – PEST CONTROL CONTRACTOR INFORMATION

- Clark Pest Control Inc.
- Alexander Custom Spraying
- Valley Crest Landscaping

CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION

1001 I STREET
SACRAMENTO, CALFORNIA 95814

ISSUED: January 01, 2013
EXPIRES: December 31, 2014

PEST CONTROL BUSINESS MAIN LICENSE

LICENSE NO. 31206

Invalid if insurance and/or qualified person(s) lapse before expiration date.

Malling Address
CLARK PEST CONTROL OF STOCKTON, INC
555 N. GUILD AVE
LODI, CA 95240

Business Location
CLARK PEST CONTROL OF STOCKTON, INC
555 N GUILD AVE
LODI, CA 95240

POST THIS LICENSE PROMINENTLY IN PUBLIC VIEW
THIS LICENSE IS NOT TRANSFERABLE – ANY CHANGE IN OWNERSHIP REQUIRES A NEW LICENSE

Structural Pest Control Board

STRUCTURAL PEST CONTROL BOARD

Licensee Name:	KEADY JEFFREY BRIAN
License Type:	FIELD REPRESENTATIVE
License Number:	21010
License Status:	CLEAR Definition
Expiration Date:	June 30, 2013
Issue Date:	August 25, 1992
License or Registration Class:	Branches 2 & 3
City:	LODI
County:	SAN JOAQUIN
Actions:	No

Related Licenses/Registrations/Permits

Number	Name	Type	Status	Actions
226	CLARK PEST CONTROL	COMPANY REGISTRATION	CLEAR	No

Disciplinary Actions

No information available from this agency

Public Record Action(s)

This information is updated Monday through Friday - Last updated: JAN-03-2013

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Back

Pest Management in Food Plants Exam

This certifies that

jeffrey keady

has successfully completed and passed
the Pest Management in Food Plants Exam
offered by the National Pest Management Association (NPMA),
thereby achieving a level of professional excellence
in the pest management industry.

NATIONAL PEST MANAGEMENT ASSOCIATION inc.
International

signature

Food Safety

GREEN PRO CERTIFIED
Eco-Effective Pest Control

GREENPRO

Eco-Effective Pest Control

Presenting this certificate of excellence to

Jeff Keary who completed NPMA GreenPro Test on 12/3/2008

in acknowledgment of your continuing efforts toward professional excellence and environmental awareness in the pest management industry. You have met the GreenPro testing requirements for eco-effective pest control.

official signature

Clark Pest Control

Good Manufacturing Practice Education

2012

This Certifies that

Jeff Keady

has successfully completed and understand the requirements of basic GMP's (Good Manufacturing Practices).

April 2012

Technical Department Signature

Structural Pest Control Board

STRUCTURAL PEST CONTROL BOARD

Licensee Name:	KRAULAND TIMOTHY JASON
License Type:	FIELD REPRESENTATIVE
License Number:	31219
License Status:	CLEAR Definition
Expiration Date:	June 30, 2014
Issue Date:	August 09, 1999
License or Registration Class:	Branches 2 & 3
City:	LODI
County:	SAN JOAQUIN
Actions:	No

Related Licenses/Registrations/Permits

Number	Name	Type	Status	Actions
226	CLARK PEST CONTROL	COMPANY REGISTRATION	CLEAR	No

Disciplinary Actions

No information available from this agency

lic Record Action(s)

This information is updated Monday through Friday - Last updated: SEP-25-2012

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Back

Structural Pest Control Board

STRUCTURAL PEST CONTROL BOARD

Licensee Name:	ALEXANDER DWIGHT ALAN
License Type:	FIELD REPRESENTATIVE
License Number:	39378
License Status:	CLEAR Definition
Expiration Date:	June 30, 2014
Issue Date:	November 18, 2005
License or Registration Class:	Branches 2 & 3
City:	LODI
County:	SAN JOAQUIN
Actions:	No

Related Licenses/Registrations/Permits

Number	Name	Type	Status	Actions
226	CLARK PEST CONTROL COMPANY	REGISTRATION	CLEAR	No

Disciplinary Actions

No information available from this agency

Public Record Action(s)

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Back

Structural Pest Control Board

STRUCTURAL PEST CONTROL BOARD

Licensee Name:	MALONE ROBERT ANDREW
License Type:	FIELD REPRESENTATIVE
License Number:	46549
License Status:	CLEAR Definition
Expiration Date:	June 30, 2013
Issue Date:	March 15, 2011
License or Registration Class:	Branch 2
City:	STOCKTON
County:	SAN JOAQUIN
Actions:	No

Related Licenses/Registrations/Permits

Number	Name	Type	Status	Actions
226	CLARK PEST CONTROL	COMPANY REGISTRATION	CLEAR	No

Disciplinary Actions

No information available from this agency

Public Record Action(s)

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Back

Structural Pest Control Board

STRUCTURAL PEST CONTROL BOARD

Licensee Name:	VALDEZ DAVID JR
License Type:	FIELD REPRESENTATIVE
License Number:	44382
License Status:	CLEAR Definition
Expiration Date:	June 30, 2014
Issue Date:	May 14, 2009
License or Registration Class:	Branches 2 & 3
City:	LODI
County:	SAN JOAQUIN
Actions:	No

Related Licenses/Registrations/Permits

Number	Name	Type	Status	Actions
226	CLARK PEST CONTROL COMPANY	REGISTRATION	CLEAR	No

Disciplinary Actions

No information available from this agency

Public Record Action(s)

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Back

Structural Pest Control Board

STRUCTURAL PEST CONTROL BOARD

Licensee Name:	GUINAN MICHAEL S
License Type:	FIELD REPRESENTATIVE
License Number:	45971
License Status:	CLEAR Definition
Expiration Date:	June 30, 2013
Issue Date:	September 15, 2010
License or Registration Class:	Branch 2
City:	RIPON
County:	SAN JOAQUIN
Actions:	No

Related Licenses/Registrations/Permits

No records returned

Disciplinary Actions

No information available from this agency

lic Record Action(s)

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Back

Structural Pest Control Board

STRUCTURAL PEST CONTROL BOARD

Licensee Name:	HARBUT NICHOLAS RAYMOND
License Type:	OPERATOR
License Number:	9323
License Status:	CLEAR Definition
Expiration Date:	June 30, 2014
Issue Date:	October 14, 1994
License or Registration Class:	Branches 2 & 3
City:	LODI
County:	SAN JOAQUIN
Actions:	No

Related Licenses/Registrations/Permits

Number	Name	Type	Status	Actions
226	CLARK PEST CONTROL	COMPANY REGISTRATION	CLEAR	No

Disciplinary Actions

No information available from this agency

blic Record Action(s)

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Back

Structural Pest Control Board

STRUCTURAL PEST CONTROL BOARD

Licensee Name:	NADOTTI CHRISTOPHER J
License Type:	FIELD REPRESENTATIVE
License Number:	45498
License Status:	CLEAR Definition
Expiration Date:	June 30, 2015
Issue Date:	May 10, 2010
License or Registration Class:	Branches 2 & 3
City:	STOCKTON
County:	SAN JOAQUIN
Actions:	No

Related Licenses/Registrations/Permits

Number	Name	Type	Status	Actions
226	CLARK PEST CONTROL COMPANY	REGISTRATION	CLEAR	No

Disciplinary Actions

No information available from this agency

)lic Record Action(s)

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Back

Structural Pest Control Board

STRUCTURAL PEST CONTROL BOARD

Licensee Name:	DYER STEVEN EARL
License Type:	FIELD REPRESENTATIVE
License Number:	12843
License Status:	CLEAR Definition
Expiration Date:	June 30, 2014
Issue Date:	January 01, 1985
License or Registration Class:	Branches 2 & 3
City:	LODI
County:	SAN JOAQUIN
Actions:	No

Related Licenses/Registrations/Permits

Number	Name	Type	Status	Actions
226	CLARK PEST CONTROL COMPANY	REGISTRATION	CLEAR	No

Disciplinary Actions

No information available from this agency

Public Record Action(s)

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Back

Structural Pest Control Board

STRUCTURAL PEST CONTROL BOARD

Licensee Name:	SAUVAGE DOMINIQUE R
License Type:	FIELD REPRESENTATIVE
License Number:	45306
License Status:	CLEAR Definition
Expiration Date:	June 30, 2015
Issue Date:	March 18, 2010
License or Registration Class:	Branch 2
City:	LODI
County:	SAN JOAQUIN
Actions:	No

Related Licenses/Registrations/Permits

Number	Name	Type	Status	Actions
226	CLARK PEST CONTROL COMPANY	REGISTRATION	CLEAR	No

Disciplinary Actions

No information available from this agency

lic Record Action(s)

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Back

Food Safety

Pest Management in Food Plants Exam

This certifies that

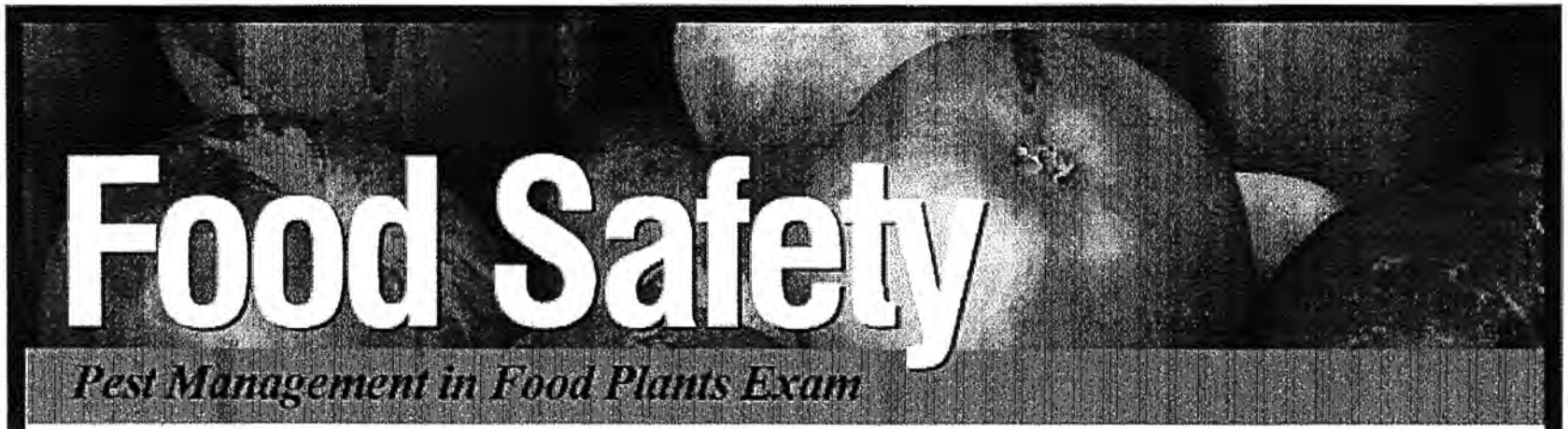
DWIGHT ALEXANDER

has successfully completed and passed
the Pest Management in Food Plants Exam
offered by the National Pest Management Association (NPMA),
thereby achieving a level of professional excellence
in the pest management industry.

NATIONAL PEST MANAGEMENT ASSOCIATION inc.

Food Safety

5-5-04



Food Safety

Pest Management in Food Plants Exam

This certifies that

robert malone

has successfully completed and passed
the Pest Management in Food Plants Exam
offered by the National Pest Management Association (NPMA),
thereby achieving a level of professional excellence
in the pest management industry.

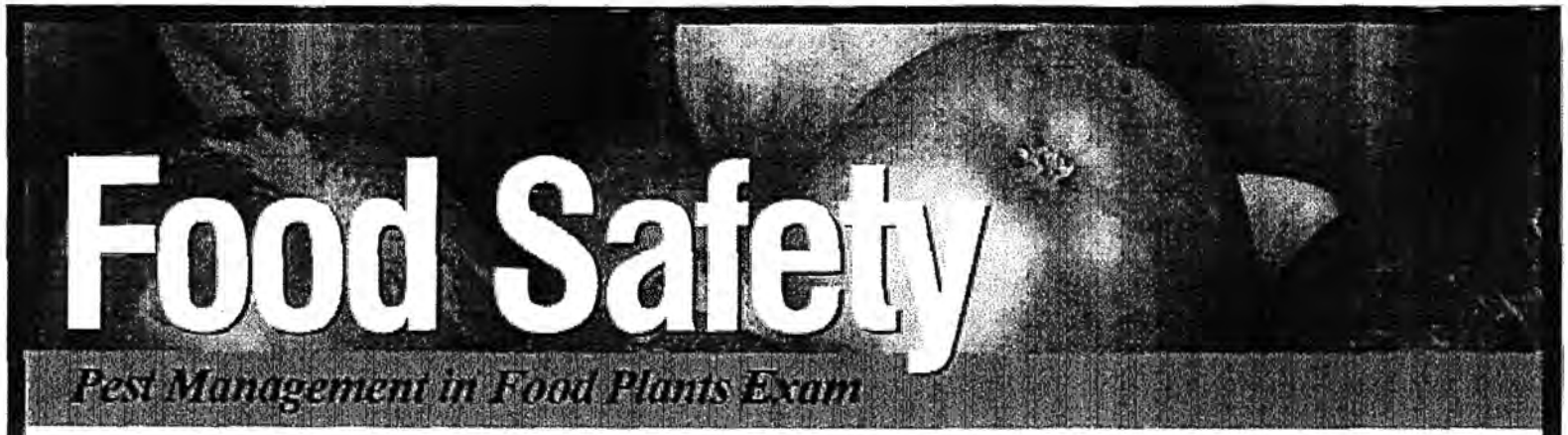
NATIONAL PEST MANAGEMENT ASSOCIATION Inc.
International

Signature

Food Safety

Signature of Proctor

Date



Food Safety

Pest Management in Food Plants Exam

This certifies that

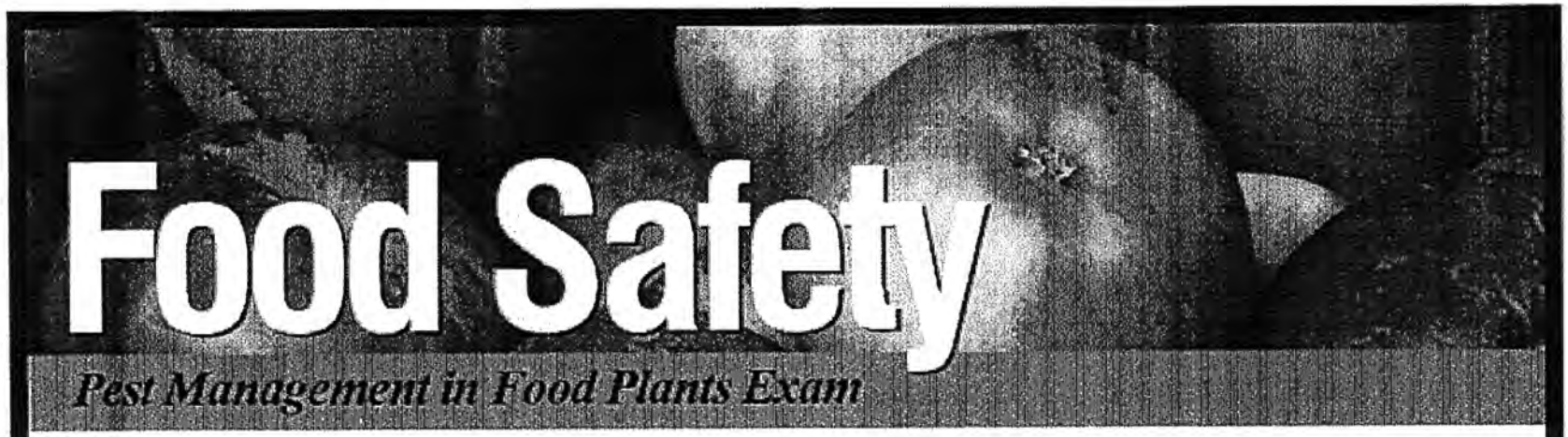
Nicholas Harbut

has successfully completed and passed
the Pest Management in Food Plants Exam
offered by the National Pest Management Association (NPMA),
thereby achieving a level of professional excellence
in the pest management industry.

NATIONAL PEST MANAGEMENT ASSOCIATION inc.
international

Food Safety

3-8-10



Food Safety

Pest Management in Food Plants Exam

This certifies that

Steven Dyer

has successfully completed and passed
the Pest Management in Food Plants Exam
offered by the National Pest Management Association (NPMA),
thereby achieving a level of professional excellence
in the pest management industry.

NATIONAL PEST MANAGEMENT ASSOCIATION Inc.
International

Signature

Food Safety

Signature of Proctor

Date

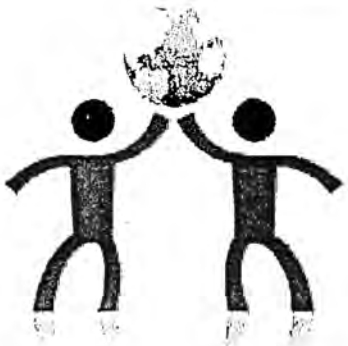
#1

QualityPro green

Presenting this certificate of excellence to

dwight alexander

in acknowledgment of your continuing efforts toward professional excellence and environmental awareness in the pest management industry by meeting the QualityPro Green requirements and achieving the mark of excellence in pest management.



Dwight Alexander 12/5/08

GREEN PRO CERTIFIED

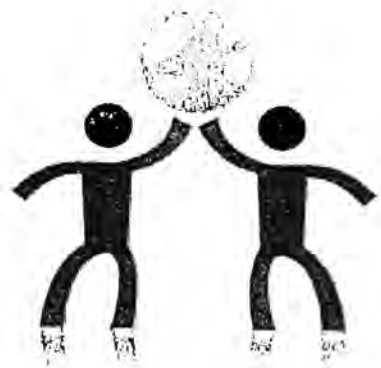
Ecologically Effective Pest Control

GREENPRO

Presenting this certificate of excellence to

robert malone

In acknowledgment of your continuing efforts toward professional excellence and environmental awareness in the pest management industry. You have met the GreenPro testing requirements for eco-effective pest control.



GREEN PRO CERTIFIED Eco-Effective Pest Control

GREENPRO

Eco-Effective Pest Control

Presenting this certificate of excellence to

David Valdez who completed NPMA GreenPro Test on 9/13/2011

in acknowledgment of your continuing efforts toward professional excellence and environmental awareness in the pest management industry. You have met the GreenPro testing requirements for eco-effective pest control.

official signature

GREEN PRO CERTIFIED Eco-Effective Pest Control

GREENPRO

Eco-Effective Pest Control

Presenting this certificate of excellence to

Timothy Maplane who completed NPMA GreenPro Test on 9/26/2011

in acknowledgment of your continuing efforts toward professional excellence and environmental awareness in the pest management industry. You have met the GreenPro testing requirements for eco-effective pest control.

Chris Nolotti

official signature

Clark Pest Control

Good Manufacturing Practice Education

2012

This Certifies that

Timothy Krauland

has successfully completed and understand the requirements of basic GMP's (Good Manufacturing Practices).

April 2012

Technical Department Signature

Clark Pest Control

Good Manufacturing Practice Education

2012

This Certifies that

Dwight Alexander

has successfully completed and understand the requirements of basic GMP's (Good Manufacturing Practices).

April 2012

Technical Department Signature

Clark Pest Control

Good Manufacturing Practice Education

2012

This Certifies that

Robert Malone

has successfully completed and understand the requirements of basic GMP's (Good Manufacturing Practices).

April 2012

Technical Department Signature

Clark Pest Control

Good Manufacturing Practice Education

2012

This Certifies that

David Valdez

has successfully completed and understand the requirements of basic GMP's (Good Manufacturing Practices).

April 2012

Technical Department Signature

Clark Pest Control

Good Manufacturing Practice Education

2012

This Certifies that

Michael Guinan

has successfully completed and understand the requirements of basic GMP's (Good Manufacturing Practices).

April 2012

Technical Department Signature

Clark Pest Control

Good Manufacturing Practice Education

2012

This Certifies that

Nick Harbut

has successfully completed and understand the requirements of basic GMP's (Good Manufacturing Practices).

April 2012

Technical Department Signature

Clark Pest Control

Good Manufacturing Practice Education

2012

This Certifies that

Chris Nadotti

has successfully completed and understand the requirements of basic GMP's (Good Manufacturing Practices).

April 2012

Technical Department Signature

Clark Pest Control

Good Manufacturing Practice Education

2012

This Certifies that

Steve Dyer

has successfully completed and understand the requirements of basic GMP's (Good Manufacturing Practices).

April 2012

Technical Department Signature

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 06/19/2012

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PRODUCER 0726293 1-415-546-9300 Arthur J. Gallagher & Co. Insurance Brokers of California, Inc., License #0726293 One Market Plaza, Spear Tower Suite 200 San Francisco, CA 94105	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS:
INSURED Clark Pest Control of Stockton, Inc., dba: Clark Peet Control 555 N. Guild Avenue Lodi, CA 95240	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A: HARTFORD FIRE IN CO — 19682 INSURER B: SCOTTSDALE INS CO — 41297 INSURER C: HARTFORD ACCIDENT & IND CO — 22357 INSURER D: CATLIN SPECIALTY INS CO — 15989 INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER:** 27733392 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY			57 UEN OH2001	07/01/12	07/01/13	EACH OCCURRENCE	$ 1,000,000
	[X] COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 500,000
	[ ] CLAIMS-MADE [X] OCCUR						MED EXP (Any one person)	$ 10,000
	[X] Contractual Liability						PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	[ ] POLICY [X] PRO-JECT [ ] LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
								$
	AUTOMOBILE LIABILITY			57 UEN OH2002	07/01/12	07/01/13	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	[X] ANY AUTO						BODILY INJURY (Per person)	$
	[ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	[X] HIRED AUTOS [X] NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
B	[X] UMBRELLA LIAB [X] OCCUR			XLS0082715	07/01/12	07/01/13	EACH OCCURRENCE	$ 1,000,000
	[ ] EXCESS LIAB [ ] CLAIMS-MADE						AGGREGATE	$ 1,000,000
	[ ] DED [ ] RETENTION $							$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N			57 WE OH2000	07/01/12	07/01/13	[X] WC STATU-TORY LIMITS [ ] OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [ ] N/A						E.L. EACH ACCIDENT	$ 1,000,000
	(Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
D	Pollution/Professional			CPV1965540713	07/01/12	07/01/13	Per Claim / Agg	5,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

See Supplement Page for additional information.

CERTIFICATE HOLDER

Clark Pest Control of Stockton, Inc.

555 N. Guild Avenue

Lodi, CA 95240 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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RECEIVED
AUG - 2 2012
PORT OF STOCKTON
ENVIRONMENTAL DEPARTMENT

DEPARTMENT OF PESTICIDE REGULATION
LICENSING/CERTIFICATION PROGRAM

QUALIFIED APPLICATOR LICENSE

DATE OF ISSUE	VALID THROUGH
01/01/2012	12/31/2013

QAL 100253 CD
THOMAS L MELDEN
PO BOX 6364
STOCKTON CA 95206

CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION

1001 I STREET
SACRAMENTO, CALFORNIA 95814

ISSUED January 01, 2011
EXPIRES December 31, 2012

PEST CONTROL BUSINESS MAIN LICENSE

LICENSE NO 30961

Invalid if insurance and/or qualified person(s) lapse before expiration date.

Mailing Address

ALEXANDER CUSTOM SPRAYING
PO BOX 6364
STOCKTON, CA 95206

Business Location

ALEXANDER CUSTOM SPRAYING
BLDG 410A GILMORE AVE
STOCKTON, CA 95201

Mary-Ann Warmerdam, Director

POST THIS LICENSE PROMINENTLY IN PUBLIC VIEW
THIS LICENSE IS NOT TRANSFERABL – ANY CHANGE IN OWNERSHIP REQUIRES A NEW LICENSE

PEST CONTROL BUSINESS COUNTY REGISTRATION
PR-PML-059 (REV. 3/02)

STATE OF CALIFORNIA
DEPARTMENT OF PESTICIDE REGULATION
PEST MANAGEMENT AND LICENSING BRANCH

REGISTRATION EXPIRATION DATE: DECEMBER 31, (YEAR) 2012

FOR REGISTRATION IN COUNTY OF: SAN JOAQUIN

BUSINESS LOCATION: ☐ MAIN ☐ BRANCH

BUSINESS NAME: ALEXANDER CUSTOM SPRAYING

BUSINESS LICENSE NO: 30964

CARD IMPRINT AREA
(ATTACH COPY OF PEST CONTROL BUSINESS LICENSE)

ADDRESS: P.O. BOX 6364

CITY: STOCKTON ZIP CODE: 95206 TELEPHONE NUMBER: 209 481-3112

REGISTRATION FEE RECEIVED $ 50.00
pd by ck# 13325

QUALIFIED APPLICATOR'S SIGNATURE: Thomas J. Melden DATE: 1-5-2012

Restricted Material(s) Possession Permit No. _____
No restricted Material may be possessed except in accordance with any attached condition(s). This is not a permit to apply

CONDITION(S) ATTACHED ☐ YES ☐ NO

SAN JOAQUIN COUNTY
IMPRINTING COUNTY'S OFFICIAL SEAL

AGRICULTURAL COMMISSIONER'S SIGNATURE: B. Thuesdstadt for Scott Hudson DATE

dpr DEPARTMENT OF PESTICIDE REGULATION
LICENSING/CERTIFICATION PROGRAM

QUALIFIED APPLICATOR LICENSE

DATE OF ISSUE	VALID THROUGH
01/01/2012	12/31/2013

QAL 100253 CD
THOMAS L MELDEN
PO BOX 6364
STOCKTON CA 95206

OTHER INFORMATION/DOCUMENTS REQUIRED FOR PEST CONTROL BUSINESS/ MAINTENANCE GARDNER REGISTRATION

Air ☐

Ground ☐

Employees:

Yes ☐

No ☐

Please Attach:

1. Copy of current Pest Control Business License issued from the State of California, Dept. of Pesticide Regulation.
2. Copy of Pest Control Business Equipment list.

SAN JOAQUIN COUNTY AGRICULTURAL COMMISSIONERS OFFICE
2101 E EARHART AVE, SUITE 100
STOCKTON, CA 95206
Office: (209) 953-6000 Fax: (209) 953-6022
Email: stocktonag2@sjgov.org Web: www.co.san-joaquin.ca.us/agcomm

RESTRICTED MATERIALS PERMIT: 39-12-3900002

Operator: ALEXANDER CUSTOM SPRAY INC
1819 S ARGONAUT ST
STOCKTON, CA 95206-

Attention: MELDEN,THOMAS L

3900002-2012-Version: 1
County District #: I
Issued on: 1/6/2012 PD
Valid as of: 1/6/2012
Expires on: 12/31/2012

Home Phone:
Office Phone: (209) 464-0173
Mobile Phone: (209) 481-3112
Fax:

Type of Use: Agricultural Use
Pesticide Possession:
Permit Duration: Seasonal
Employees Handle Pesticides
Conditions: A, P, Q, R, O

Notices Of Intent required 24 hours prior to application of pesticide containing restricted materials

See condition detail for code descriptions.

Regulatory Notes:

I understand that this permit does not relieve me from liability for any damages to any persons or property caused by the use of these pesticides. I waive any claims of liability for damages against the County Department of Agriculture based on the issuance of this permit. I further understand that this permit may be revoked when pesticides are used in conflict with the manufacturer's labeling or in violation of applicable laws, regulations, and specific conditions of this permit. I authorize inspection at all reasonable times and whenever an emergency exists by the Department of Pesticide Regulation or the County Department of Agriculture of all areas treated or to be treated, storage facilities for pesticides or emptied containers and equipment used or to be used in the treatment. I have considered alternative and mitigation measures pursuant to Title 3, California Code of Regulations, section 6426. Taking into account economic, environmental, social, and technological factors, I have adopted those that are feasible and would substantially lessen any significant adverse impact on the environment.

[Form PR-ENF-125 (Rev 11/06) Pesticide Enforcement Branch]

Applicant: THOMAS L. MELDEN OWNER
(Name & Title)

Applicant Signature: Thomas L. Melden Date:

Issuing Officer: [signature] Date: 1/6/2012

4. No Phenoxy application shall be made when the wind velocity is less than 2 m.p.h. or in excess of 7 m.p.h.

5. No Dicamba applications allowed when wind exceeds 5 m.p.h.

6. No Dicamba application allowed when the maximum temperature on the day of application is predicted to exceed 85 degrees fahrenheit. Predicted temperature for the following day will be determined by the NOAA National Weather Service.

7. No applications allowed in the vicinity of a vineyard until after October 15 and grape leaves are "browned off".

8. Air applications are prohibited, except as follows: KING ISLAND, EMPIRE TRACT, BISHOP TRACT, RIO BLANCO TRACT, BOULDIN ISLAND, STATEN ISLAND. Monitoring of application by a Commissioner's representative is required. Applicator shall inform the Agricultural Commissioner's Office of the specific time of application. Application shall not begin until the Commissioner's representative is on site, or approval has been received from the Commissioner's representative.

Revised 11/11

5. A flagger is required at the application site for all AIR applications of Zinc Phosphide bait.

Revised 10/90

Q Dicamba & Phenoxy Herbicide CV

CONDITION - Q - DICAMBA AND PHENOXY HERBICIDES - CENTRAL VALLEY/HAZARDOUS AREA

In addition to all applicable laws, regulations and label restrictions, the CONDITIONS CHECKED BELOW APPLY to applications covered by this permit.

[X] 1. No ester formulation applications allowed.

[ ] 2. A smoke column is required at the application site for all Phenoxy and Dicamba applications by aircraft beginning March 16 and continuing through October 15.

[X] 3. Do not discharge material more than 10 feet above the crop or target.

[ ] 4. A drift reducing agent shall be added to the spray mixture at label rates.

[X] 5. Maximum wind velocity for Phenoxy herbicides - 10 m.p.h.

[X] 6. Maximum wind velocity for Dicamba - 10 m.p.h. EXCEPT when wind is moving in direction of sensitive crops, the maximum wind velocity - 5 m.p.h.

[ ] 7. No Dicamba application allowed in the vicinity of sensitive crops when the maximum temperature on the day of application is predicted to exceed 85 degrees
fahrenheit. Predicted temperature for the following day will be determined by the NOAA - National Weather Service.

[ ] 8. Dicamba applications by aircraft are restricted to a minimum distance of 2 miles from the following susceptible crops: beans, grapes, sunflower, tomato,
safflower, curcurbits, potatoes.

[ ] 9. Dicamba applications by ground are restricted to a minimum distance of 20 feet from the following susceptible crops: beans, safflower, tomato, curcurbits,
potatoes and 1/4 mile from grapes and sunflowers.

[ ] 10. No Dicamba or Phenoxy herbicide applications allowed beginning March 16 and continuing through October 15, and until grape leaves in the vicinity of the treated area are "browned off".

Revised 10/90

R Dicamba & Phenoxy Herbicide SA

CONDITION - R - DICAMBA AND PHENOXY HERBICIDES - SPECIAL HAZARDOUS AREA

In addition to all applicable laws, regulations, label restrictions, the and other conditions of this permit, the conditions listed below apply to applications in the Hazardous Area in San Joaquin County beginning March 16 and continuing through October 15.

1. Daily Notices of Intent are required.

2. Pesticide Use Report information shall be submitted to the Agricultural Commissioner's Office no later than the day following each day's application.

3. A drift reducing agent shall be added to the spray mixture at the label rates.

be removed 2 days after the final treatment.
5. When this product is used out-of-doors in a site frequented by people, other than an athlelic field or park, the applicator shall post a sign at the application site containing the signal word DANGER/PELIGRO, skull and crossbones, the name and EPA registration number of the fumigant, and a 24-hour emergency response number. Signs may be removed 2 days after the final treatment.
6. Fumigant Management Plans must be written before all applications of phosphine products, including all burrowing pest fumigations. A Fumigant Management Plan is a written description of the steps designed to plan for a safe, legal and effective fumigation. The certified applicator and owner of the property to be fumigated must characterize the area to be treated and include all safety requirements in the plan before application.

SITE CONDITIONS

O Aluminum & Magnesium Phosphide

Use in Rodent Burrow Fumigations

These use conditions are based on a determination by the California Department of Pesticide Regulation that exposure to phosphine fumigants is a risk to public safety.

1. Use is strictly prohibited around all residential areas, including single and multi-family residential properties, nursing homes, schools (except athletic fields where use may continue), day care facilities, and hospitals.
2. The products must only be used outdoors for control of burrowing pests, and are for use only on agricultural areas, orchards, non-crop areas (such as pasture and rangeland), golf courses, athletic fields, parks and recreational areas, cemeteries, airports, rights-of-way, earthen dams, and other non-residential institutional or industrial sites.
3. Products must not be applied in a burrow system that is within 100 feet of a building that is or may be occupied by people or domestic animals. This buffer zone for treatment around non-residential buildings that could be occupied by people or animals has been increased from 15 feet to 100 feet.
4. When this product is used in athletic fields or parks, the applicator must post a sign at entrances to the treated site containing the signal word DANGER/PELIGRO, skull and crossbones, the words: DO NOT ENTER/NO ENTRE, FIELD NOT FOR USE, the name and EPA registration number of the fumigant, and a 24-hour emergency response number. Signs may be removed 2 days after the final treatment.
5. When this product is used out-of-doors in a site frequented by people, other than an athletic field or park, the applicator shall post a sign at the application site containing the signal word DANGER/PELIGRO, skull and crossbones, the name and EPA registration number of the fumigant, and a 24-hour emergency response number. Signs may be removed 2 days after the final treatment.
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P General

CONDITION - P - General

In addition to all applicable laws, regulations, label restrictions and other more restrictive conditions of this permit, THE FOLLOWING CONDITIONS APPLY TO APPLICATIONS COVERED BY THIS PERMIT.

1. Maximum wind velocities for applications of Restricted Materials unless otherwise covered by the label, law, regulation, other permit conditions or environmental conditions at the application site are:

a. Spray - 12 m.p.h.
b. Dust - 8 m.p.h.
c. Pellets, granular or baits - 16 m.p.h.

2. No pesticide application shall be made or continued when there is the likelihood of contaminating any persons, non-target crops, animals or other public or private property.

3. Unless specifically named as a dust on this permit, NO DUST FORMULATIONS are allowed.

4. Apply pesticides covered by SLN(s) and Section 18(s) in conformance with the SLN(s) and Section 18(s).

safflower, curcurbits, potatoes.

[ ] 9. Dicamba applications by ground are restricted to a minimum distance of 20 feet from the following susceptible crops: beans, safflower, tomato, curcurbits,
potatoes and 1/4 mile from grapes and sunflowers.

[ ] 10. No Dicamba or Phenoxy herbicide applications allowed beginning March 16 and continuing through October 15, and until grape leaves in the vicinity of the treated area are "browned off".

Revised 10/90

R Dicamba & Phenoxy Herbicide SA

CONDITION - R - DICAMBA AND PHENOXY HERBICIDES - SPECIAL HAZARDOUS AREA

In addition to all applicable laws, regulations, label restrictions, the and other conditions of this permit, the conditions listed below apply to applications in the Hazardous Area in San Joaquin County beginning March 16 and continuing through October 15.

1. Daily Notices of Intent are required.

2. Pesticide Use Report information shall be submitted to the Agricultural Commissioner's Office no later than the day following each day's application.

3. A drift reducing agent shall be added to the spray mixture at the label rates.

4. No Phenoxy application shall be made when the wind velocity is less than 2 m.p.h. or in excess of 7 m.p.h.

5. No Dicamba applications allowed when wind exceeds 5 m.p.h.

6. No Dicamba application allowed when the maximum temperature on the day of application is predicted to exceed 85 degrees fahrenheit. Predicted temperature for the following day will be determined by the NOAA National Weather Service.

7. No applications allowed in the vicinity of a vineyard until after October 15 and grape leaves are "browned off".

8. Air applications are prohibited, except as follows: KING ISLAND, EMPIRE TRACT, BISHOP TRACT, RIO BLANCO TRACT, BOULDIN ISLAND, STATEN ISLAND. Monitoring of application by a Commissioner's representative is required. Applicator shall inform the Agricultural Commissioner's Office of the specific time of application. Application shall not begin until the Commissioner's representative is on site, or approval has been received from the Commissioner's representative.

Revised 11/11

O Aluminum & Magnesium Phosphide

Use in Rodent Burrow Fumigations

These use conditions are based on a determination by the California Department of Pesticide Regulation that exposure to phosphine fumigants is a risk to public safety.

1. Use is strictly prohibited around all residential areas, including single and multi-family residential properties, nursing homes, schools (except athletic fields where use may continue), day care facilities, and hospitals.
2. The products must only be used outdoors for control of burrowing pests, and are for use only on agricultural areas, orchards, non-crop areas (such as pasture and rangeland), golf courses, athletic fields, parks and recreational areas, cemeteries, airports, rights-of-way, earthen dams, and other non-residential institutional or industrial sites.
3. Products must not be applied in a burrow system that is within 100 feet of a building that is or may be occupied by people or domestic animals. This buffer zone for treatment around non-residential buildings that could be occupied by people or animals has been increased from 15 feet to 100 feet.
4. When this product is used in athletic fields or parks, the applicator must post a sign at entrances to the treated site containing the signal word DANGER/PELIGRO, skull and crossbones, the words: DO NOT ENTER/NO ENTRE, FIELD NOT FOR USE, the name and EPA registration number of the fumigant, and a 24-hour emergency response number. Signs may

GWP-Director Director Approved Alternative Management Practices or Interim Use
[ ] 1 - Director approved alternative
[ ] 2 - Director approved interim use

Revised 11/11

P General

CONDITION - P - General

In addition to all applicable laws, regulations, label restrictions and other more restrictive conditions of this permit, THE FOLLOWING CONDITIONS APPLY TO APPLICATIONS COVERED BY THIS PERMIT.

1. Maximum wind velocities for applications of Restricted Materials unless otherwise covered by the label, law, regulation, other permit conditions or environmental conditions at the application site are:

a. Spray - 12 m.p.h.
b. Dust - 8 m.p.h.
c. Pellets, granular or baits - 16 m.p.h.

2. No pesticide application shall be made or continued when there is the likelihood of contaminating any persons, non-target crops, animals or other public or private property.

3. Unless specifically named as a dust on this permit, NO DUST FORMULATIONS are allowed.

4. Apply pesticides covered by SLN(s) and Section 18(s) in conformance with the SLN(s) and Section 18(s).

5. A flagger is required at the application site for all AIR applications of Zinc Phosphide bait.

Revised 10/90

Q Dicamba & Phenoxy Herbicide CV

CONDITION - Q - DICAMBA AND PHENOXY HERBICIDES - CENTRAL VALLEY/HAZARDOUS AREA

In addition to all applicable laws, regulations and label restrictions, the CONDITIONS CHECKED BELOW APPLY to applications covered by this permit.

[X] 1. No ester formulation applications allowed.

[ ] 2. A smoke column is required at the application site for all Phenoxy and Dicamba applications by aircraft beginning March 16 and continuing through October 15.

[X] 3. Do not discharge material more than 10 feet above the crop or target.

[ ] 4. A drift reducing agent shall be added to the spray mixture at label rates.

[X] 5. Maximum wind velocity for Phenoxy herbicides - 10 m.p.h.

[X] 6. Maximum wind velocity for Dicamba - 10 m.p.h. EXCEPT when wind is moving in direction of sensitive crops, the maximum wind velocity - 5 m.p.h.

[ ] 7. No Dicamba application allowed in the vicinity of sensitive crops when the maximum temperature on the day of application is predicted to exceed 85 degrees fahrenheit. Predicted temperature for the following day will be determined by the NOAA - National Weather Service.

[ ] 8. Dicamba applications by aircraft are restricted to a minimum distance of 2 miles from the following susceptible crops: beans, grapes, sunflower, tomato.

[X] P - General
[ ] Q - Dicamba & Phenoxy Herbicides - Central Valley/Hazardous Area
[ ] R - Dicamba & Phenoxys - Special Hazardous Area
[ ] S - Metam Sodium, Metam Potassium, Dazomet
[ ] T - Aldicarb (Temik)
[ ] U - Endosulfan (Thiodan)
[ ] V - Rice Pesticides Program
    [ ] - Attachments 1-5 Thiobencarb (Forms A,B)
[ ] W - Methyl Bromide / Sulfuryl Fluoride
    [ ] - Soil within greenhouses
    [ ] - Commodity
    [ ] - Soil injection
    [ ] - Tarped potting soil
    [ ] - Single tree site
[ ] X - Furadan chemigation of grapes
[ ] Y - 1, 3 - Dichloropropene
[ ] Z - Other

GROUNDWATER PROTECTION PERMIT CONDITIONS

These conditions apply to pesticides labeled for agricultural, outdoor industrial, or outdoor institutional use that contain chemicals listed in 3CCR section 6800(a): ATRAZINE, SIMAZINE, BROMACIL, DIURON (except products with less than 7% diuron applied to foliage), PROMETON, BENTAZON, AND NORFLURAZON. Ground Water Protection Areas (GWPA), for San Joaquin County, are designated in the Department of Pesticide Regulation document EH03-05. A list of GWPAs may be obtained from the Commissioner's Office or DPR's website (www.cdpr.ca.gov/docs/gwp).

"Engineered rights of way" are defined as areas within a ground water protection area (GWPA) that are constructed in a way that results in increased runoff and collection of storm water, such as railroad ballasts and berms, public roadsides, and highway median strips or similar areas, but not canal or ditch banks or utility lines.

SPECIFIC GROUNDWATER PROTECTION PERMIT CONDITIONS ATTACHED

GWP-C & D Unlined canal and ditch banks
[ ] 1 - Percolation rate is less than or equal to 0.2 inches per hour
[ ] 2 - Applied six months prior to water run
[ ] 3 - All applications are prohibited below high water line

GWP-ROW Engineered rights-of-way within San Joaquin County GWPAs
[ ] 1A - Soil disturbance within 7 days
[ ] 1B - Incorporation
[ ] 1C - Applied between April 1 and July 31
[ ] 2 - Runoff passes through adjacent fully vegetated noncrop area
[ ] 3 - Compliance with NPDES permit
[ ] 4 - Runoff through adjacent area as overland flow

GWP-R Runoff GWPAs within San Joaquin County
[ ] 1 - Soil disturbance
[ ] 2 - Incorporated
[ ] 3 - Band treatment
[ ] 4 - Applied between April 1 and July 31
[ ] 5 - Runoff water held onsite
[ ] 6 - Runoff water stored offsite
[ ] 7 - Runoff to adjacent fallow field

GWP-L Leaching GWPAs within San Joaquin County
[ ] 1 - No irrigation
[ ] 2 - Bed or berm application
[ ] 3 - Managed irrigation

CONTACT LIST

Name	Auth Rep.	Phone	License	Expiration	Contact Type
MELDEN, THOMAS L			34175	12/31/2011	Qualified Applicator License

PESTICIDES LIST

Number	Pesticide	Pests	Forms	Methods	Applicators
1050	CARBARYL	LARVAE	All Reg.	Ground	PCB/Operator
2000	DICAMBA	WEEDS	All Reg.	Air/Ground	PCB/Operator
3824	METASYSTOX-R	APHIDS	Liquid	Ground	PCB
4840	ALUMINUM PHOSPHIDE	RODENTS	Fumigant	Ground	PCB
6260	ZINC PHOSPHIDE	RODENTS	All Reg.	Air/Ground	PCB/Operator
8492	TRIMEC	WEEDS	Liquid	Ground	PCB
9801	2,4-D AMINE	WEEDS	Liquid	Ground	PCB
16011	PARAQUAT	WEEDS	Liquid	Ground	PCB

SITES LIST

Site	Location Commodity Name/Code	Quantity	Pesticide #s	District	Section (MTRS)
S.J.CO.	VARIOUS LOCATIONS S.J. CO RIGHTS OF WAY / 40-0	99 ACRES	1050 (CARBARYL), 2000 (DICAMBA), 4840 (ALUMINUM PHOSPHIDE), 6260 (ZINC PHOSPHIDE), 9801 (2,4-D AMINE), 16011 (PARAQUAT)	I	M02N07E01
Conditions:	O - Aluminum & Magnesium Phosphide, P - General, Q - Dicamba & Phenoxy Herbicide CV, R - Dicamba & Phenoxy Herbicide SA				
1	VARIOUS LOCATIONS map-field # 0 0 UNCUL NON-AG / 67000-0	99 ACRES	1050 (CARBARYL), 2000 (DICAMBA), 3824 (METASYSTOX-R), 4840 (ALUMINUM PHOSPHIDE), 6260 (ZINC PHOSPHIDE), 9801 (2,4-D AMINE), 16011 (PARAQUAT)	S	M02N06E01
Conditions:	O - Aluminum & Magnesium Phosphide, P - General, Q - Dicamba & Phenoxy Herbicide CV, R - Dicamba & Phenoxy Herbicide SA				

OPERATION-WIDE CONDITIONS

A Permit Cond.Table of Contents

A - PERMIT CONDITIONS - TABLE OF CONTENTS

WORKERS SAFETY SERIES ATTACHED

[ ] A-1 through A-11 General Information

PERMIT CONDITONS ATTACHED

[ ] O- Aluminum Phosphide in Rodent Burrows

CITY OF STOCKTON
BUSINESS LICENSE TAX CERTIFICATE

BUSINESS LICENSE TAX ACCOUNT NUMBER:
13-00093938
CONTROL NUMBER
(0080223)

BUSINESS ADDRESS:
705 PVT CAVANAUGH AV

STOCKTON CA 95203

VALLEYCREST LANDSCAPE MAINTENA
24151 VENTURA BLVD

CALABASAS CA 91302

EXPIRATION DATE:
December 31, 2013

BUSINESS LICENSE CLASSIFICATION: SUB-CONTRACTORS-ANNUAL

BUSINESS DESCRIPTION: LANDSCAPE MAINTENANCE & TREE CARE

THIS LICENSE MUST BE KEPT AT THE FIXED LOCATION OF THE BUSINESS IT HAS BEEN ISSUED FOR, AND DISPLAYED UPON DEMAND.

- OR -

IN THE CASE OF A LICENSEE NOT AT A FIXED LOCATION, THE LICENSEE SHALL KEEP THIS LICENSE UPON HIS PERSON AT ALL TIMES WHILE TRANSACTING AND CARRYING ON BUSINESS AND DISPLAY IT UPON DEMAND.

Licenses must be renewed by the last day of the month following the expiration date, which is the date the license tax has been paid through. It is the business owner's responsibility to renew the business license or notify the city that they are no longer doing business, even if they do not receive a renewal application by mail.

Notify the City of Stockton, Business License Customer Service unit of any changes to the business either by mail City of Stockton, P.O. Box 1570, Stockton, CA 95201-1570, or in our office City Hall, Administrative Services Department, 425 North El Dorado Street, Stockton, CA 95202.

Office hours are Monday through Friday 8:30 a.m. to 4:30 p.m.
Open through lunch, Closed every other Friday

Authorized Agent for City of Stockton

APPENDIX C – CA RESTRICTED USE MATERIALS LIST

CALIFORNIA RESTRICTED MATERIALS REQUIREMENTS

A FEDERAL RESTRICTED USE PESTICIDES

(Included by reference as California Restricted Materials)
PESTICIDES DISPLAYING THE STATEMENT SHOWN HERE > > >
OR A SIMILAR STATEMENT ON THE PRODUCT CONTAINER

RESTRICTED USE PESTICIDE
DUE TO (reason for restricted use classification)
For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

PRODUCTS BEARING THE "PHYSICALLY PRESENT" STATEMENT ON THE LABEL ARE REQUIRED TO HAVE A CERTIFIED APPLICATOR PHYSICALLY PRESENT AT THE USE SITE.

B CALIFORNIA RESTRICTED MATERIALS

TRADE NAMES ARE INCLUDED IN THE INTEREST OF SIMPLICITY; OTHER PRODUCTS WITH THE SAME COMPOUND AS AN ACTIVE INGREDIENT ARE ALSO SUBJECT TO THE PERMIT REQUIREMENTS. REFER TO TITLE 3, CALIFORNIA CODE OF REGULATIONS (3 CCR) SECTION 6400.

Acrolein, when labeled for use as an aquatic herbicide
Aldicarb (Temik)
All dust (except those products containing only exempt pesticides)**
Aluminum phosphide (Phostoxin)
Any pesticide containing active ingredients listed under section 6800(a), when labeled for agricultural, outdoor institutional, or outdoor industrial use[1]
Any pesticide pursuant to section 18 of FIFRA (Emergency exemption)
4-Amino pyridine (Avitrol)
Azinphos-methyl (Guthion)
Calcium cyanide
Carbaryl (Sevin)**
Carbofuran (Furadan)
Chloropicrin
3-Chloro-p-toluidine hydrochloride (Starlicide)
Dazomet (Basamid), when labeled for production of agricultural plant commodities
Dicamba (Banvel)*
2,4-dichlorophenoxyacetic acid (2,4-D)*
2,4-dichlorophenoxybutyric acid (2,4-DB)*
2,4-dichlorophenoxypropionic acid (2,4-DP)*
1,3-dichloropropene (Telone II)
Disulfoton (Di-Syston)**
Endosulfan (Thiodan)**
Ethoprop (Mocap), when labeled for turf use
Fenamiphos (Nemacur)
Lindane**
Magnesium phosphide
Metam sodium, when labeled for the production of agricultural plant commodities
Methamidophos (Monitor)
Methidathion (Supracide)
Methomyl (Lannate)**
Methyl bromide
2-methyl-4-chlorophenoxyacetic acid (MCPA)*
Methyl iodide
Methyl isothiocyanate (MITC), when labeled for the production of agricultural plant commodities
Mevinphos (Phosdrin)
~~Molinate (Ordram)~~[2]
Oxydemeton-methyl (Metasystox-R)
Paraquat (Gramoxone)
Parathion-methyl
Phorate (Thimet)
Phosphine gas
Potassium n-methyldithiocarbamate (metam-potassium), when labeled for the production of agricultural plant commodities
Propanil (3,4-dichloropropionanilide)
Sodium cyanide
Sodium fluoroacetate (compound 1080)
Sodium tetrathiocarbonate (Enzone)
Strychnine**
Sulfotepp
Sulfuryl fluoride
Thiobencarb (Bolero)
Tribufos (DEF, Folex)
Tributyltin, organotin, or a tri-organotin compound formulated as an antifouling paint, coating, or compound and labeled for the control of fouling organisms in an aquatic environment
Zinc phosphide**

EXCEPTIONS FROM RESTRICTION

**Products labeled only for home, structural, industrial, institutional, or public agency vector control district uses

- Carbaryl formulated as a bait
- Fly bait containing 1% or less Methomyl
- Use on livestock or poultry
- Diluted, ready-to-use solution of certain restricted herbicides
- One quart or less of a product containing certain restricted herbicide in a liquid formulation
- 2,4-D products labeled only for use as a plant growth regulator
- One gallon or less of a product containing the following percentages of restricted herbicide in a liquid formulation:
  - 15% or less Dicamba
  - 15% or less MCPA
  - 15% or less 2,4-D
  - 15% or less 2,4-DB, OR
  - 15% or less 2,4-DP
- 50 pounds or less of a certain restricted herbicide (Phenoxy and Dicamba) containing 10% or less of active ingredient prepared for use without further dilution
- One pound or less of a product containing certain restricted herbicide (Phenoxy and Dicamba) in a dry formulation

APPLICATORS WHO HAVE MET THE CERTIFICATION REQUIREMENTS FOR RESTRICTED MATERIALS PURSUANT TO FOOD AND AGRICULTURAL CODE §14015

CERTIFIED COMMERCIAL APPLICATORS

(PERSONS OTHER THAN PRIVATE APPLICATORS USING RESTRICTED PESTICIDES)

- Journeyman Pilots
- Qualified Applicator Licensees
- Qualified Applicator Certificate Holders
- Structural Pest Control Field Representatives
- Structural Pest Control Operators
- Vector Control Technicians

A PESTICIDES ONLY IN "A" ABOVE -- NO PERMIT REQUIRED

B PESTICIDES ONLY IN "B" ABOVE -- PERMIT REQUIRED; EXCEPTIONS APPLY

CERTIFIED PRIVATE APPLICATORS

(GROWERS, NURSERYMEN, AND OTHERS USING RESTRICTED PESTICIDES TO PRODUCE AGRICULTURAL COMMODITIES)

- Private Applicator Certificate Holders

A PESTICIDES ONLY IN "A" ABOVE -- NO PERMIT REQUIRED

B PESTICIDES ONLY IN "B" ABOVE -- PERMIT REQUIRED; EXCEPTIONS APPLY

EXCEPTIONS FROM PERMIT REQUIREMENT

[1] PESTICIDES LISTED UNDER 3 CCR SECTION 6800(a) (POTENTIAL TO POLLUTE GROUND WATER):
NO PERMIT REQUIRED FOR CERTIFIED APPLICATORS USING THESE MATERIALS OUTSIDE OF A GROUND WATER PROTECTION AREA.
Atrazine Bentazon (Basagran®) Bromacil Diuron Norflurazon Prometon Simazine

[2] U.S. EPA issued *Molinate; Product Cancellation Order and Amendment to Terminate Uses* which indicated the stop use date of August 31, 2009. Molinate (Ordram) will be deleted from this listing after the regulation change occurs.

Appendix 5

Storm Drainage System Maintenance Procedures

Drain Maintenance Handbook

Contents

1 Scope of Work 2
2 Division of Work 3
3 Drain Identification 5
4 Safety Precautions 6
5 Type 1 Drain Inlets and Servicing Procedures 7
6 Type 2, 3, and 4 Drain Inlets and Servicing Procedures 10
7 Cleaning and Maintaining Channels/Ditches 18
8 Removal of Magnetic Metals 19
9 Drain Cleaning 20
10 Replacing Sampling Tube Devices 20
11 Cutting out stuck drains 20
12 BMP/Maintenance Supplies Procurement 21
13 Replacing BMPs 21
14 Maintaining Check Dams at the South Ditch 22
15 Transplanting Bio-Filtration Areas 22
16 Documentation Drain Maintenance 23

1 Scope of Work

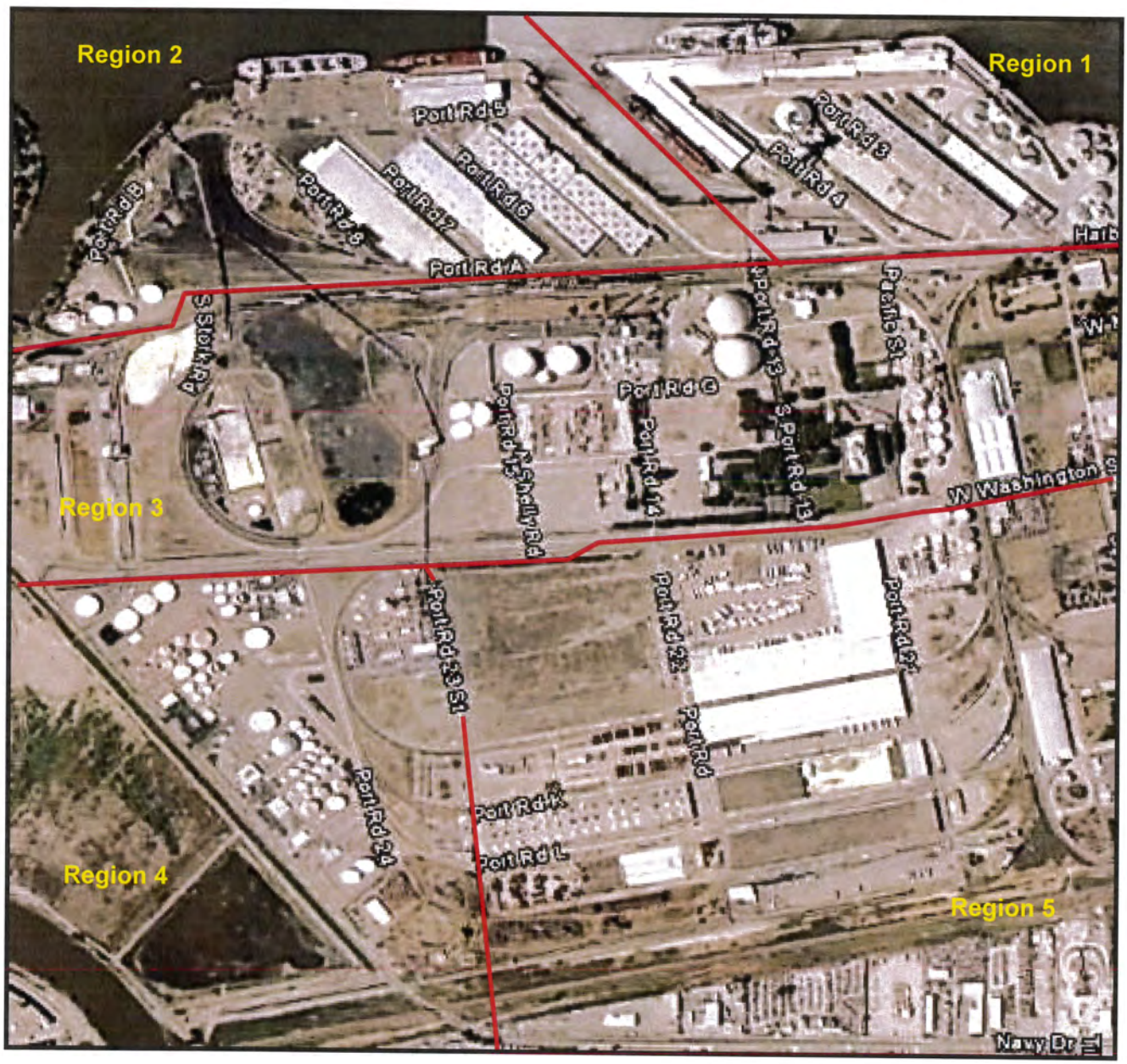
Storm water discharges at the Port of Stockton (Port) are covered under a Municipal Separate Storm Sewer System (MS4) storm water permit (Permit). The Permit specifies waste discharge requirements and a Monitoring and Reporting Program (MRP) for the Port's facility-wide storm water discharges from the MS4 and for Non-Storm Water discharges. Federal regulations (40 CFR §122.26(d)(2)(iv)) require that a storm water management program (SWMP) be implemented during the term of the Permit. The Port's SWMP describes the management and legal structure put in place to implement the Port's storm water program. Drain maintenance represents one part of the municipal element of the SWMP. The Port's Environmental Department inspects and maintains MS4 drain inlets, manholes, and channels in accordance with the SWMP/Drain Maintenance Handbook.

This handbook will address the following items:

- A routine preventative maintenance program for BMPs installed in or around drain inlets and channels;
- A pre-wet season cleaning of drain inlets and storm water conveyance pipes and channels, which includes a prioritization of maintenance items based on accumulation of waste, recent analytical results, and industrial activities and pollutant sources in the area of the drains;
- Record keeping of cleaning and overall waste removed;
- Proper disposal of waste removed pursuant to applicable laws; and
- Measures to minimize waste discharges during storm sewer maintenance and cleaning activities.

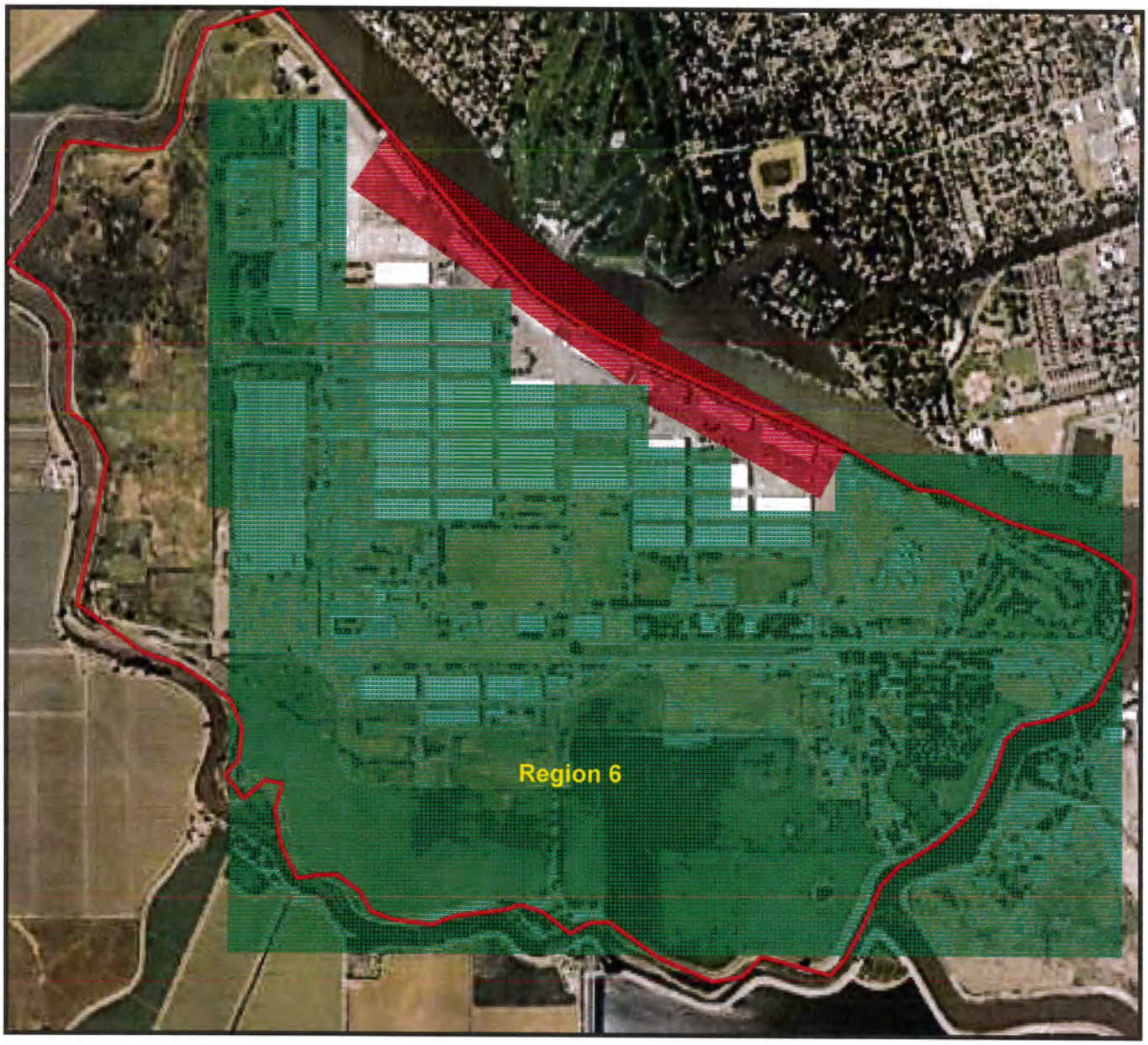
2 Division of Work

East Complex: The East Complex is divided into five regions -Regions 1 through 5.



West Complex: The West Complex is all contained within one region (Region 6), which is then divided into secure and unsecure areas.

- Secure area (Red Section) near the docks
- Unsecured area out to Port Expressway (Green Section)



3 Drain Identification

3.1 The Port has labeled every known Port storm water inlet, as required by their MS4 Permit. The drains are individually and uniquely numbered. The drain locations have been mapped and entered into the Port's Maintenance Database, which is used for preventive drain maintenance. Refer to **Appendix H and Appendix I** to obtain the specific drain maintenance schedule and the BMP implementation plan for each drain. Some information on drains within the Port may not be available in the database because many of the drains at the Port are maintained by the individual tenants.

3.2 Labels are applied to the surface around the drain using an epoxy.

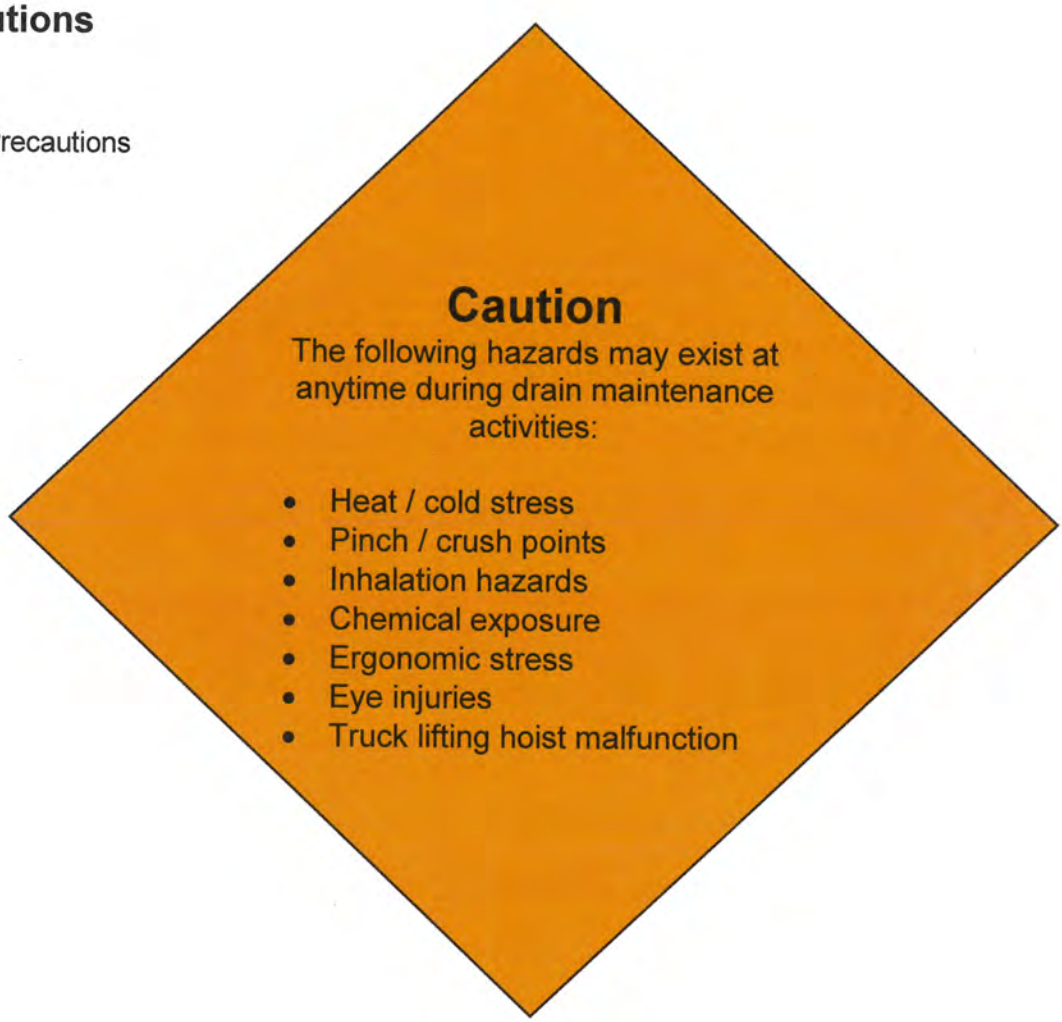
3.3 Once the label is applied, the drain number is recorded, and the electronic drain database is updated with the new drain number. Periodically, the labels may need to be replaced due to heavy vehicle or equipment traffic, which causes wear and tear.

3.4 Worn or missing labels are replaced with new labels.

3.5 Whenever a drain label is discovered missing, damaged, or illegible, it is replaced with a new label and the drain is relabeled on the storm drain map with the number of the new label. If the replacement number differs from the original assigned number, the electronic drain database is updated with the newly assigned number.

4 Safety Precautions

4.1.1 Safety Precautions



4.1.1.1 **Proper Personal Protective Equipment (PPE)** should be worn and in place prior to commencing drain maintenance activities.

Required PPE for drain maintenance activities:

- Gloves (select proper type for work being done)
  - Leather Work Gloves (For working around pinch, puncture, and crush hazards)
  - Form Fitting Work Gloves (For protection during general cleaning activities)
  - Nitrile gloves (General cleaning when liquid is present)
  - Chemical Resistant Gloves (In case of a discovered release to the conveyance system)
- Steel Toed Work Boots
- Safety Eye Glasses (ANSI Z87.1-2003)
- Reflective, brightly colored Safety Vest

4.1.1.2 A minimum of 2 persons must be utilized to perform drain maintenance activities.

4.1.1.3 Contact the Environmental Department before physically entering a drain sump or vault because this is considered a **confined space entry**.

Confined Space Entry

Confined space entry must not be performed without previous approval from the Environmental Department. Prior to any approved confined space entry, safety and atmosphere monitoring equipment must be in place and properly utilized.

5 Type 1 Drain Inlets and Servicing Procedures

5.1 **Type 1 Drains** – These drains are small enough to be manually removed with a drain hook (Refer to **Appendix B**)

5.2 Drains types are identified by the drain removal technique. Each drain type requires specific tools and equipment to successfully access drain inlets and perform maintenance activities. Proper safety protocols should be followed while performing all drain maintenance.

5.2.1 The following are the items needed to perform maintenance at Type 1 Drains:

- Extra drain bags (kept in sample room)
- Large drain hook
- Bucket
- Shovel
- Scraper
- Whisk broom
- Dust pan
- Push Broom
- Truck and trailer with attached magnet
- Hand-push magnet

5.2.2 Servicing Procedure

5.2.2.1 Sweep debris from edge of drain so debris does not drop into drain.

5.2.2.2 If drain has bag insert in it, place feet on corners of the insert, or have co-worker stand on corners.

5.2.2.3 Place drain hook in drain grate and pull up with legs (keep your back upright and lift with your legs, not with your back). If grate is stuck, hammering against the edge of the drain cover may be required to loosen drain.

5.2.2.4 Place drain hook into drain slot, making sure hook is pulling against drain bottom. Once again, pull using your legs, leaving your back straight. Make sure you are not bending at the waist. Wearing gloves is recommended.

Note: Pulling drain without securing the drain insert may result in the insert falling down into the drainage pipe.

Note: Drains may be stuck. Strike drain hook up against bottom of drain. Make sure you are wearing leather gloves and safety glasses.

5.2.2.5 Pull drain lid completely off of the inlet, so cleanup can be done without any interference.

5.2.2.6 Sweep around edge of drain, catching all debris. Scrape the edges, removing all rust scale. Use a large dust pan to catch debris.

5.2.2.7 Remove the drain insert. Empty the contents of the drain insert into a 5-gallon bucket. Measure and log contents and amount of debris removed.

Documenting Removed Drain Material:

All material collected in and around the drain should be placed a 5-gallon bucket to gauge the amount of material collected. The current state of the material should be noted (Dry, Damp, Wet, or Wet Organic Material). Estimate the amount of gallons in the 5-gallon bucket. Refer to **Appendix C** of this document for estimated weights of each material type. Record total weight collected, along with the drain number.

5.2.2.8 Vacuum or scoop the contents from bottom of drain and add debris to 5-gallon bucket.

5.2.2.9 Place debris from 5-gallon bucket into the barrel located in the back of truck.

5.2.2.10 Sweep area 10 feet in diameter around drain, and collect swept debris into a dust pan. Do not sweep debris back into the drain!

5.2.2.11 Deposit the refuse into a 5-gallon bucket. Measure and log contents and amount removed. (See appendix C)

5.2.2.12 Return the cleaned insert into drain. Make sure it is centered and there is an equal amount of fabric around drain. If the insert is damaged or overly worn, replace with a new one. Document when a new insert is installed.

5.2.2.13 Before replacing the drain grate, have one person replace the drain bag insert and hold it in place with their feet.

5.2.2.14 Carefully lower the drain grate back on over the insert.

5.2.3 Wet Conditions

5.2.3.1 Apply the appropriate drain access method to the drain type to be accessed.

5.2.3.2 Remove drain insert (if applicable).

5.2.3.3 If possible, remove water in the drainage sump by using the wet/dry vacuum to purge.

5.2.3.4 Use a shovel or custom debris scoop to remove built up sediment and debris.

5.2.3.5 Clear out the sediment from the removed drain insert.

5.2.3.6 Quantify and record the amount of debris and sediment removed from the drain and insert.

6 Type 2, 3, and 4 Drain Inlets and Servicing Procedures

6.1 **Type 2 Drains** – These drains have large grates that must be removed using a truck with a hoist (Refer to **Appendix B**)

6.2 Drains types are identified by the removal technique. Each drain type requires specific tools and equipment to successfully access drain inlets and perform maintenance activities. Proper safety protocols should be followed while performing drain maintenance.

6.2.1 The following are the items needed to perform maintenance at Type 2 Drains:

- Extra drain bags (kept in sample room)
- Pickup with crane
- Bucket
- Shovel
- Scraper
- Whisk broom
- Dust pan
- Push broom
- 2-bungee cords
- Wet / dry vacuum
- Generator
- Drain gamble
- Truck and trailer with attached magnet
- Hand-push magnet

6.2.2 Servicing Procedure

6.2.2.1 Position the truck hoist over drain location.

6.2.2.2 Place orange traffic cones in street for safety and traffic control.

6.2.2.3 Place bungee cords stretching from opposite corners of the drain insert.

Note: Placing a bungee cord in each corner of the insert keeps the insert from falling into the drain inlet.

6.2.2.4 Lower the hook from the crane on the truck.

6.2.2.5 Place the drain gamble on hook.

6.2.2.6 Place two hooks made from steel into the drain and then attach to the gamble.

6.2.2.7 Crank the crane winch tight.

6.2.2.8 Using the orange jack handle, pump up the crane actuator. (Make sure jack release is tight.)

6.2.2.9 Elevate the hydraulic jack until pressure is applied to drain without lifting drain base out of the pavement.

6.2.2.10 If drain does not lift out, take small sledgehammer and hit all four corners while applying slight lifting pressure from the crane.

6.2.2.11 Keep lifting until the drain grate and insert can be swung to the side, and high or wide enough to retrieve insert.

6.2.2.12 Remove the drain insert. Empty the contents into the 5-gallon bucket. Measure and log the contents and amount of debris removed from the drain. Place debris into barrel in back of truck.

6.2.2.13 Sweep area 10 feet in diameter around drain into a dust pan.

6.2.2.14 Pour the debris collected from the surrounding surfaces into 5-gallon bucket.

6.2.2.15 Measure and log contents and amount of debris removed.

6.2.2.16 Vacuum or scoop the contents from bottom of drain.

6.2.2.17 Place cleaned insert under drain lid.

6.2.2.18 Ensure the grate is centered and there is an equal amount of fabric around drain.

6.2.2.19 Place bungee cords across the drain grate and attach to each corner of the drain insert.

6.2.2.20 Push the crane back over drain hole. Ensure the drain area is clear of equipment, hands, and feet.

6.2.2.21 Place the small side of handle on the jack.

6.2.2.22 Turn jack bleeder very slowly to lower the drain grate back into place. Co-worker should guide drain lid into place using a foot to balance it.

6.2.2.23 Once placed, step on top to settle the drain grate back into place.

NOTE: If the drain grate does not settle back into the drain inlet, hit the corners with a small sledge hammer.

6.3 **Type 3 Drains** – Drains removed using Bottle Jacks and a Lifting Bar (Refer to **Appendix B**)

6.4 Drains types are identified by the removal technique. Each drain type requires specific tools and equipment to successfully access drain inlets and perform maintenance activities. Proper safety protocols should be followed while performing drain maintenance.

6.4.1 The following are the items needed to perform maintenance at Type 3 Drains:

- Extra drain bags (kept in sample room)
- Bucket
- Shovel
- Scraper
- Whisk broom
- Dust pan
- Push broom
- 2-Bungee cords
- Wet / dry vacuum
- Drain scoop
- Lifting bar
- 2 hydraulic lifting jacks
- 2 small chains - 18" with chain hooks
- 2 lift bar jack cradles
- Truck and trailer with attached magnet
- Hand-push magnet

6.4.2 Servicing Procedure

6.4.2.1 Place the lifting beam across the drain.

6.4.2.2 Place 2 hydraulic jacks on the edge of the drain insert.

6.4.2.3 Lower chains through the grate and grab lowered chain with the hook.

6.4.2.4 Place cradles on top of jacks

6.4.2.5 Place bar stock on top of cradles.

6.4.2.6 Place bungee cords across the drain grate and attach to each corner of the drain insert.

6.4.2.7 Raise both hydraulic jacks evenly.

6.4.2.8 If the grate is stuck, strike drain grate with sledgehammer on each corner to jar the grate loose.

NOTE: Re-adjusting chains is common. Be cautious, chains have been known to break. All safety protection should be taken seriously.

6.4.2.9 Remove the drain insert. Empty the contents into the 5-gallon bucket. Measure and log contents and amount of debris removed from the drain. Place debris into barrel in back of truck.

6.4.2.10 Sweep area 10 feet in diameter around drain and collect debris in dust pan.

6.4.2.11 Scoop the debris collected from the surrounding surfaces and pour into 5-gallon bucket.

6.4.2.12 Measure and log contents and amount of removed debris.

6.4.2.13 Vacuum or scoop the contents from bottom of drain and add debris to 5-gallon bucket. Place contents of bucket into the barrel in the back of the truck.

6.4.2.14 Place cleaned insert under drain lid.

6.4.2.15 Ensure the grate is centered and there is an equal amount of fabric around drain.

6.4.2.16 Place bungee cords across the drain grate and attach to each corner of the drain insert.

6.4.2.17 Push the crane back over drain hole. Ensure the drain area is clear of equipment, hands, and feet.

6.4.2.18 Place the small side of the handle on jack.

6.4.2.19 Turn jack bleeder very slowly to lower drain grate in place. A co-worker should guide the drain lid into place; using a foot to balance it.

6.4.2.20 Step on top to settle drain into place.

NOTE: If the drain grate does not settle back into the drain inlet, hit the corners with a small sledge hammer.

6.5 **Type 4 Drains** – Truck with hoist (Refer to Appendix B)

6.6 Drains Types are identified by the removal technique. Each drain type requires specific tools and equipment to successfully access drain inlets and perform maintenance activities. Proper safety protocol should be followed while performing drain maintenance.

6.6.1 The following are the items needed to perform maintenance at Type 4 Drains:

- Extra drain bags (kept in sample room)
- Bucket
- Shovel
- Scraper
- Whisk broom
- Dust pan
- Push broom
- 2-Bungee cords
- Wet / dry vacuum
- Drain scoop
- Lifting bar
- 2 hydraulic lifting jacks
- 2 small chains - 18" with chain hooks
- 2 lift bar jack cradles
- Truck and trailer with attached magnet
- Hand-push magnet

6.6.2 Servicing Procedure

6.6.2.1 Direct the driver to back the truck with the crane over the drain.

6.6.2.2 Place orange traffic cones in street for traffic control before starting work.

6.6.2.3 Lower the hook from crane on truck to the center of the drain grate.

6.6.2.4 Place the drain gamble on hook.

6.6.2.5 Place two hooks made from rebar into drain and attach hooks to gamble.

6.6.2.6 If the drain is equipped with a drain insert bag, use bungee cords to keep the bag attached to the grate while being removed and installed.A

6.6.2.7 Crank winch on crane tight.

6.6.2.8 Use the orange jack handle, to elevate crane.

6.6.2.9 Pump the hydraulic jack, until pressure is applied to drain, without lifting drain base out of the pavement.

6.6.2.10 Raise grate until it can be swung to the side.

6.6.2.11 Inspect stainless steel pan and the rubber plug.

6.6.2.12 Sweep or vacuum the debris from the stainless steel pan.

6.6.2.13 Sweep debris into dust pan, being careful to not allow any debris to drop in the drain.

6.6.2.14 Place the debris into barrel in back of truck.

6.6.2.15 Sweep area 10 feet in diameter around drain.

6.6.2.16 Scoop the debris collected from the surrounding surface into 5-gallon bucket.

6.6.2.17 Measure and log contents and amount of debris removed.

6.6.2.18 Push the crane back over drain hole. Ensure the drain area is clear of equipment, hands, and feet.

6.6.2.19 Place the small side of handle onto jack. Turn jack bleeder very slowly to lower drain grate in place. Co-worker should guide drain lid into place using a foot to balance it.

6.6.2.20 Step on top drain to settle into place.

NOTE: If the drain grate does not settle back into the drain inlet, hit the corners with a small sledge hammer until the drain seats.

6.6.3 Wet Conditions

6.6.3.1 Apply the appropriate drain access method to the drain type to be accessed.

6.6.3.2 Remove drain insert (if applicable).

6.6.3.3 If possible, remove water in the drainage sump by using the wet/dry vacuum to purge.

6.6.3.4 Use a shovel or custom debris scoop to remove built up sediment and debris.

6.6.3.5 Clear out the sediment from the removed drain insert.

6.6.3.6 Quantify and record the amount of debris and sediment removed from the drain and insert.

7 Cleaning and Maintaining Channels/Ditches

7.1 Trash and debris should be removed from the Port's ditches and channels on a periodic basis, and should also be removed prior to a forecasted storm. The refuse removed should be quantified and disposed of properly. Dumped material, such as tires, batteries, liquids, or other potentially hazardous wastes, should be disposed of and handled properly.

Note: If hazardous materials are discovered, contact the Environmental Department for further instructions.

8 Removal of Magnetic Metals

During dry weather periods, after all above maintenance steps have been performed, drains will be cleaned with a magnet in order to remove as much metals (Fe, Ni, and Co) as possible. Field crew should organize metal removal work into daily tasks. Tasks that are performed will be documented to confirm that all storm drain areas have been cleaned.

8.1 Attach magnet trailer to back of truck.

8.2 Drive to drain area of concern.

8.3 At drain area, lower magnets close enough to the ground to be able to pick up metals.

8.4 Choose starting point for that daily task. Drive trailer over drains. Truck routes will depend on locations of drains.

8.5 Continue to check if metals have fully covered the surface of the magnet because this would hinder the effectiveness of the magnet. If magnet is fully covered, park truck and scrape metals off the magnet and into a bucket. Document volumes of metals collected from each drain area.

8.6 Once the area immediately around the drains has been cleaned, continue to repeat this process until all areas within 50 to 100 feet away from the drains have been cleaned. If time permits, an area up to 100 feet away from the drains is preferred.

8.7 Use hand-pulled magnet to clean areas not accessible by the larger magnet trailer.

8.8 After cleaning has been completed for that day, store all removed metals in a metal recycle bin until they are sent away.

8.9 File field sheets from cleaning activities for later reference.

9 Drain Cleaning

The Port's drains require maintenance at different intervals, and in varying situations and conditions. Maintenance performed will also vary in intensity and frequency. Prior to the "wet season," the Port conducts an intensive drain line cleaning campaign. Street sweepers and vacuum trucks are utilized to clear surface pollutants and to clear sediment, metals, and debris from the drain lines. A similar method is used if a spill or release occurs. (See Appendix D) The only difference would be that the discharging party, if other than the Port, is usually responsible for the cleanup action. In the event that a spill or release occurs during maintenance, downstream drain lines should be plugged and the residual water from the cleaning should be recovered and not allowed to discharge into the MS4.

10 Replacing Sampling Tube Devices

10.1 Remove drain grate and insert (if applicable) as described above for the drain type.

10.2 Remove the old drain tube and brace.

10.3 Pull tubing from conduit and replace (if necessary).

Note: Sample tubing should be replaced at the start of the storm season.

10.4 Inspect the conduit and brace for any damage or wear, and replace if necessary.

10.5 Reinstall the device ensuring the conduit is facing the influent water piping to the drainage sump.

11 Cutting out stuck drains

11.1 If a drain does not lift out of the drain seat relatively easily using any of the four methods, the drain grate may be stuck and need to be cut out.

Warning: Excessive force will pull the drain seat out of the surface and may buckle and damage the surface around the drain.

11.2 Secure a gas-powered concrete saw with a metal cutting abrasive blade.

11.3 Place a rubber mat(s) over the drain to protect the drain form metal cuttings.

11.4 Ensure proper PPE is implemented prior to any cutting operations.

11.5 Clear away any combustible material from the area and have a fire extinguisher present.

11.6 Cut around the drain grate and seat as much as necessary.

11.7 Utilize the lifting bar and jacks, by placing the jacks on the edge of the seat and applying force.

11.8 While applying force with the jacks, use the small sledgehammer to dislodge the drain grate.

11.9 Vacuum up the saw cuttings and carefully remove the rubber mat, ensuring that cuttings do not enter the drain.

12 BMP/Maintenance Supplies Procurement

12.1 If additional or replacement parts are needed for any drain, insert, sampling devices, or maintenance need, contact the Environmental Department for procurement of additional supplies or parts for BMPs or maintenance activities.

13 Replacing BMPs

The Port uses various types of BMPs in and around storm drains. The BMPs serve as a form of pollution prevention. The BMPs are selected for each drainage area based upon the type of pollutants in the immediate area. Some drains may have a series of BMPs, while others may have only one. These BMPs require regular maintenance or replacement throughout the storm water year. The following describes a few common types of BMPs in place at the Port and the servicing requirements for these BMPs. (See Appendix C)

13.1 Drain Insert Bags

13.1.1 Upon pulling an insert bag from a drain, inspect the bag for deterioration or significant pollutant staining. Replace the insert with a new bag if deterioration or substantial staining is found.

13.2 Rock Filter Bags

13.2.1 Remove the rock bag from the drain.

13.2.2 Inspect the bag for sediment saturation, and bag degradation.

Note: Replace the rock bag if the bag is in poor condition.

13.2.3 Take the bag to the wash rack on the East Complex and wash out the sediment that has accumulated inside the bag.

Note: All washing activities should take place at the wash rack as the sediment within the rock bag likely contains pollutants. Allow time for the rock bags to completely drain all excess liquid to the wash pad.

13.2.4 Place cleaned rock bag back at the original drain.

13.3 Drain Stabilization Rock

13.3.1 Annually inspect drains that are surrounded with sediment stabilization rock.

Note: Drains with stabilization rock in high traffic areas may need to be inspected more frequently.

13.3.2 Capture fugitive rocks that have scattered outside of the intended stabilized area.

13.3.3 Add additional rock as needed.

Note: Do not use smaller rock than the standard size of 3"-5" inch ballast rock.

14 Maintaining Check Dams at the South Ditch

Check dams are permanent block structures filled with concrete. Rock is placed upstream and downstream from the check dam to collect sediment and solids. The rock is typically changed out every other year.

15 Transplanting Bio-Filtration Areas

In addition to the check dams, transplanted tules and native vegetation can also provide a mechanism for slowing water and acting as a natural bio-filter. The tules and vegetation filter out sediment, heavy material, and debris. Recent analytical data suggest that the Port's check dam/ bio-filtration combination greatly improves water quality when water passes through each segment. The tules need to be regularly maintained in order to be effective and allow adequate growth.

15.1 Transplant tules by positioning them in front and to the rear of check dams.

15.2 When the water level in the ditch is at a low level, dig out small sections in one gallon root ball size.

15.3 Plant the tules approximately 1 foot apart.

15.4 Ensure 10 to 15 plants are transplanted at the front and rear of the check dams.

NOTE: The root ball will multiply many times before next storm season.

16 Documentation Drain Maintenance

Documentation of collected drain material is a crucial step in the drain maintenance process. The Port is required to document the maintenance frequencies, material removed, and maintenance observations and compile the documentation into a database. The Port has developed a checklist to aid drain maintenance personnel in completing a thorough documentation of drain cleaning activities.

16.1 Fill in the date, time, and drain number of the current drain cleanout.

16.2 Enter the name of the person(s) performing the drain maintenance.

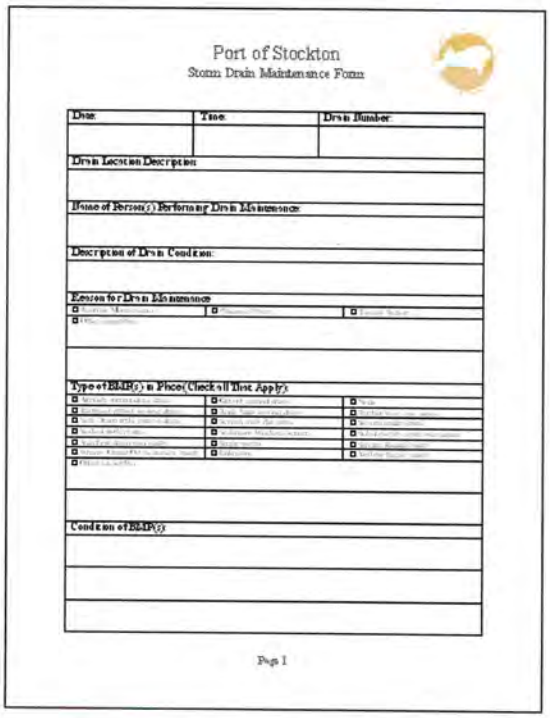
16.3 Provide a description of the drain condition and check the box for the reason for maintenance.

16.4 Check off the BMPs in use in and around the drain.

16.5 Record the condition of the BMPs and specify whether any were replaced.

16.6 On the back side of the maintenance form, enter the volume of the material removed using the appropriate unit of measure.

16.7 Record the description of the material removed, including the drain contents and the state of the material in the drain. (e.g., damp solids, dry solids, liquid, etc.)



Port of Stockton
Storm Drain Maintenance Form

Date	Time	Drain Number

Drain Location Description:

Name of Person(s) Performing Drain Maintenance:

Description of Drain Condition:

Reason for Drain Maintenance

Type of BMP(s) in Place (Check all That Apply):

Condition of BMP(s):

Page 1

16.8 Finally note any work performed and add any additional comments.

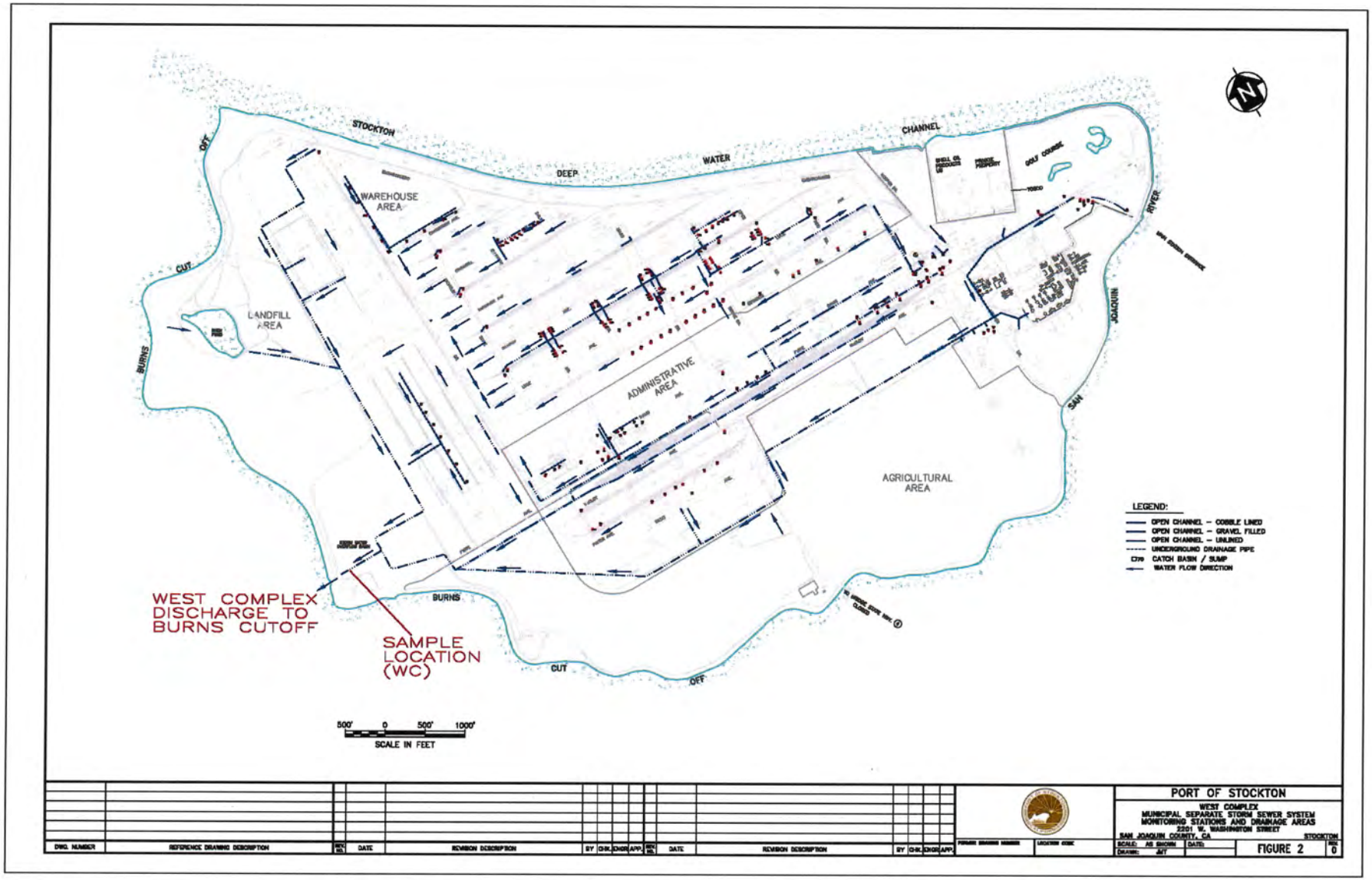
16.9 Turn in the completed Drain Maintenance Forms to the Environmental Department on a daily basis.

Appendix A

Port Area Maps

PORT OF STOCKTON – EAST COMPLEX

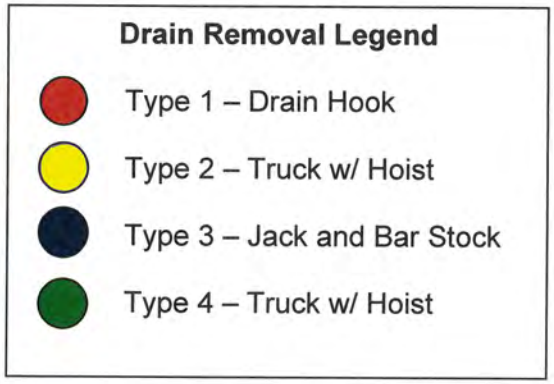
Port of Stockton – West Complex



Appendix B

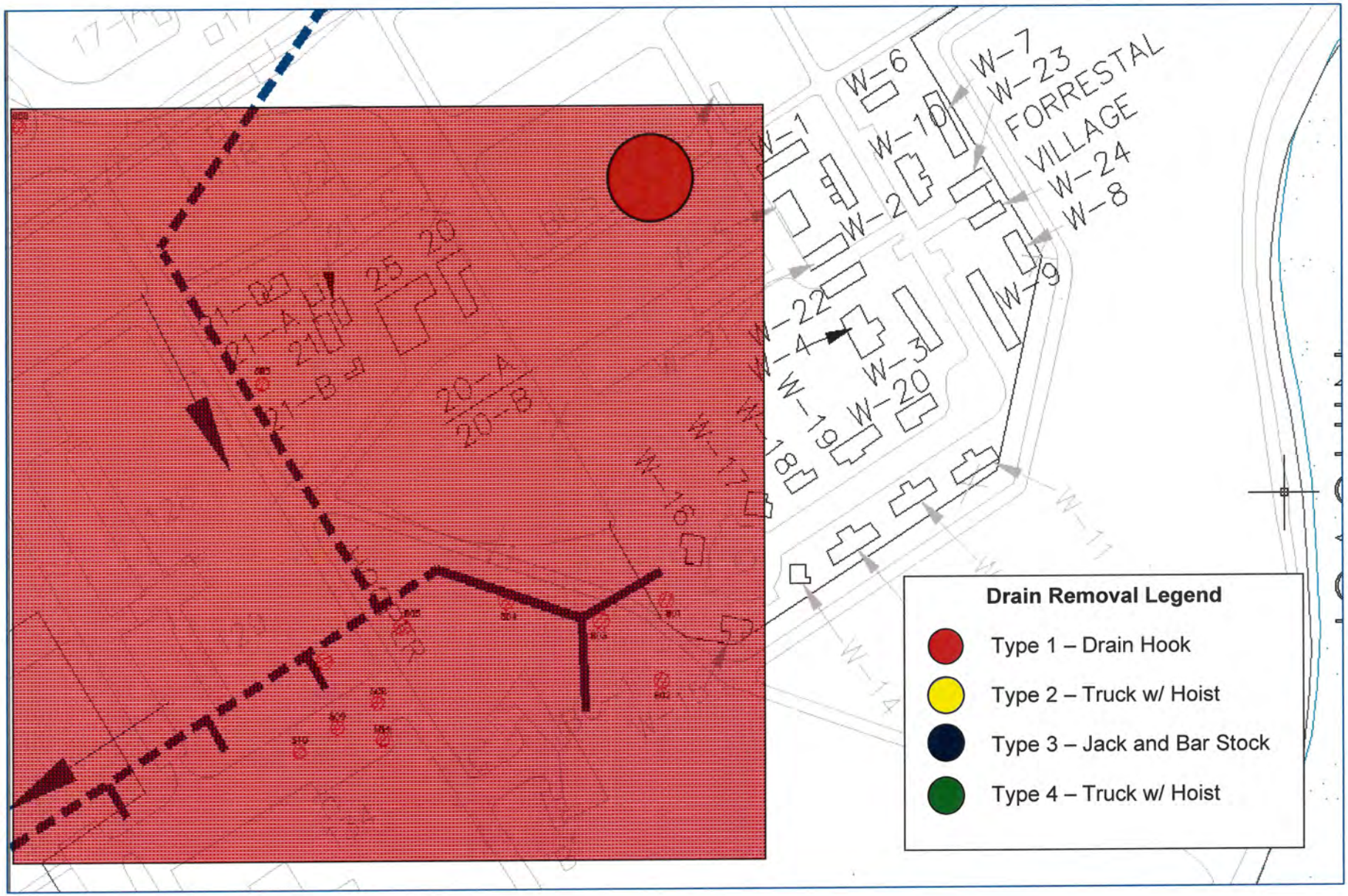
Drain Location Maps

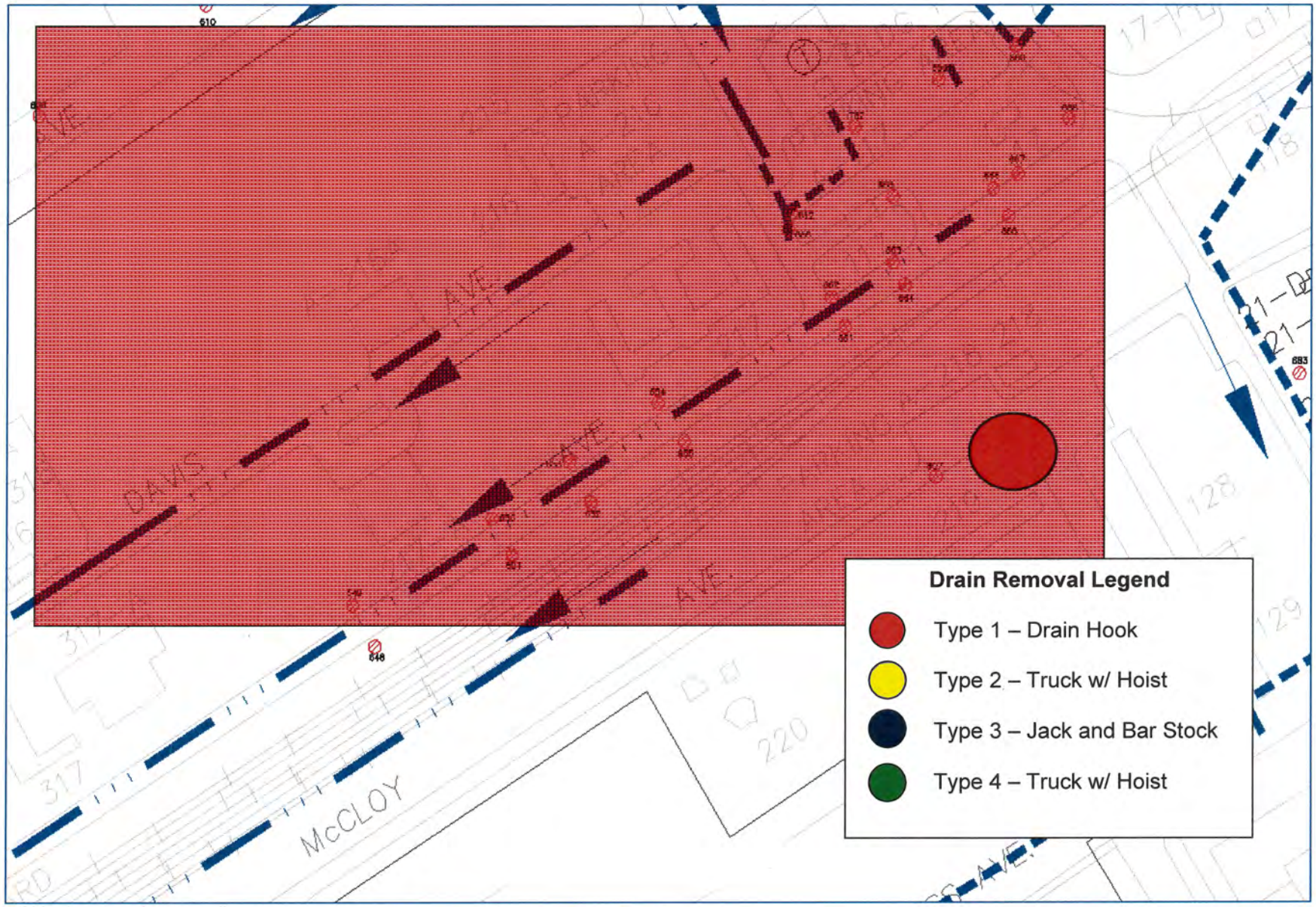
Note: In the following drain maps, each drain is identified by a colored circle (Red, Yellow, Blue, or Green). Each color identifies the type of tool required to remove each drain lid.

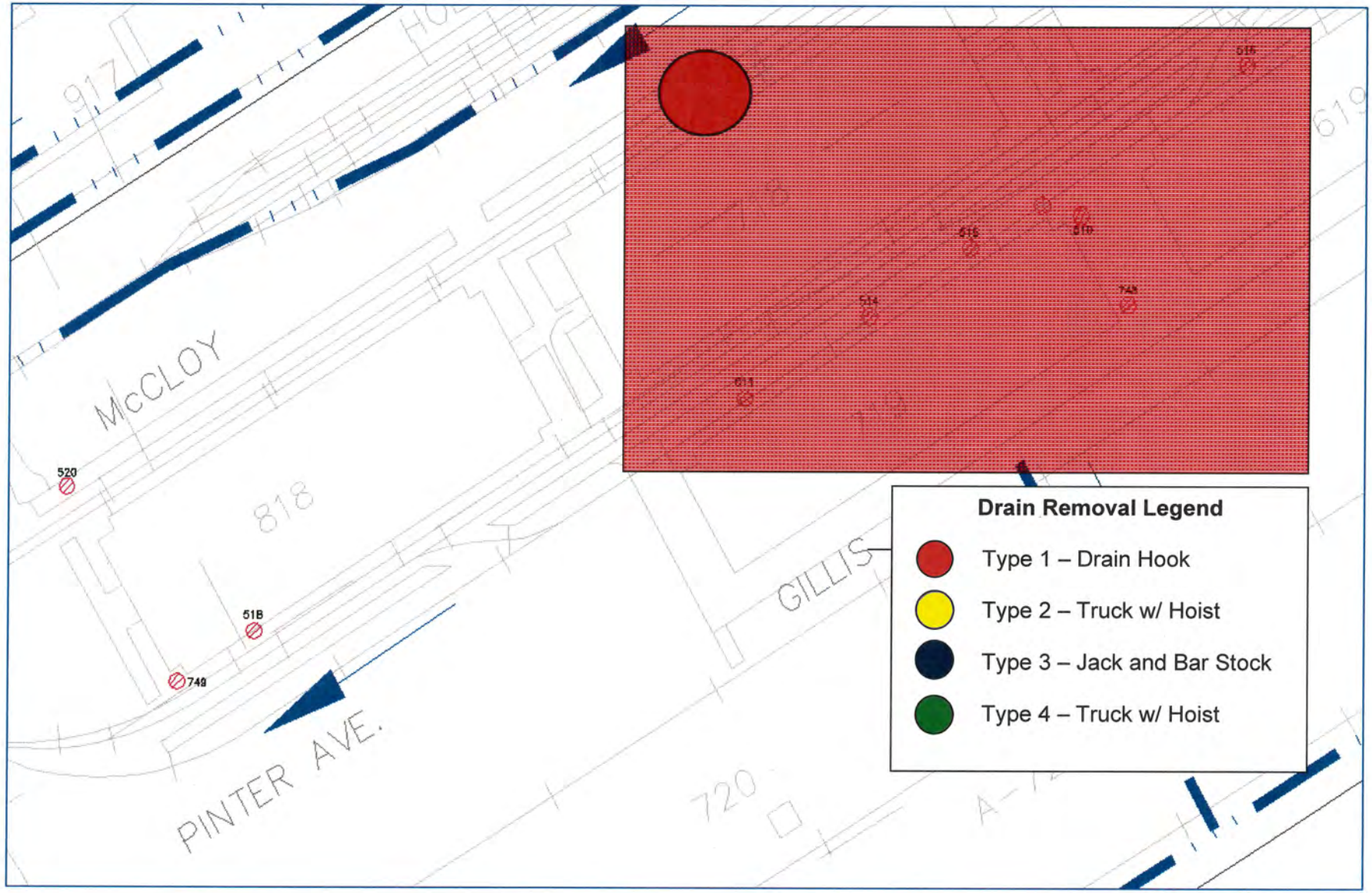


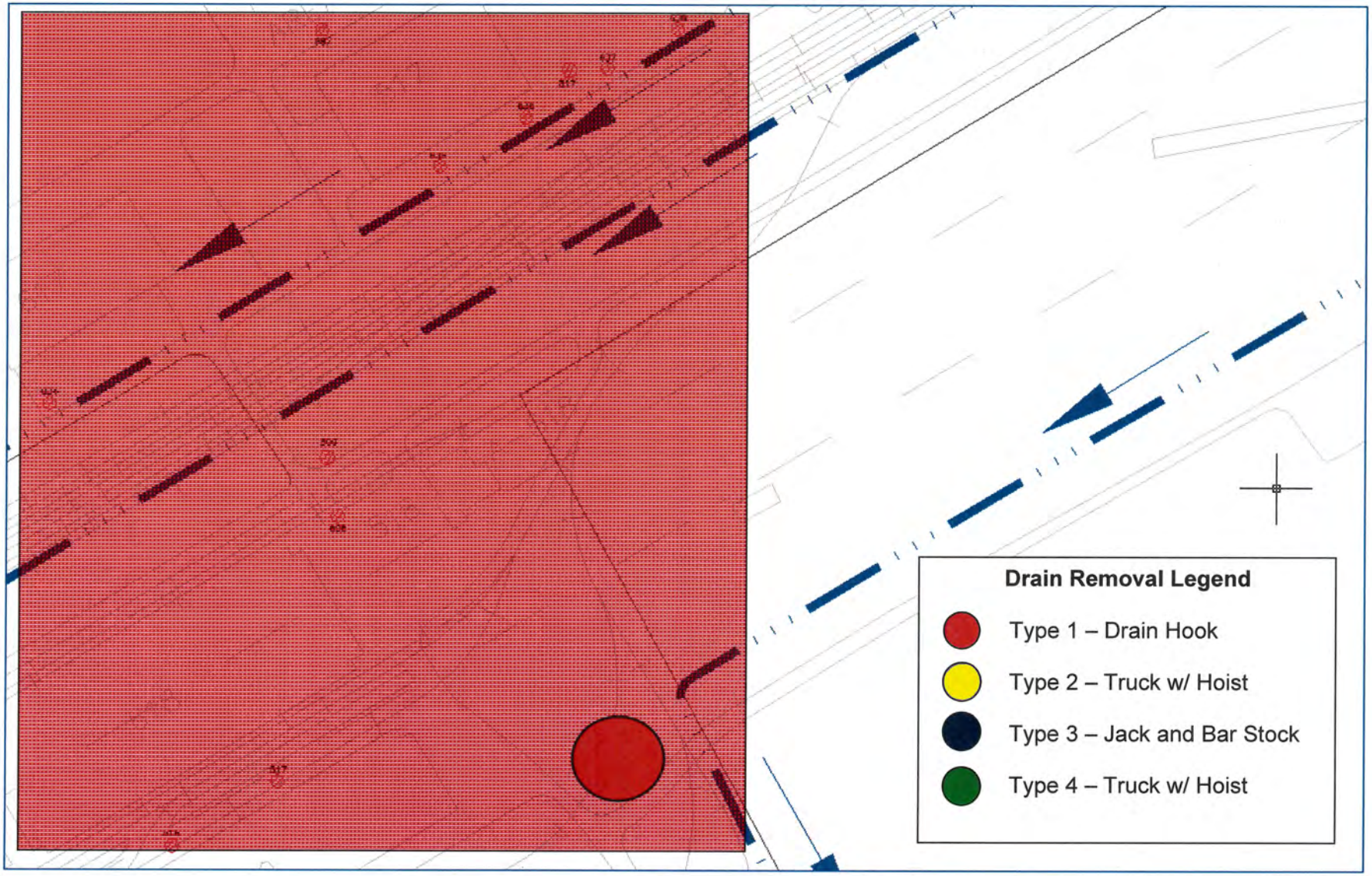
The 'Drain Maintenance Schedule' can be found in **Appendix F**.

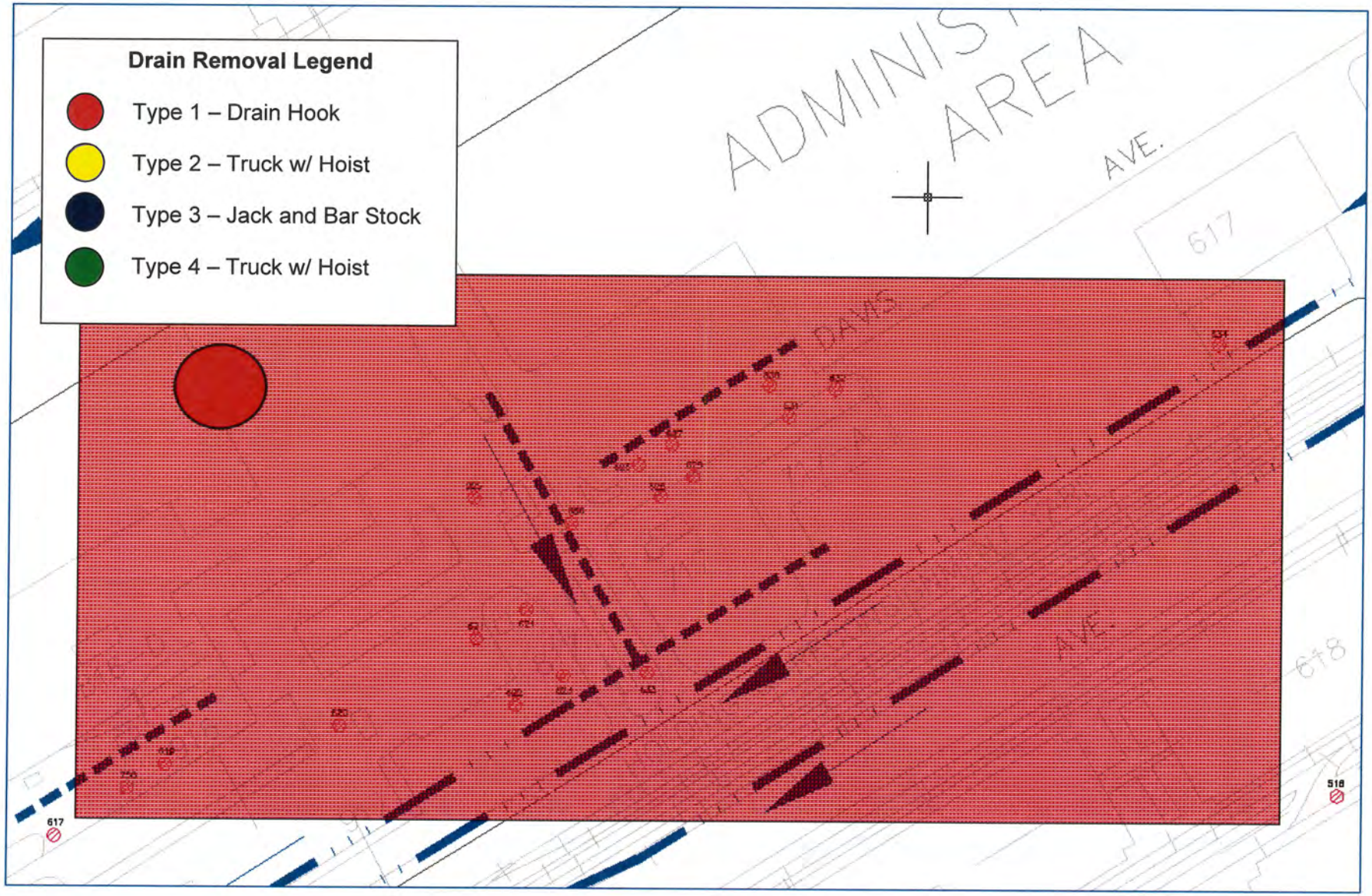
The BMP Implementation Plan for each drain can be found in **Appendix G**.

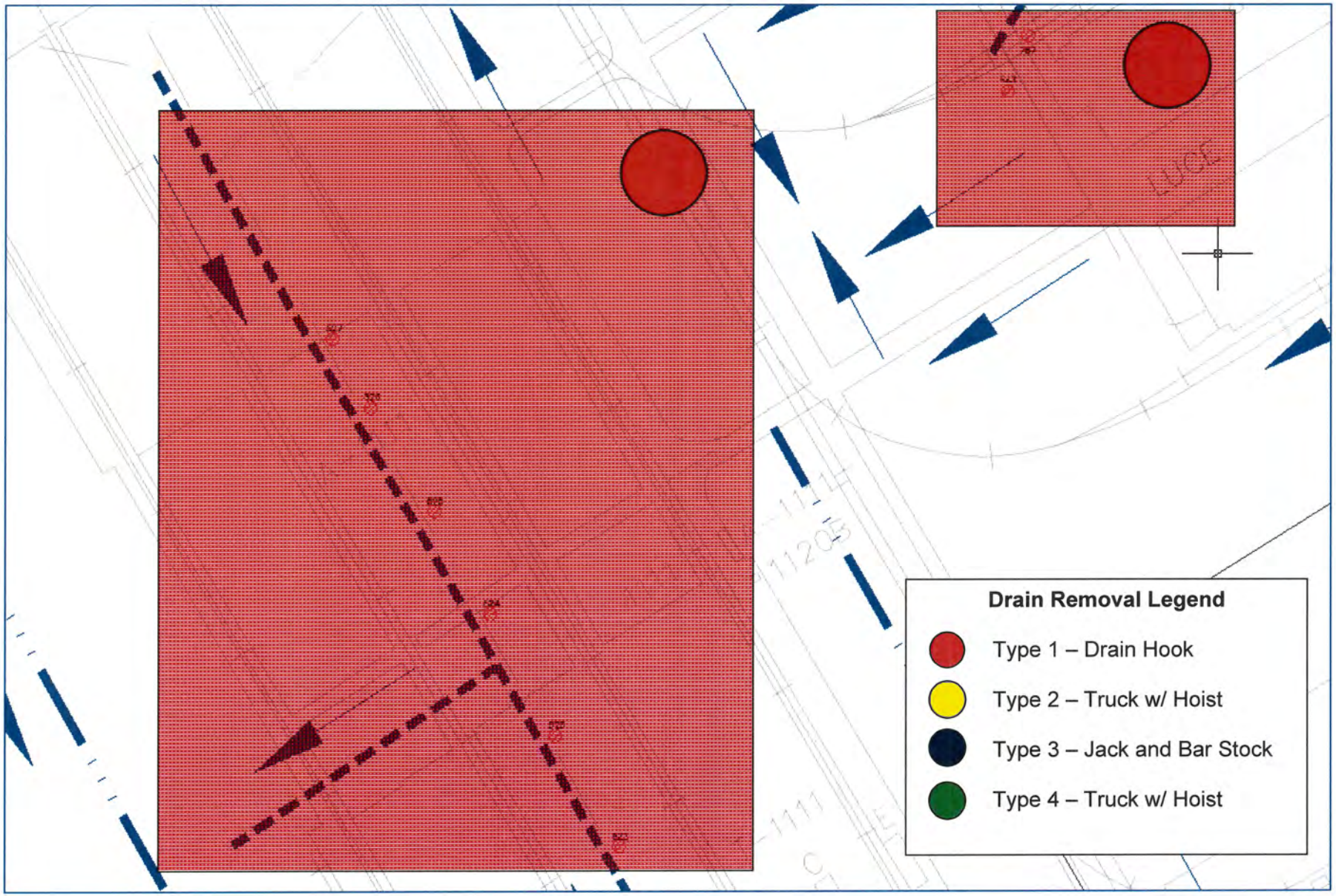

W-6
W-7
W-23
FORRESTAL
VILLAGE
W-24
W-8
W-1
W-10
W-2
W-9
W-22
W-4
W-3
W-20
W-19
W-18
W-17
W-16
W-11
W-14
25
20
21-A
21
21-B
20-A
20-B
Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist

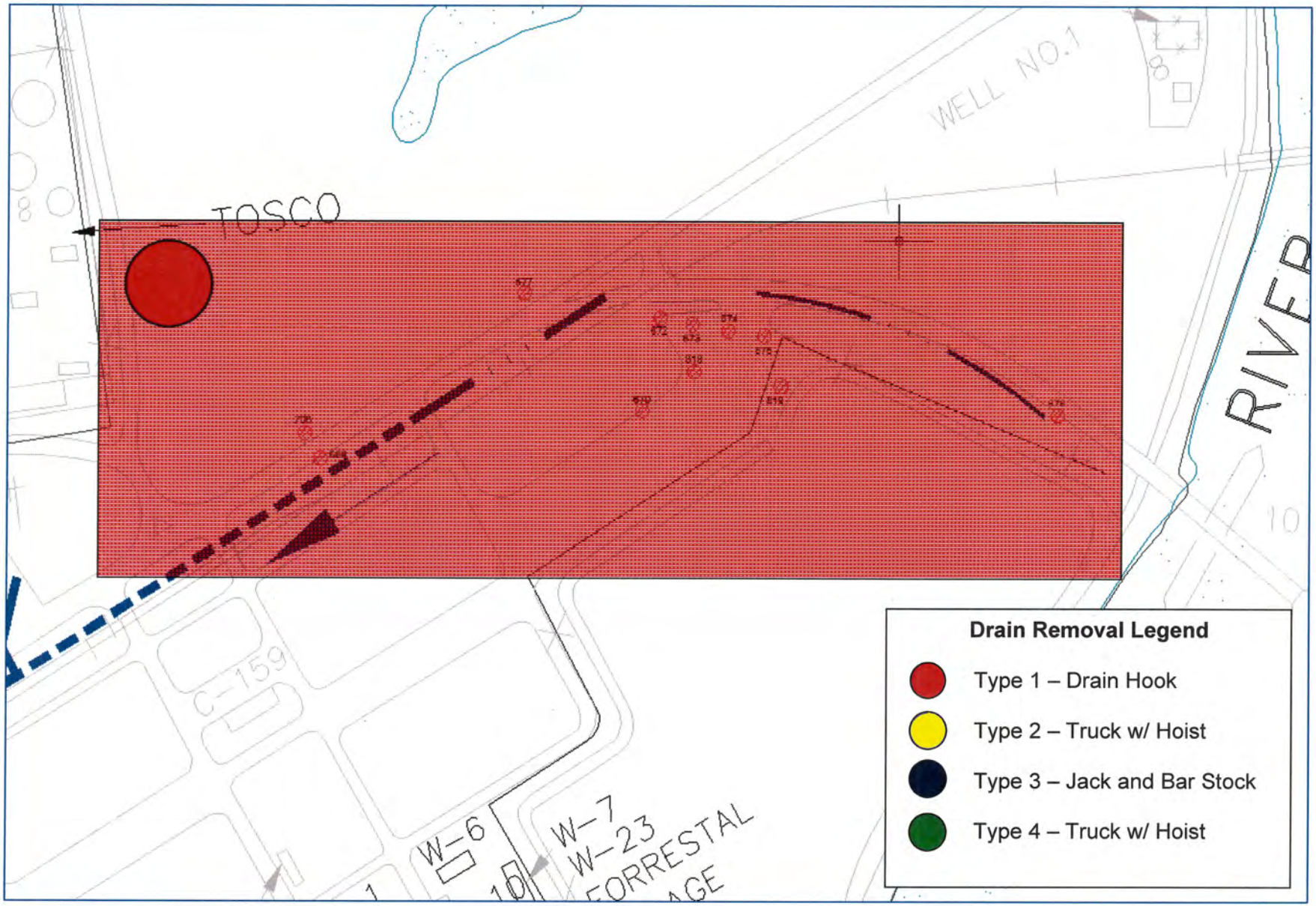

Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist
DAVIS
AVE
McCLOY
220
317
128
129

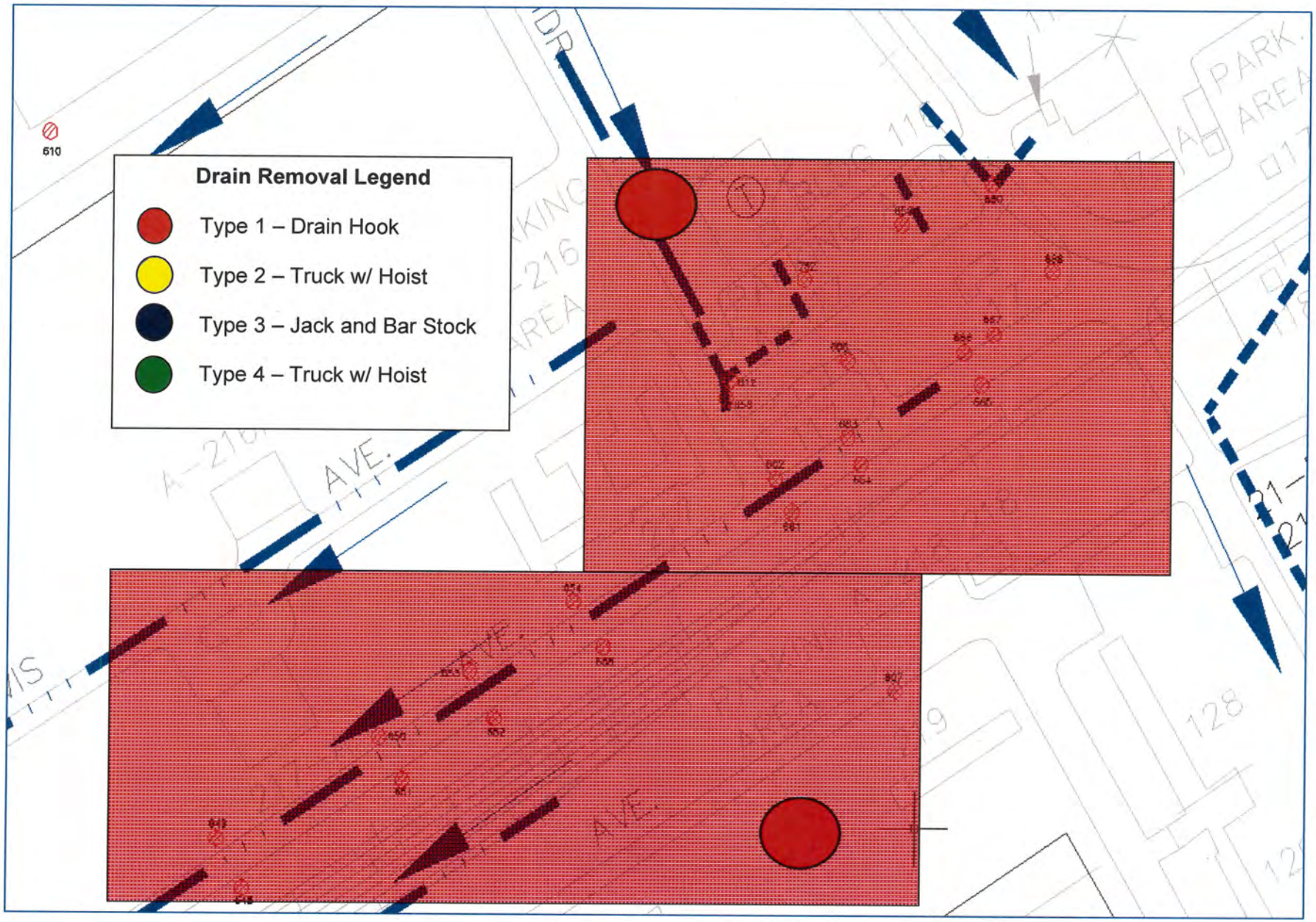

McCLOY
PINTER AVE.
GILLIS
818
720
520
518
749
Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist

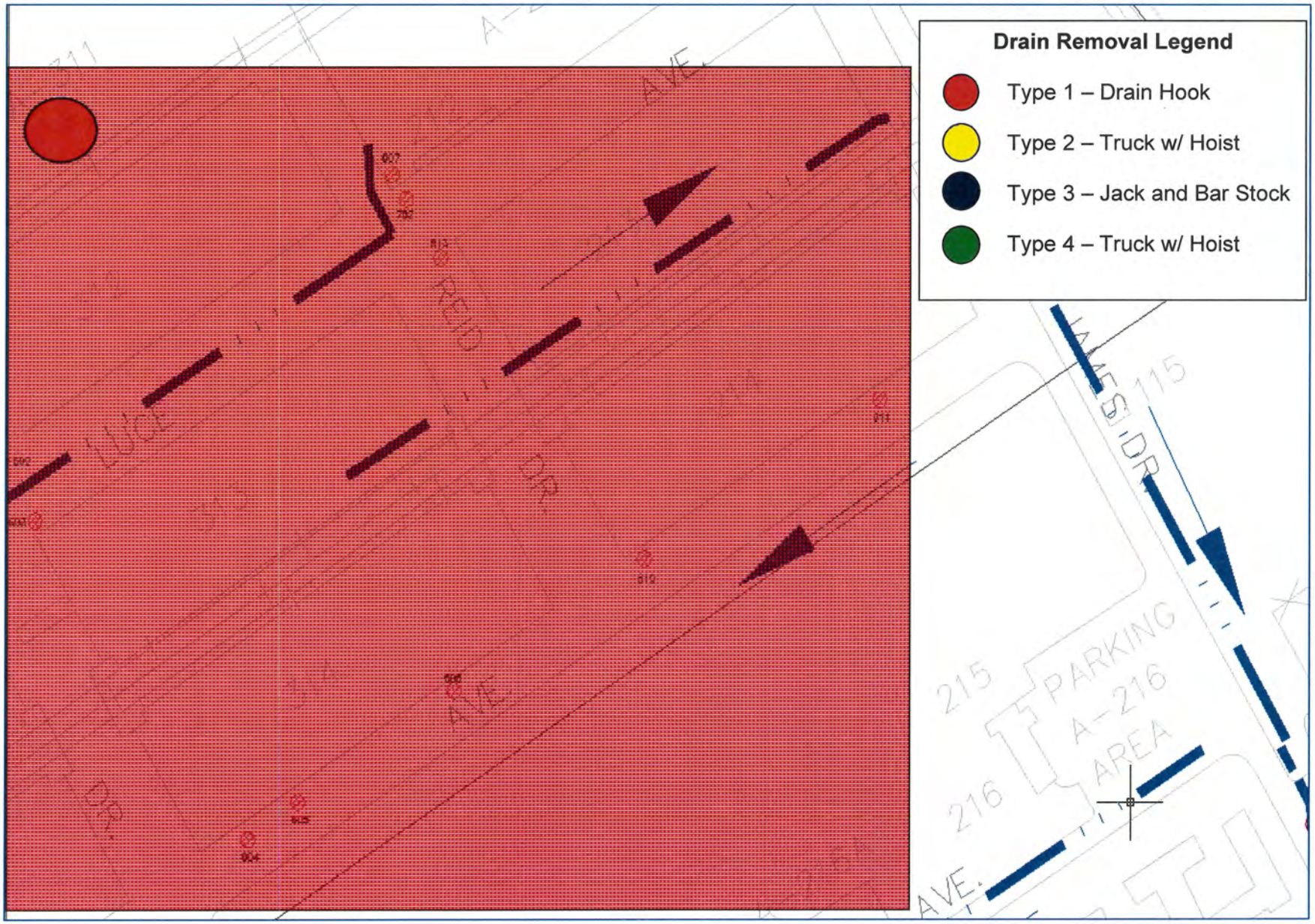

Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist


Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist
ADMINIST
AREA
AVE.
617
DAVIS
AVE.
618
617
518

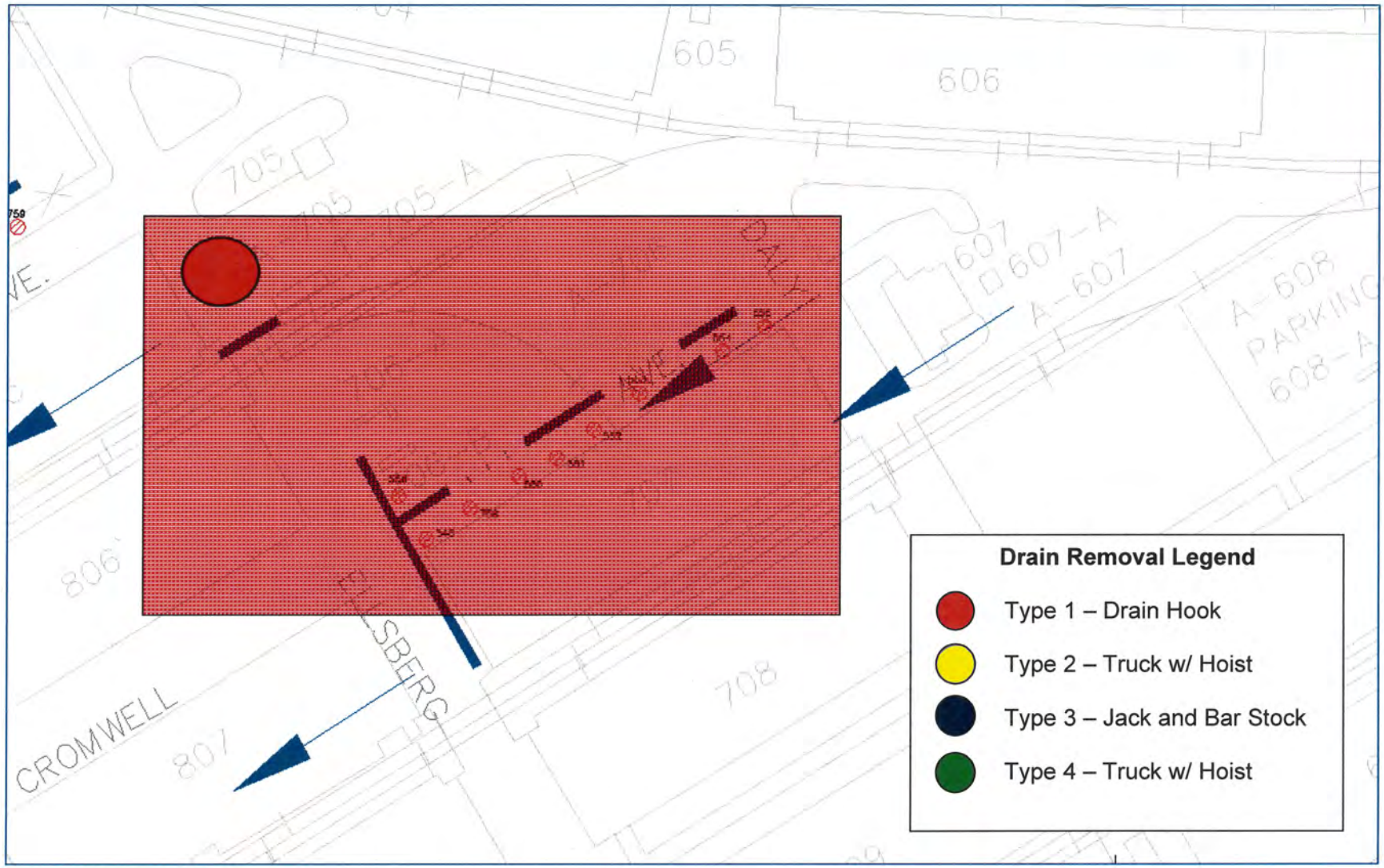

Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist

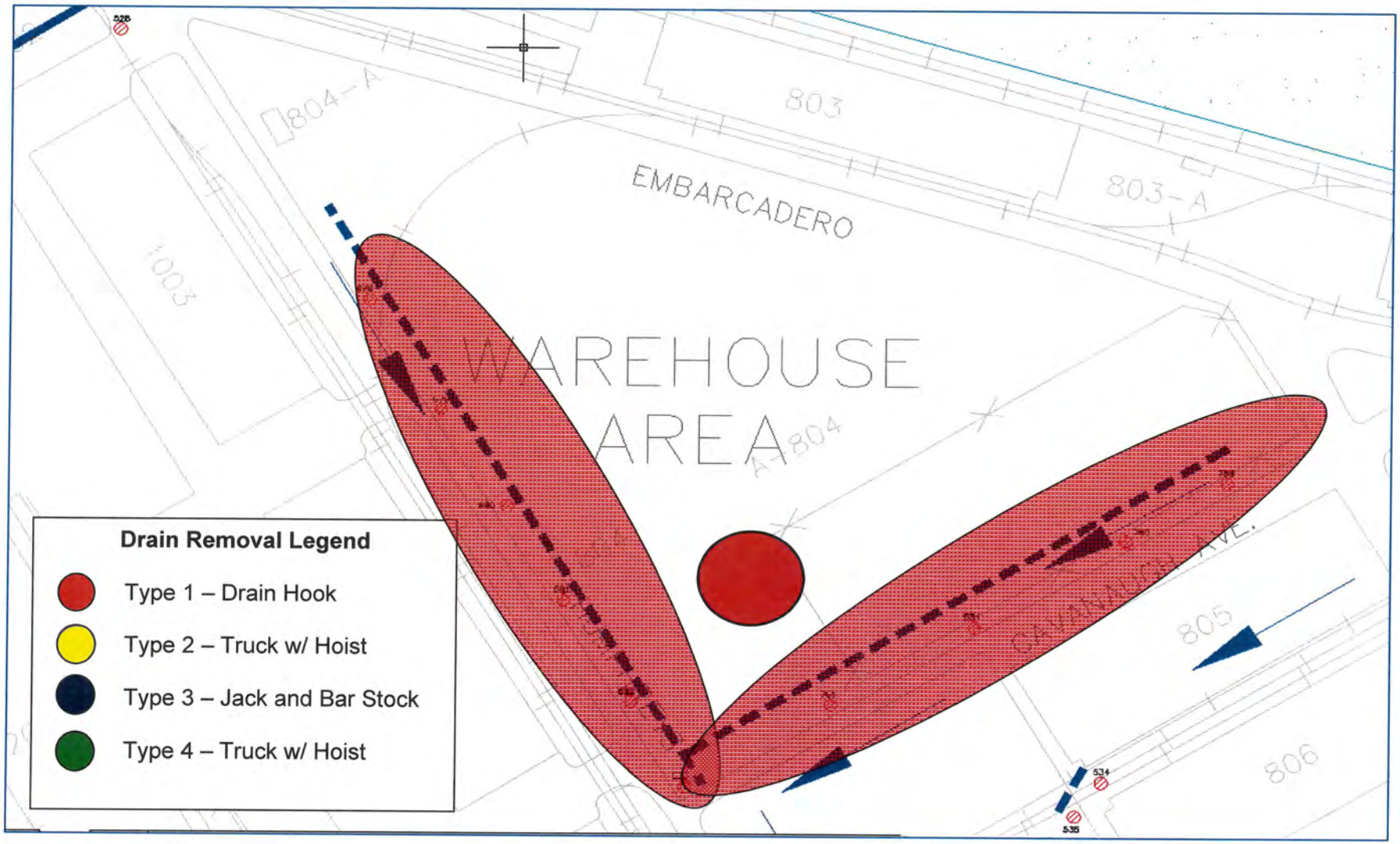

TOSCO
WELL NO.1
RIVER
C-159
W-6
W-7
W-23
FORRESTAL
Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist

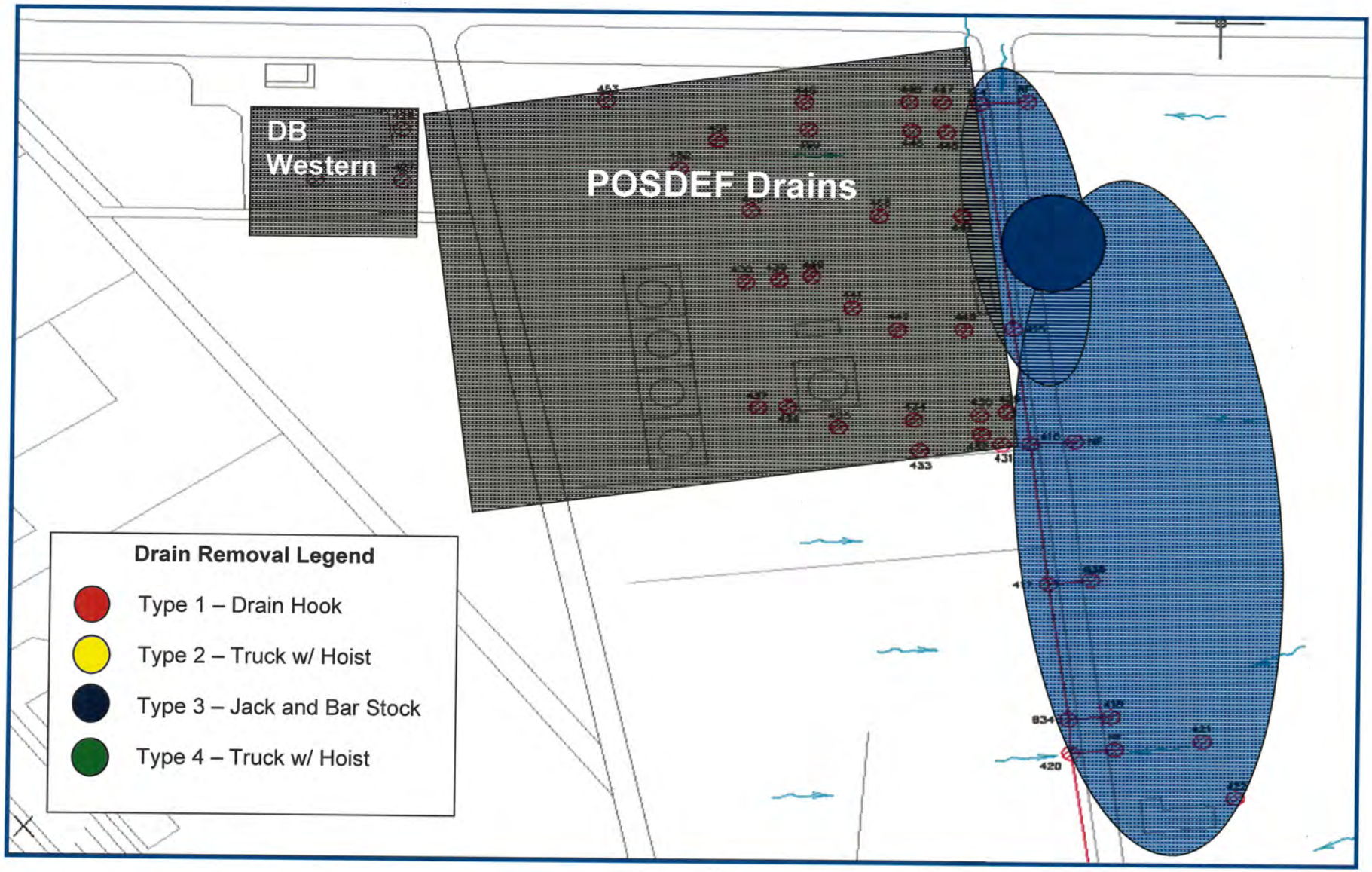

Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist
AVE.
AVE.
AVE.
610

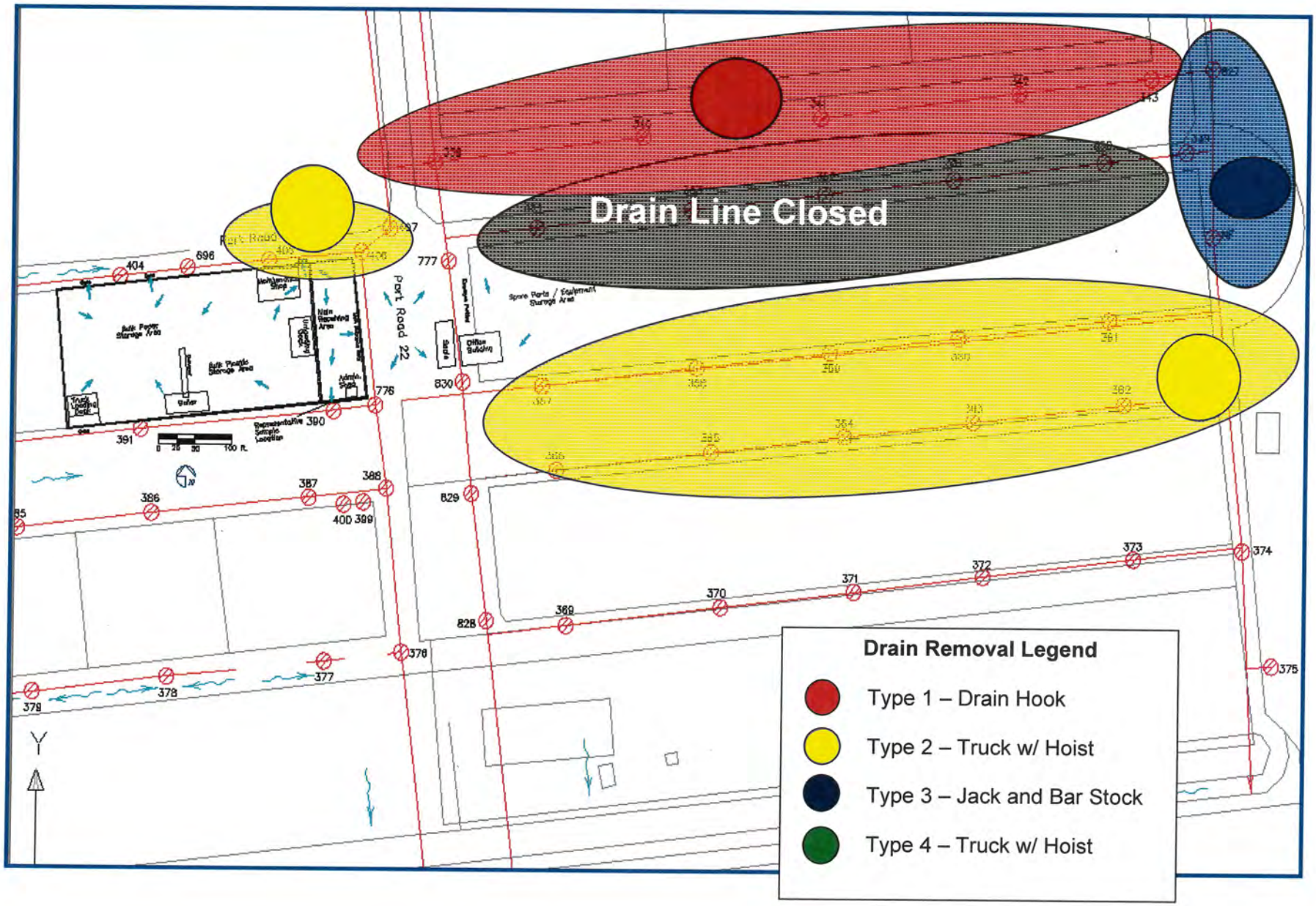

Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist
LUCE
REID
DR
AVE
JAMES DR
115
215
216
PARKING
A-216
AREA

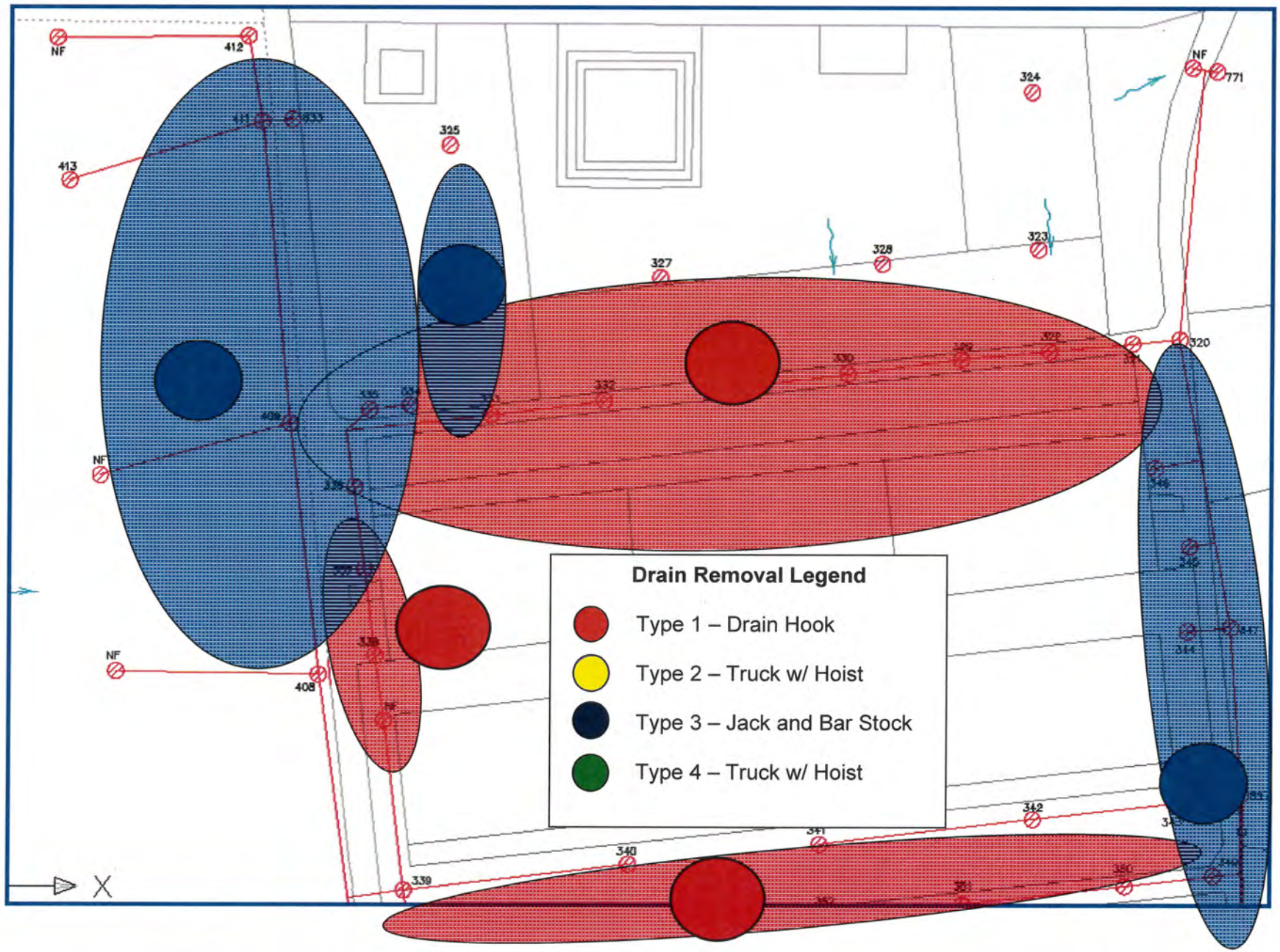
Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist
A-311
510
511

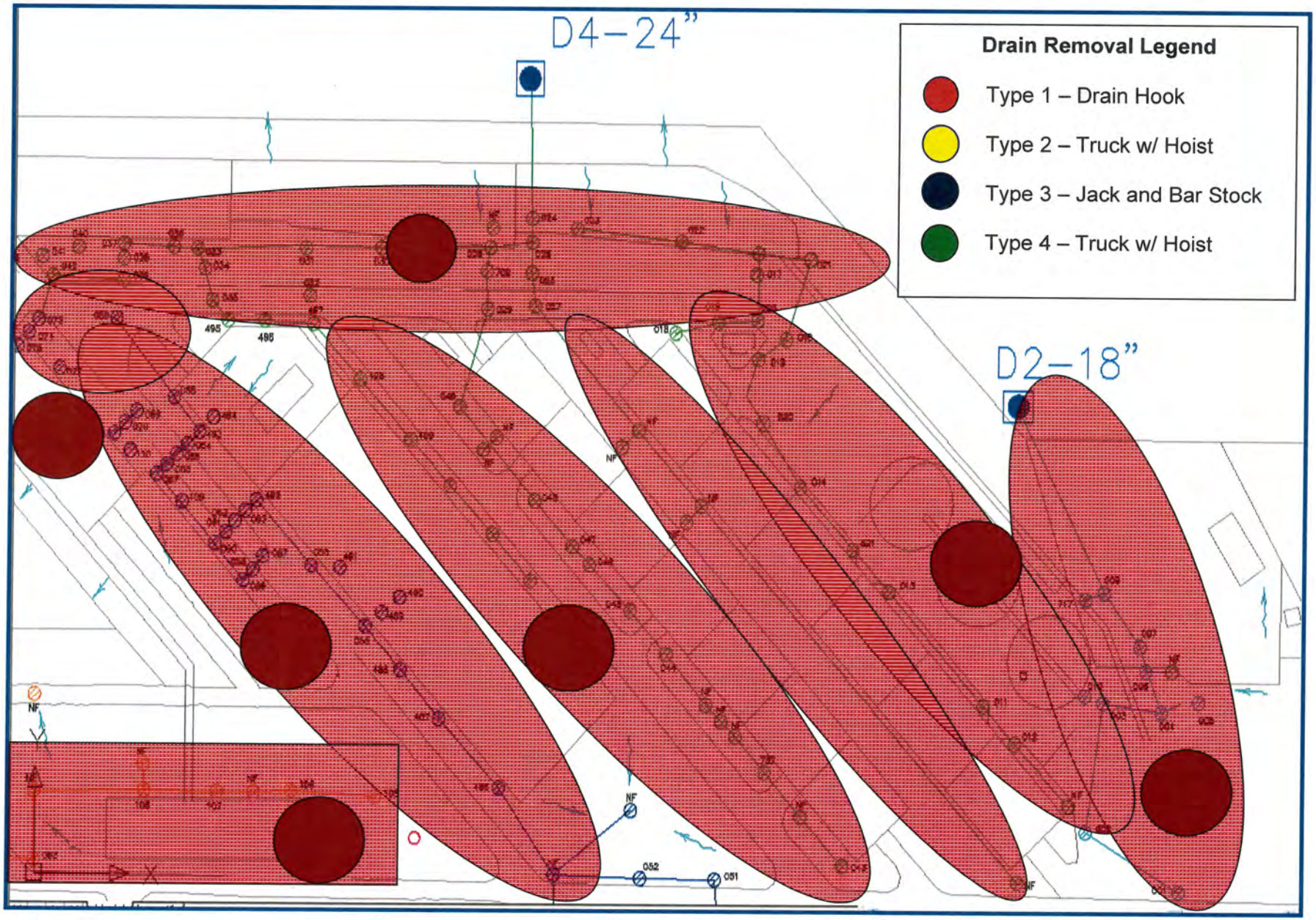

605
606
705
607
607-A
A-607
A-608
806
807
708
CROMWELL
Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist

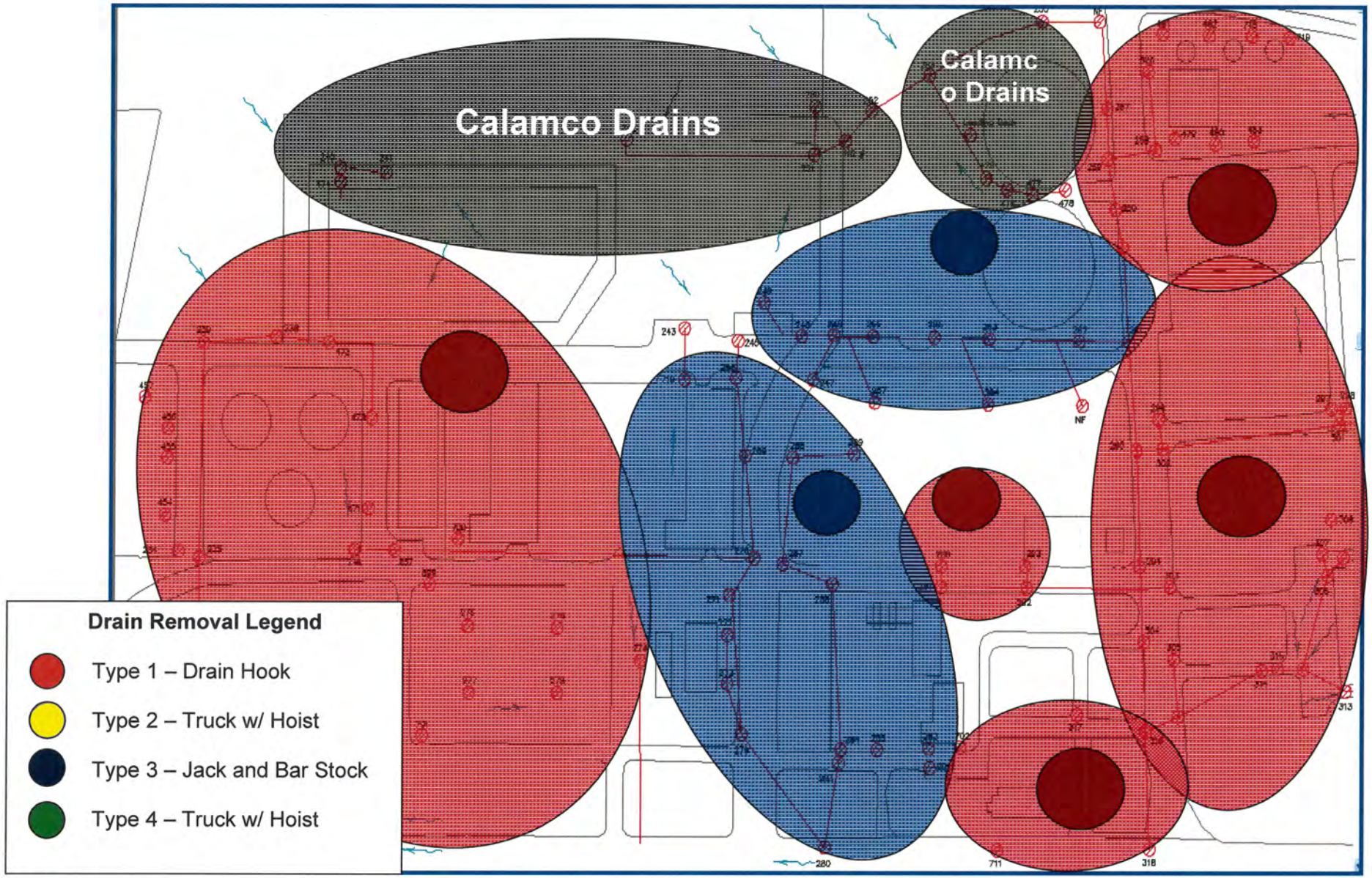

528
804-A
803
803-A
EMBARCADERO
1003
WAREHOUSE
AREA
804
805
806
534
535
Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist

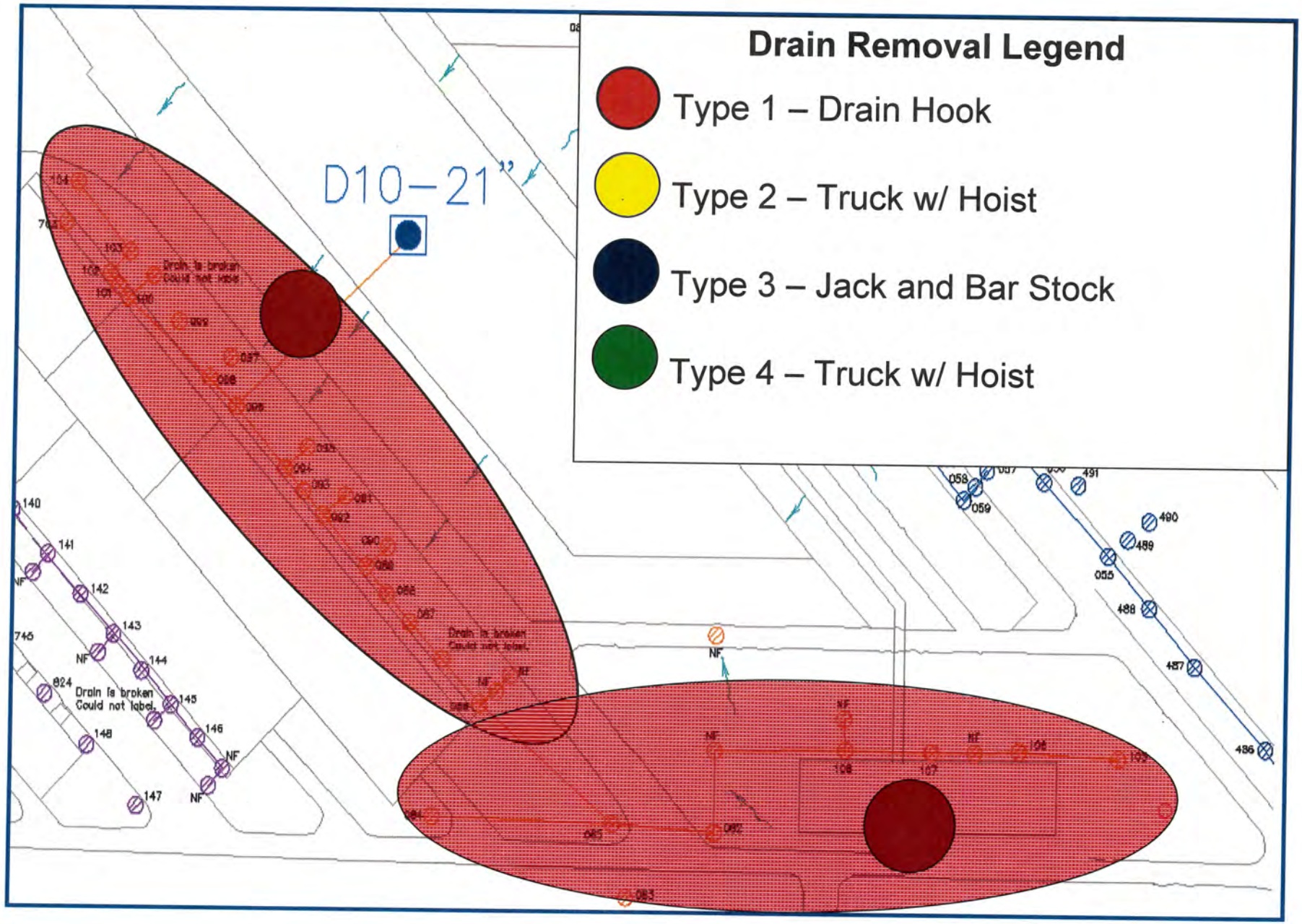

DB
Western
POSDEF Drains
Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist

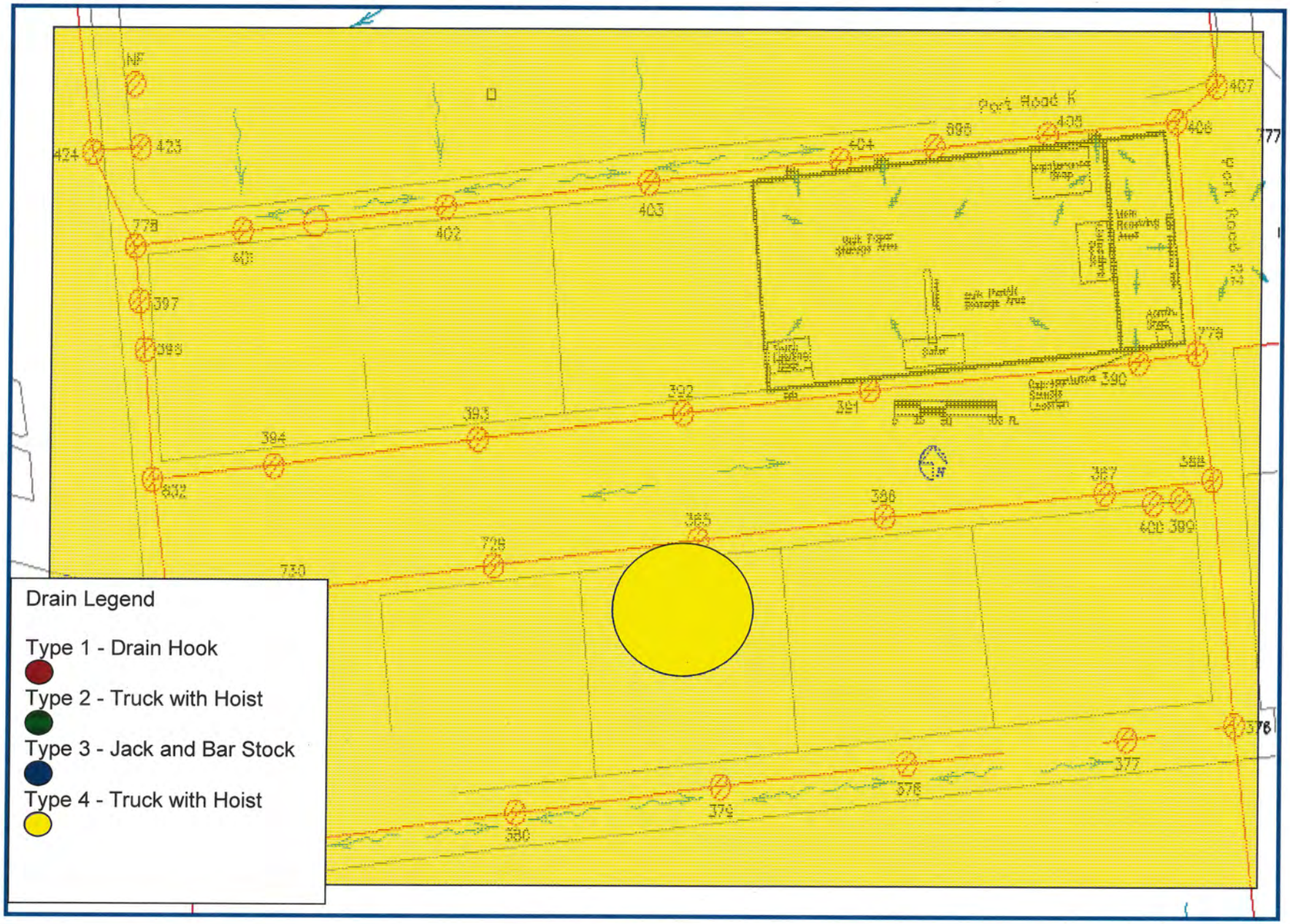

Drain Line Closed
Port Road
Port Road 22
Bulk Paper Storage Area
Bulk Plastic Storage Area
Spare Parts / Equipment Storage Area
Office Building
Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist


Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist
NF
412
413
325
327
328
323
324
771
320
408
339
340
342
X


D4-24"
D2-18"
Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist


Calamco Drains
Calamc
o Drains
Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist


Drain Removal Legend
Type 1 – Drain Hook
Type 2 – Truck w/ Hoist
Type 3 – Jack and Bar Stock
Type 4 – Truck w/ Hoist
D10–21"
Drain is broken Could not label.
Drain is broken Could not label.
NF


Drain Legend
Type 1 - Drain Hook
Type 2 - Truck with Hoist
Type 3 - Jack and Bar Stock
Type 4 - Truck with Hoist
Port Road K
Port Road 22
424
423
778
401
402
403
404
405
406
407
397
398
392
393
394
832
391
390
778
388
387
386
385
400
399
729
730
378
377
376
379
380

Appendix C

Drain Material Weights and Measurements

Port of Stockton
Drain Maintenance Materials Weights and Examples
June 21, 2011

Dry Sediment
14.5 lbs per gallon

Damp Sediment
15 lbs per gallon

Wet sediment
17 lbs per gallon

Dry organic material
5 lbs per gallon

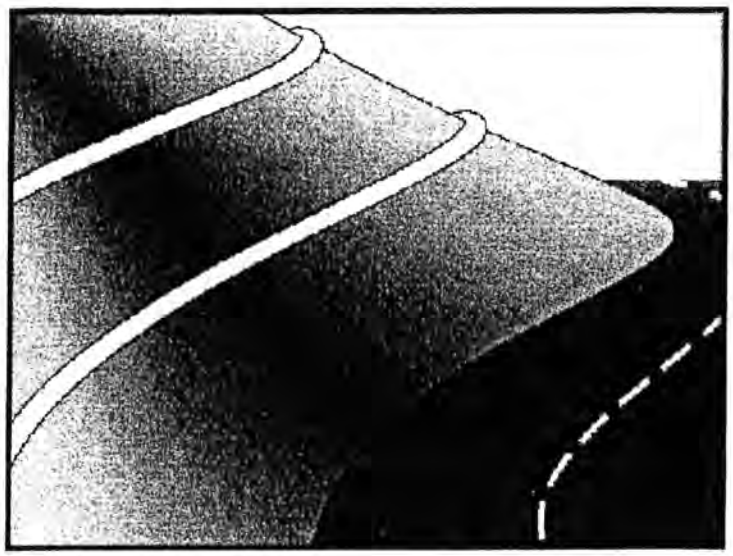
Examples of this material include leaves, twigs, small amount of dirt, etc.

Wet organic material
12.5 lbs per gallon

Appendix D

BMP Cut Sheets

Fiber Rolls SE-5



Objectives

EC	Erosion Control	☒
SE	Sediment Control	☑
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Description and Purpose

A fiber roll consists of straw, flax, or other similar materials bound into a tight tubular roll. When fiber rolls are placed at the toe and on the face of slopes, they intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff. By interrupting the length of a slope, fiber rolls can also reduce erosion.

Suitable Applications

Fiber rolls may be suitable:

- Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow
- At the end of a downward slope where it transitions to a steeper slope
- Along the perimeter of a project
- As check dams in unlined ditches
- Down-slope of exposed soil areas
- Around temporary stockpiles

Limitations

- Fiber rolls are not effective unless trenched

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence

SE-6 Gravel Bag Berm

SE-8 Sandbag Barrier

SE-9 Straw Bale Barrier

- Fiber rolls at the toe of slopes greater than 5:1 (H:V) should be a minimum of 20 in. diameter or installations achieving the same protection (i.e. stacked smaller diameter fiber rolls, etc.).
- Difficult to move once saturated.
- If not properly staked and trenched in, fiber rolls could be transported by high flows.
- Fiber rolls have a very limited sediment capture zone.
- Fiber rolls should not be used on slopes subject to creep, slumping, or landslide.

Implementation

Fiber Roll Materials

- Fiber rolls should be either prefabricated rolls or rolled tubes of erosion control blanket.

Assembly of Field Rolled Fiber Roll

- Roll length of erosion control blanket into a tube of minimum 8 in. diameter.
- Bind roll at each end and every 4 ft along length of roll with jute-type twine.

Installation

- Locate fiber rolls on level contours spaced as follows:
  - Slope inclination of 4:1 (H:V) or flatter: Fiber rolls should be placed at a maximum interval of 20 ft.
  - Slope inclination between 4:1 and 2:1 (H:V): Fiber Rolls should be placed at a maximum interval of 15 ft. (a closer spacing is more effective).
  - Slope inclination 2:1 (H:V) or greater: Fiber Rolls should be placed at a maximum interval of 10 ft. (a closer spacing is more effective).
- Turn the ends of the fiber roll up slope to prevent runoff from going around the roll.
- Stake fiber rolls into a 2 to 4 in. deep trench with a width equal to the diameter of the fiber roll.
  - Drive stakes at the end of each fiber roll and spaced 4 ft maximum on center.
  - Use wood stakes with a nominal classification of 0.75 by 0.75 in. and minimum length of 24 in.
- If more than one fiber roll is placed in a row, the rolls should be overlapped, not abutted.

Removal

- Fiber rolls are typically left in place.

- If fiber rolls are removed, collect and dispose of sediment accumulation, and fill and compact holes, trenches, depressions or any other ground disturbance to blend with adjacent ground.

Costs

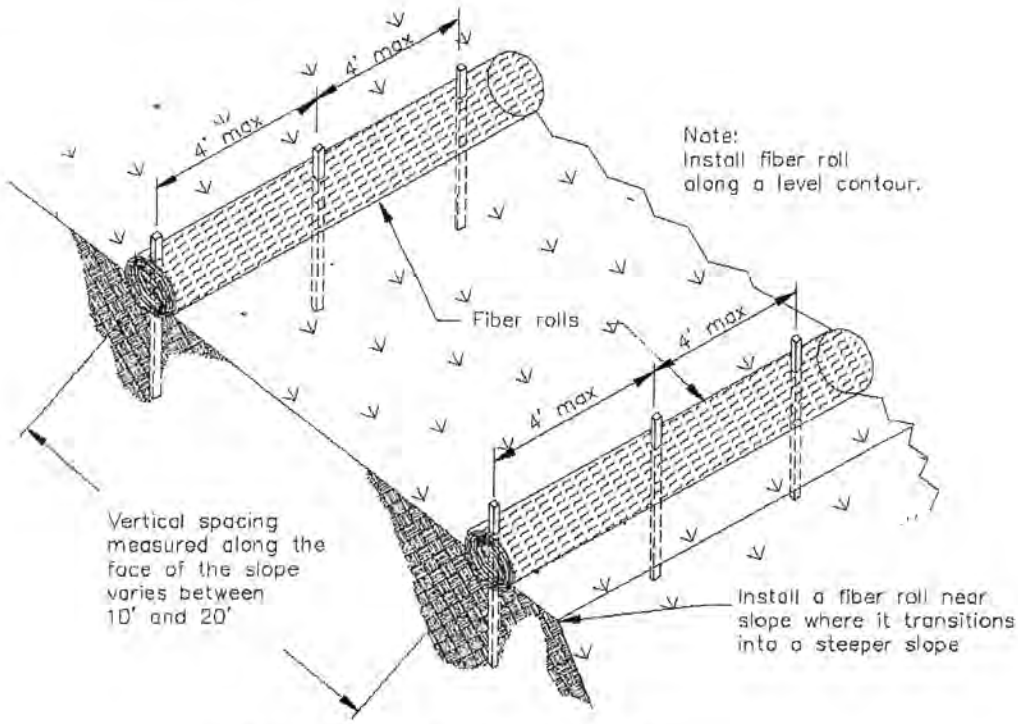
Material costs for fiber rolls range from $20 - $30 per 25 ft roll.

Inspection and Maintenance

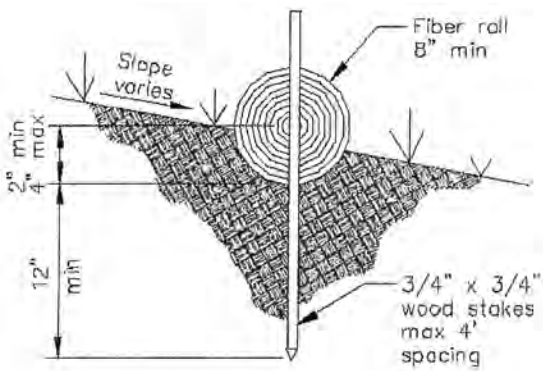
- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Repair or replace split, torn, unraveling, or slumping fiber rolls.
- If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when sediment accumulation reaches one-half the designated sediment storage depth, usually one-half the distance between the top of the fiber roll and the adjacent ground surface. Sediment removed during maintenance may be incorporated into earthwork on the site of disposed at an appropriate location.
- If fiber rolls are used for erosion control, such as in a mini check dam, sediment removal should not be required as long as the system continues to control the grade. Sediment control BMPs will likely be required in conjunction with this type of application.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

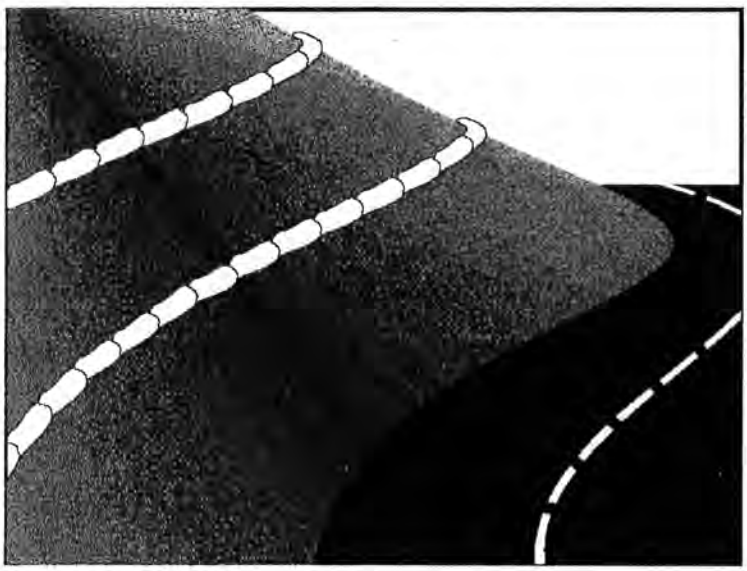


TYPICAL FIBER ROLL INSTALLATION
N.T.S.



ENTRENCHMENT DETAIL
N.T.S.

Gravel Bag Berm SE-6



Objectives		
EC	Erosion Control	☒
SE	Sediment Control	☑
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Roll
SE-8 Sandbag Barrier
SE-9 Straw Bale Barrier

Description and Purpose

A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out, and release runoff slowly as sheet flows, preventing erosion.

Suitable Applications

Gravel bag berms may be suitable:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes
  - As sediment traps at culvert/pipe outlets
  - Below other small cleared areas
  - Along the perimeter of a site
  - Down slope of exposed soil areas
  - Around temporary stockpiles and spoil areas
  - Parallel to a roadway to keep sediment off paved areas
  - Along streams and channels
- As linear erosion control measure:

- Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow
- At the top of slopes to divert runoff away from disturbed slopes
- As check dams across mildly sloped construction roads

Limitations

- Gravel berms may be difficult to remove.
- Removal problems limit their usefulness in landscaped areas.
- Gravel bag berm may not be appropriate for drainage areas greater than 5 acres.
- Runoff will pond upstream of the filter, possibly causing flooding if sufficient space does not exist.
- Degraded gravel bags may rupture when removed, spilling contents.
- Installation can be labor intensive.
- Berms may have limited durability for long-term projects.
- When used to detain concentrated flows, maintenance requirements increase.

Implementation

General

A gravel bag berm consists of a row of open graded gravel–filled bags placed on a level contour. When appropriately placed, a gravel bag berm intercepts and slows sheet flow runoff, causing temporary ponding. The temporary ponding provides quiescent conditions allowing sediment to settle. The open graded gravel in the bags is porous, which allows the ponded runoff to flow slowly through the bags, releasing the runoff as sheet flows. Gravel bag berms also interrupt the slope length and thereby reduce erosion by reducing the tendency of sheet flows to concentrate into rivulets, which erode rills, and ultimately gullies, into disturbed, sloped soils. Gravel bag berms are similar to sand bag barriers, but are more porous.

Design and Layout

- Locate gravel bag berms on level contours.
  - Slopes between 20:1 and 2:1 (H:V): Gravel bags should be placed at a maximum interval of 50 ft (a closer spacing is more effective), with the first row near the slope toe.
  - Slopes 2:1 (H:V) or steeper: Gravel bags should be placed at a maximum interval of 25 ft (a closer spacing is more effective), with the first row placed the slope toe.
- Turn the ends of the gravel bag barriers up slope to prevent runoff from going around the berm.
- Allow sufficient space up slope from the gravel bag berm to allow ponding, and to provide room for sediment storage.

- For installation near the toe of the slope, consider moving the gravel bag barriers away from the slope toe to facilitate cleaning. To prevent flows behind the barrier, bags can be placed perpendicular to a berm to serve as cross barriers.
- Drainage area should not exceed 5 acres.
- In Non-Traffic Areas:
  - Height = 18 in. maximum
  - Top width = 24 in. minimum for three or more layer construction
  - Top width = 12 in. minimum for one or two layer construction
  - Side slopes = 2:1 or flatter
- In Construction Traffic Areas:
  - Height = 12 in. maximum
  - Top width = 24 in. minimum for three or more layer construction.
  - Top width = 12 in. minimum for one or two layer construction.
  - Side slopes = 2:1 or flatter.
- Butt ends of bags tightly
- On multiple row, or multiple layer construction, overlapp butt joints of adjacent row and row beneath.
- Use a pyramid approach when stacking bags.

Materials

- ***Bag Material:*** Bags should be woven polypropylene, polyethylene or polyamide fabric or burlap, minimum unit weight of 4 ounces/yd^2, Mullen burst strength exceeding 300 lb/in^2 in conformance with the requirements in ASTM designation D3786, and ultraviolet stability exceeding 70% in conformance with the requirements in ASTM designation D4355.
- ***Bag Size:*** Each gravel-filled bag should have a length of 18 in., width of 12 in., thickness of 3 in., and mass of approximately 33 lbs. Bag dimensions are nominal, and may vary based on locally available materials.
- ***Fill Material:*** Fill material should be 0.5 to 1 in. Class 2 aggregate base, clean and free from clay, organic matter, and other deleterious material, or other suitable open graded, non-cohesive, porous gravel.

Costs

Gravel filter: Expensive, since off-site materials, hand construction, and demolition/removal are usually required. Material costs for gravel bags are average of $2.50 per empty gravel bag. Gravel costs range from $20-$35 per yd^3.

Inspection and Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Gravel bags exposed to sunlight will need to be replaced every two to three months due to degrading of the bags.
- Reshape or replace gravel bags as needed.
- Repair washouts or other damage as needed.
- Sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed at an appropriate location.
- Remove gravel bag berms when no longer needed. Remove sediment accumulation and clean, re-grade, and stabilize the area. Removed sediment should be incorporated in the project or disposed of.

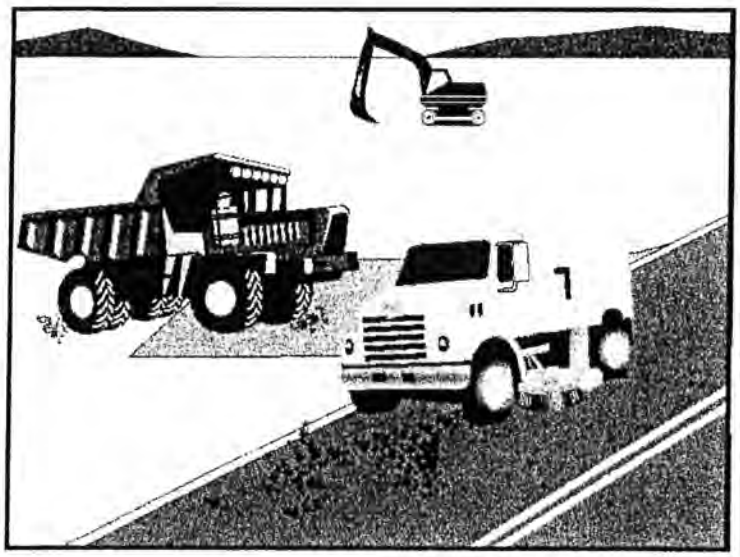
References

Handbook of Steel Drainage and Highway Construction, American Iron and Steel Institute, 1983.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Pollution Plan Handbook, First Edition, State of California, Department of Transportation Division of New Technology, Materials and Research, October 1992.

Street Sweeping and Vacuuming SE-7



Objectives

EC	Erosion Control	
SE	Sediment Control	☒
TR	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways, and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.

Suitable Applications

Sweeping and vacuuming are suitable anywhere sediment is tracked from the project site onto public or private paved streets and roads, typically at points of egress. Sweeping and vacuuming are also applicable during preparation of paved surfaces for final paving.

Limitations

Sweeping and vacuuming may not be effective when sediment is wet or when tracked soil is caked (caked soil may need to be scraped loose).

Implementation

- Controlling the number of points where vehicles can leave the site will allow sweeping and vacuuming efforts to be focused, and perhaps save money.
- Inspect potential sediment tracking locations daily.
- Visible sediment tracking should be swept or vacuumed on a daily basis.

- Do not use kick brooms or sweeper attachments. These tend to spread the dirt rather than remove it.
- If not mixed with debris or trash, consider incorporating the removed sediment back into the project

Costs

Rental rates for self-propelled sweepers vary depending on hopper size and duration of rental. Expect rental rates from $58/hour (3 yd^3 hopper) to $88/hour (9 yd^3 hopper), plus operator costs. Hourly production rates vary with the amount of area to be swept and amount of sediment. Match the hopper size to the area and expect sediment load to minimize time spent dumping.

Inspection and Maintenance

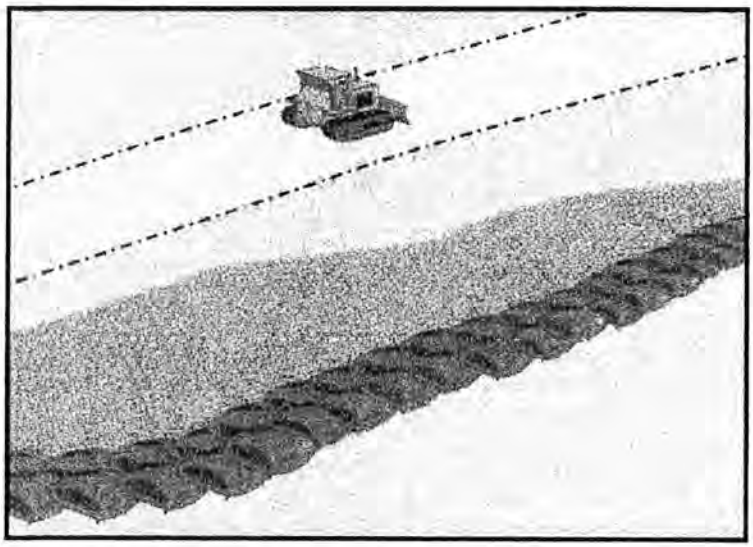
- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- When actively in use, points of ingress and egress must be inspected daily.
- When tracked or spilled sediment is observed outside the construction limits, it must be removed at least daily. More frequent removal, even continuous removal, may be required in some jurisdictions.
- Be careful not to sweep up any unknown substance or any object that may be potentially hazardous.
- Adjust brooms frequently; maximize efficiency of sweeping operations.
- After sweeping is finished, properly dispose of sweeper wastes at an approved dumpsite.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Labor Surcharge and Equipment Rental Rates, State of California Department of Transportation (Caltrans), April 1, 2002 – March 31, 2003.

Sandbag Barrier SE-8



Objectives		
EC	Erosion Control	☒
SE	Sediment Control	☑
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Description and Purpose

A sandbag barrier is a series of sand-filled bags placed on a level contour to intercept sheet flows. Sandbag barriers pond sheet flow runoff, allowing sediment to settle out.

Suitable Applications

Sandbag barriers may be suitable:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes
  - As sediment traps at culvert/pipe outlets
  - Below other small cleared areas
  - Along the perimeter of a site
  - Down slope of exposed soil areas
  - Around temporary stockpiles and spoil areas
  - Parallel to a roadway to keep sediment off paved areas
  - Along streams and channels
- As linear erosion control measure:
  - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Rolls
SE-6 Gravel Bag Berm
SE-9 Straw Bale Barrier

- At the top of slopes to divert runoff away from disturbed slopes
- As check dams across mildly sloped construction roads

Limitations

- It is necessary to limit the drainage area upstream of the barrier to 5 acres.
- Degraded sandbags may rupture when removed, spilling sand.
- Installation can be labor intensive.
- Barriers may have limited durability for long-term projects.
- When used to detain concentrated flows, maintenance requirements increase.
- Burlap should not be used for sandbags.

Implementation

General

A sandbag barrier consists of a row of sand-filled bags placed on a level contour. When appropriately placed, a sandbag barrier intercepts and slows sheet flow runoff, causing temporary ponding. The temporary ponding provides quiescent conditions allowing sediment to settle. While the sand-filled bags are porous, the fine sand tends to quickly plug with sediment, limiting the rate of flow through the barrier. If a porous barrier is desired, consider SE-1, Silt Fence, SE-5, Fiber Rolls, SE-6, Gravel Bag Berms, or SE-9, Straw Bale Barriers. Sandbag barriers also interrupt the slope length and thereby reduce erosion by reducing the tendency of sheet flows to concentrate into rivulets which erode rills, and ultimately gullies, into disturbed, sloped soils. Sandbag barriers are similar to ground bag berms, but less porous.

Design and Layout

- Locate sandbag barriers on a level contour.
  - Slopes between 20:1 and 2:1 (H:V): Sandbags should be placed at a maximum interval of 50 ft (a closer spacing is more effective), with the first row near the slope toe.
  - Slopes 2:1 (H:V) or steeper: Sandbags should be placed at a maximum interval of 25 ft (a closer spacing is more effective), with the first row placed near the slope toe.
- Turn the ends of the sandbag barrier up slope to prevent runoff from going around the barrier.
- Allow sufficient space up slope from the barrier to allow ponding, and to provide room for sediment storage.
- For installation near the toe of the slope, consider moving the barrier away from the slope toe to facilitate cleaning. To prevent flow behind the barrier, sandbags can be placed perpendicular to the barrier to serve as cross barriers.
- Drainage area should not exceed 5 acres.

- Stack sandbags at least three bags high.
- Butt ends of bags tightly.
- Overlapp butt joints of row beneath with each successive row.
- Use a pyramid approach when stacking bags.
- In non-traffic areas
  - Height = 18 in. maximum
  - Top width = 24 in. minimum for three or more layer construction
  - Side slope = 2:1 or flatter
- In construction traffic areas
  - Height = 12 in. maximum
  - Top width = 24 in. minimum for three or more layer construction.
  - Side slopes = 2:1 or flatter.

Materials

- ***Sandbag Material:*** Sandbag should be woven polypropylene, polyethylene or polyamide fabric, minimum unit weight of 4 ounces/yd^2, Mullen burst strength exceeding 300 lb/in^2 in conformance with the requirements in ASTM designation D3786, and ultraviolet stability exceeding 70% in conformance with the requirements in ASTM designation D4355. Use of burlap may not acceptable in some jurisdictions.
- ***Sandbag Size:*** Each sand-filled bag should have a length of 18 in., width of 12 in., thickness of 3 in., and mass of approximately 33 lbs. Bag dimensions are nominal, and may vary based on locally available materials.
- ***Fill Material:*** All sandbag fill material should be non-cohesive, Class 1 or Class 2 permeable material free from clay and deleterious material.

Costs

Sandbag barriers are more costly, but typically have a longer useful life than other barriers. Empty sandbags cost $0.25 - $0.75. Average cost of fill material is $8 per yd^3. Pre-filled sandbags are more expensive at $1.50 - $2.00 per bag.

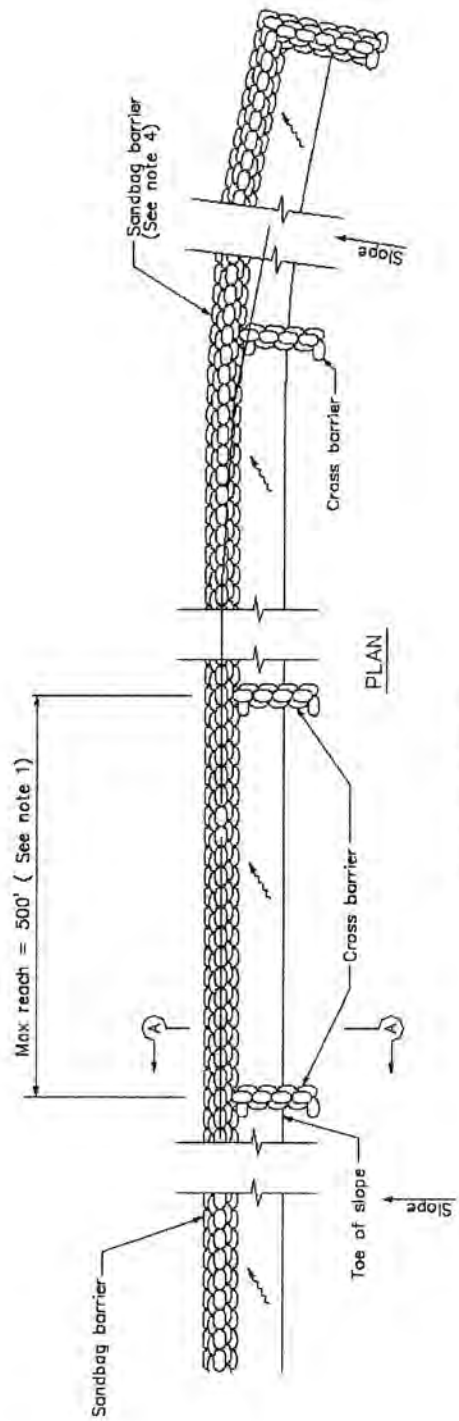
Inspection and Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Sandbags exposed to sunlight will need to be replaced every two to three months due to degradation of the bags.
- Reshape or replace sandbags as needed.

- Repair washouts or other damage as needed.
- Sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed at an appropriate location.
- Remove sandbags when no longer needed. Remove sediment accumulation, and clean, re-grade, and stabilize the area.

References

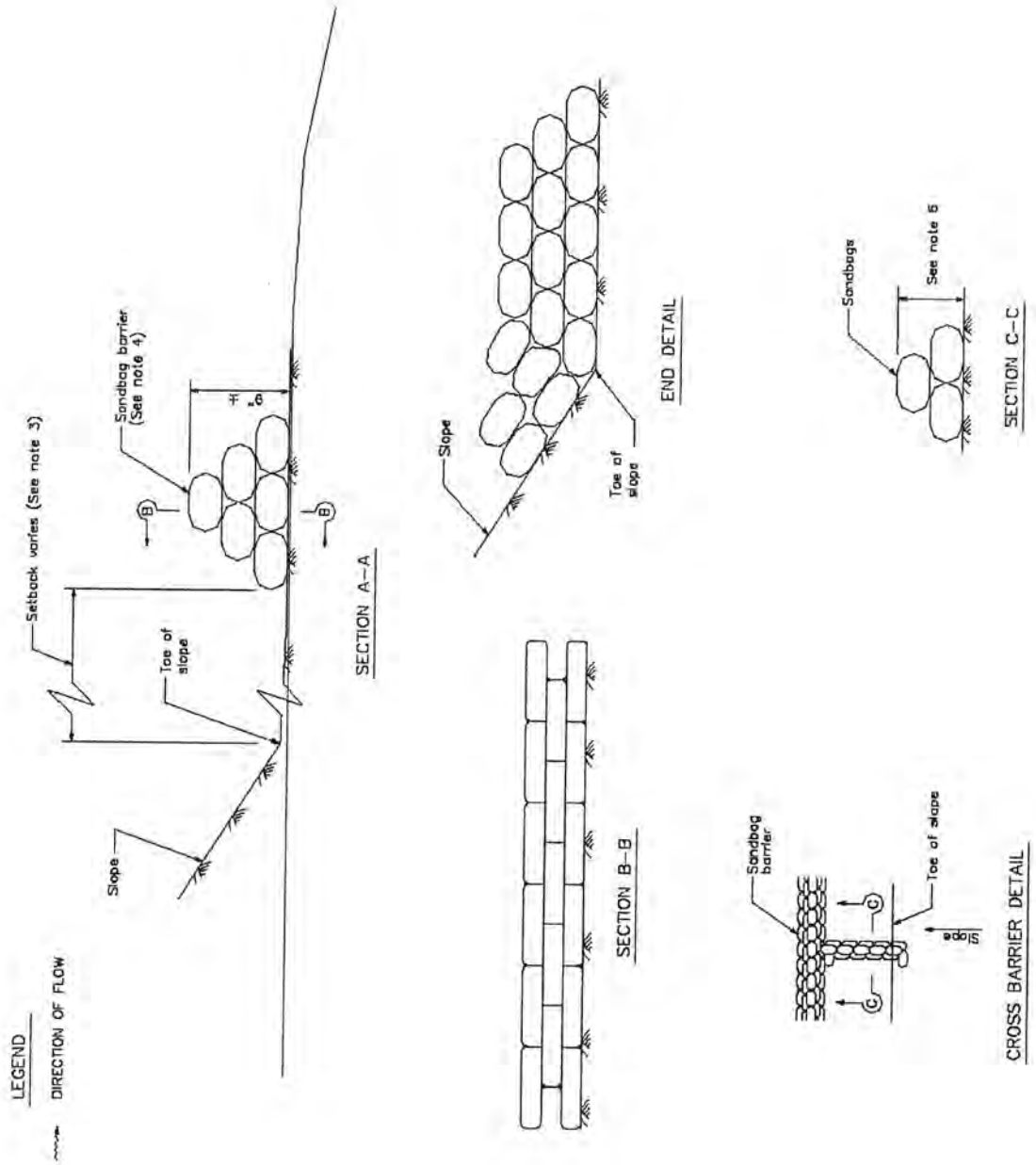
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.



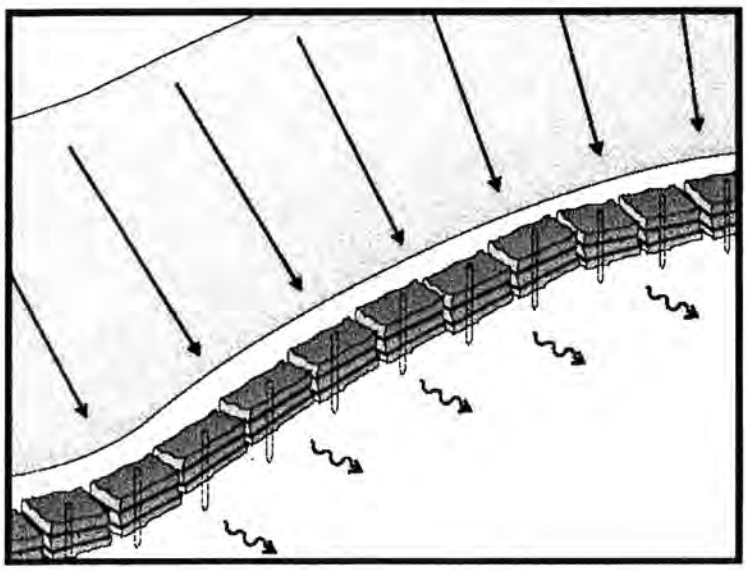
SANDBAG BARRIER

NOTES

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/2 the height of the linear barrier. In no case shall the reach length exceed 500'.
2. Place sandbags tightly.
3. Dimension may vary to fit field condition.
4. Sandbag barrier shall be a minimum of 3 bags high.
5. The end of the barrier shall be turned up slope.
6. Cross barriers shall be a min of 1/2 and a max of 2/3 the height of the linear barrier.
7. Sandbag rows and layers shall be staggered to eliminate gaps.


LEGEND
DIRECTION OF FLOW
Setback varies (See note 3)
Sandbag barrier (See note 4)
H
B
B
Toe of slope
Slope
SECTION A-A
Slope
Toe of slope
END DETAIL
SECTION B-B
Sandbags
See note 5
SECTION C-C
Sandbag barrier
Toe of slope
C
C
CROSS BARRIER DETAIL

Straw Bale Barrier SE-9



Objectives

EC	Erosion Control	☒
SE	Sediment Control	☑
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Rolls
SE-6 Gravel Bag Berm
SE-8 Sandbag Barrier

Description and Purpose

A straw bale barrier is a series of straw bales placed on a level contour to intercept sheet flows. Straw bale barriers pond sheet- flow runoff, allowing sediment to settle out.

Suitable Applications

Straw bale barriers may be suitable:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes
  - As sediment traps at culvert/pipe outlets
  - Below other small cleared areas
  - Along the perimeter of a site
  - Down slope of exposed soil areas
  - Around temporary stockpiles and spoil areas
  - Parallel to a roadway to keep sediment off paved areas
  - Along streams and channels
- As linear erosion control measure:
  - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow

- At the top of slopes to divert runoff away from disturbed slopes
- As check dams across mildly sloped construction roads

Limitations

Straw bale barriers:

- Are not to be used for extended periods of time because they tend to rot and fall apart
- Are suitable only for sheet flow on slopes of 10 % or flatter
- Are not appropriate for large drainage areas, limit to one acre or less
- May require constant maintenance due to rotting
- Are not recommended for concentrated flow, inlet protection, channel flow, and live streams
- Cannot be made of bale bindings of jute or cotton
- Require labor-intensive installation and maintenance
- Cannot be used on paved surfaces
- Should not to be used for drain inlet protection
- Should not be used on lined ditches
- May introduce undesirable non-native plants to the area

Implementation

General

A straw bale barrier consists of a row of straw bales placed on a level contour. When appropriately placed, a straw bale barrier intercepts and slows sheet flow runoff, causing temporary ponding. The temporary ponding provides quiescent conditions allowing sediment to settle. Straw bale barriers also interrupt the slope length and thereby reduce erosion by reducing the tendency of sheet flows to concentrate into rivulets, which erode rills, and ultimately gullies, into disturbed, sloped soils.

Straw bale barriers have not been as effective as expected due to improper use. These barriers have been placed in streams and drainage ways where runoff volumes and velocities have caused the barriers to wash out. In addition, failure to stake and entrench the straw bale has allowed undercutting and end flow. Use of straw bale barriers in accordance with this BMP should produce acceptable results.

Design and Layout

- Locate straw bale barriers on a level contour.
  - Slopes up to 10:1 (H:V): Straw bales should be placed at a maximum interval of 50 ft (a closer spacing is more effective), with the first row near the toe of slope.
  - Slopes greater than 10:1 (H:V): Not recommended.

- Turn the ends of the straw bale barrier up slope to prevent runoff from going around the barrier.
- Allow sufficient space up slope from the barrier to allow ponding, and to provide room for sediment storage.
- For installation near the toe of the slope, consider moving the barrier away from the slope toe to facilitate cleaning. To prevent flow behind the barrier, sand bags can be placed perpendicular to the barrier to serve as cross barriers.
- Drainage area should not exceed 1 acre, or 0.25 acre per 100 ft of barrier.
- Maximum flow path to the barrier should be limited to 100 ft.
- Straw bale barriers should consist of two parallel rows.
  - Butt ends of bales tightly
  - Stagger butt joints between front and back row
  - Each row of bales must be trenched in and firmly staked
- Straw bale barriers are limited in height to one bale laid on its side.
- Anchor bales with either two wood stakes or four bars driven through the bale and into the soil. Drive the first stake towards the butt joint with the adjacent bale to force the bales together.
- See attached figure for installation details.

Materials

- ***Straw Bale Size:*** Each straw bale should be a minimum of 14 in. wide, 18 in. in height, 36 in. in length and should have a minimum mass of 50 lbs. The straw bale should be composed entirely of vegetative matter, except for the binding material.
- ***Bale Bindings:*** Bales should be bound by steel wire, nylon or polypropylene string placed horizontally. Jute and cotton binding should not be used. Baling wire should be a minimum diameter of 14 gauge. Nylon or polypropylene string should be approximately 12 gauge in diameter with a breaking strength of 80 lbs force.
- ***Stakes:*** Wood stakes should be commercial quality lumber of the size and shape shown on the plans. Each stake should be free from decay, splits or cracks longer than the thickness of the stake, or other defects that would weaken the stakes and cause the stakes to be structurally unsuitable. Steel bar reinforcement should be equal to a #4 designation or greater. End protection should be provided for any exposed bar reinforcement.

Costs

Straw bales cost $5 - $7 each. Adequate labor should be budgeted for installation and maintenance.

Inspection and Maintenance

Maintenance

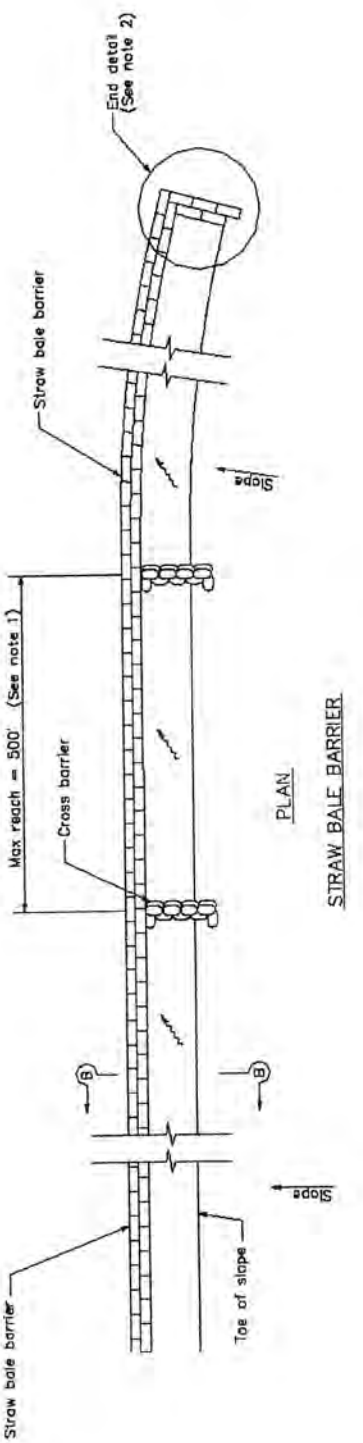
- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Straw bales degrade, especially when exposed to moisture. Rotting bales will need to be replaced on a regular basis.
- Replace or repair damaged bales as needed.
- Repair washouts or other damages as needed.
- Sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed at an appropriate location.
- Remove straw bales when no longer needed. Remove sediment accumulation, and clean, re-grade, and stabilize the area. Removed sediment should be incorporated in the project or disposed of.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Straw Bale Barrier

SE-9



PLAN

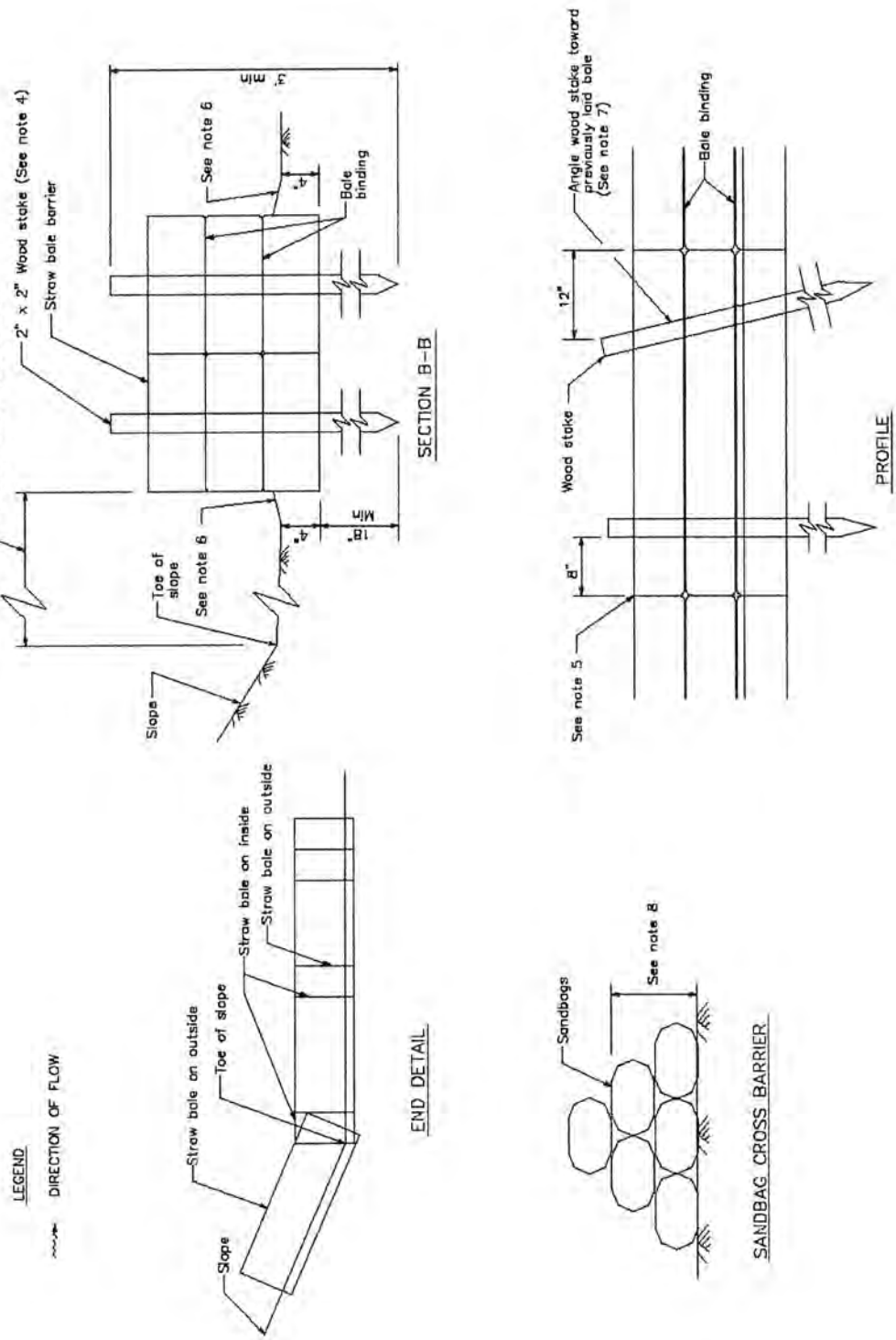
STRAW BALE BARRIER

LEGEND

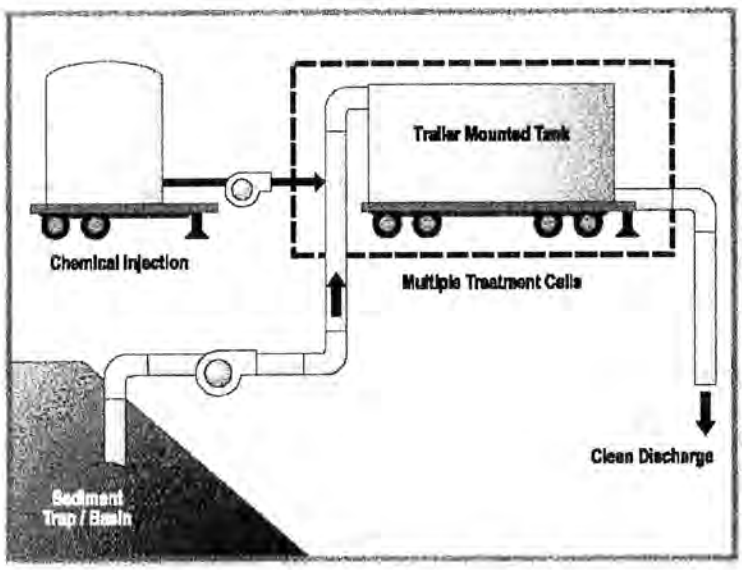
DIRECTION OF FLOW

NOTES

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/2 the height of the linear barrier, in no case shall the reach length exceed 500'.
2. The end of barrier shall be turned up slope.
3. Dimension may vary to fit field condition
4. Stake dimensions are nominal.
5. Place straw bales tightly together.
6. Tamp embedment spoils against sides of installed bales.
7. Drive angled wood stake before vertical stake to ensure tight abutment to adjacent bale.
8. Sandbag cross barriers should be a min of 1/2 and a max of 2/3 the height of the linear barrier.
9. Sandbag rows and layers should be offset to eliminate gaps.


LEGEND
DIRECTION OF FLOW
Setback varies (See note 3)
2" x 2" Wood stake (See note 4)
Straw bale barrier
See note 6
Bale binding
Toe of slope
See note 6
Slope
SECTION B-B
Angle wood stake toward previously laid bale (See note 7)
Bale binding
12"
Wood stake
8"
See note 5
PROFILE
Straw bale on outside
Toe of slope
Straw bale on inside
Straw bale on outside
Slope
END DETAIL
Sandbags
See note 8
SANDBAG CROSS BARRIER

Chemical Treatment SE-11



Objectives

EC	Erosion Control
SE	Sediment Control
TR	Tracking Control
WE	Wind Erosion Control
NS	Non-Stormwater Management Control
WM	Waste Management and Materials Pollution Control

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Chemical treatment includes the application of chemicals to stormwater to aid in the reduction of turbidity caused by fine suspended sediment.

Suitable Applications

Chemical treatment can reliably provide exceptional reductions of turbidity and associated pollutants and should be considered where turbid discharges to sensitive wastes cannot be avoided using other BMPs. Typically, chemical use is limited to waters with numeric turbidity standards.

Limitations

The use of chemical treatment must have the advanced approval of the Regional Water Quality Control Board.

- Chemical Treatment of stormwater is relatively new and unproven technology in California.
- BMP has not been used often in California
- Petroleum based polymers should not be used
- Requires sediment basin or trailer mounted unit for chemical application
- Batch treatment required, flow through continuous treatment not allowed
- Requires large area

- Limited discharge rates depending on receiving water body
- Labor intensive operation and maintenance
- Requires monitoring for non-visible pollutants

Implementation

Turbidity is difficult to control once fine particles are suspended in stormwater runoff from a construction site. Sedimentation ponds are effective at removing larger particulate matter by gravity settling, but are ineffective at removing smaller particulates such as clay and fine silt. Sediment ponds are typically designed to remove sediment no smaller than medium silt (0.02 mm). Chemical treatment may be used to reduce the turbidity of stormwater runoff. Very high turbidities can be reduced to levels comparable to what is found in streams during dry weather.

Criteria for Chemical Treatment Product Use

Chemically treated stormwater discharged from construction sites must be non-toxic to aquatic organisms. The following protocol should be used to evaluate chemicals proposed for stormwater treatment at construction sites. Authorization to use a chemical in the field based on this protocol does not relieve the applicant from responsibility for meeting all discharge and receiving water criteria applicable to a site.

- Treatment chemicals must be approved by EPA for potable water use.
- Petroleum-based polymers are prohibited.
- Prior to authorization for field use, jar tests should be conducted to demonstrate that turbidity reduction necessary to meet the receiving water criteria could be achieved. Test conditions, including but not limited to raw water quality and jar test procedures, should be indicative of field conditions. Although these small-scale tests cannot be expected to reproduce performance under field conditions, they are indicative of treatment capability.
- Prior to authorization for field use, the chemically treated stormwater should be tested for aquatic toxicity. Applicable state or local Whole Effluent Toxicity Testing and Limits, should be used. Testing should use stormwater from the construction site at which the treatment chemical is proposed for use or a water solution using soil from the proposed site.
- The proposed maximum dosage should be at least a factor of five lower than the no observed effects concentration (NOEC).
- The approval of a proposed treatment chemical should be conditional, subject to full-scale bioassay monitoring of treated stormwater at the construction site where the proposed treatment chemical is to be used.
- Treatment chemicals that have already passed the above testing protocol do not need to be reevaluated. Contact the RWQCB for a list of treatment chemicals that may be approved for use.

Treatment System Design Considerations

The design and operation of a chemical treatment system should take into consideration the factors that determine optimum, cost-effective performance. It may not be possible to fully

incorporate all of the classic concepts into the design because of practical limitations at construction sites. Nonetheless, it is important to recognize the following:

- The right chemical must be used at the right dosage. A dosage that is either too low or too high will not produce the lowest turbidity. There is an optimum dosage rate. This is a situation where the adage "adding more is always better" is not the case.
- The coagulant must be mixed rapidly into the water to insure proper dispersion.
- Experience has found that sufficient flocculation occurs in the pipe leading from the point of chemical addition to the settling or sediment basin.
- Since the volume of the basin is a determinant in the amount of energy per unit volume, the size of the energy input system can be too small relative to the volume of the basin.
- Care must be taken in the design of the withdrawal system to minimize outflow velocities and to prevent floc discharge. The discharge should be directed through a physical filter such as vegetated swale that would catch any unintended floc discharge.
- A pH-adjusting chemical should be added into the sediment basin to control pH. Experience shows that the most common problem is low pH.

Treatment System Design

Chemical treatment systems should be designed as batch treatment systems using either ponds or portable trailer-mounted tanks. Flow-through continuous treatment systems are not allowed at this time.

A chemical treatment system consists of the stormwater collection system (either temporary diversion or the permanent site drainage system), a sediment basin or sediment trap, pumps, a chemical feed system, treatment cells, and interconnecting piping.

The treatment system should use a minimum of two lined treatment cells. Multiple treatment cells allow for clarification of treated water while other cells are being filled or emptied. Treatment cells may be basins, traps or tanks. Portable tanks may also be suitable for some sites.

The following equipment should be located in an operation shed:

- The chemical injector
- Secondary contaminant for acid, caustic, buffering compound, and treatment chemical
- Emergency shower and eyewash
- Monitoring equipment which consists of a pH meter and a turbidimeter

Sizing Criteria

The combination of the sediment basin or other holding area and treatment capacity should be large enough to treat stormwater during multiple day storm events. See SE-2, Sediment Basin, for design criteria. Bypass should be provided around the chemical treatment system to

accommodate extreme storm events. Runoff volume should be calculated using the Rational Method. Primary settling should be encouraged in the sediment basin/storage pond. A forebay with access for maintenance may be beneficial.

There are two opposing considerations in sizing the treatment cells. A larger cell is able to treat a larger volume of water each time a batch is processed. However, the larger the cell the longer the time required to empty the cell. A larger cell may also be less effective at flocculation and therefore require a longer settling time. The simplest approach to sizing the treatment cell is to multiply the allowable discharge flow rate times the desired drawdown time. A 4-hour drawdown time allows one batch per cell per 8-hour work period, given 1 hour of flocculation followed by 2 hours of settling.

The permissible discharge rate governed by potential downstream effect can be used to calculate the recommended size of the treatment cells. The following discharge flow rate limits apply absent any local requirements:

- If the discharge is direct or indirect to a stream, the discharge flow rate should not exceed 50 percent of the peak flow rate for all events between the 2-year and the 10-year, 24-hour event.
- If discharge is occuring during a storm event equal to or greater than the 10-year storm the allowable discharge rate is the peak flow rate of the 10-year, 24-hour event.
- Discharge to a stream should not increase the stream flow rate by more than 10 percent.
- If the discharge is directly to a lake or major receiving water there is no discharge flow limit.
- If the discharge is to a municipal storm drainage system, the allowable discharge rate may be limited by the capacity of the public system. It may be necessary to clean the municipal storm drainage system prior to the start of the discharge to prevent scouring solids from the drainage system.
- Runoff rates may be calculated using the Rational Method, unless another method is required by the local flood control agency or agency that issued the grading permit.

Costs

Costs for chemical treatment may be significant due to equipment required and cost of chemicals. The cost is offset by the ability to reduce some use of other onsite erosion control BMPs and the reuse of equipment (e.g., pumps and dosing equipment). The incremental cost is generally less than 1% of the total construction costs.

Inspection and Maintenance

Chemical treatment systems must be operated and maintained by individuals with expertise in their use. Chemical treatment systems should be monitored continuously while in use.

The following monitoring should be conducted. Test results should be recorded on a daily log kept on site.

Operational Monitoring

- pH conductivity (as a surrogate for alkalinity), turbidity, and temperature of the untreated stormwater
- Total volume treated and discharged
- Discharge time and flow rate
- Type and amount of chemical used for pH adjustment
- Amount of polymer used for treatment
- Settling time

Compliance Monitoring

- pH and turbidity of the treated stormwater
- pH and turbidity of the receiving water

Bio-monitoring

Treated stormwater should be tested for acute (lethal) toxicity. Bioassays should be conducted by a laboratory accredited by the State of California. **The performance standard for acute toxicity is no statistically significant difference in survival between the control and 100 percent chemically treated stormwater.**

Acute toxicity tests should be conducted with the following species and protocols:

- Fathead minnow, Pimephales promelas (96 hour static-renewal test, method: EPA/600/4-90/027F). Rainbow trout, Oncorhynchus mykiss (96 hour static-renewal test, method: EPA/600/4-90/027F) may be used as a substitute for fathead minnow.
- Daphnid, Ceriodaphnia dubia, Daphnia pulex, or Daphnia magna (48 hour static test, method: EPA/600/4-90/027F).

All toxicity tests should meet quality assurance criteria and test conditions in the most recent versions of the EPA test method.

Bioassays should be performed on the first five batches and on every tenth batch thereafter or as otherwise approved by the RWQCB. Failure to meet the performance standard should be immediately reported to the RWQCB.

Discharge Compliance:

Prior to discharge, each batch of treated stormwater must be sampled and tested for compliance with pH and turbidity limits. These limits may be established by the water quality standards or a site-specific discharge permit. Sampling and testing for other pollutants may also be necessary at some sites. Turbidity must be within 5 NTUs of the background turbidity. Background is measured in the receiving water, upstream from the treatment process discharge point. pH must be within the range of 6.5 to 8.5 standard units and not cause a change in the pH of the receiving water of more than 0.2 standard units. It is often

possible to discharge treated stormwater that has a lower turbidity than the receiving water and that matches the pH.

Treated stormwater samples and measurements should be taken from the discharge pipe or another location representative of the nature of the treated stormwater discharge. Samples used for determining compliance with the water quality standards in the receiving water should not be taken from the treatment pond to decanting. Compliance with the water quality standards is determined in the receiving water.

Operator Training:

Each contractor who intends to use chemical treatment should be trained by an experienced contractor on an active site for at least 40 hours.

Standard BMPs:

Erosion and sediment control BMPs should be implemented throughout the site to prevent erosion and discharge of sediment.

Sediment Removal and Disposal

- Sediment should be removed from the storage or treatment cells as necessary. Typically, sediment removal is required at least once during a wet season and at the decommissioning of the cells. Sediment remaining in the cells between batches may enhance the settling process and reduce the required chemical dosage.
- Sediment may be incorporated into the site away from drainages.

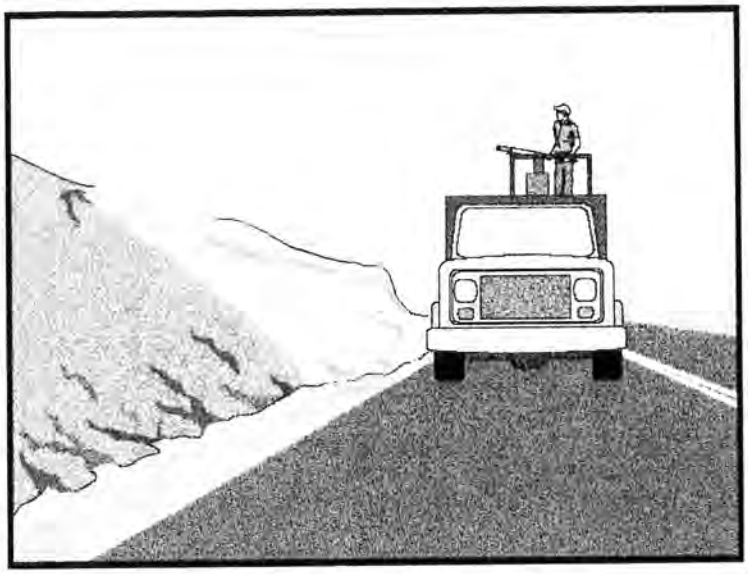
References

Stormwater Management Manual for Western Washington, Volume II – Construction Stormwater Pollution Prevention, Washington State Department of Ecology, August 2001.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Straw Mulch

EC-6



Objectives

EC	Erosion Control	☑
SE	Sediment Control	
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

EC-3 Hydraulic Mulch

EC-4 Hydroseeding

EC-5 Soil Binders

EC-7 Geotextiles and Mats

EC-8 Wood Mulching

Description and Purpose

Straw mulch consists of placing a uniform layer of straw and incorporating it into the soil with a studded roller or anchoring it with a tackifier stabilizing emulsion. Straw mulch protects the soil surface from the impact of rain drops, preventing soil particles from becoming dislodged.

Suitable Applications

Straw mulch is suitable for soil disturbed areas requiring temporary protection until permanent stabilization is established. Straw mulch is typically used for erosion control on disturbed areas until soils can be prepared for permanent vegetation. Straw mulch is also used in combination with temporary and/or permanent seeding strategies to enhance plant establishment.

Limitations

- Availability of straw and straw blowing equipment may be limited just prior to the rainy season and prior to storms due to high demand.
- There is a potential for introduction of weed seed and unwanted plant material.
- When straw blowers are used to apply straw mulch, the treatment areas must be within 150 ft of a road or surface capable of supporting trucks.
- Straw mulch applied by hand is more time intensive and potentially costly.

- Wind may limit application of straw and blow straw into undesired locations.
- May have to be removed prior to permanent seeding or prior to further earthwork.
- "Punching" of straw does not work in sandy soils, necessitating the use of tackifiers.

Implementation

- Straw shall be derived from wheat, rice, or barley. Where required by the plans, specifications, permits, or environmental documents, native grass straw shall be used.
- A tackifier is the preferred method for anchoring straw mulch to the soil on slopes.
- Crimping, punch roller-type rollers, or track walking may also be used to incorporate straw mulch into the soil on slopes. Track walking shall only be used where other methods are impractical.
- Avoid placing straw onto roads, sidewalks, drainage channels, sound walls, existing vegetation, etc.
- Straw mulch with tackifier shall not be applied during or immediately before rainfall.
- In San Diego, use of straw near wood framed home construction has been frowned on by the Fire Marshall.

Application Procedures

- Apply straw at a minimum rate of 4,000 lb/acre, either by machine or by hand distribution.
- Roughen embankments and fill rills before placing the straw mulch by rolling with a crimping or punching type roller or by track walking.
- Evenly distribute straw mulch on the soil surface.
- Anchor straw mulch to the soil surface by "punching" it into the soil mechanically (incorporating). Alternatively, use a tackifier to adhere straw fibers.
- Methods for holding the straw mulch in place depend upon the slope steepness, accessibility, soil conditions, and longevity.
  - On small areas, a spade or shovel can be used to punch in straw mulch.
  - On slopes with soils that are stable enough and of sufficient gradient to safely support construction equipment without contributing to compaction and instability problems, straw can be "punched" into the ground using a knife blade roller or a straight bladed coulter, known commercially as a "crimper".
  - On small areas and/or steep slopes, straw can also be held in place using plastic netting or jute. The netting shall be held in place using 11 gauge wire staples, geotextile pins or wooden stakes as described in EC-7, Geotextiles and Mats.
  - A tackifier acts to glue the straw fibers together and to the soil surface. The tackifier shall be selected based on longevity and ability to hold the fibers in place. A tackifier is

typically applied at a rate of 125 lb/acre. In windy conditions, the rates are typically 180 lb/acre.

Costs

Average annual cost for installation and maintenance (3-4 months useful life) is $2,500 per acre. Application by hand is more time intensive and potentially costly.

Inspection and Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Areas where erosion is evident should be repaired and BMPs re-applied as soon as possible. Care should be exercised to minimize the damage to protected areas while making repairs, as any area damaged will require re-application of BMPs.
- The key consideration in inspection and maintenance is that the straw needs to last long enough to achieve erosion control objectives.
- Maintain an unbroken, temporary mulched ground cover while disturbed soil areas are inactive. Repair any damaged ground cover and re-mulch exposed areas.
- Reapplication of straw mulch and tackifier may be required to maintain effective soil stabilization over disturbed areas and slopes.

References

Controlling Erosion of Construction Sites, Agricultural Information Bulletin #347, U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service – SCS).

Guides for Erosion and Sediment Control in California, USDA Soils Conservation Service, January 1991.

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

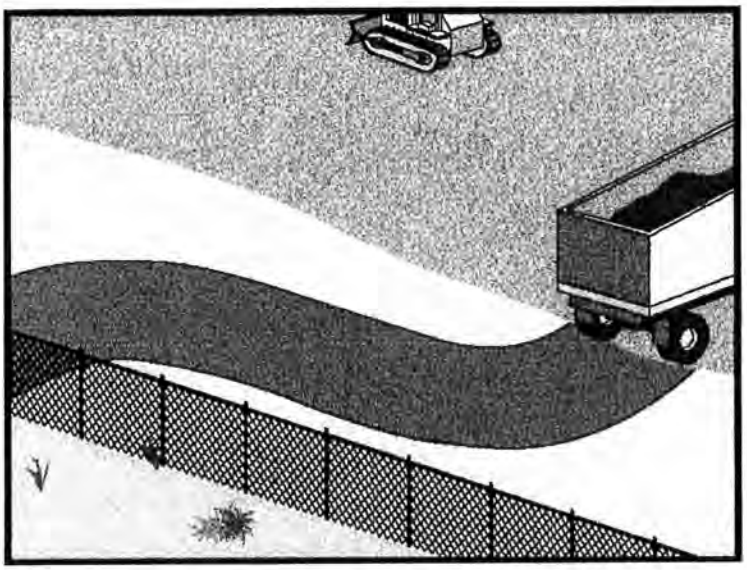
Soil Erosion by Water, Agricultural Information Bulletin #513, U.S. Department of Agriculture, Soil Conservation Service.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

Stabilized Construction Roadway TC-2



Objectives

EC	Erosion Control	☒
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Access roads, subdivision roads, parking areas, and other onsite vehicle transportation routes should be stabilized immediately after grading, and frequently maintained to prevent erosion and control dust.

Suitable Applications

This BMP should be applied for the following conditions:

- Temporary Construction Traffic:
  - Phased construction projects and offsite road access
  - Construction during wet weather
- Construction roadways and detour roads:
  - Where mud tracking is a problem during wet weather
  - Where dust is a problem during dry weather
  - Adjacent to water bodies
  - Where poor soils are encountered

Limitations

- The roadway must be removed or paved when construction is complete.

- Certain chemical stabilization methods may cause stormwater or soil pollution and should not be used. See WE-1, Wind Erosion Control.
- Management of construction traffic is subject to air quality control measures. Contact the local air quality management agency.
- Materials will likely need to be removed prior to final project grading and stabilization.
- Use of this BMP may not be applicable to very short duration projects.

Implementation

General

Areas that are graded for construction vehicle transport and parking purposes are especially susceptible to erosion and dust. The exposed soil surface is continually disturbed, leaving no opportunity for vegetative stabilization. Such areas also tend to collect and transport runoff waters along their surfaces. During wet weather, they often become muddy quagmires that generate significant quantities of sediment that may pollute nearby streams or be transported offsite on the wheels of construction vehicles. Dirt roads can become so unstable during wet weather that they are virtually unusable.

Efficient construction road stabilization not only reduces onsite erosion but also can significantly speed onsite work, avoid instances of immobilized machinery and delivery vehicles, and generally improve site efficiency and working conditions during adverse weather

Installation/Application Criteria

Permanent roads and parking areas should be paved as soon as possible after grading. As an alternative where construction will be phased, the early application of gravel or chemical stabilization may solve potential erosion and stability problems. Temporary gravel roadway should be considered during the rainy season and on slopes greater than 5%.

Temporary roads should follow the contour of the natural terrain to the maximum extent possible. Slope should not exceed 15%. Roadways should be carefully graded to drain transversely. Provide drainage swales on each side of the roadway in the case of a crowned section or one side in the case of a super elevated section. Simple gravel berms without a trench can also be used.

Installed inlets should be protected to prevent sediment laden water from entering the storm sewer system (SE-10, Storm Drain Inlet Protection). In addition, the following criteria should be considered.

- Road should follow topographic contours to reduce erosion of the roadway.
- The roadway slope should not exceed 15%.
- Chemical stabilizers or water are usually required on gravel or dirt roads to prevent dust (WE-1, Wind Erosion Control).
- Properly grade roadway to prevent runoff from leaving the construction site.
- Design stabilized access to support heaviest vehicles and equipment that will use it.

Stabilized Construction Roadway TC-2

- Stabilize roadway using aggregate, asphalt concrete, or concrete based on longevity, required performance, and site conditions. The use of cold mix asphalt or asphalt concrete (AC) grindings for stabilized construction roadway is not allowed.
- Coordinate materials with those used for stabilized construction entrance/exit points.
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 in. depth. A crushed aggregate greater than 3 in. but smaller than 6 in. should be used.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, impact weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Keep all temporary roadway ditches clear.
- When no longer required, remove stabilized construction roadway and re-grade and repair slopes.
- Periodically apply additional aggregate on gravel roads.
- Active dirt construction roads are commonly watered three or more times per day during the dry season.

Costs

Gravel construction roads are moderately expensive, but cost is often balanced by reductions in construction delay. No additional costs for dust control on construction roads should be required above that needed to meet local air quality requirements.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program; Program Development and Approval Guidance, Working Group, Working Paper; USEPA, April 1992.

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

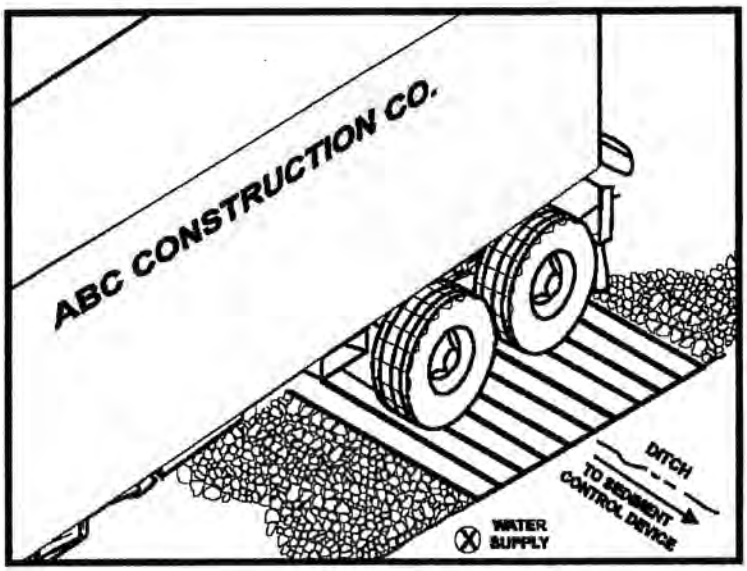
Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

TC-2 Stabilized Construction Roadway

Virginia Erosion and Sedimentation Control Handbook, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation, 1991.

Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

Entrance/Outlet Tire Wash TC-3



Description and Purpose

A tire wash is an area located at stabilized construction access points to remove sediment from tires and under carriages and to prevent sediment from being transported onto public roadways.

Suitable Applications

Tire washes may be used on construction sites where dirt and mud tracking onto public roads by construction vehicles may occur.

Limitations

- The tire wash requires a supply of wash water.
- A turnout or doublewide exit is required to avoid having entering vehicles drive through the wash area.
- Do not use where wet tire trucks leaving the site leave the road dangerously slick.

Implementation

- Incorporate with a stabilized construction entrance/exit. See TC-1, Stabilized Construction Entrance/Exit.
- Construct on level ground when possible, on a pad of coarse aggregate greater than 3 in. but smaller than 6 in. A geotextile fabric should be placed below the aggregate.
- Wash rack should be designed and constructed/manufactured for anticipated traffic loads.

Objectives

EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

TC-1 Stabilized Construction Entrance/Exit

- Provide a drainage ditch that will convey the runoff from the wash area to a sediment trapping device. The drainage ditch should be of sufficient grade, width, and depth to carry the wash runoff.
- Use hoses with automatic shutoff nozzles to prevent hoses from being left on.
- Require that all employees, subcontractors, and others that leave the site with mud caked tires and undercarriages to use the wash facility.
- Implement SC-7, Street Sweeping and Vacuuming, as needed.

Costs

Costs are low for installation of wash rack.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Remove accumulated sediment in wash rack and/or sediment trap to maintain system performance.
- Inspect routinely for damage and repair as needed.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

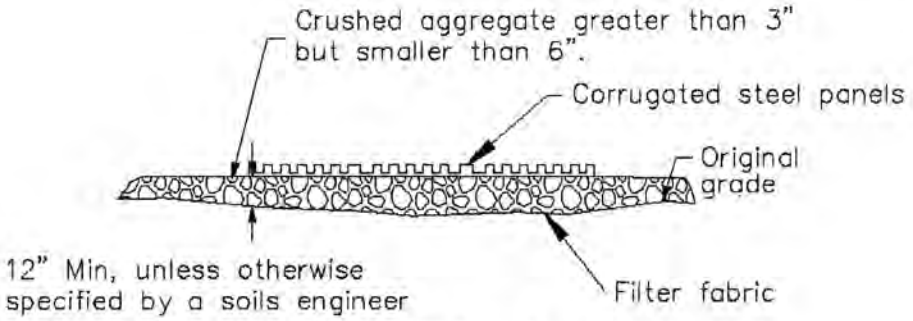
Coastal Nonpoint Pollution Control Program; Program Development and Approval Guidance, Working Group, Working Paper; USEPA, April 1992.

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

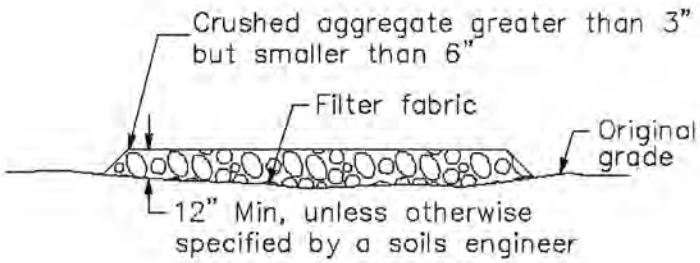
Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

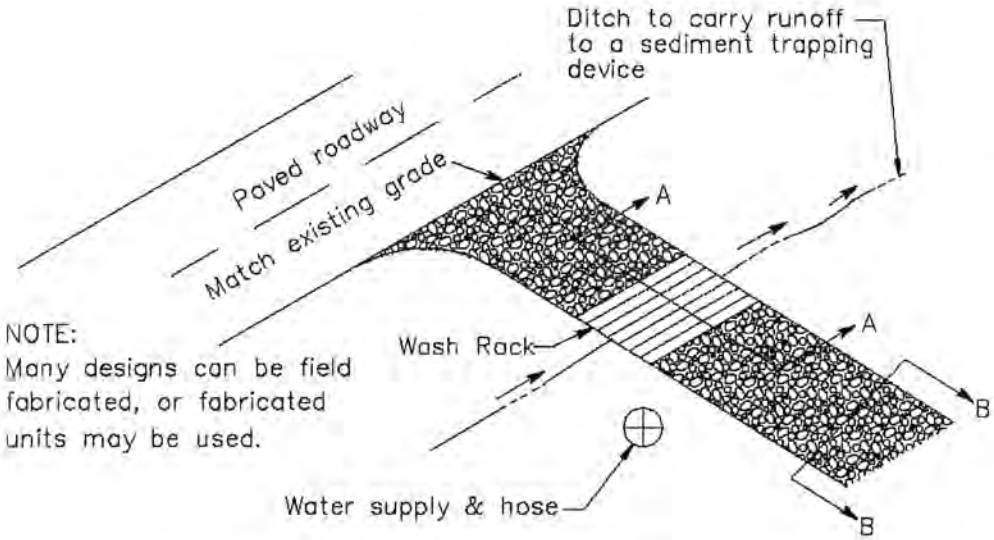
Entrance/Outlet Tire Wash TC-3



SECTION A–A
NOT TO SCALE



SECTION B–B
NTS



TYPICAL TIRE WASH
NOT TO SCALE

Stockpile Management WM-3

Objectives		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Stockpile Management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, paving materials such as portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called "cold mix" asphalt), and pressure treated wood.

Suitable Applications

Implement in all projects that stockpile soil and other materials.

Limitations

None identified.

Implementation

Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

- Locate stockpiles a minimum of 50 ft away from concentrated flows of stormwater, drainage courses, and inlets.
- Protect all stockpiles from stormwater runon using a temporary perimeter sediment barrier such as berms, dikes, fiber rolls, silt fences, sandbag, gravel bags, or straw bale barriers.

- Implement wind erosion control practices as appropriate on all stockpiled material. For specific information, see WE-1, Wind Erosion Control.
- Manage stockpiles of contaminated soil in accordance with WM-7, Contaminated Soil Management.
- Place bagged materials on pallets and under cover.

Protection of Non-Active Stockpiles

Non-active stockpiles of the identified materials should be protected further as follows:

Soil stockpiles

- During the rainy season, soil stockpiles should be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.
- During the non-rainy season, soil stockpiles should be covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

Stockpiles of Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate sub base

- During the rainy season, the stockpiles should be covered or protected with a temporary perimeter sediment barrier at all times.
- During the non-rainy season, the stockpiles should be covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

Stockpiles of "cold mix"

- During the rainy season, cold mix stockpiles should be placed on and covered with plastic or comparable material at all times.
- During the non-rainy season, cold mix stockpiles should be placed on and covered with plastic or comparable material prior to the onset of precipitation.

Stockpiles/Storage of pressure treated wood with copper, chromium, and arsenic or ammonical, copper, zinc, and arsenate

- During the rainy season, treated wood should be covered with plastic or comparable material at all times.
- During the non-rainy season, treated wood should be covered with plastic or comparable material at all times and cold mix stockpiles should be placed on and covered with plastic or comparable material prior to the onset of precipitation.

Protection of Active Stockpiles

Active stockpiles of the identified materials should be protected further as follows:

- All stockpiles should be protected with a temporary linear sediment barrier prior to the onset of precipitation.
- Stockpiles of "cold mix" should be placed on and covered with plastic or comparable material prior to the onset of precipitation.

Costs

All of the above are low cost measures.

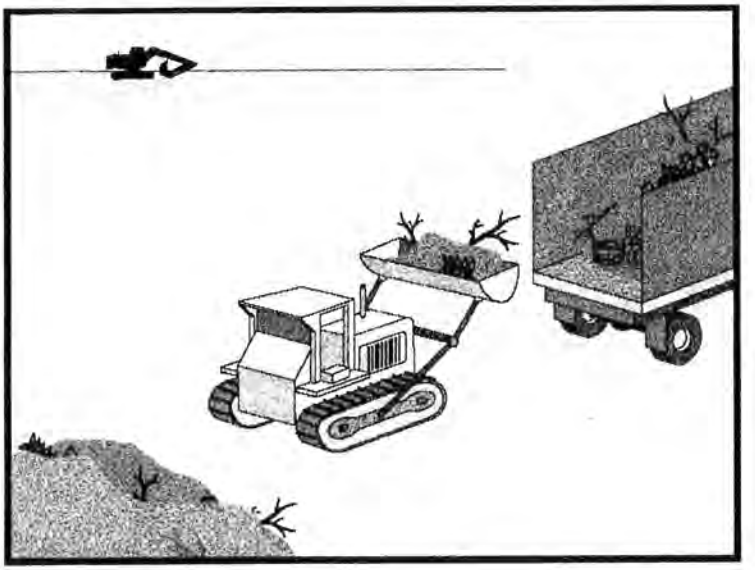
Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation
- Repair and/or replace perimeter controls and covers as needed to keep them functioning properly.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Solid Waste Management WM-5



Objectives

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction
- Packaging materials including wood, paper, and plastic
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces and masonry products
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes
- Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, styrofoam and other materials used to transport and package construction materials

- Highway planting wastes, including vegetative material, plant containers, and packaging materials

Limitations

Temporary stockpiling of certain construction wastes may not necessitate stringent drainage related controls during the non-rainy season or in desert areas with low rainfall.

Implementation

The following steps will help keep a clean site and reduce stormwater pollution:

- Select designated waste collection areas onsite.
- Inform trash-hauling contractors that you will accept only watertight dumpsters for onsite use. Inspect dumpsters for leaks and repair any dumpster that is not watertight.
- Locate containers in a covered area or in a secondary containment.
- Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.
- Collect site trash daily, especially during rainy and windy conditions.
- Remove this solid waste promptly since erosion and sediment control devices tend to collect litter.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor.
- Arrange for regular waste collection before containers overflow.
- Clean up immediately if a container does spill.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas.

Education

- Have the contractor's superintendent or representative oversee and enforce proper solid waste management procedures and practices.
- Instruct employees and subcontractors on identification of solid waste and hazardous waste.
- Educate employees and subcontractors on solid waste storage and disposal procedures.

- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Require that employees and subcontractors follow solid waste handling and storage procedures.
- Prohibit littering by employees, subcontractors, and visitors.
- Minimize production of solid waste materials wherever possible.

Collection, Storage, and Disposal

- Littering on the project site should be prohibited.
- To prevent clogging of the storm drainage system, litter and debris removal from drainage grates, trash racks, and ditch lines should be a priority.
- Trash receptacles should be provided in the contractor's yard, field trailer areas, and at locations where workers congregate for lunch and break periods.
- Litter from work areas within the construction limits of the project site should be collected and placed in watertight dumpsters at least weekly, regardless of whether the litter was generated by the contractor, the public, or others. Collected litter and debris should not be placed in or next to drain inlets, stormwater drainage systems, or watercourses.
- Dumpsters of sufficient size and number should be provided to contain the solid waste generated by the project.
- Full dumpsters should be removed from the project site and the contents should be disposed of by the trash hauling contractor.
- Construction debris and waste should be removed from the site biweekly or more frequently as needed.
- Construction material visible to the public should be stored or stacked in an orderly manner.
- Stormwater runon should be prevented from contacting stored solid waste through the use of berms, dikes, or other temporary diversion structures or through the use of measures to elevate waste from site surfaces.
- Solid waste storage areas should be located at least 50 ft from drainage facilities and watercourses and should not be located in areas prone to flooding or ponding.
- Except during fair weather, construction and highway planting waste not stored in watertight dumpsters should be securely covered from wind and rain by covering the waste with tarps or plastic.
- Segregate potentially hazardous waste from non-hazardous construction site waste.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.

- For disposal of hazardous waste, see WM-6, Hazardous Waste Management. Have hazardous waste hauled to an appropriate disposal and/or recycling facility.
- Salvage or recycle useful vegetation debris, packaging and surplus building materials when practical. For example, trees and shrubs from land clearing can be used as a brush barrier, or converted into wood chips, then used as mulch on graded areas. Wood pallets, cardboard boxes, and construction scraps can also be recycled.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur
- Inspect construction waste area regularly.
- Arrange for regular waste collection.

References

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Contaminated Soil Management WM-7

Objectives		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Description and Purpose

Prevent or reduce the discharge of pollutants to stormwater from contaminated soil and highly acidic or alkaline soils by conducting pre-construction surveys, inspecting excavations regularly, and remediating contaminated soil promptly.

Suitable Applications

Contaminated soil management is implemented on construction projects in highly urbanized or industrial areas where soil contamination may have occurred due to spills, illicit discharges, aerial deposition, past use and leaks from underground storage tanks.

Limitations

Contaminated soils that cannot be treated onsite must be disposed of offsite by a licensed hazardous waste hauler. The presence of contaminated soil may indicate contaminated water as well. See NS-2, Dewatering Operations, for more information.

The procedures and practices presented in this BMP are general. The contractor should identify appropriate practices and procedures for the specific contaminants known to exist or discovered onsite.

Implementation

Most owners and developers conduct pre-construction environmental assessments as a matter of routine. Contaminated soils are often identified during project planning and development with known locations identified in the plans, specifications and in the SWPPP. The contractor should review applicable reports and investigate appropriate call-outs in the plans, specifications, and

Targeted Constituents	
Sediment	
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

SWPPP. Recent court rulings holding contractors liable for cleanup costs when they unknowingly move contaminated soil highlight the need for contractors to confirm a site assessment is completed before earth moving begins.

The following steps will help reduce stormwater pollution from contaminated soil:

- Conduct thorough, pre-construction inspections of the site and review documents related to the site. If inspection or reviews indicated presence of contaminated soils, develop a plan before starting work.
- Look for contaminated soil as evidenced by discoloration, odors, differences in soil properties, abandoned underground tanks or pipes, or buried debris.
- Prevent leaks and spills. Contaminated soil can be expensive to treat and dispose of properly. However, addressing the problem before construction is much less expensive than after the structures are in place.
- The contractor may further identify contaminated soils by investigating:
  - Past site uses and activities
  - Detected or undetected spills and leaks
  - Acid or alkaline solutions from exposed soil or rock formations high in acid or alkaline forming elements
  - Contaminated soil as evidenced by discoloration, odors, differences in soil properties, abandoned underground tanks or pipes, or buried debris.
  - Suspected soils should be tested at a certified laboratory.

Education

- Have employees and subcontractors complete a safety training program which meets 29 CFR 1910.120 and 8 CCR 5192 covering the potential hazards as identified, prior to performing any excavation work at the locations containing material classified as hazardous.
- Educate employees and subcontractors in identification of contaminated soil and on contaminated soil handling and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).

Handling Procedures for Material with Aerially Deposited Lead (ADL)

- Materials from areas designated as containing (ADL) may, if allowed by the contract special provisions, be excavated, transported, and used in the construction of embankments and/or backfill.
- Excavation, transportation, and placement operations should result in no visible dust.
- Caution should be exercised to prevent spillage of lead containing material during transport.

- Quality should be monitored during excavation of soils contaminated with lead.

Handling Procedures for Contaminated Soils

- Minimize onsite storage. Contaminated soil should be disposed of properly in accordance with all applicable regulations. All hazardous waste storage will comply with the requirements in Title 22, CCR, Sections 66265.250 to 66265.260.
- Test suspected soils at an approved certified laboratory.
- Work with the local regulatory agencies to develop options for treatment or disposal if the soil is contaminated.
- Avoid temporary stockpiling of contaminated soils or hazardous material.
- Take the following precautions if temporary stockpiling is necessary:
  - Cover the stockpile with plastic sheeting or tarps.
  - Install a berm around the stockpile to prevent runoff from leaving the area.
  - Do not stockpile in or near storm drains or watercourses.
- Remove contaminated material and hazardous material on exteriors of transport vehicles and place either into the current transport vehicle or into the excavation prior to the vehicle leaving the exclusion zone.
- Monitor the air quality continuously during excavation operations at all locations containing hazardous material.
- Procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including registration for transporting vehicles carrying the contaminated material and the hazardous material.
- Collect water from decontamination procedures and treat or dispose of it at an appropriate disposal site.
- Collect non-reusable protective equipment, once used by any personnel, and dispose of at an appropriate disposal site.
- Install temporary security fence to surround and secure the exclusion zone. Remove fencing when no longer needed.
- Excavate, transport, and dispose of contaminated material and hazardous material in accordance with the rules and regulations of the following agencies (the specifications of these agencies supersede the procedures outlined in this BMP):
  - United States Department of Transportation (USDOT)
  - United States Environmental Protection Agency (USEPA)
  - California Environmental Protection Agency (CAL-EPA)

- California Division of Occupation Safety and Health Administration (CAL-OSHA)
- Local regulatory agencies

Procedures for Underground Storage Tank Removals

- Prior to commencing tank removal operations, obtain the required underground storage tank removal permits and approval from the federal, state, and local agencies that have jurisdiction over such work.
- To determine if it contains hazardous substances, arrange to have tested, any liquid or sludge found in the underground tank prior to its removal.
- Following the tank removal, take soil samples beneath the excavated tank and perform analysis as required by the local agency representative(s).
- The underground storage tank, any liquid or sludge found within the tank, and all contaminated substances and hazardous substances removed during the tank removal and transported to disposal facilities permitted to accept such waste.

Water Control

- All necessary precautions and preventive measures should be taken to prevent the flow of water, including ground water, from mixing with hazardous substances or underground storage tank excavations. Such preventative measures may consist of, but are not limited to, berms, cofferdams, grout curtains, freeze walls, and seal course concrete or any combination thereof.
- If water does enter an excavation and becomes contaminated, such water, when necessary to proceed with the work, should be discharged to clean, closed top, watertight transportable holding tanks, treated, and disposed of in accordance with federal, state, and local laws.

Costs

Prevention of leaks and spills is inexpensive. Treatment or disposal of contaminated soil can be quite expensive.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Arrange for contractor's Water Pollution Control Manager, foreman, and/or construction supervisor to monitor onsite contaminated soil storage and disposal procedures.
- Monitor air quality continuously during excavation operations at all locations containing hazardous material.
- Coordinate contaminated soils and hazardous substances/waste management with the appropriate federal, state, and local agencies.

- Implement WM-4, Spill Prevention and Control, to prevent leaks and spills as much as possible.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

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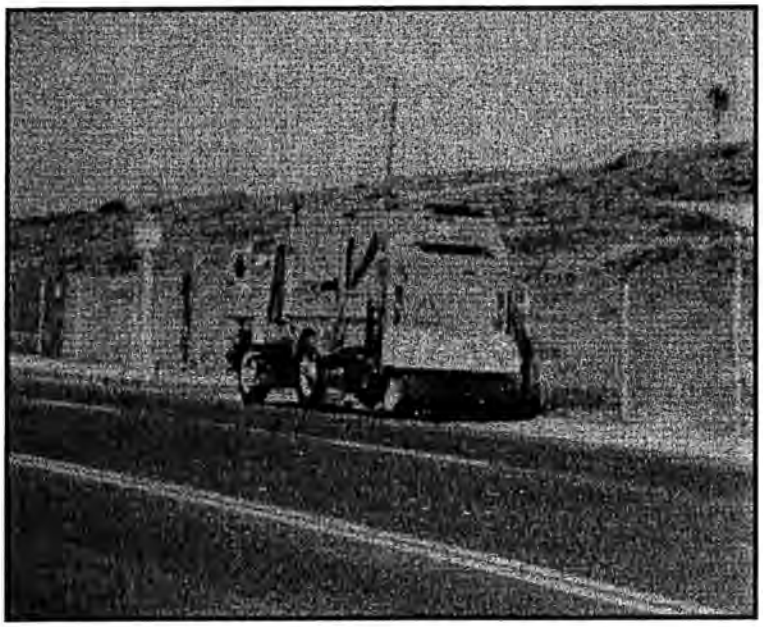
Road and Street Maintenance SC-70



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Description

Streets, roads, and highways are significant sources of pollutants in stormwater discharges, and operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. Stormwater pollution from roadway and bridge maintenance should be addressed on a site-specific basis. Use of the procedures outlined below, that address street sweeping and repair, bridge and structure maintenance, and unpaved roads will reduce pollutants in stormwater.

Approach

Pollution Prevention

- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal)
- Recycle paint and other materials whenever possible.
- Enlist the help of citizens to keep yard waste, used oil, and other wastes out of the gutter.

Suggested Protocols

Street Sweeping and Cleaning

- Maintain a consistent sweeping schedule. Provide minimum monthly sweeping of curbed streets.
- Perform street cleaning during dry weather if possible.

- Avoid wet cleaning or flushing of street, and utilize dry methods where possible.
- Consider increasing sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to water courses, etc. For example:
  - Increase the sweeping frequency for streets with high pollutant loadings, especially in high traffic and industrial areas.
  - Increase the sweeping frequency just before the wet season to remove sediments accumulated during the summer.
  - Increase the sweeping frequency for streets in special problem areas such as special events, high litter or erosion zones.
- Maintain cleaning equipment in good working condition and purchase replacement equipment as needed. Old sweepers should be replaced with new technologically advanced sweepers (preferably regenerative air sweepers) that maximize pollutant removal.
- Operate sweepers at manufacturer requested optimal speed levels to increase effectiveness.
- To increase sweeping effectiveness consider the following:
  - Institute a parking policy to restrict parking in problematic areas during periods of street sweeping.
  - Post permanent street sweeping signs in problematic areas; use temporary signs if installation of permanent signs is not possible.
  - Develop and distribute flyers notifying residents of street sweeping schedules.
- Regularly inspect vehicles and equipment for leaks, and repair immediately.
- If available use vacuum or regenerative air sweepers in the high sediment and trash areas (typically industrial/commercial).
- Keep accurate logs of the number of curb-miles swept and the amount of waste collected.
- Dispose of street sweeping debris and dirt at a landfill.
- Do not store swept material along the side of the street or near a storm drain inlet.
- Keep debris storage to a minimum during the wet season or make sure debris piles are contained (e.g. by berming the area) or covered (e.g. with tarps or permanent covers).

Street Repair and Maintenance

Pavement marking

- Schedule pavement marking activities for dry weather.

- Develop paint handling procedures for proper use, storage, and disposal of paints.
- Transfer and load paint and hot thermoplastic away from storm drain inlets.
- Provide drop cloths and drip pans in paint mixing areas.
- Properly maintain application equipment.
- Street sweep thermoplastic grindings. Yellow thermoplastic grindings may require special handling as they may contain lead.
- Paints containing lead or tributyltin are considered a hazardous waste and must be disposed of properly.
- 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.
- Properly store leftover paints if they are to be kept for the next job, or dispose of properly.

Concrete installation and repair

- Schedule asphalt and concrete activities for dry weather.
- Take measures to protect any nearby storm drain inlets and adjacent watercourses, prior to breaking up asphalt or concrete (e.g. place san bags around inlets or work areas).
- Limit the amount of fresh concrete or cement mortar mixed, mix only what is needed for the job.
- Store concrete materials under cover, away from drainage areas. 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.
- Return leftover materials to the transit mixer. Dispose of small amounts of hardened excess concrete, grout, and mortar in the trash.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
- When making saw cuts in pavement, use as little water as possible and perform during dry weather. Cover each storm drain inlet completely with filter fabric or plastic during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site. Alternatively, a small onsite vacuum may be used to pick up the slurry as this will prohibit slurry from reaching storm drain inlets.
- Wash concrete trucks off site or in designated areas on site designed to preclude discharge of wash water to drainage system.

Patching, resurfacing, and surface sealing

- Schedule patching, resurfacing and surface sealing for dry weather.
- Stockpile materials away from streets, gutter areas, storm drain inlets or watercourses. During wet weather, cover stockpiles with plastic tarps or berm around them if necessary to prevent transport of materials in runoff.
- Pre-heat, transfer or load hot bituminous material away from drainage systems or watercourses.
- Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and maintenance holes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from covered maintenance holes and storm drain inlets when the job is complete.
- Prevent excess material from exposed aggregate concrete or similar treatments from entering streets or storm drain inlets. Designate an area for clean up and proper disposal of excess materials.
- Use only as much water as necessary for dust control, to avoid runoff.
- Sweep, never hose down streets to clean up tracked dirt. Use a street sweeper or vacuum truck. Do not dump vacuumed liquid in storm drains.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Equipment cleaning maintenance and storage

- Inspect equipment daily and repair any leaks. Place drip pans or absorbent materials under heavy equipment when not in use.
- Perform major equipment repairs at the corporation yard, when practical.
- If refueling or repairing vehicles and equipment must be done onsite, use a location away from storm drain inlets and watercourses.
- Clean equipment including sprayers, sprayer paint supply lines, patch and paving equipment, and mud jacking equipment at the end of each day. Clean in a sink or other area (e.g. vehicle wash area) that is connected to the sanitary sewer.

Bridge and Structure Maintenance

Paint and Paint Removal

- Transport paint and materials to and from job sites in containers with secure lids and tied down to the transport vehicle.
- Do not transfer or load paint near storm drain inlets or watercourses.

- Test and inspect spray equipment prior to starting to paint. Tighten all hoses and connections and do not overfill paint container.
- Plug nearby storm drain inlets prior to starting painting where there is significant risk of a spill reaching storm drains. Remove plugs when job is completed.
- If sand blasting is used to remove paint, cover nearby storm drain inlets prior to starting work.
- Perform work on a maintenance traveler or platform, or use suspended netting or tarps to capture paint, rust, paint removing agents, or other materials, to prevent discharge of materials to surface waters if the bridge crosses a watercourse. If sanding, use a sander with a vacuum filter bag.
- Capture all clean-up water, and dispose of properly.
- Recycle paint when possible (e.g. paint may be used for graffiti removal activities). Dispose of unused paint at an appropriate household hazardous waste facility.

Graffiti Removal

- Schedule graffiti removal activities for dry weather.
- Protect nearby storm drain inlets prior to removing graffiti from walls, signs, sidewalks, or other structures needing graffiti abatement. Clean up afterwards by sweeping or vacuuming thoroughly, and/or by using absorbent and properly disposing of the absorbent.
- When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal above.
- Direct runoff from sand blasting and high pressure washing (with no cleaning agents) into a landscaped or dirt area. If such an area is not available, filter runoff through an appropriate filtering device (e.g. filter fabric) to keep sand, particles, and debris out of storm drains.
- If a graffiti abatement method generates wash water containing a cleaning compound (such as high pressure washing with a cleaning compound), plug nearby storm drains and vacuum/pump wash water to the sanitary sewer.
- Consider using a waterless and non-toxic chemical cleaning method for graffiti removal (e.g. gels or spray compounds).

Repair Work

- Prevent concrete, steel, wood, metal parts, tools, or other work materials from entering storm drains or watercourses.
- Thoroughly clean up the job site when the repair work is completed.
- When cleaning guardrails or fences follow the appropriate surface cleaning methods (depending on the type of surface) outlined in SC-71 Plaza & Sidewalk Cleaning fact sheet.

- If painting is conducted, follow the painting and paint removal procedures above.
- If graffiti removal is conducted, follow the graffiti removal procedures above.
- If construction takes place, see the Construction Activity BMP Handbook.
- Recycle materials whenever possible.

Unpaved Roads and Trails

- Stabilize exposed soil areas to prevent soil from eroding during rain events. This is particularly important on steep slopes.
- For roadside areas with exposed soils, the most cost-effective choice is to vegetate the area, preferably with a mulch or binder that will hold the soils in place while the vegetation is establishing. Native vegetation should be used if possible.
- If vegetation cannot be established immediately, apply temporary erosion control mats/blankets; a comma straw, or gravel as appropriate.
- If sediment is already eroded and mobilized in roadside areas, temporary controls should be installed. These may include: sediment control fences, fabric-covered triangular dikes, gravel-filled burlap bags, biobags, or hay bales staked in place.

Non-Stormwater Discharges

Field crews should be aware of non-stormwater discharges as part of their ongoing street maintenance efforts.

- Refer to SC-10 Non-Stormwater Discharges
- Identify location, time and estimated quantity of discharges.
- Notify appropriate personnel.

Training

- Train employees regarding proper street sweeping operation and street repair and maintenance.
- Instruct employees and subcontractors to ensure that measures to reduce the stormwater impacts of roadway/bridge maintenance are being followed.
- Require engineering staff and/or consulting A/E firms to address stormwater quality in new bridge designs or existing bridge retrofits.
- Use a training log or similar method to document training.
- Train employees on proper spill containment and clean up, and in identifying non-stormwater discharges.

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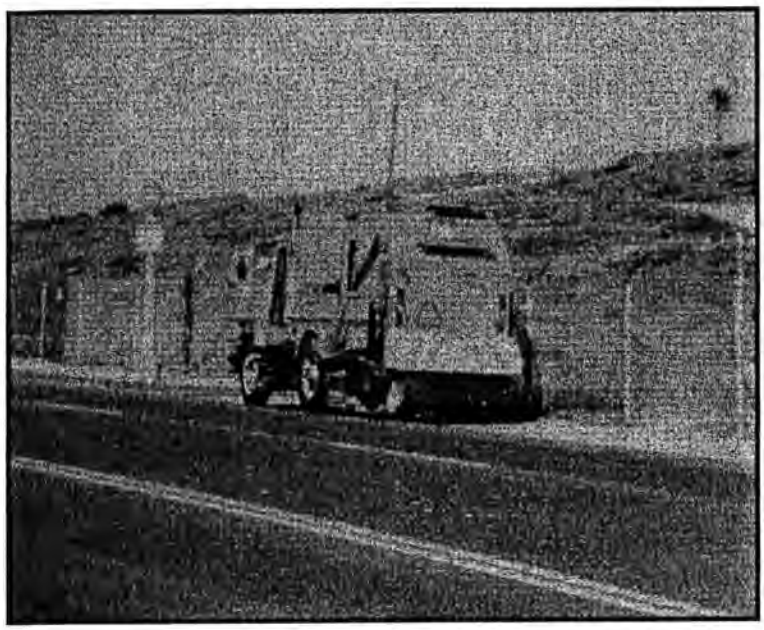

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- Instruct employees and subcontractors to ensure that measures to reduce the stormwater impacts of roadway/bridge maintenance are being followed.
- Require engineering staff and/or consulting A/E firms to address stormwater quality in new bridge designs or existing bridge retrofits.
- Use a training log or similar method to document training.
- Train employees on proper spill containment and clean up, and in identifying non-stormwater discharges.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Densely populated areas or heavily used streets may require parking regulations to clear streets for cleaning.
- No currently available conventional sweeper is effective at removing oil and grease. Mechanical sweepers are not effective at removing finer sediments.
- Limitations may arise in the location of new bridges. The availability and cost of land and other economic and political factors may dictate where the placement of a new bridge will occur. Better design of the bridge to control runoff is required if it is being placed near sensitive waters.

Requirements

Costs

- The maintenance of local roads and bridges is already a consideration of most community public works or transportation departments. Therefore, the cost of pollutant reducing management practices will involve the training and equipment required to implement these new practices.
- The largest expenditures for street sweeping programs are in staffing and equipment. The capital cost for a conventional street sweeper is between $60,000 and $120,000. Newer technologies might have prices approaching $180,000. The average useful life of a conventional sweeper is about four years, and programs must budget for equipment replacement. Sweeping frequencies will determine equipment life, so programs that sweep more often should expect to have a higher cost of replacement.
- A street sweeping program may require the following.
  - Sweeper operators, maintenance, supervisory, and administrative personnel are required.
  - Traffic control officers may be required to enforce parking restrictions.
  - Skillful design of cleaning routes is required for program to be productive.
  - Arrangements must be made for disposal of collected wastes.

- If investing in newer technologies, training for operators must be included in operation and maintenance budgets. Costs for public education are small, and mostly deal with the need to obey parking restrictions and litter control. Parking tickets are an effective reminder to obey parking rules, as well as being a source of revenue.

Maintenance

- Not applicable

Supplemental Information

Further Detail of the BMP

Street sweeping

There are advantages and disadvantages to the two common types of sweepers. The best choice depends on your specific conditions. Many communities find it useful to have a compliment of both types in their fleet.

Mechanical Broom Sweepers - More effective at picking up large debris and cleaning wet streets. Less costly to purchase and operate. Create more airborne dust.

Vacuum Sweepers - More effective at removing fine particles and associated heavy metals. Ineffective at cleaning wet streets. Noisier than mechanical broom sweepers which may restrict areas or times of operation. May require an advance vehicle to remove large debris.

Street Flushers - Not affected by biggest interference to cleaning, parked cars. May remove finer sediments, moving them toward the gutter and stormwater inlets. For this reason, flushing fell out of favor and is now used primarily after sweeping. Flushing may be effective for combined sewer systems. Presently street flushing is not allowed under most NPDES permits.

Cross-Media Transfer of Pollutants

The California Air Resources Board (ARB) has established state ambient air quality standards including a standard for respirable particulate matter (less than or equal to 10 microns in diameter, symbolized as PM10). In the effort to sweep up finer sediments to remove attached heavy metals, municipalities should be aware that fine dust, that cannot be captured by the sweeping equipment and becomes airborne, could lead to issues of worker and public safety.

Bridges

Bridges that carry vehicular traffic generate some of the more direct discharges of runoff to surface waters. Bridge scupper drains cause a direct discharge of stormwater into receiving waters and have been shown to carry relatively high concentrations of pollutants. Bridge maintenance also generates wastes that may be either directly deposited to the water below or carried to the receiving water by stormwater. The following steps will help reduce the stormwater impacts of bridge maintenance:

- Site new bridges so that significant adverse impacts to wetlands, sensitive areas, critical habitat, and riparian vegetation are minimized.

- Design new bridges to avoid the use of scupper drains and route runoff to land for treatment control. Existing scupper drains should be cleaned on a regular basis to avoid sediment/debris accumulation.
- Reduce the discharge of pollutants to surface waters during maintenance by using suspended traps, vacuums, or booms in the water to capture paint, rust, and paint removing agents. Many of these wastes may be hazardous. Properly dispose of this waste by referring to CA21 (Hazardous Waste Management) in the Construction Handbook.
- Train employees and subcontractors to reduce the discharge of wastes during bridge maintenance.

De-icing

- Do not over-apply deicing salt and sand, and routinely calibrate spreaders.
- Near reservoirs, restrict the application of deicing salt and redirect any runoff away from reservoirs.
- Consider using alternative deicing agents (less toxic, biodegradable, etc.).

References and Resources

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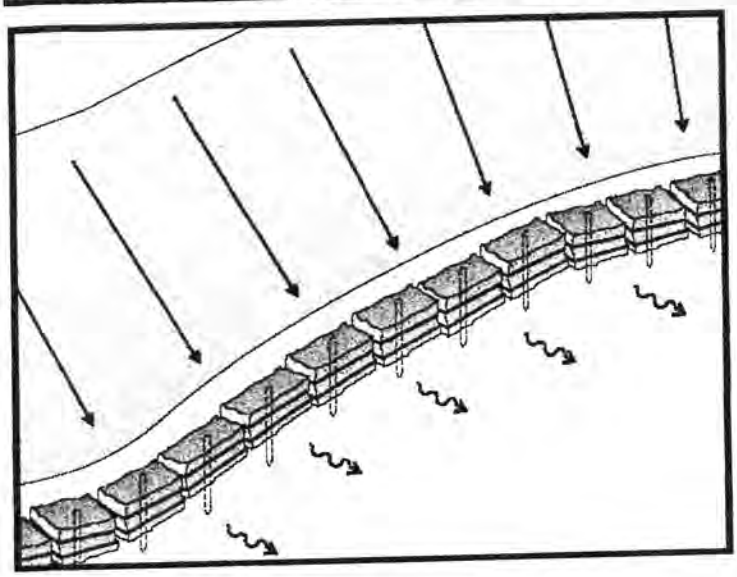
Straw Bale Barrier

SE-9



Objectives

EC	Erosion Control	☒
SE	Sediment Control	☑
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
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Potential Alternatives

SE-1 Silt Fence

SE-5 Fiber Rolls

SE-6 Gravel Bag Berm

SE-8 Sandbag Barrier

Description and Purpose

A straw bale barrier is a series of straw bales placed on a level contour to intercept sheet flows. Straw bale barriers pond sheet- flow runoff, allowing sediment to settle out.

Suitable Applications

Straw bale barriers may be suitable:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes
  - As sediment traps at culvert/pipe outlets
  - Below other small cleared areas
  - Along the perimeter of a site
  - Down slope of exposed soil areas
  - Around temporary stockpiles and spoil areas
  - Parallel to a roadway to keep sediment off paved areas
  - Along streams and channels
- As linear erosion control measure:
  - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow

- At the top of slopes to divert runoff away from disturbed slopes
- As check dams across mildly sloped construction roads

Limitations

Straw bale barriers:

- Are not to be used for extended periods of time because they tend to rot and fall apart
- Are suitable only for sheet flow on slopes of 10 % or flatter
- Are not appropriate for large drainage areas, limit to one acre or less
- May require constant maintenance due to rotting
- Are not recommended for concentrated flow, inlet protection, channel flow, and live streams
- Cannot be made of bale bindings of jute or cotton
- Require labor-intensive installation and maintenance
- Cannot be used on paved surfaces
- Should not to be used for drain inlet protection
- Should not be used on lined ditches
- May introduce undesirable non-native plants to the area

Implementation

General

A straw bale barrier consists of a row of straw bales placed on a level contour. When appropriately placed, a straw bale barrier intercepts and slows sheet flow runoff, causing temporary ponding. The temporary ponding provides quiescent conditions allowing sediment to settle. Straw bale barriers also interrupt the slope length and thereby reduce erosion by reducing the tendency of sheet flows to concentrate into rivulets, which erode rills, and ultimately gullies, into disturbed, sloped soils.

Straw bale barriers have not been as effective as expected due to improper use. These barriers have been placed in streams and drainage ways where runoff volumes and velocities have caused the barriers to wash out. In addition, failure to stake and entrench the straw bale has allowed undercutting and end flow. Use of straw bale barriers in accordance with this BMP should produce acceptable results.

Design and Layout

- Locate straw bale barriers on a level contour.
  - Slopes up to 10:1 (H:V): Straw bales should be placed at a maximum interval of 50 ft (a closer spacing is more effective), with the first row near the toe of slope.
  - Slopes greater than 10:1 (H:V): Not recommended.

- Turn the ends of the straw bale barrier up slope to prevent runoff from going around the barrier.
- Allow sufficient space up slope from the barrier to allow ponding, and to provide room for sediment storage.
- For installation near the toe of the slope, consider moving the barrier away from the slope toe to facilitate cleaning. To prevent flow behind the barrier, sand bags can be placed perpendicular to the barrier to serve as cross barriers.
- Drainage area should not exceed 1 acre, or 0.25 acre per 100 ft of barrier.
- Maximum flow path to the barrier should be limited to 100 ft.
- Straw bale barriers should consist of two parallel rows.
  - Butt ends of bales tightly
  - Stagger butt joints between front and back row
  - Each row of bales must be trenched in and firmly staked
- Straw bale barriers are limited in height to one bale laid on its side.
- Anchor bales with either two wood stakes or four bars driven through the bale and into the soil. Drive the first stake towards the butt joint with the adjacent bale to force the bales together.
- See attached figure for installation details.

Materials

- ***Straw Bale Size:*** Each straw bale should be a minimum of 14 in. wide, 18 in. in height, 36 in. in length and should have a minimum mass of 50 lbs. The straw bale should be composed entirely of vegetative matter, except for the binding material.
- ***Bale Bindings:*** Bales should be bound by steel wire, nylon or polypropylene string placed horizontally. Jute and cotton binding should not be used. Baling wire should be a minimum diameter of 14 gauge. Nylon or polypropylene string should be approximately 12 gauge in diameter with a breaking strength of 80 lbs force.
- ***Stakes:*** Wood stakes should be commercial quality lumber of the size and shape shown on the plans. Each stake should be free from decay, splits or cracks longer than the thickness of the stake, or other defects that would weaken the stakes and cause the stakes to be structurally unsuitable. Steel bar reinforcement should be equal to a #4 designation or greater. End protection should be provided for any exposed bar reinforcement.

Costs

Straw bales cost $5 - $7 each. Adequate labor should be budgeted for installation and maintenance.

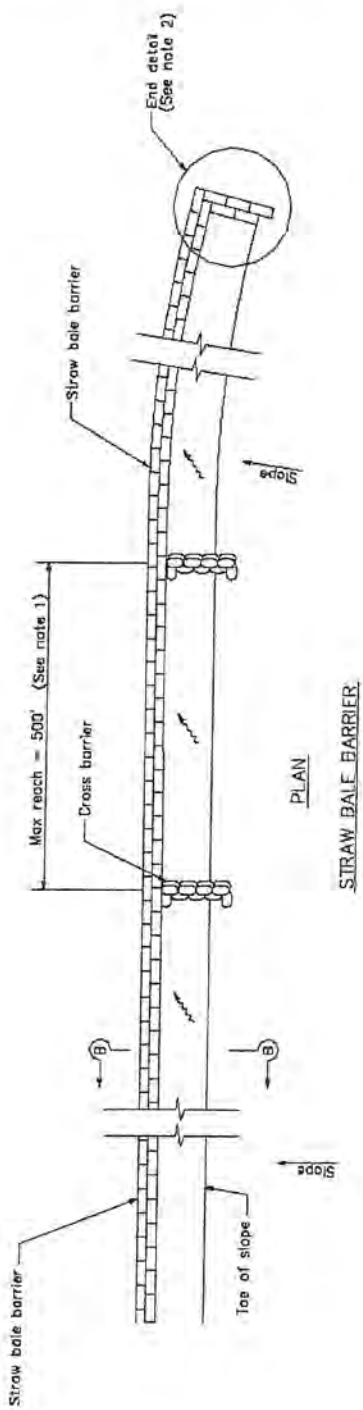
Inspection and Maintenance

Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.
- Straw bales degrade, especially when exposed to moisture. Rotting bales will need to be replaced on a regular basis.
- Replace or repair damaged bales as needed.
- Repair washouts or other damages as needed.
- Sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed at an appropriate location.
- Remove straw bales when no longer needed. Remove sediment accumulation, and clean, re-grade, and stabilize the area. Removed sediment should be incorporated in the project or disposed of.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.



PLAN

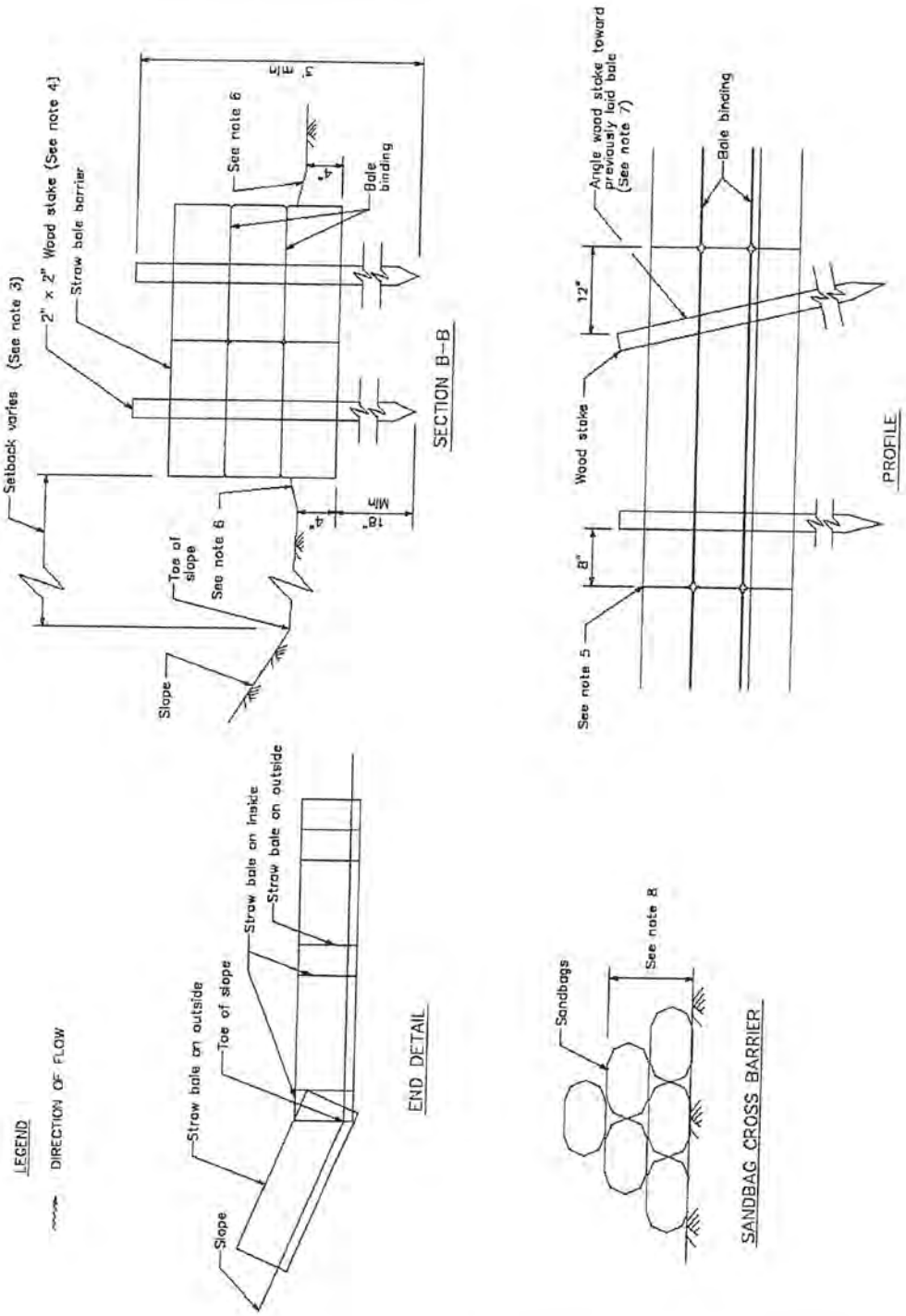
STRAW BALE BARRIER

LEGEND

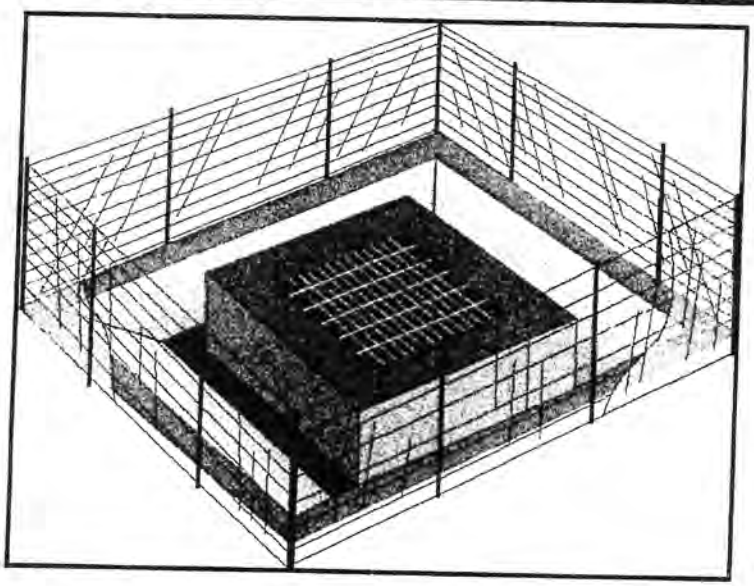
DIRECTION OF FLOW

NOTES

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/2 the height of the linear barrier. In no case shall the reach length exceed 500'.
2. The end of barrier shall be turned up slope.
3. Dimension may vary to fit field condition.
4. Stake dimensions are nominal.
5. Place straw bales tightly together.
6. Tamp embedment spoils against sides of installed bales.
7. Drive angled wood stake before vertical stake to ensure tight abutment to adjacent bale.
8. Sandbag cross barriers should be a min of 1/2 and a max of 2/3 the height of the linear barrier.
9. Sandbag rows and layers should be offset to eliminate gaps.


LEGEND
DIRECTION OF FLOW
Setback varies (See note 3)
2" x 2" Wood stake (See note 4)
Straw bale barrier
See note 6
Bale binding
Toe of slope
See note 6
Slope
SECTION B-B
Angle wood stake toward previously laid bale (See note 7)
Bale binding
12"
Wood stake
8"
See note 5
PROFILE
Straw bale on inside
Straw bale on outside
Straw bale on outside
Toe of slope
Slope
END DETAIL
Sandbags
See note 8
SANDBAG CROSS BARRIER

Storm Drain Inlet Protection SE-10



Objectives

EC	Erosion Control	
SE	Sediment Control	☑
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Rolls
SE-6 Gravel Bag Berm
SE-8 Sandbag Barrier
SE-9 Straw Bale Barrier

Description and Purpose

Storm drain inlet protection consists of a sediment filter or an impounding area around or upstream of a storm drain, drop inlet, or curb inlet. Storm drain inlet protection measures temporarily pond runoff before it enters the storm drain, allowing sediment to settle. Some filter configurations also remove sediment by filtering, but usually the ponding action results in the greatest sediment reduction.

Suitable Applications

Every storm drain inlet receiving sediment-laden runoff should be protected.

Limitations

- Drainage area should not exceed 1 acre.
- Straw bales, while potentially effective, have not produced in practice satisfactory results, primarily due to improper installation.
- Requires an adequate area for water to pond without encroaching into portions of the roadway subject to traffic.
- Inlet protection usually requires other methods of temporary protection to prevent sediment-laden stormwater and non-stormwater discharges from entering the storm drain system.
- Sediment removal may be difficult in high flow conditions or if runoff is heavily sediment laden. If high flow conditions are

expected, use other onsite sediment trapping techniques in conjunction with inlet protection.

- Frequent maintenance is required.
- For drainage areas larger than 1 acre, runoff should be routed to a sediment-trapping device designed for larger flows. See BMPs SE-2, Sediment Basin, and SE-3, Sediment Traps.
- Excavated drop inlet sediment traps are appropriate where relatively heavy flows are expected, and overflow capability is needed.

Implementation

General

Large amounts of sediment may enter the storm drain system when storm drains are installed before the upslope drainage area is stabilized, or where construction is adjacent to an existing storm drain. In cases of extreme sediment loading, the storm drain itself may clog and lose a major portion of its capacity. To avoid these problems, it is necessary to prevent sediment from entering the system at the inlets.

Inlet control measures presented in this handbook should not be used for inlets draining more than one acre. Runoff from larger disturbed areas should be first routed through SE-2, Sediment Basin or SE-3, Sediment Trap. Different types of inlet protection are appropriate for different applications depending on site conditions and the type of inlet. Inlet protection methods not presented in this handbook should be approved by the local stormwater management agency.

Design and Layout

Identify existing and planned storm drain inlets that have the potential to receive sediment-laden surface runoff. Determine if storm drain inlet protection is needed and which method to use.

- Limit upstream drainage area to 1 acre maximum. For larger drainage areas, use SE-2, Sediment Basin, or SE-3, Sediment Trap, upstream of the inlet protection device.
- The key to successful and safe use of storm drain inlet protection devices is to know where runoff will pond or be diverted.
  - Determine the acceptable location and extent of ponding in the vicinity of the drain inlet. The acceptable location and extent of ponding will influence the type and design of the storm drain inlet protection device.
  - Determine the extent of potential runoff diversion caused by the storm drain inlet protection device. Runoff ponded by inlet protection devices may flow around the device and towards the next downstream inlet. In some cases, this is acceptable; in other cases, serious erosion or downstream property damage can be caused by these diversions. The possibility of runoff diversions will influence whether or not storm drain inlet protection is suitable; and, if suitable, the type and design of the device.
- The location and extent of ponding, and the extent of diversion, can usually be controlled through appropriate placement of the inlet protection device. In some cases, moving the

inlet protection device a short distance upstream of the actual inlet can provide more efficient sediment control, limit ponding to desired areas, and prevent or control diversions.

- Four types of inlet protection are presented below. However, it is recognized that other effective methods and proprietary devices exist and may be selected.
  - Filter Fabric Fence: Appropriate for drainage basins with less than a 5% slope, sheet flows, and flows under 0.5 cfs.
  - Excavated Drop Inlet Sediment Trap: An excavated area around the inlet to trap sediment (SE-3).
  - Gravel bag barrier: Used to create a small sediment trap upstream of inlets on sloped, paved streets. Appropriate for sheet flow or when concentrated flow may exceed 0.5 cfs, and where overtopping is required to prevent flooding.
  - Block and Gravel Filter: Appropriate for flows greater than 0.5 cfs.
- Select the appropriate type of inlet protection and design as referred to or as described in this fact sheet.
- Provide area around the inlet for water to pond without flooding structures and property.
- Grates and spaces around all inlets should be sealed to prevent seepage of sediment-laden water.
- Excavate sediment sumps (where needed) 1 to 2 ft with 2:1 side slopes around the inlet.

Installation

- ***DI Protection Type 1 - Filter Fabric Fence*** - The filter fabric fence (Type 1) protection is shown in the attached figure. Similar to constructing a silt fence; see BMP SE-1, Silt Fence. Do not place filter fabric underneath the inlet grate since the collected sediment may fall into the drain inlet when the fabric is removed or replaced.
  1. Excavate a trench approximately 6 in. wide and 6 in. deep along the line of the silt fence inlet protection device.
  2. Place 2 in. by 2 in. wooden stakes around the perimeter of the inlet a maximum of 3 ft apart and drive them at least 18 in. into the ground or 12 in. below the bottom of the trench. The stakes must be at least 48 in.
  3. Lay fabric along bottom of trench, up side of trench, and then up stakes. See SE-1, Silt Fence, for details. The maximum silt fence height around the inlet is 24 in.
  4. Staple the filter fabric (for materials and specifications, see SE-1, Silt Fence) to wooden stakes. Use heavy-duty wire staples at least 1 in. in length.
  5. Backfill the trench with gravel or compacted earth all the way around.
- ***DI Protection Type 2 - Excavated Drop Inlet Sediment Trap*** - The excavated drop inlet sediment trap (Type 2) is shown in the attached figures. Install filter fabric fence in

accordance with DI Protection Type 1. Size excavated trap to provide a minimum storage capacity calculated at the rate 67 yd^3/acre of drainage area.

- ***DI Protection Type 3 - Gravel bag*** - The gravel bag barrier (Type 3) is shown in the figures. Flow from a severe storm should not overtop the curb. In areas of high clay and silts, use filter fabric and gravel as additional filter media. Construct gravel bags in accordance with SE-6, Gravel Bag Berm. Gravel bags should be used due to their high permeability.

  1. Use sand bag made of geotextile fabric (not burlap) and fill with 0.75 in. rock or 0.25 in. pea gravel.
  2. Construct on gently sloping street.
  3. Leave room upstream of barrier for water to pond and sediment to settle.
  4. Place several layers of sand bags – overlapping the bags and packing them tightly together.
  5. Leave gap of one bag on the top row to serve as a spillway. Flow from a severe storm (e.g., 10 year storm) should not overtop the curb.

- ***DI Protection Type 4 – Block and Gravel Filter*** - The block and gravel filter (Type 4) is shown in the figures. Block and gravel filters are suitable for curb inlets commonly used in residential, commercial, and industrial construction.

  1. Place hardware cloth or comparable wire mesh with 0.5 in. openings over the drop inlet so that the wire extends a minimum of 1 ft beyond each side of the inlet structure. If more than one strip is necessary, overlap the strips. Place filter fabric over the wire mesh.
  2. Place concrete blocks lengthwise on their sides in a single row around the perimeter of the inlet, so that the open ends face outward, not upward. The ends of adjacent blocks should abut. The height of the barrier can be varied, depending on design needs, by stacking combinations of blocks that are 4 in., 8 in., and 12 in. wide. The row of blocks should be at least 12 in. but no greater than 24 in. high.
  3. Place wire mesh over the outside vertical face (open end) of the concrete blocks to prevent stone from being washed through the blocks. Use hardware cloth or comparable wire mesh with 0.5 in. opening.
  4. Pile washed stone against the wire mesh to the top of the blocks. Use 0.75 to 3 in.

Costs

- Average annual cost for installation and maintenance (one year useful life) is $200 per inlet.

Inspection and Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.

- Filter Fabric Fences. If the fabric becomes clogged, torn, or degrades, it should be replaced. Make sure the stakes are securely driven in the ground and are in good shape (i.e., not bent, cracked, or splintered, and are reasonably perpendicular to the ground). Replace damaged stakes.

- Gravel Filters. If the gravel becomes clogged with sediment, it must be carefully removed from the inlet and either cleaned or replaced. Since cleaning gravel at a construction site may be difficult, consider using the sediment-laden stone as fill material and put fresh stone around the inlet. Inspect bags for holes, gashes, and snags, and replace bags as needed. Check gravel bags for proper arrangement and displacement.

- Sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height. Sediment removed during maintenance may be incorporated into earthwork on the site ore disposed at an appropriate location.

- Remove storm drain inlet protection once the drainage area is stabilized.

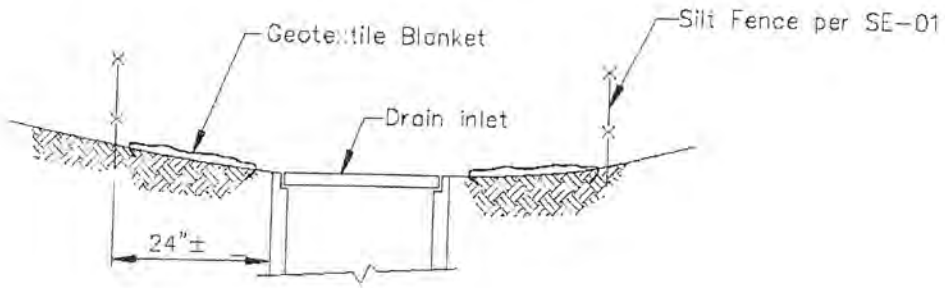
  - Clean and regrade area around the inlet and clean the inside of the storm drain inlet as it must be free of sediment and debris at the time of final inspection.

References

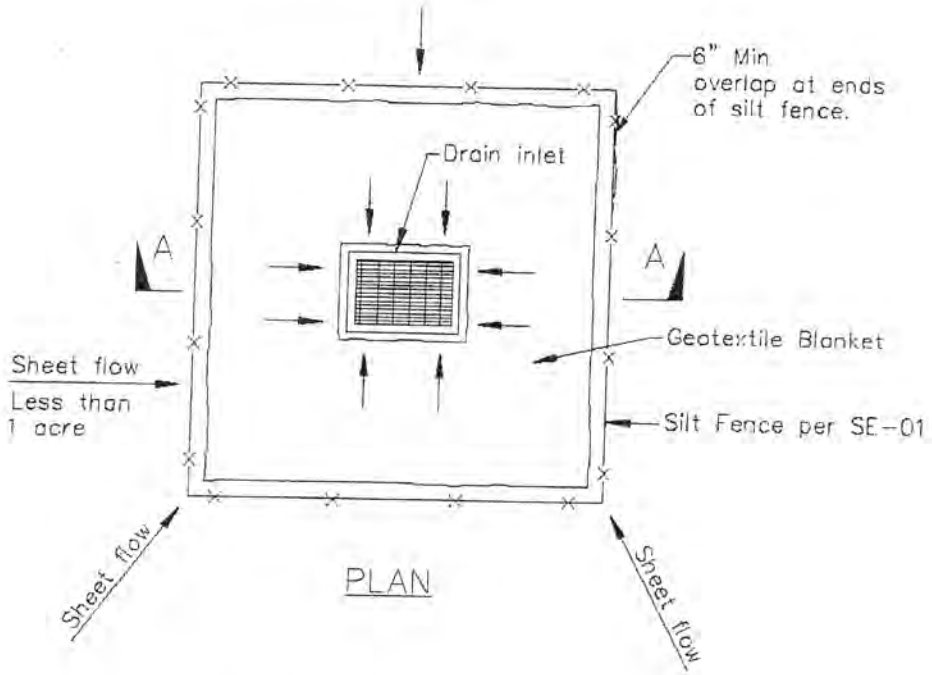
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management Manual for The Puget Sound Basin, Washington State Department of Ecology, Public Review Draft, 1991.

SE-10 Storm Drain Inlet Protection



SECTION A-A



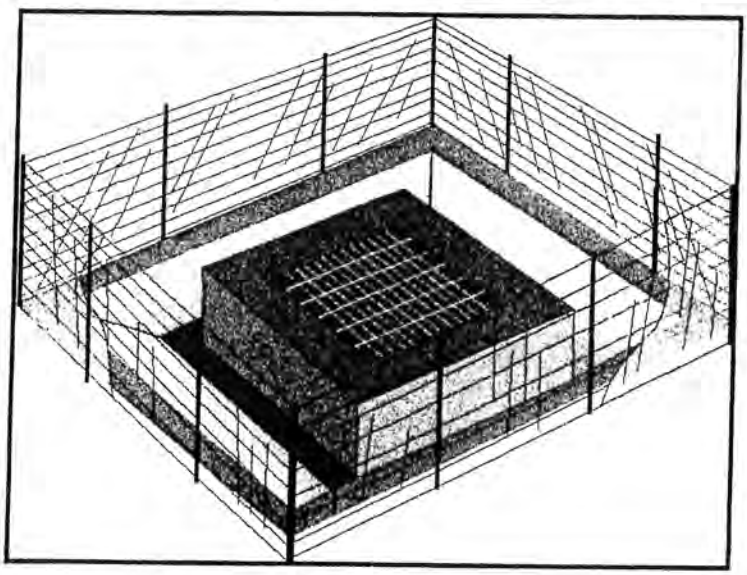
PLAN

DI PROTECTION TYPE 1
NOT TO SCALE

NOTES:

1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable with concentrated flows.

Storm Drain Inlet Protection SE-10



Objectives		
EC	Erosion Control	
SE	Sediment Control	☑
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Rolls
SE-6 Gravel Bag Berm
SE-8 Sandbag Barrier
SE-9 Straw Bale Barrier

Description and Purpose

Storm drain inlet protection consists of a sediment filter or an impounding area around or upstream of a storm drain, drop inlet, or curb inlet. Storm drain inlet protection measures temporarily pond runoff before it enters the storm drain, allowing sediment to settle. Some filter configurations also remove sediment by filtering, but usually the ponding action results in the greatest sediment reduction.

Suitable Applications

Every storm drain inlet receiving sediment-laden runoff should be protected.

Limitations

- Drainage area should not exceed 1 acre.
- Straw bales, while potentially effective, have not produced in practice satisfactory results, primarily due to improper installation.
- Requires an adequate area for water to pond without encroaching into portions of the roadway subject to traffic.
- Inlet protection usually requires other methods of temporary protection to prevent sediment-laden stormwater and non-stormwater discharges from entering the storm drain system.
- Sediment removal may be difficult in high flow conditions or if runoff is heavily sediment laden. If high flow conditions are

expected, use other onsite sediment trapping techniques in conjunction with inlet protection.

- Frequent maintenance is required.
- For drainage areas larger than 1 acre, runoff should be routed to a sediment-trapping device designed for larger flows. See BMPs SE-2, Sediment Basin, and SE-3, Sediment Traps.
- Excavated drop inlet sediment traps are appropriate where relatively heavy flows are expected, and overflow capability is needed.

Implementation

General

Large amounts of sediment may enter the storm drain system when storm drains are installed before the upslope drainage area is stabilized, or where construction is adjacent to an existing storm drain. In cases of extreme sediment loading, the storm drain itself may clog and lose a major portion of its capacity. To avoid these problems, it is necessary to prevent sediment from entering the system at the inlets.

Inlet control measures presented in this handbook should not be used for inlets draining more than one acre. Runoff from larger disturbed areas should be first routed through SE-2, Sediment Basin or SE-3, Sediment Trap. Different types of inlet protection are appropriate for different applications depending on site conditions and the type of inlet. Inlet protection methods not presented in this handbook should be approved by the local stormwater management agency.

Design and Layout

Identify existing and planned storm drain inlets that have the potential to receive sediment-laden surface runoff. Determine if storm drain inlet protection is needed and which method to use.

- Limit upstream drainage area to 1 acre maximum. For larger drainage areas, use SE-2, Sediment Basin, or SE-3, Sediment Trap, upstream of the inlet protection device.
- The key to successful and safe use of storm drain inlet protection devices is to know where runoff will pond or be diverted.
  - Determine the acceptable location and extent of ponding in the vicinity of the drain inlet. The acceptable location and extent of ponding will influence the type and design of the storm drain inlet protection device.
  - Determine the extent of potential runoff diversion caused by the storm drain inlet protection device. Runoff ponded by inlet protection devices may flow around the device and towards the next downstream inlet. In some cases, this is acceptable; in other cases, serious erosion or downstream property damage can be caused by these diversions. The possibility of runoff diversions will influence whether or not storm drain inlet protection is suitable; and, if suitable, the type and design of the device.
- The location and extent of ponding, and the extent of diversion, can usually be controlled through appropriate placement of the inlet protection device. In some cases, moving the

inlet protection device a short distance upstream of the actual inlet can provide more efficient sediment control, limit ponding to desired areas, and prevent or control diversions.

- Four types of inlet protection are presented below. However, it is recognized that other effective methods and proprietary devices exist and may be selected.
  - Filter Fabric Fence: Appropriate for drainage basins with less than a 5% slope, sheet flows, and flows under 0.5 cfs.
  - Excavated Drop Inlet Sediment Trap: An excavated area around the inlet to trap sediment (SE-3).
  - Gravel bag barrier: Used to create a small sediment trap upstream of inlets on sloped, paved streets. Appropriate for sheet flow or when concentrated flow may exceed 0.5 cfs, and where overtopping is required to prevent flooding.
  - Block and Gravel Filter: Appropriate for flows greater than 0.5 cfs.
- Select the appropriate type of inlet protection and design as referred to or as described in this fact sheet.
- Provide area around the inlet for water to pond without flooding structures and property.
- Grates and spaces around all inlets should be sealed to prevent seepage of sediment-laden water.
- Excavate sediment sumps (where needed) 1 to 2 ft with 2:1 side slopes around the inlet.

Installation

- ***DI Protection Type 1 - Filter Fabric Fence*** - The filter fabric fence (Type 1) protection is shown in the attached figure. Similar to constructing a silt fence; see BMP SE-1, Silt Fence. Do not place filter fabric underneath the inlet grate since the collected sediment may fall into the drain inlet when the fabric is removed or replaced.
  1. Excavate a trench approximately 6 in. wide and 6 in. deep along the line of the silt fence inlet protection device.
  2. Place 2 in. by 2 in. wooden stakes around the perimeter of the inlet a maximum of 3 ft apart and drive them at least 18 in. into the ground or 12 in. below the bottom of the trench. The stakes must be at least 48 in.
  3. Lay fabric along bottom of trench, up side of trench, and then up stakes. See SE-1, Silt Fence, for details. The maximum silt fence height around the inlet is 24 in.
  4. Staple the filter fabric (for materials and specifications, see SE-1, Silt Fence) to wooden stakes. Use heavy-duty wire staples at least 1 in. in length.
  5. Backfill the trench with gravel or compacted earth all the way around.
- ***DI Protection Type 2 - Excavated Drop Inlet Sediment Trap*** - The excavated drop inlet sediment trap (Type 2) is shown in the attached figures. Install filter fabric fence in

accordance with DI Protection Type 1. Size excavated trap to provide a minimum storage capacity calculated at the rate 67 yd^3/acre of drainage area.

- ***DI Protection Type 3 - Gravel bag*** - The gravel bag barrier (Type 3) is shown in the figures. Flow from a severe storm should not overtop the curb. In areas of high clay and silts, use filter fabric and gravel as additional filter media. Construct gravel bags in accordance with SE-6, Gravel Bag Berm. Gravel bags should be used due to their high permeability.

  1. Use sand bag made of geotextile fabric (not burlap) and fill with 0.75 in. rock or 0.25 in. pea gravel.
  2. Construct on gently sloping street.
  3. Leave room upstream of barrier for water to pond and sediment to settle.
  4. Place several layers of sand bags – overlapping the bags and packing them tightly together.
  5. Leave gap of one bag on the top row to serve as a spillway. Flow from a severe storm (e.g., 10 year storm) should not overtop the curb.

- ***DI Protection Type 4 – Block and Gravel Filter*** - The block and gravel filter (Type 4) is shown in the figures. Block and gravel filters are suitable for curb inlets commonly used in residential, commercial, and industrial construction.

  1. Place hardware cloth or comparable wire mesh with 0.5 in. openings over the drop inlet so that the wire extends a minimum of 1 ft beyond each side of the inlet structure. If more than one strip is necessary, overlap the strips. Place filter fabric over the wire mesh.
  2. Place concrete blocks lengthwise on their sides in a single row around the perimeter of the inlet, so that the open ends face outward, not upward. The ends of adjacent blocks should abut. The height of the barrier can be varied, depending on design needs, by stacking combinations of blocks that are 4 in., 8 in., and 12 in. wide. The row of blocks should be at least 12 in. but no greater than 24 in. high.
  3. Place wire mesh over the outside vertical face (open end) of the concrete blocks to prevent stone from being washed through the blocks. Use hardware cloth or comparable wire mesh with 0.5 in. opening.
  4. Pile washed stone against the wire mesh to the top of the blocks. Use 0.75 to 3 in.

Costs

- Average annual cost for installation and maintenance (one year useful life) is $200 per inlet.

Inspection and Maintenance

- Inspect BMPs prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at two-week intervals during the non-rainy season.

- Filter Fabric Fences. If the fabric becomes clogged, torn, or degrades, it should be replaced. Make sure the stakes are securely driven in the ground and are in good shape (i.e., not bent, cracked, or splintered, and are reasonably perpendicular to the ground). Replace damaged stakes.

- Gravel Filters. If the gravel becomes clogged with sediment, it must be carefully removed from the inlet and either cleaned or replaced. Since cleaning gravel at a construction site may be difficult, consider using the sediment-laden stone as fill material and put fresh stone around the inlet. Inspect bags for holes, gashes, and snags, and replace bags as needed. Check gravel bags for proper arrangement and displacement.

- Sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height. Sediment removed during maintenance may be incorporated into earthwork on the site ore disposed at an appropriate location.

- Remove storm drain inlet protection once the drainage area is stabilized.

  - Clean and regrade area around the inlet and clean the inside of the storm drain inlet as it must be free of sediment and debris at the time of final inspection.

References

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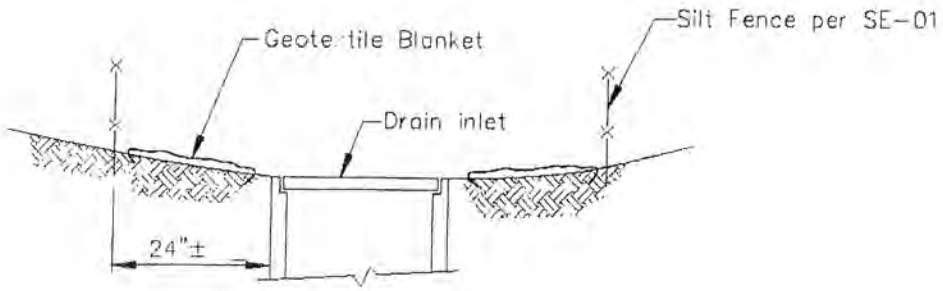
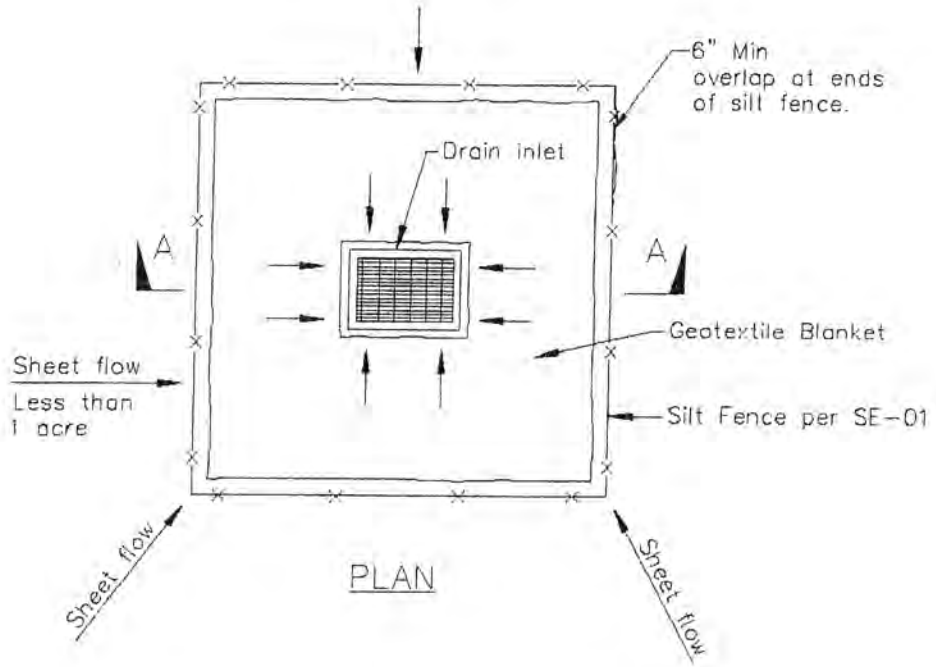
SE-10 Storm Drain Inlet Protection



SECTION A-A



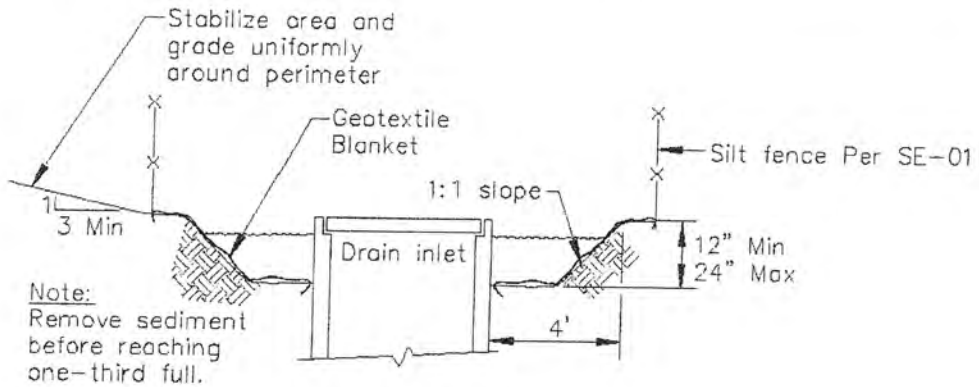
PLAN

DI PROTECTION TYPE 1
NOT TO SCALE

NOTES:

1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable with concentrated flows.

Storm Drain Inlet Protection SE-10



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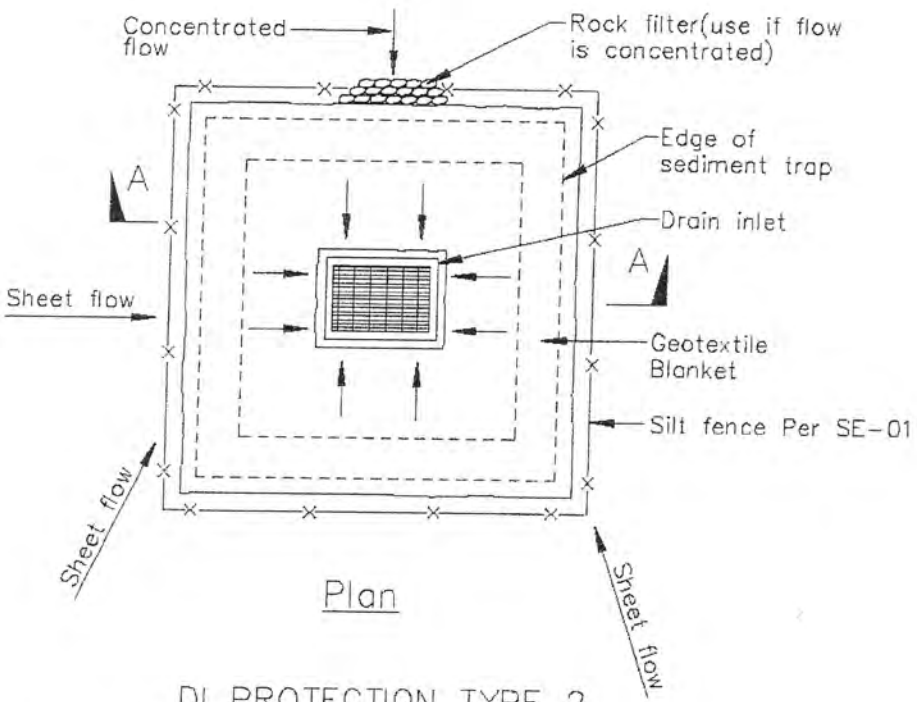
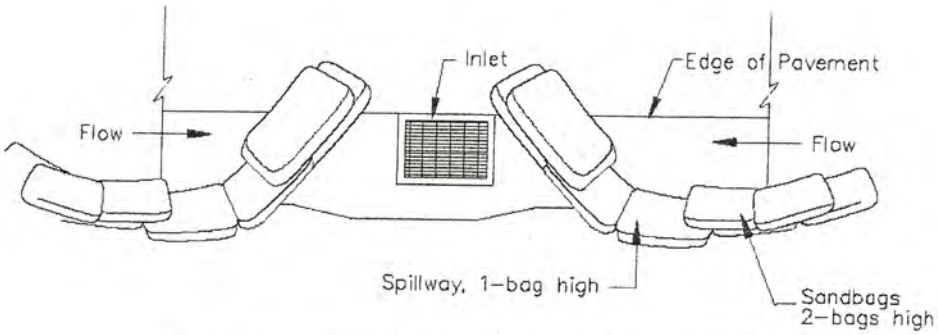


Plan

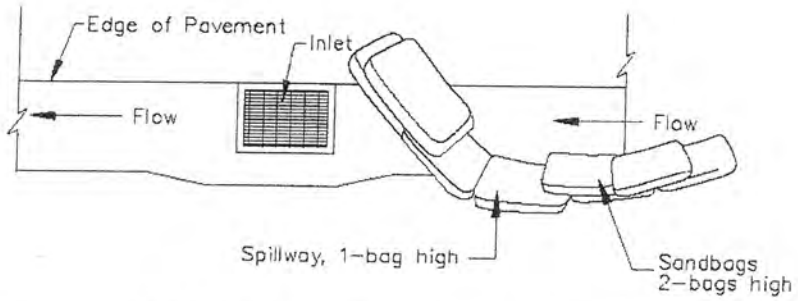
DI PROTECTION TYPE 2
NOT TO SCALE

Notes
1. For use in cleared and grubbed and in graded areas.
2. Shape basin so that longest inflow area faces longest length of trap.
3. For concentrated flows, shape basin in 2:1 ratio with length oriented towards direction of flow.

SE-10 Storm Drain Inlet Protection



TYPICAL PROTECTION FOR INLET ON SUMP



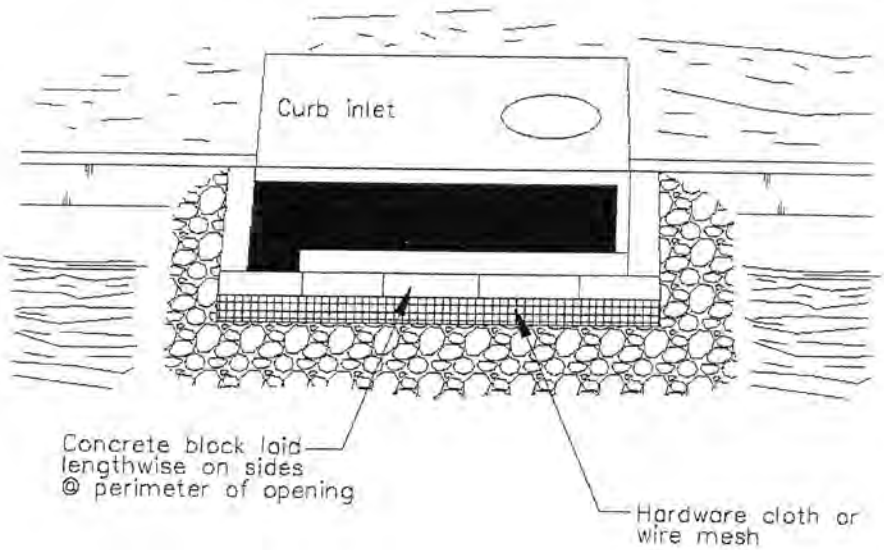
TYPICAL PROTECTION FOR INLET ON GRADE

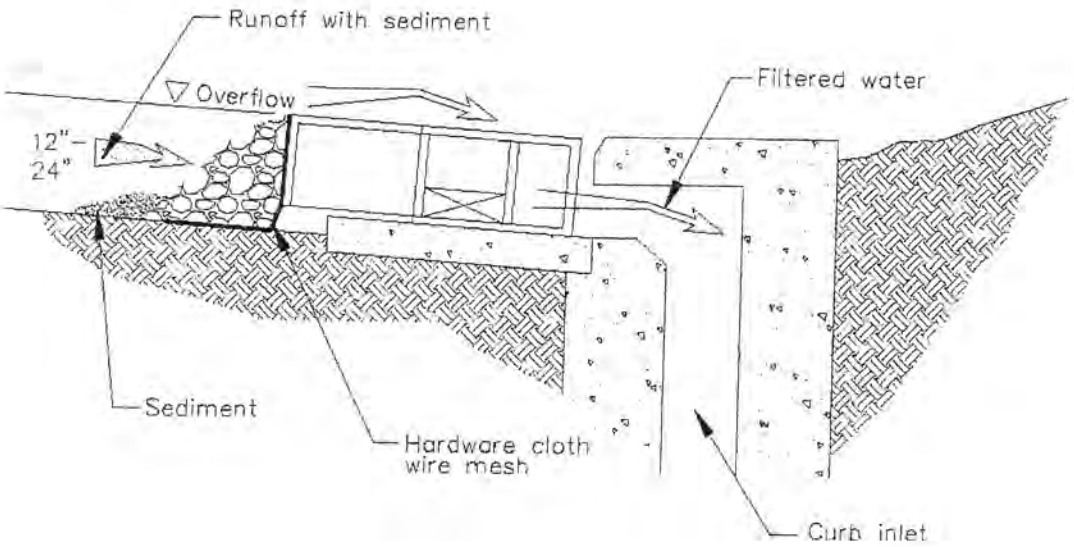
NOTES:

1. Intended for short-term use.
2. Use to inhibit non-storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed
5. Not applicable in areas with high silts and clays without filter fabric.

DI PROTECTION TYPE 3
NOT TO SCALE

Storm Drain Inlet Protection SE-10

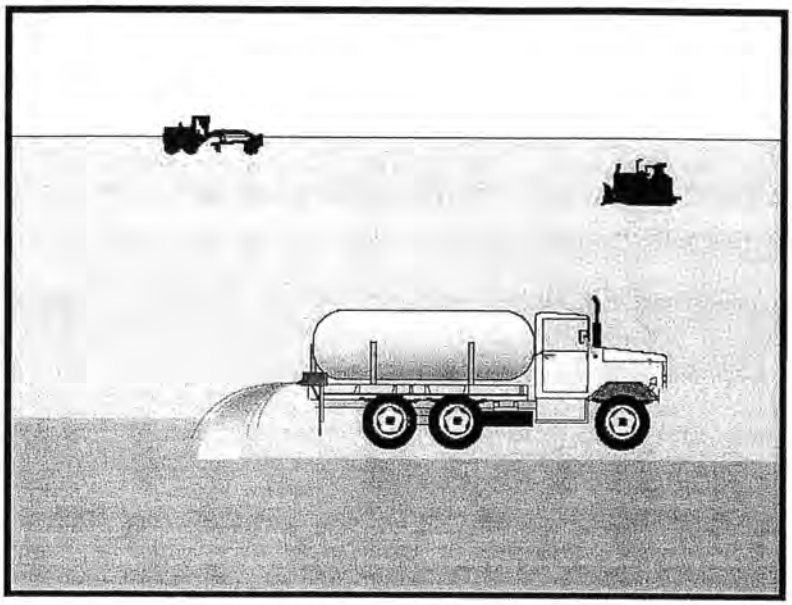




DI PROTECTION – TYPE 4
NOT TO SCALE

Wind Erosion Control

WE-1



Objectives

EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	
WE	Wind Erosion Control	☑
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ Primary Objective

☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Wind erosion or dust control consists of applying water or other dust palliatives as necessary to prevent or alleviate dust nuisance generated by construction activities. Covering small stockpiles or areas is an alternative to applying water or other dust palliatives.

Suitable Applications

Wind erosion control BMPs are suitable during the following construction activities:

- Construction vehicle traffic on unpaved roads
- Drilling and blasting activities
- Sediment tracking onto paved roads
- Soils and debris storage piles
- Batch drop from front-end loaders
- Areas with unstabilized soil
- Final grading/site stabilization

Limitations

- Watering prevents dust only for a short period and should be applied daily (or more often) to be effective.
- Over watering may cause erosion.

- Oil or oil-treated subgrade should not be used for dust control because the oil may migrate into drainageways and/or seep into the soil.
- Effectiveness depends on soil, temperature, humidity, and wind velocity.
- Chemically treated sub grades may make the soil water repellant, interfering with long-term infiltration and the vegetation/re-vegetation of the site. Some chemical dust suppressants may be subject to freezing and may contain solvents and should be handled properly.
- Asphalt, as a mulch tack or chemical mulch, requires a 24-hour curing time to avoid adherence to equipment, worker shoes, etc. Application should be limited because asphalt surfacing may eventually migrate into the drainage system.
- In compacted areas, watering and other liquid dust control measures may wash sediment or other constituents into the drainage system.

Implementation

General

California's Mediterranean climate, with short wet seasons and long hot dry seasons, allows the soils to thoroughly dry out. During these dry seasons, construction activities are at their peak, and disturbed and exposed areas are increasingly subject to wind erosion, sediment tracking and dust generated by construction equipment.

Dust control, as a BMP, is a practice that is already in place for many construction activities. Los Angeles, the North Coast, and Sacramento, among others, have enacted dust control ordinances for construction activities that cause dust to be transported beyond the construction project property line.

Recently, the State Air Resources Control Board has, under the authority of the Clean Air Act, started to address air quality in relation to inhalable particulate matter less than 10 microns (PM-10). Approximately 90 percent of these small particles are considered to be dust. Existing dust control regulations by local agencies, municipal departments, public works department, and public health departments are in place in some regions within California.

Many local agencies require dust control in order to comply with local nuisance laws, opacity laws (visibility impairment) and the requirements of the Clean Air Act. The following are measures that local agencies may have already implemented as requirements for dust control from contractors:

- Construction and Grading Permits: Require provisions for dust control plans.
- Opacity Emission Limits: Enforce compliance with California air pollution control laws.
- Increase Overall Enforcement Activities: Priority given to cases involving citizen complaints.
- Maintain Field Application Records: Require records of dust control measures from contractor;
- Stormwater Pollution Prevention Plan: (SWPPP): Integrate dust control measures into SWPPP.

Dust Control Practices

Dust control BMPs generally stabilize exposed surfaces and minimize activities that suspend or track dust particles. The following table shows dust control practices that can be applied to site conditions that cause dust. For heavily traveled and disturbed areas, wet suppression (watering), chemical dust suppression, gravel asphalt surfacing, temporary gravel construction entrances, equipment wash-out areas, and haul truck covers can be employed as dust control applications. Permanent or temporary vegetation and mulching can be employed for areas of occasional or no construction traffic. Preventive measures would include minimizing surface areas to be disturbed, limiting onsite vehicle traffic to 15 mph, and controlling the number and activity of vehicles on a site at any given time.

SITE CONDITION	DUST CONTROL PRACTICES								
	Permanent Vegetation	Mulching	Wet Suppression (Watering)	Chemical Dust Suppression	Gravel or Asphalt	Silt Fences	Temporary Gravel Construction Entrances/Equipment Wash Down	Haul Truck Covers	Minimize Extent of Disturbed Area
Disturbed Areas not Subject to Traffic	X	X	X	X	X				X
Disturbed Areas Subject to Traffic			X	X	X		X		X
Material Stock Pile Stabilization			X	X		X			X
Demolition			X				X	X	
Clearing/ Excavation			X	X		X			X
Truck Traffic on Unpaved Roads			X	X	X		X	X	
Mud/Dirt Carry Out					X		X		

Additional preventive measures include:

- Schedule construction activities to minimize exposed area (EC-1, Scheduling).
- Quickly stabilize exposed soils using vegetation, mulching, spray-on adhesives, calcium chloride, sprinkling, and stone/gravel layering.
- Identify and stabilize key access points prior to commencement of construction.
- Minimize the impact of dust by anticipating the direction of prevailing winds.
- Direct most construction traffic to stabilized roadways within the project site.
- Water should be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution.
- All distribution equipment should be equipped with a positive means of shutoff.
- Unless water is applied by means of pipelines, at least one mobile unit should be available at all times to apply water or dust palliative to the project.

- If reclaimed waste water is used, the sources and discharge must meet California Department of Health Services water reclamation criteria and the Regional Water Quality Control Board requirements. Non-potable water should not be conveyed in tanks or drain pipes that will be used to convey potable water and there should be no connection between potable and non-potable supplies. Non-potable tanks, pipes, and other conveyances should be marked, "NON-POTABLE WATER - DO NOT DRINK."
- Materials applied as temporary soil stabilizers and soil binders also generally provide wind erosion control benefits.
- Pave or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads.
- Provide covers for haul trucks transporting materials that contribute to dust.
- Provide for wet suppression or chemical stabilization of exposed soils.
- Provide for rapid clean up of sediments deposited on paved roads. Furnish stabilized construction road entrances and vehicle wash down areas.
- Stabilize inactive construction sites using vegetation or chemical stabilization methods.
- Limit the amount of areas disturbed by clearing and earth moving operations by scheduling these activities in phases.

For chemical stabilization, there are many products available for chemically stabilizing gravel roadways and stockpiles. If chemical stabilization is used, the chemicals should not create any adverse effects on stormwater, plant life, or groundwater.

Costs

Installation costs for water and chemical dust suppression are low, but annual costs may be quite high since these measures are effective for only a few hours to a few days.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
- Check areas protected to ensure coverage.
- Most dust control measures require frequent, often daily, or multiple times per day attention.

References

Best Management Practices and Erosion Control Manual for Construction Sites, Flood Control District of Maricopa County, Arizona, September 1992.

California Air Pollution Control Laws, California Air Resources Board, 1992.

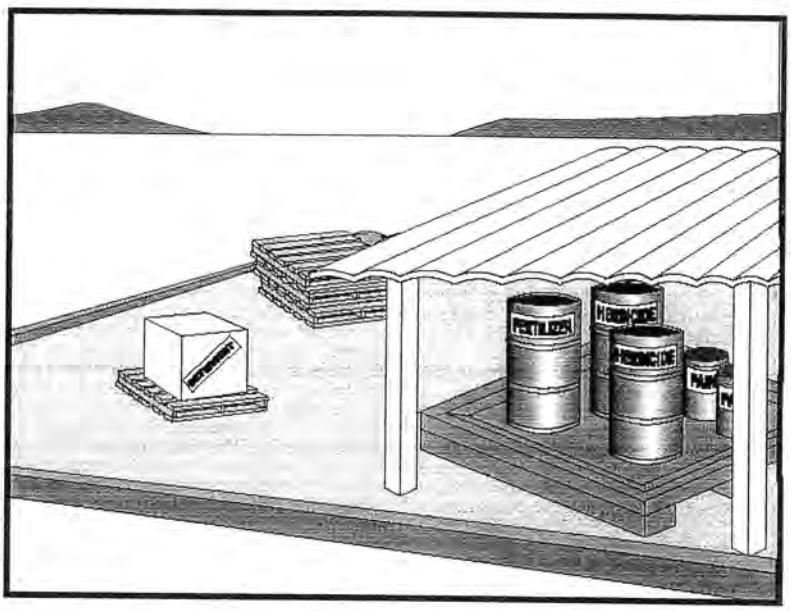
Caltrans, Standard Specifications, Sections 10, "Dust Control"; Section 17, "Watering"; and Section 18, "Dust Palliative".

Prospects for Attaining the State Ambient Air Quality Standards for Suspended Particulate Matter (PM10), Visibility Reducing Particles, Sulfates, Lead, and Hydrogen Sulfide, California Air Resources Board, April 1991.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Material Use

WM-2



Description and Purpose

Prevent or reduce the discharge of pollutants to the storm drain system or watercourses from material use by using alternative products, minimizing hazardous material use onsite, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for use at all construction projects. These procedures apply when the following materials are used or prepared onsite:

- Pesticides and herbicides
- Fertilizers
- Detergents
- Plaster
- Petroleum products such as fuel, oil, and grease
- Asphalt and other concrete components
- Other hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Concrete compounds
- Other materials that may be detrimental if released to the environment

Objectives

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ Primary Objective

☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Limitations

Safer alternative building and construction products may not be available or suitable in every instance.

Implementation

The following steps should be taken to minimize risk:

- Minimize use of hazardous materials onsite.
- Follow manufacturer instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
- Train personnel who use pesticides. The California Department of Pesticide Regulation and county agricultural commissioners license pesticide dealers, certify pesticide applicators, and conduct onsite inspections.
- Do not over-apply fertilizers, herbicides, and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmentally harmful. Unless on steep slopes, till fertilizers into the soil rather than hydro seeding. Apply surface dressings in several smaller applications, as opposed to one large application, to allow time for infiltration and to avoid excess material being carried offsite by runoff. Do not apply these chemicals just before it rains.
- Train employees and subcontractors in proper material use.
- Supply Material Safety Data Sheets (MSDS) for all materials.
- Dispose of latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths, when thoroughly dry and are no longer hazardous, with other construction debris.
- Do not remove the original product label; it contains important safety and disposal information. Use the entire product before disposing of the container.
- Mix paint indoors or in a containment area. Never clean paintbrushes or rinse paint containers into a street, gutter, storm drain, or watercourse. Dispose of any paint thinners, residue, and sludge(s) that cannot be recycled, as hazardous waste.
- For water-based paint, clean brushes to the extent practicable, and rinse to a drain leading to a sanitary sewer where permitted, or into a concrete washout pit or temporary sediment trap. For oil-based paints, clean brushes to the extent practicable, and filter and reuse thinners and solvents.
- Use recycled and less hazardous products when practical. Recycle residual paints, solvents, non-treated lumber, and other materials.
- Use materials only where and when needed to complete the construction activity. Use safer alternative materials as much as possible. Reduce or eliminate use of hazardous materials onsite when practical.

- Require contractors to complete the "Report of Chemical Spray Forms" when spraying herbicides and pesticides.
- Keep an ample supply of spill clean up material near use areas. Train employees in spill clean up procedures.
- Avoid exposing applied materials to rainfall and runoff unless sufficient time has been allowed for them to dry.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two–week intervals in the non-rainy season to verify continued BMP implementation.
- Maintenance of this best management practice is minimal.
- Spot check employees and subcontractors throughout the job to ensure appropriate practices are being employed.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Stockpile Management

WM-3

Objectives

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ Primary Objective

☒ Secondary Objective

Description and Purpose

Stockpile Management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, paving materials such as portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called "cold mix" asphalt), and pressure treated wood.

Suitable Applications

Implement in all projects that stockpile soil and other materials.

Limitations

None identified.

Implementation

Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

- Locate stockpiles a minimum of 50 ft away from concentrated flows of stormwater, drainage courses, and inlets.
- Protect all stockpiles from stormwater runon using a temporary perimeter sediment barrier such as berms, dikes, fiber rolls, silt fences, sandbag, gravel bags, or straw bale barriers.

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

- Implement wind erosion control practices as appropriate on all stockpiled material. For specific information, see WE-1, Wind Erosion Control.
- Manage stockpiles of contaminated soil in accordance with WM-7, Contaminated Soil Management.
- Place bagged materials on pallets and under cover.

Protection of Non-Active Stockpiles

Non-active stockpiles of the identified materials should be protected further as follows:

Soil stockpiles

- During the rainy season, soil stockpiles should be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.
- During the non-rainy season, soil stockpiles should be covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

Stockpiles of Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate sub base

- During the rainy season, the stockpiles should be covered or protected with a temporary perimeter sediment barrier at all times.
- During the non-rainy season, the stockpiles should be covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

Stockpiles of "cold mix"

- During the rainy season, cold mix stockpiles should be placed on and covered with plastic or comparable material at all times.
- During the non-rainy season, cold mix stockpiles should be placed on and covered with plastic or comparable material prior to the onset of precipitation.

Stockpiles/Storage of pressure treated wood with copper, chromium, and arsenic or ammonical, copper, zinc, and arsenate

- During the rainy season, treated wood should be covered with plastic or comparable material at all times.
- During the non-rainy season, treated wood should be covered with plastic or comparable material at all times and cold mix stockpiles should be placed on and covered with plastic or comparable material prior to the onset of precipitation.

Protection of Active Stockpiles

Active stockpiles of the identified materials should be protected further as follows:

- All stockpiles should be protected with a temporary linear sediment barrier prior to the onset of precipitation.
- Stockpiles of "cold mix" should be placed on and covered with plastic or comparable material prior to the onset of precipitation.

Costs

All of the above are low cost measures.

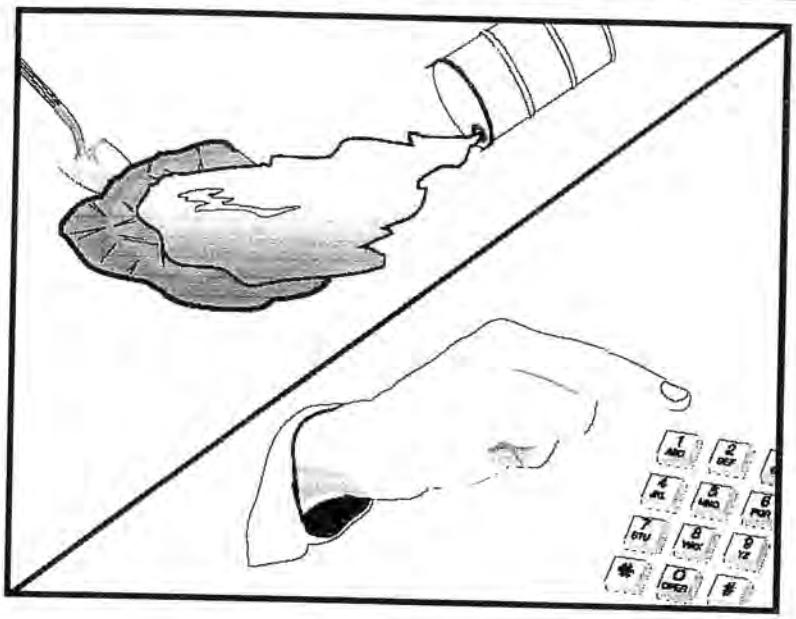
Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation
- Repair and/or replace perimeter controls and covers as needed to keep them functioning properly.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Spill Prevention and Control WM-4



Objectives

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

This best management practice covers only spill prevention and control. However, WM-1, Materials Delivery and Storage, and WM-2, Material Use, also contain useful information, particularly on spill prevention. For information on wastes, see the waste management BMPs in this section.

Suitable Applications

This BMP is suitable for all construction projects. Spill control procedures are implemented anytime chemicals or hazardous substances are stored on the construction site, including the following materials:

- Soil stabilizers/binders
- Dust palliatives
- Herbicides
- Growth inhibitors
- Fertilizers
- Deicing/anti-icing chemicals

- Fuels
- Lubricants
- Other petroleum distillates

Limitations

- In some cases it may be necessary to use a private spill cleanup company.
- This BMP applies to spills caused by the contractor and subcontractors.
- Procedures and practices presented in this BMP are general. Contractor should identify appropriate practices for the specific materials used or stored onsite

Implementation

The following steps will help reduce the stormwater impacts of leaks and spills:

Education

- Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills.
- Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
- Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.
- Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

- To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
- Store hazardous materials and wastes in covered containers and protect from vandalism.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- Train employees in spill prevention and cleanup.
- Designate responsible individuals to oversee and enforce control measures.
- Spills should be covered and protected from stormwater runon during rainfall to the extent that it doesn't compromise clean up activities.
- Do not bury or wash spills with water.

- Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
- Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with WM-10, Liquid Waste Management.
- Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
- Place proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
- Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

- Clean up leaks and spills immediately.
- Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to either a certified laundry (rags) or disposed of as hazardous waste.
- Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

- Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
- Use absorbent materials on small spills rather than hosing down or burying the spill.
- Absorbent materials should be promptly removed and disposed of properly.
- Follow the practice below for a minor spill:
  - Contain the spread of the spill.
  - Recover spilled materials.
  - Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

- Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.

- Spills should be cleaned up immediately:
  - Contain spread of the spill.
  - Notify the project foreman immediately.
  - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
  - If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
  - If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

- For significant or hazardous spills that cannot be controlled by personnel in the immediate vicinity, the following steps should be taken:
  - Notify the local emergency response by dialing 911. In addition to 911, the contractor will notify the proper county officials. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
  - Notify the Governor's Office of Emergency Services Warning Center, (916) 845-8911.
  - For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
  - Notification should first be made by telephone and followed up with a written report.
  - The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
  - Other agencies which may need to be consulted include, but are not limited to, the Fire Department, the Public Works Department, the Coast Guard, the Highway Patrol, the City/County Police Department, Department of Toxic Substances, California Division of Oil and Gas, Cal/OSHA, etc.

Reporting

- Report significant spills to local agencies, such as the Fire Department; they can assist in cleanup.
- Federal regulations require that any significant oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hours).

Use the following measures related to specific activities:

Vehicle and Equipment Maintenance

- If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.
- Regularly inspect onsite vehicles and equipment for leaks and repair immediately
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
- Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Place drip pans or absorbent materials under paving equipment when not in use.
- Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
- Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around
- Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.
- Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

- If fueling must occur onsite, use designate areas, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.
- Discourage "topping off" of fuel tanks.
- Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

Costs

Prevention of leaks and spills is inexpensive. Treatment and/ or disposal of contaminated soil or water can be quite expensive.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.

- Keep ample supplies of spill control and cleanup materials onsite, near storage, unloading, and maintenance areas.
- Update your spill prevention and control plan and stock cleanup materials as changes occur in the types of chemicals onsite.

References

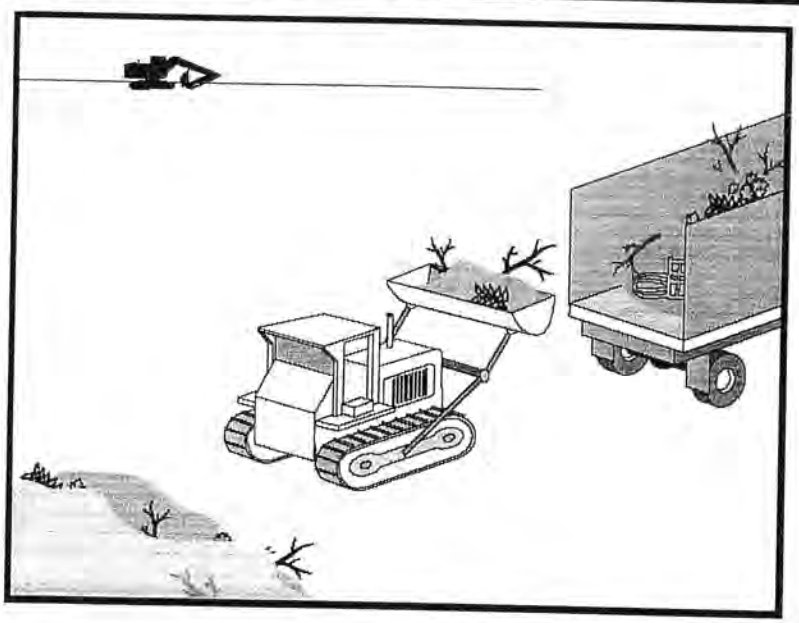
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Solid Waste Management

WM-5



Objectives		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction
- Packaging materials including wood, paper, and plastic
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces and masonry products
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes
- Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, styrofoam and other materials used to transport and package construction materials

- Highway planting wastes, including vegetative material, plant containers, and packaging materials

Limitations

Temporary stockpiling of certain construction wastes may not necessitate stringent drainage related controls during the non-rainy season or in desert areas with low rainfall.

Implementation

The following steps will help keep a clean site and reduce stormwater pollution:

- Select designated waste collection areas onsite.
- Inform trash-hauling contractors that you will accept only watertight dumpsters for onsite use. Inspect dumpsters for leaks and repair any dumpster that is not watertight.
- Locate containers in a covered area or in a secondary containment.
- Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.
- Collect site trash daily, especially during rainy and windy conditions.
- Remove this solid waste promptly since erosion and sediment control devices tend to collect litter.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor.
- Arrange for regular waste collection before containers overflow.
- Clean up immediately if a container does spill.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas.

Education

- Have the contractor's superintendent or representative oversee and enforce proper solid waste management procedures and practices.
- Instruct employees and subcontractors on identification of solid waste and hazardous waste.
- Educate employees and subcontractors on solid waste storage and disposal procedures.

- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Require that employees and subcontractors follow solid waste handling and storage procedures.
- Prohibit littering by employees, subcontractors, and visitors.
- Minimize production of solid waste materials wherever possible.

Collection, Storage, and Disposal

- Littering on the project site should be prohibited.
- To prevent clogging of the storm drainage system, litter and debris removal from drainage grates, trash racks, and ditch lines should be a priority.
- Trash receptacles should be provided in the contractor's yard, field trailer areas, and at locations where workers congregate for lunch and break periods.
- Litter from work areas within the construction limits of the project site should be collected and placed in watertight dumpsters at least weekly, regardless of whether the litter was generated by the contractor, the public, or others. Collected litter and debris should not be placed in or next to drain inlets, stormwater drainage systems, or watercourses.
- Dumpsters of sufficient size and number should be provided to contain the solid waste generated by the project.
- Full dumpsters should be removed from the project site and the contents should be disposed of by the trash hauling contractor.
- Construction debris and waste should be removed from the site biweekly or more frequently as needed.
- Construction material visible to the public should be stored or stacked in an orderly manner.
- Stormwater runon should be prevented from contacting stored solid waste through the use of berms, dikes, or other temporary diversion structures or through the use of measures to elevate waste from site surfaces.
- Solid waste storage areas should be located at least 50 ft from drainage facilities and watercourses and should not be located in areas prone to flooding or ponding.
- Except during fair weather, construction and highway planting waste not stored in watertight dumpsters should be securely covered from wind and rain by covering the waste with tarps or plastic.
- Segregate potentially hazardous waste from non-hazardous construction site waste.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.

- For disposal of hazardous waste, see WM-6, Hazardous Waste Management. Have hazardous waste hauled to an appropriate disposal and/or recycling facility.
- Salvage or recycle useful vegetation debris, packaging and surplus building materials when practical. For example, trees and shrubs from land clearing can be used as a brush barrier, or converted into wood chips, then used as mulch on graded areas. Wood pallets, cardboard boxes, and construction scraps can also be recycled.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur
- Inspect construction waste area regularly.
- Arrange for regular waste collection.

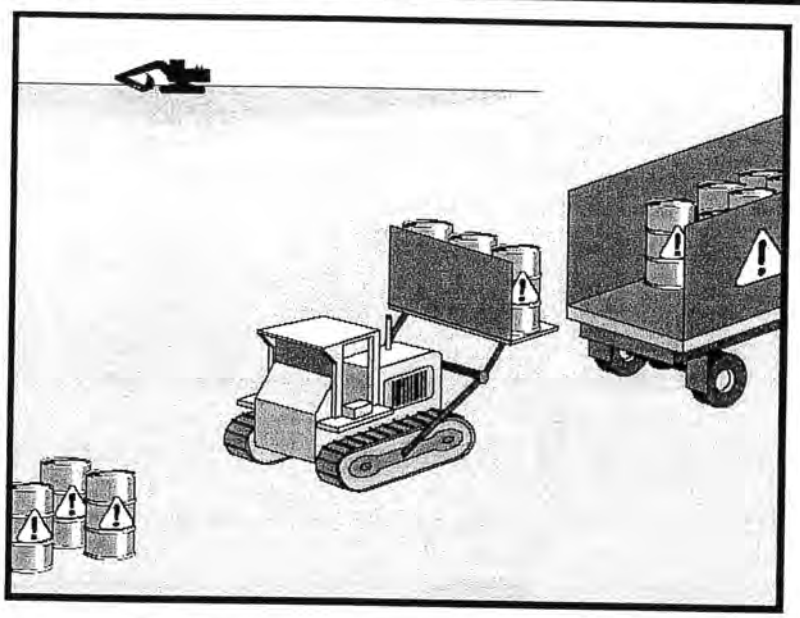
References

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Hazardous Waste Management WM-6



Objectives		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents	
Sediment	
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper material use, waste disposal, and training of employees and subcontractors.

Suitable Applications

This best management practice (BMP) applies to all construction projects. Hazardous waste management practices are implemented on construction projects that generate waste from the use of:

- Petroleum Products
- Asphalt Products
- Concrete Curing Compounds
- Pesticides
- Palliatives
- Acids
- Septic Wastes
- Paints
- Stains
- Solvents
- Wood Preservatives
- Roofing Tar
- Any materials deemed a hazardous waste in California, Title 22 Division 4.5, or listed in 40 CFR Parts 110, 117, 261, or 302

In addition, sites with existing structures may contain wastes, which must be disposed of in accordance with federal, state, and local regulations. These wastes include:

- Sandblasting grit mixed with lead-, cadmium-, or chromium-based paints
- Asbestos
- PCBs (particularly in older transformers)

Limitations

- Hazardous waste that cannot be reused or recycled must be disposed of by a licensed hazardous waste hauler.
- Nothing in this BMP relieves the contractor from responsibility for compliance with federal, state, and local laws regarding storage, handling, transportation, and disposal of hazardous wastes.
- This BMP does not cover aerially deposited lead (ADL) soils. For ADL soils refer to WM-7, Contaminated Soil Management.

Implementation

The following steps will help reduce stormwater pollution from hazardous wastes:

Material Use

- Wastes should be stored in sealed containers constructed of a suitable material and should be labeled as required by Title 22 CCR, Division 4.5 and 49 CFR Parts 172, 173, 178, and 179.
- All hazardous waste should be stored, transported, and disposed as required in Title 22 CCR, Division 4.5 and 49 CFR 261-263.
- Waste containers should be stored in temporary containment facilities that should comply with the following requirements:
  - Temporary containment facility should provide for a spill containment volume equal to 1.5 times the volume of all containers able to contain precipitation from a 25 year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest tank within its boundary, whichever is greater.
  - Temporary containment facility should be impervious to the materials stored there for a minimum contact time of 72 hours.
  - Temporary containment facilities should be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be placed into drums after each rainfall. These liquids should be handled as a hazardous waste unless testing determines them to be non-hazardous. Non-hazardous liquids should be sent to an approved disposal site.
  - Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.

- Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.
- Throughout the rainy season, temporary containment facilities should be covered during non-working days, and prior to rain events. Covered facilities may include use of plastic tarps for small facilities or constructed roofs with overhangs.

- Drums should not be overfilled and wastes should not be mixed.
- Unless watertight, containers of dry waste should be stored on pallets.
- Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over application is expensive and environmentally harmful. Apply surface dressings in several smaller applications, as opposed to one large application. Allow time for infiltration and avoid excess material being carried offsite by runoff. Do not apply these chemicals just before it rains. People applying pesticides must be certified in accordance with federal and state regulations.
- Paint brushes and equipment for water and oil based paints should be cleaned within a contained area and should not be allowed to contaminate site soils, watercourses, or drainage systems. Waste paints, thinners, solvents, residues, and sludges that cannot be recycled or reused should be disposed of as hazardous waste. When thoroughly dry, latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths should be disposed of as solid waste.
- Do not clean out brushes or rinse paint containers into the dirt, street, gutter, storm drain, or stream. "Paint out" brushes as much as possible. Rinse water-based paints to the sanitary sewer. Filter and reuse thinners and solvents. Dispose of excess oil-based paints and sludge as hazardous waste.
- The following actions should be taken with respect to temporary contaminant:
  - Ensure that adequate hazardous waste storage volume is available.
  - Ensure that hazardous waste collection containers are conveniently located.
  - Designate hazardous waste storage areas onsite away from storm drains or watercourses and away from moving vehicles and equipment to prevent accidental spills.
  - Minimize production or generation of hazardous materials and hazardous waste on the job site.
  - Use containment berms in fueling and maintenance areas and where the potential for spills is high.
  - Segregate potentially hazardous waste from non-hazardous construction site debris.
  - Keep liquid or semi-liquid hazardous waste in appropriate containers (closed drums or similar) and under cover.

- Clearly label all hazardous waste containers with the waste being stored and the date of accumulation.
- Place hazardous waste containers in secondary containment.
- Do not allow potentially hazardous waste materials to accumulate on the ground.
- Do not mix wastes.
- Use all of the product before disposing of the container.
- Do not remove the original product label; it contains important safety and disposal information.

Waste Recycling Disposal

- Select designated hazardous waste collection areas onsite.
- Hazardous materials and wastes should be stored in covered containers and protected from vandalism.
- Place hazardous waste containers in secondary containment.
- Do not mix wastes, this can cause chemical reactions, making recycling impossible and complicating disposal.
- Recycle any useful materials such as used oil or water-based paint.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Arrange for regular waste collection before containers overflow.
- Make sure that hazardous waste (e.g., excess oil-based paint and sludge) is collected, removed, and disposed of only at authorized disposal areas.

Disposal Procedures

- Waste should be disposed of by a licensed hazardous waste transporter at an authorized and licensed disposal facility or recycling facility utilizing properly completed Uniform Hazardous Waste Manifest forms.
- A Department of Health Services certified laboratory should sample waste to determine the appropriate disposal facility.
- Properly dispose of rainwater in secondary containment that may have mixed with hazardous waste.
- Attention is directed to "Hazardous Material", "Contaminated Material", and "Aerially Deposited Lead" of the contract documents regarding the handling and disposal of hazardous materials.

Education

- Educate employees and subcontractors on hazardous waste storage and disposal procedures.
- Educate employees and subcontractors on potential dangers to humans and the environment from hazardous wastes.
- Instruct employees and subcontractors on safety procedures for common construction site hazardous wastes.
- Instruct employees and subcontractors in identification of hazardous and solid waste.
- Hold regular meetings to discuss and reinforce hazardous waste management procedures (incorporate into regular safety meetings).
- The contractor's superintendent or representative should oversee and enforce proper hazardous waste management procedures and practices.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Warning signs should be placed in areas recently treated with chemicals.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- If a container does spill, clean up immediately.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur
- Hazardous waste should be regularly collected.
- A foreman or construction supervisor should monitor onsite hazardous waste storage and disposal procedures.
- Waste storage areas should be kept clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored.
- Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.
- Hazardous spills should be cleaned up and reported in conformance with the applicable Material Safety Data Sheet (MSDS) and the instructions posted at the project site.

- The National Response Center, at (800) 424-8802, should be notified of spills of federal reportable quantities in conformance with the requirements in 40 CFR parts 110, 117, and 302. Also notify the Governors Office of Emergency Services Warning Center at (916) 845-8911.
- A copy of the hazardous waste manifests should be provided.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

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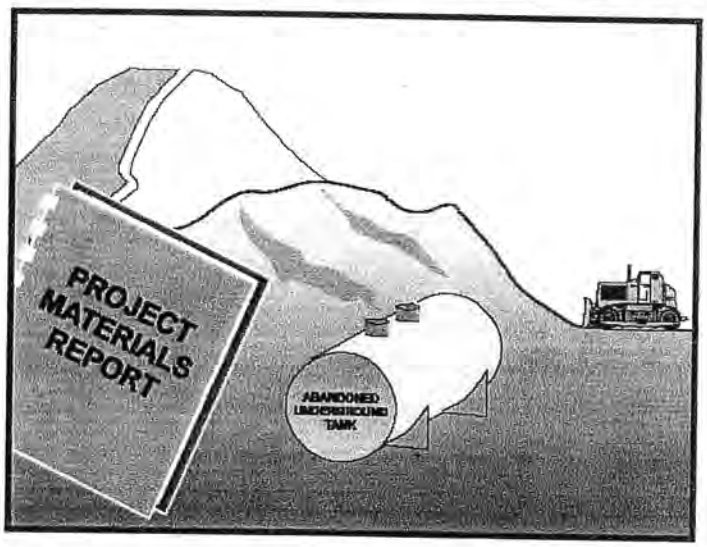
Contaminated Soil Management WM-7



Objectives		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ Primary Objective
☒ Secondary Objective

Description and Purpose

Prevent or reduce the discharge of pollutants to stormwater from contaminated soil and highly acidic or alkaline soils by conducting pre-construction surveys, inspecting excavations regularly, and remediating contaminated soil promptly.

Suitable Applications

Contaminated soil management is implemented on construction projects in highly urbanized or industrial areas where soil contamination may have occurred due to spills, illicit discharges, aerial deposition, past use and leaks from underground storage tanks.

Limitations

Contaminated soils that cannot be treated onsite must be disposed of offsite by a licensed hazardous waste hauler. The presence of contaminated soil may indicate contaminated water as well. See NS-2, Dewatering Operations, for more information.

The procedures and practices presented in this BMP are general. The contractor should identify appropriate practices and procedures for the specific contaminants known to exist or discovered onsite.

Implementation

Most owners and developers conduct pre-construction environmental assessments as a matter of routine. Contaminated soils are often identified during project planning and development with known locations identified in the plans, specifications and in the SWPPP. The contractor should review applicable reports and investigate appropriate call-outs in the plans, specifications, and

Targeted Constituents	
Sediment	
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

CASQA
CALIFORNIA STORMWATER

SWPPP. Recent court rulings holding contractors liable for cleanup costs when they unknowingly move contaminated soil highlight the need for contractors to confirm a site assessment is completed before earth moving begins.

The following steps will help reduce stormwater pollution from contaminated soil:

- Conduct thorough, pre-construction inspections of the site and review documents related to the site. If inspection or reviews indicated presence of contaminated soils, develop a plan before starting work.
- Look for contaminated soil as evidenced by discoloration, odors, differences in soil properties, abandoned underground tanks or pipes, or buried debris.
- Prevent leaks and spills. Contaminated soil can be expensive to treat and dispose of properly. However, addressing the problem before construction is much less expensive than after the structures are in place.
- The contractor may further identify contaminated soils by investigating:
  - Past site uses and activities
  - Detected or undetected spills and leaks
  - Acid or alkaline solutions from exposed soil or rock formations high in acid or alkaline forming elements
  - Contaminated soil as evidenced by discoloration, odors, differences in soil properties, abandoned underground tanks or pipes, or buried debris.
  - Suspected soils should be tested at a certified laboratory.

Education

- Have employees and subcontractors complete a safety training program which meets 29 CFR 1910.120 and 8 CCR 5192 covering the potential hazards as identified, prior to performing any excavation work at the locations containing material classified as hazardous.
- Educate employees and subcontractors in identification of contaminated soil and on contaminated soil handling and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).

Handling Procedures for Material with Aerially Deposited Lead (ADL)

- Materials from areas designated as containing (ADL) may, if allowed by the contract special provisions, be excavated, transported, and used in the construction of embankments and/or backfill.
- Excavation, transportation, and placement operations should result in no visible dust.
- Caution should be exercised to prevent spillage of lead containing material during transport.

- Quality should be monitored during excavation of soils contaminated with lead.

Handling Procedures for Contaminated Soils

- Minimize onsite storage. Contaminated soil should be disposed of properly in accordance with all applicable regulations. All hazardous waste storage will comply with the requirements in Title 22, CCR, Sections 66265.250 to 66265.260.
- Test suspected soils at an approved certified laboratory.
- Work with the local regulatory agencies to develop options for treatment or disposal if the soil is contaminated.
- Avoid temporary stockpiling of contaminated soils or hazardous material.
- Take the following precautions if temporary stockpiling is necessary:
  - Cover the stockpile with plastic sheeting or tarps.
  - Install a berm around the stockpile to prevent runoff from leaving the area.
  - Do not stockpile in or near storm drains or watercourses.
- Remove contaminated material and hazardous material on exteriors of transport vehicles and place either into the current transport vehicle or into the excavation prior to the vehicle leaving the exclusion zone.
- Monitor the air quality continuously during excavation operations at all locations containing hazardous material.
- Procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including registration for transporting vehicles carrying the contaminated material and the hazardous material.
- Collect water from decontamination procedures and treat or dispose of it at an appropriate disposal site.
- Collect non-reusable protective equipment, once used by any personnel, and dispose of at an appropriate disposal site.
- Install temporary security fence to surround and secure the exclusion zone. Remove fencing when no longer needed.
- Excavate, transport, and dispose of contaminated material and hazardous material in accordance with the rules and regulations of the following agencies (the specifications of these agencies supersede the procedures outlined in this BMP):
  - United States Department of Transportation (USDOT)
  - United States Environmental Protection Agency (USEPA)
  - California Environmental Protection Agency (CAL-EPA)

- California Division of Occupation Safety and Health Administration (CAL-OSHA)
- Local regulatory agencies

Procedures for Underground Storage Tank Removals

- Prior to commencing tank removal operations, obtain the required underground storage tank removal permits and approval from the federal, state, and local agencies that have jurisdiction over such work.
- To determine if it contains hazardous substances, arrange to have tested, any liquid or sludge found in the underground tank prior to its removal.
- Following the tank removal, take soil samples beneath the excavated tank and perform analysis as required by the local agency representative(s).
- The underground storage tank, any liquid or sludge found within the tank, and all contaminated substances and hazardous substances removed during the tank removal and transported to disposal facilities permitted to accept such waste.

Water Control

- All necessary precautions and preventive measures should be taken to prevent the flow of water, including ground water, from mixing with hazardous substances or underground storage tank excavations. Such preventative measures may consist of, but are not limited to, berms, cofferdams, grout curtains, freeze walls, and seal course concrete or any combination thereof.
- If water does enter an excavation and becomes contaminated, such water, when necessary to proceed with the work, should be discharged to clean, closed top, watertight transportable holding tanks, treated, and disposed of in accordance with federal, state, and local laws.

Costs

Prevention of leaks and spills is inexpensive. Treatment or disposal of contaminated soil can be quite expensive.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Arrange for contractor's Water Pollution Control Manager, foreman, and/or construction supervisor to monitor onsite contaminated soil storage and disposal procedures.
- Monitor air quality continuously during excavation operations at all locations containing hazardous material.
- Coordinate contaminated soils and hazardous substances/waste management with the appropriate federal, state, and local agencies.

- Implement WM-4, Spill Prevention and Control, to prevent leaks and spills as much as possible.

References

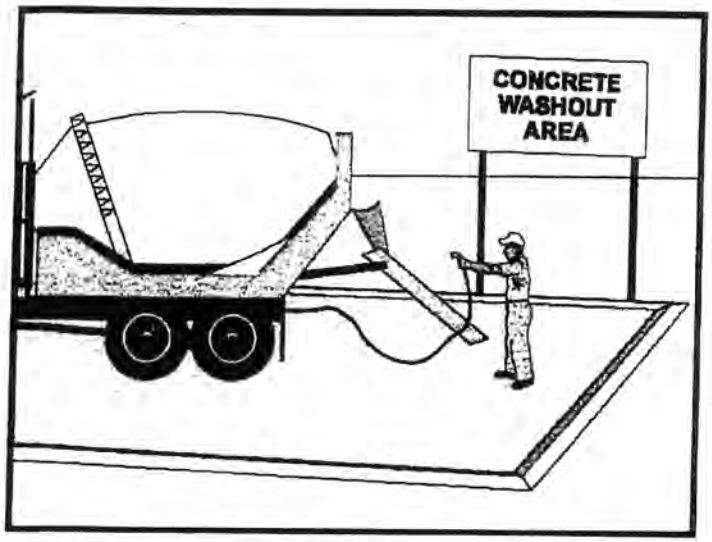
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Concrete Waste Management WM-8



Objectives

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employee and subcontractors.

Suitable Applications

Concrete waste management procedures and practices are implemented on construction projects where:

- Concrete is used as a construction material or where concrete dust and debris result form demolition activities
- Slurries containing portland cement concrete (PCC) or asphalt concrete (AC) are generated, such as from saw cutting, coring, grinding, grooving, and hydro-concrete demolition
- Concrete trucks and other concrete-coated equipment are washed onsite
- Mortar-mixing stations exist
- See also NS-8, Vehicle and Equipment Cleaning

Limitations

- Offsite washout of concrete wastes may not always be possible.

- Below grade concrete washout facilities are typical. Above grade facilities are used if excavation is not practical.
- A foreman or construction supervisor should monitor onsite concrete working tasks, such as saw cutting, coring, grinding and grooving to ensure proper methods are implemented.
- Saw-cut PCC slurry should not be allowed to enter storm drains or watercourses. Residue from grinding operations should be picked up by means of a vacuum attachment to the grinding machine. Saw cutting residue should not be allowed to flow across the pavement and should not be left on the surface of the pavement. See also NS-3, Paving and Grinding Operations; and WM-10, Liquid Waste Management.
- Slurry residue should be vacuumed and disposed in a temporary pit (as described in OnSite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures, below) and allowed to dry. Dispose of dry slurry residue in accordance with WM-5, Solid Waste Management.

Onsite Temporary Concrete Washout Facility, Transit Truck Washout Procedures

- Temporary concrete washout facilities should be located a minimum of 50 ft from storm drain inlets, open drainage facilities, and watercourses. Each facility should be located away from construction traffic or access areas to prevent disturbance or tracking.
- A sign should be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.
- Temporary concrete washout facilities should be constructed above grade or below grade at the option of the contractor. Temporary concrete washout facilities should be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations.
- Temporary washout facilities should have a temporary pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.
- Washout of concrete trucks should be performed in designated areas only.
- Only concrete from mixer truck chutes should be washed into concrete wash out.
- Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designated washout area or properly disposed of offsite.
- Once concrete wastes are washed into the designated area and allowed to harden, the concrete should be broken up, removed, and disposed of per WM-5, Solid Waste Management. Dispose of hardened concrete on a regular basis.
- Temporary Concrete Washout Facility (Type Above Grade)
  - Temporary concrete washout facility (type above grade) should be constructed as shown on the details at the end of this BMP, with a recommended minimum length and

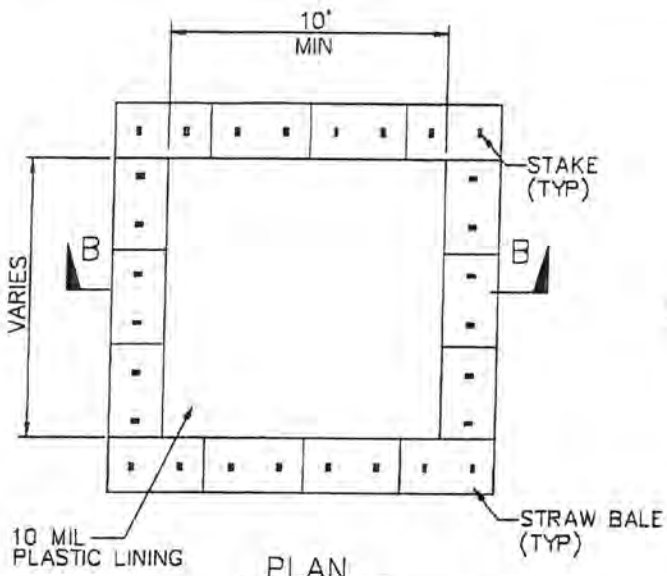
References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

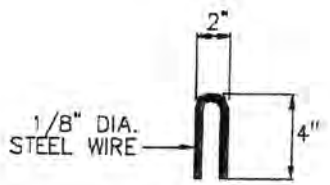
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

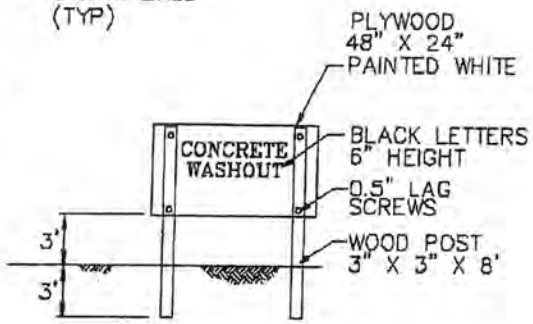
Concrete Waste Management WM-8



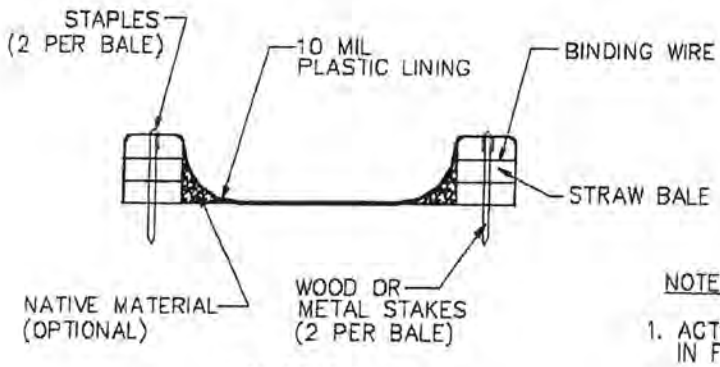
PLAN
NOT TO SCALE
TYPE "ABOVE GRADE"
WITH STRAW BALES



STAPLE DETAIL



CONCRETE WASHOUT
SIGN DETAIL
(OR EQUIVALENT)

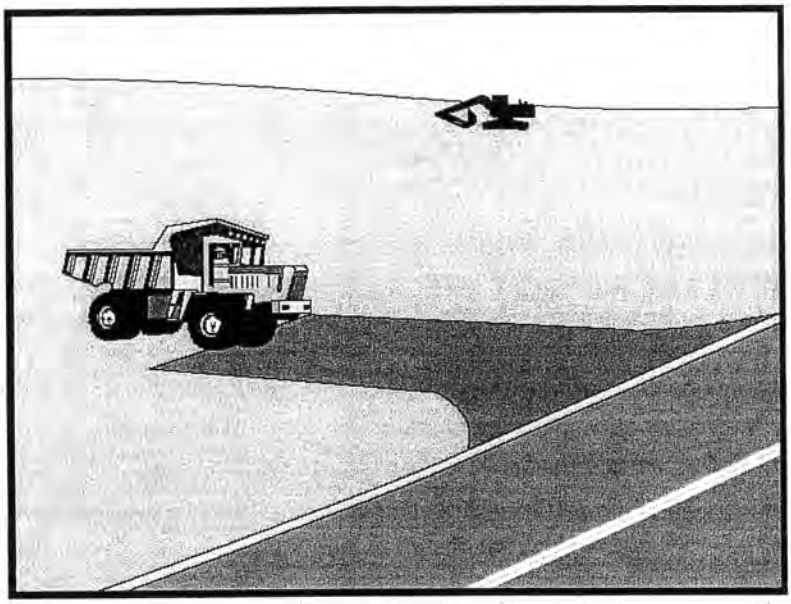


SECTION B-B
NOT TO SCALE

NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

Stabilized Construction Entrance/Exit TC-1



Objectives

EC	Erosion Control	☒
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ Primary Objective

☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

Suitable Applications

Use at construction sites:

- Where dirt or mud can be tracked onto public roads.
- Adjacent to water bodies.
- Where poor soils are encountered.
- Where dust is a problem during dry weather conditions.

Limitations

- Entrances and exits require periodic top dressing with additional stones.
- This BMP should be used in conjunction with street sweeping on adjacent public right of way.
- Entrances and exits should be constructed on level ground only.
- Stabilized construction entrances are rather expensive to construct and when a wash rack is included, a sediment trap of some kind must also be provided to collect wash water runoff.

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Stabilized Construction Entrance/Exit TC-1

Implementation

General

A stabilized construction entrance is a pad of aggregate underlain with filter cloth located at any point where traffic will be entering or leaving a construction site to or from a public right of way, street, alley, sidewalk, or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public rights of way or streets. Reducing tracking of sediments and other pollutants onto paved roads helps prevent deposition of sediments into local storm drains and production of airborne dust.

Where traffic will be entering or leaving the construction site, a stabilized construction entrance should be used. NPDES permits require that appropriate measures be implemented to prevent tracking of sediments onto paved roadways, where a significant source of sediments is derived from mud and dirt carried out from unpaved roads and construction sites.

Stabilized construction entrances are moderately effective in removing sediment from equipment leaving a construction site. The entrance should be built on level ground. Advantages of the Stabilized Construction Entrance/Exit is that it does remove some sediment from equipment and serves to channel construction traffic in and out of the site at specified locations. Efficiency is greatly increased when a washing rack is included as part of a stabilized construction entrance/exit.

Design and Layout

- Construct on level ground where possible.
- Select 3 to 6 in. diameter stones.
- Use minimum depth of stones of 12 in. or as recommended by soils engineer.
- Construct length of 50 ft minimum, and 30 ft minimum width.
- Rumble racks constructed of steel panels with ridges and installed in the stabilized entrance/exit will help remove additional sediment and to keep adjacent streets clean.
- Provide ample turning radii as part of the entrance.
- Limit the points of entrance/exit to the construction site.
- Limit speed of vehicles to control dust.
- Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
- Route runoff from stabilized entrances/exits through a sediment trapping device before discharge.
- Design stabilized entrance/exit to support heaviest vehicles and equipment that will use it.
- Select construction access stabilization (aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions. Do not use asphalt concrete (AC) grindings for stabilized construction access/roadway.

- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 in. depth, or place aggregate to a depth recommended by a geotechnical engineer. A crushed aggregate greater than 3 in. but smaller than 6 in. should be used.
- Designate combination or single purpose entrances and exits to the construction site.
- Require that all employees, subcontractors, and suppliers utilize the stabilized construction access.
- Implement SE-7, Street Sweeping and Vacuuming, as needed.
- All exit locations intended to be used for more than a two-week period should have stabilized construction entrance/exit BMPs.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMPs are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect local roads adjacent to the site daily. Sweep or vacuum to remove visible accumulated sediment.
- Remove aggregate, separate and dispose of sediment if construction entrance/exit is clogged with sediment.
- Keep all temporary roadway ditches clear.
- Check for damage and repair as needed.
- Replace gravel material when surface voids are visible.
- Remove all sediment deposited on paved roadways within 24 hours.
- Remove gravel and filter fabric at completion of construction

Costs

Average annual cost for installation and maintenance may vary from $1,200 to $4,800 each, averaging $2,400 per entrance. Costs will increase with addition of washing rack, and sediment trap. With wash rack, costs range from $1,200 - $6,000 each, averaging $3,600 per entrance.

References

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, USEPA Agency, 2002.

Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Work Group Working Paper, USEPA, April 1992.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

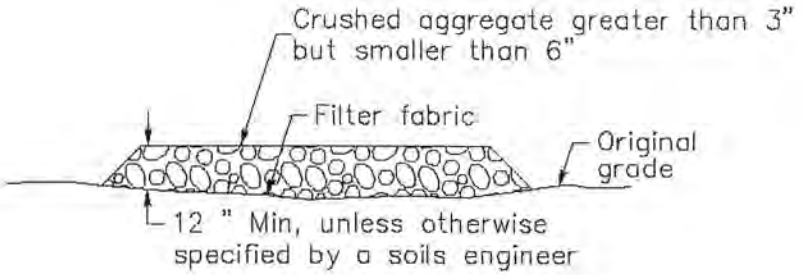
Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Virginia Erosion and Sedimentation Control Handbook, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation, 1991.

Guidance Specifying Management Measures for Nonpoint Pollution in Coastal Waters, EPA 840-B-9-002, USEPA, Office of Water, Washington, DC, 1993.

Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

Stabilized Construction Entrance/Exit TC-1



SECTION B–B
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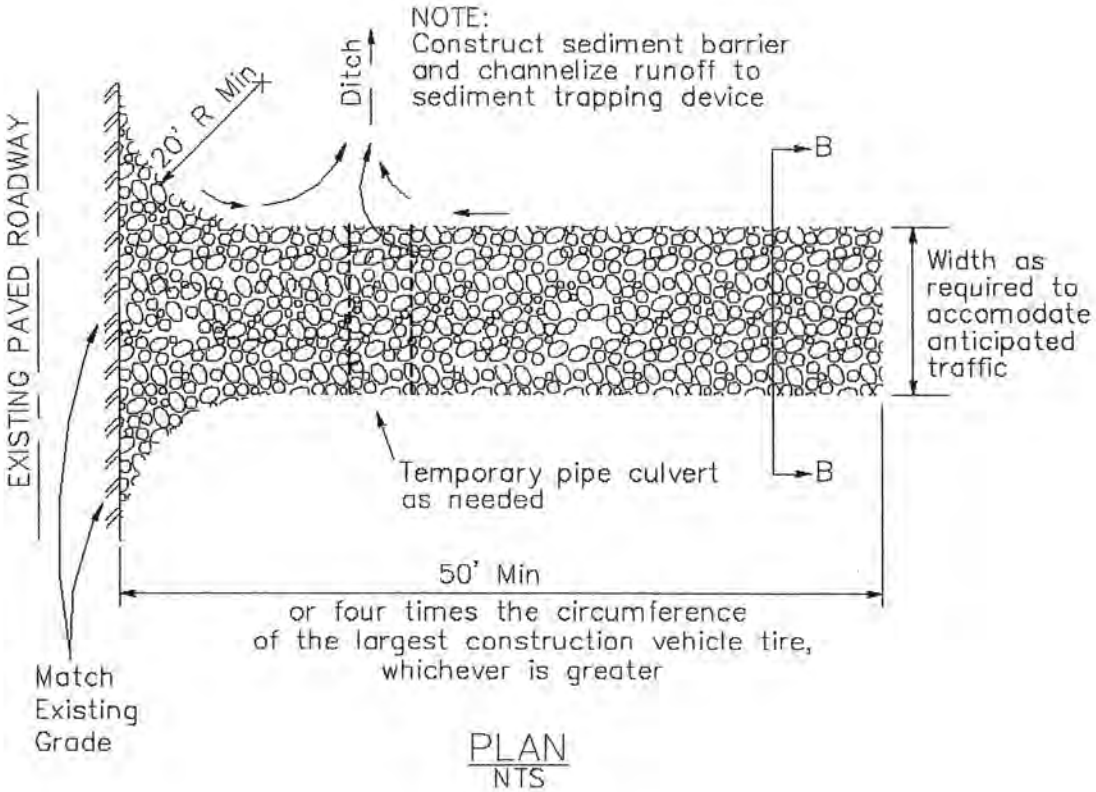
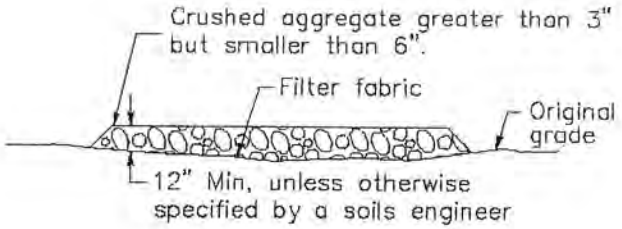


PLAN
NTS

Stabilized Construction Entrance/Exit TC-1



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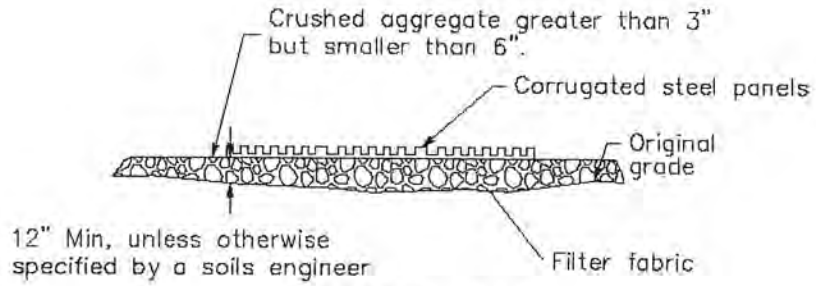
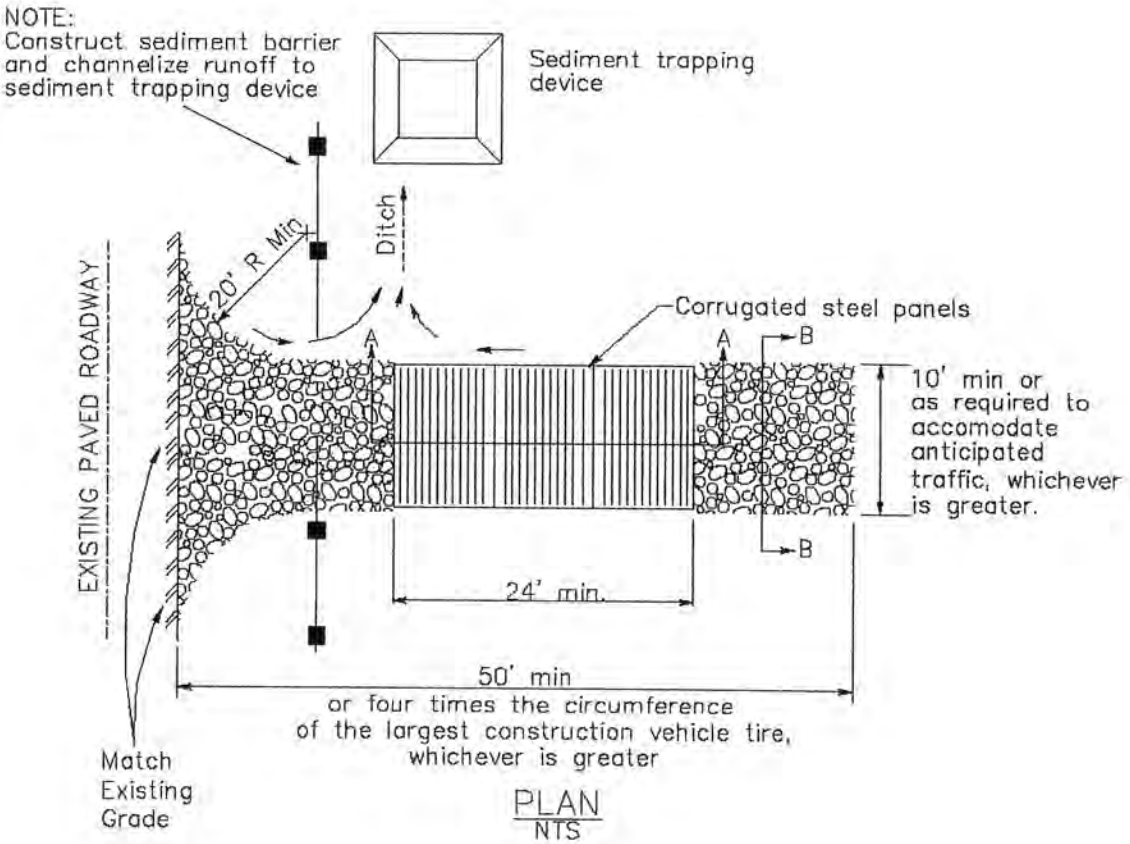


SECTION A–A
NOT TO SCALE



PLAN
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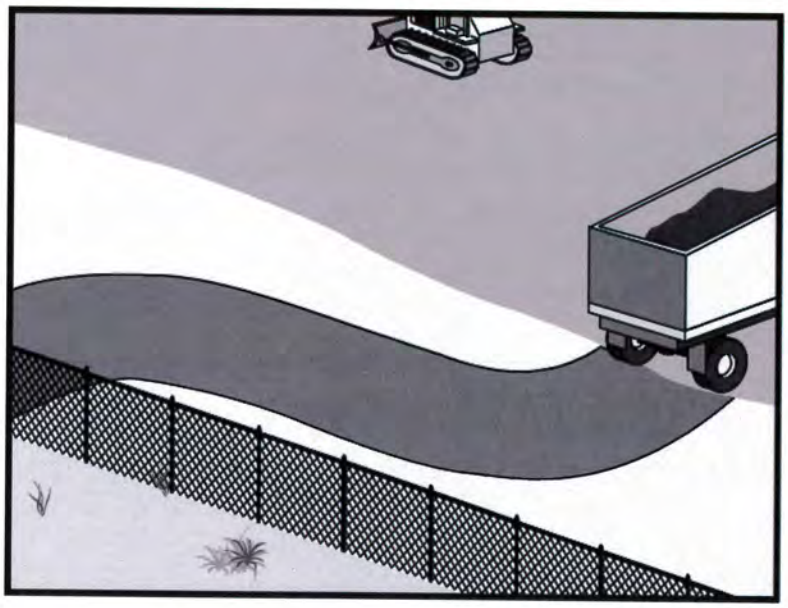
Stabilized Construction Roadway TC-2



Objectives

EC	Erosion Control	☒
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Access roads, subdivision roads, parking areas, and other onsite vehicle transportation routes should be stabilized immediately after grading, and frequently maintained to prevent erosion and control dust.

Suitable Applications

This BMP should be applied for the following conditions:

- Temporary Construction Traffic:
  - Phased construction projects and offsite road access
  - Construction during wet weather
- Construction roadways and detour roads:
  - Where mud tracking is a problem during wet weather
  - Where dust is a problem during dry weather
  - Adjacent to water bodies
  - Where poor soils are encountered

Limitations

- The roadway must be removed or paved when construction is complete.

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- Certain chemical stabilization methods may cause stormwater or soil pollution and should not be used. See WE-1, Wind Erosion Control.
- Management of construction traffic is subject to air quality control measures. Contact the local air quality management agency.
- Materials will likely need to be removed prior to final project grading and stabilization.
- Use of this BMP may not be applicable to very short duration projects.

Implementation

General

Areas that are graded for construction vehicle transport and parking purposes are especially susceptible to erosion and dust. The exposed soil surface is continually disturbed, leaving no opportunity for vegetative stabilization. Such areas also tend to collect and transport runoff waters along their surfaces. During wet weather, they often become muddy quagmires that generate significant quantities of sediment that may pollute nearby streams or be transported offsite on the wheels of construction vehicles. Dirt roads can become so unstable during wet weather that they are virtually unusable.

Efficient construction road stabilization not only reduces onsite erosion but also can significantly speed onsite work, avoid instances of immobilized machinery and delivery vehicles, and generally improve site efficiency and working conditions during adverse weather

Installation/Application Criteria

Permanent roads and parking areas should be paved as soon as possible after grading. As an alternative where construction will be phased, the early application of gravel or chemical stabilization may solve potential erosion and stability problems. Temporary gravel roadway should be considered during the rainy season and on slopes greater than 5%.

Temporary roads should follow the contour of the natural terrain to the maximum extent possible. Slope should not exceed 15%. Roadways should be carefully graded to drain transversely. Provide drainage swales on each side of the roadway in the case of a crowned section or one side in the case of a super elevated section. Simple gravel berms without a trench can also be used.

Installed inlets should be protected to prevent sediment laden water from entering the storm sewer system (SE-10, Storm Drain Inlet Protection). In addition, the following criteria should be considered.

- Road should follow topographic contours to reduce erosion of the roadway.
- The roadway slope should not exceed 15%.
- Chemical stabilizers or water are usually required on gravel or dirt roads to prevent dust (WE-1, Wind Erosion Control).
- Properly grade roadway to prevent runoff from leaving the construction site.
- Design stabilized access to support heaviest vehicles and equipment that will use it.

Stabilized Construction Roadway TC-2

- Stabilize roadway using aggregate, asphalt concrete, or concrete based on longevity, required performance, and site conditions. The use of cold mix asphalt or asphalt concrete (AC) grindings for stabilized construction roadway is not allowed.
- Coordinate materials with those used for stabilized construction entrance/exit points.
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 in. depth. A crushed aggregate greater than 3 in. but smaller than 6 in. should be used.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, impact weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Keep all temporary roadway ditches clear.
- When no longer required, remove stabilized construction roadway and re-grade and repair slopes.
- Periodically apply additional aggregate on gravel roads.
- Active dirt construction roads are commonly watered three or more times per day during the dry season.

Costs

Gravel construction roads are moderately expensive, but cost is often balanced by reductions in construction delay. No additional costs for dust control on construction roads should be required above that needed to meet local air quality requirements.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program; Program Development and Approval Guidance, Working Group, Working Paper; USEPA, April 1992.

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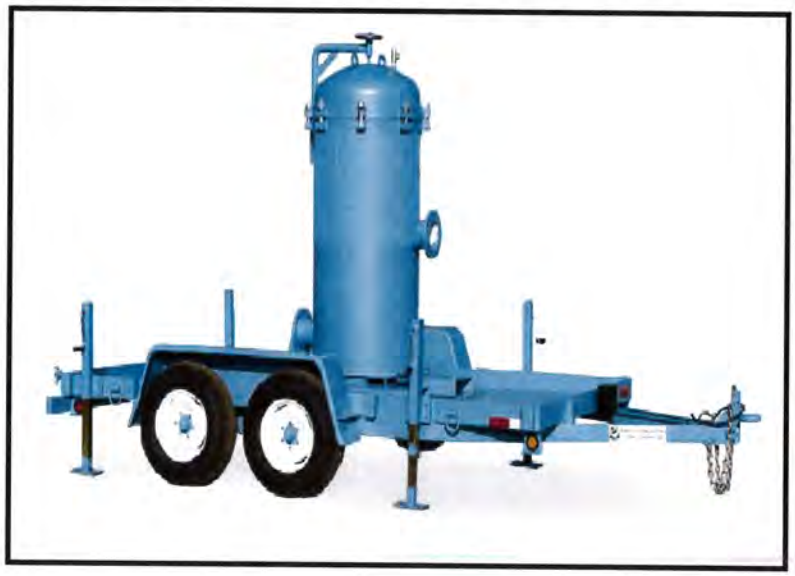
Dewatering Operations NS-2



Objectives		
EC	Erosion Control	
SE	Sediment Control	☒
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Description and Purpose

Dewatering operations are practices that manage the discharge of pollutants when non-stormwater and accumulated precipitation must be removed from a work location so that construction work may be accomplished.

Suitable Applications

These practices are implemented for discharges of non-stormwater from construction sites. Non-stormwaters include, but are not limited to, groundwater, water from cofferdams, water diversions, and waters used during construction activities that must be removed from a work area.

Practices identified in this section are also appropriate for implementation when managing the removal of accumulated precipitation (stormwater) from depressed areas at a construction site.

Limitations

- Site conditions will dictate design and use of dewatering operations.
- The controls discussed in this best management practice (BMP) address sediment only.
- The controls detailed in this BMP only allow for minimal settling time for sediment particles. Use only when site conditions restrict the use of the other control methods.
- Dewatering operations will require, and must comply with, applicable local permits.

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

SE-5: Fiber Roll

SE-6: Gravel Bag Berm

SE-9: Straw Bale Barrier

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- Avoid dewatering discharges where possible by using the water for dust control, by infiltration, etc.

Implementation

- Dewatering non-stormwater cannot be discharged without prior notice to and approval from the Regional Water Quality Control Board (RWQCB) and local stormwater management agency. This includes stormwater that is co-mingled with groundwater or other non-stormwater sources. Once the discharge is allowed, appropriate BMPs must be implemented to ensure the discharge complies with all permit requirements and regional and watershed-specific requirements.
- RWQCB may require a separate NPDES permit prior to the dewatering discharge of non-stormwater. These permits will have specific testing, monitoring, and discharge requirements and can take significant time to obtain.
- The flow chart shown in Figure 1 should be utilized to guide dewatering operations.
- The owner will coordinate monitoring and permit compliance.
- Additional permits or permissions from other agencies may be required for dewatering cofferdams or diversions.
- Dewatering discharges must not cause erosion at the discharge point.

A variety of methods can be used to treat water during dewatering operations. Several devices are presented below and provide options to achieve sediment removal. The size of particles present in the sediment and Permit or receiving water limitations on sediment are key considerations for selecting sediment treatment option(s); in some cases, the use of multiple devices may be appropriate.

Sediment Basin (see also SE-2)

Description:

- A sediment basin is a temporary basin with a controlled release structure that is formed by excavation or construction of an embankment to detain sediment-laden runoff and allow sediment to settle out before discharging. Sediment basins are generally larger than Sediment Traps (SE-3).

Appropriate Applications:

- Effective for the removal of gravel, sand, silt, some metals that settle out with the sediment, and trash.

Implementation:

- Excavation and construction of related facilities is required.
- Temporary sediment basins must be fenced if safety is a concern.
- Outlet protection is required to prevent erosion at the outfall location.

Maintenance:

- Maintenance is required for safety fencing, vegetation, embankment, inlet and outfall structures, as well as other features.
- Removal of sediment is required when the storage volume is reduced by one-half.

Sediment Trap (See also SE-3)

Description:

- A sediment trap is a temporary basin formed by excavation and/or construction of an earthen embankment across a waterway or low drainage area to detain sediment-laden runoff and allow sediment to settle out before discharging. Sediment traps are generally smaller than Sediment Basins (SE-2).

Appropriate Applications:

Effective for the removal of large and medium sized particles (sand and gravel) and some metals that settle out with the sediment.

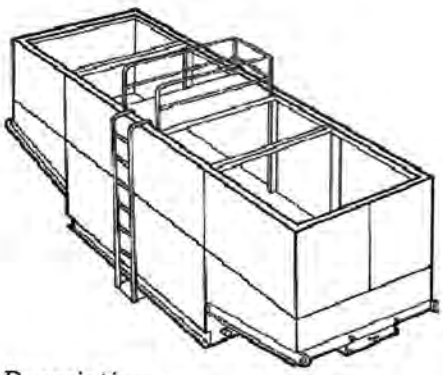
Implementation:

- Excavation and construction of related facilities is required.
- Trap inlets should be located to maximize the travel distance to the trap outlet.
- Use rock or vegetation to protect the trap outlets against erosion.

Maintenance:

- Maintenance is required for vegetation, embankment, inlet and outfall structures, as well as other features.
- Removal of sediment is required when the storage volume is reduced by one-third.

Weir Tanks



Description:

- A weir tank separates water and waste by using weirs. The configuration of the weirs (over and under weirs) maximizes the residence time in the tank and determines the waste to be removed from the water, such as oil, grease, and sediments.

Appropriate Applications:

- The tank removes trash, some settleable solids (gravel, sand, and silt), some visible oil and grease, and some metals (removed with sediment). To achieve high levels of flow, multiple tanks can be used in parallel. If additional treatment is desired, the tanks can be placed in series or as pre-treatment for other methods.

Implementation:

- Tanks are delivered to the site by the vendor, who can provide assistance with set-up and operation.
- Tank size will depend on flow volume, constituents of concern, and residency period required. Vendors should be consulted to appropriately size tank.

Maintenance:

- Periodic cleaning is required based on visual inspection or reduced flow.
- Oil and grease disposal must be by licensed waste disposal company.

Dewatering Tanks

Description:

- A dewatering tank removes debris and sediment. Flow enters the tank through the top, passes through a fabric filter, and is discharged through the bottom of the tank. The filter separates the solids from the liquids.

Appropriate Applications:

- The tank removes trash, gravel, sand, and silt, some visible oil and grease, and some metals (removed with sediment). To achieve high levels of flow, multiple tanks can be used in parallel. If additional treatment is desired, the tanks can be placed in series or as pre-treatment for other methods.

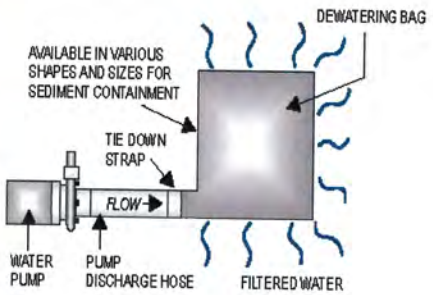
Implementation:

- Tanks are delivered to the site by the vendor, who can provide assistance with set-up and operation.
- Tank size will depend on flow volume, constituents of concern, and residency period required. Vendors should be consulted to appropriately size tank.

Maintenance:

- Periodic cleaning is required based on visual inspection or reduced flow.
- Oil and grease disposal must be by licensed waste disposal company.

Gravity Bag Filter



Description:

- A gravity bag filter, also referred to as a dewatering bag, is a square or rectangular bag made of non-woven geotextile fabric that collects sand, silt, and fines.

Appropriate Applications:

- Effective for the removal of sediments (gravel, sand, and silt). Some metals are removed with the sediment.

Implementation:

- Water is pumped into one side of the bag and seeps through the bottom and sides of the bag.
- A secondary barrier, such as a rock filter bed or straw/hay bale barrier, is placed beneath and beyond the edges of the bag to capture sediments that escape the bag.

Maintenance:

- Inspection of the flow conditions, bag condition, bag capacity, and the secondary barrier is required.
- Replace the bag when it no longer filters sediment or passes water at a reasonable rate.
- The bag is disposed of offsite.

Sand Media Particulate Filter

Description:

- Water is treated by passing it through canisters filled with sand media. Generally, sand filters provide a final level of treatment. They are often used as a secondary or higher level of treatment after a significant amount of sediment and other pollutants have been removed using other methods.

Appropriate Applications:

- Effective for the removal of trash, gravel, sand, and silt and some metals, as well as the reduction of biochemical oxygen demand (BOD) and turbidity.
- Sand filters can be used for stand-alone treatment or in conjunction with bag and cartridge filtration if further treatment is required.
- Sand filters can also be used to provide additional treatment to water treated via settling or basic filtration.

Implementation:

- The filters require delivery to the site and initial set up. The vendor can provide assistance with installation and operation.

Maintenance:

- The filters require regular service to monitor and maintain the level of the sand media. If subjected to high loading rates, filters can plug quickly.
- Venders generally provide data on maximum head loss through the filter. The filter should be monitored daily while in use, and cleaned when head loss reaches target levels.
- If cleaned by backwashing, the backwash water may need to be hauled away for disposal, or returned to the upper end of the treatment train for another pass through the series of dewatering BMPs.

Pressurized Bag Filter

Description:

- A pressurized bag filter is a unit composed of single filter bags made from polyester felt material. The water filters through the unit and is discharged through a header. Vendors provide bag filters in a variety of configurations. Some units include a combination of bag filters and cartridge filters for enhanced contaminant removal.

Appropriate Applications:

- Effective for the removal of sediment (sand and silt) and some metals, as well as the reduction of BOD, turbidity, and hydrocarbons. Oil absorbent bags are available for hydrocarbon removal.
- Filters can be used to provide secondary treatment to water treated via settling or basic filtration.

Implementation:

- The filters require delivery to the site and initial set up. The vendor can provide assistance with installation and operation.

Maintenance:

- The filter bags require replacement when the pressure differential equals or exceeds the manufacturer's recommendation.

Cartridge Filter

Description:

- Cartridge filters provide a high degree of pollutant removal by utilizing a number of individual cartridges as part of a larger filtering unit. They are often used as a secondary or higher (polishing) level of treatment after a significant amount of sediment and other pollutants are removed. Units come with various cartridge configurations (for use in series with bag filters) or with a larger single cartridge filtration unit (with multiple filters within).

Appropriate Applications:

- Effective for the removal of sediment (sand, silt, and some clays) and metals, as well as the reduction of BOD, turbidity, and hydrocarbons. Hydrocarbons can effectively be removed with special resin cartridges.
- Filters can be used to provide secondary treatment to water treated via settling or basic filtration.

Implementation:

- The filters require delivery to the site and initial set up. The vendor can provide assistance.

Maintenance:

- The cartridges require replacement when the pressure differential equals or exceeds the manufacturer's recommendation.

Costs

- Sediment controls are low to high cost measures depending on the dewatering system that is selected. Pressurized filters tend to be more expensive than gravity settling, but are often more effective. Simple tanks are generally rented on a long-term basis (one or more months) and can range from $360 per month for a 1,000 gallon tank to $2,660 per month for a 10,000 gallon tank. Mobilization and demobilization costs vary considerably.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.

- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Unit-specific maintenance requirements are included with the description of each unit.
- Sediment removed during the maintenance of a dewatering device may be either spread onsite and stabilized, or disposed of at a disposal site as approved by the owner.
- Sediment that is commingled with other pollutants must be disposed of in accordance with all applicable laws and regulations and as approved by the owner.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

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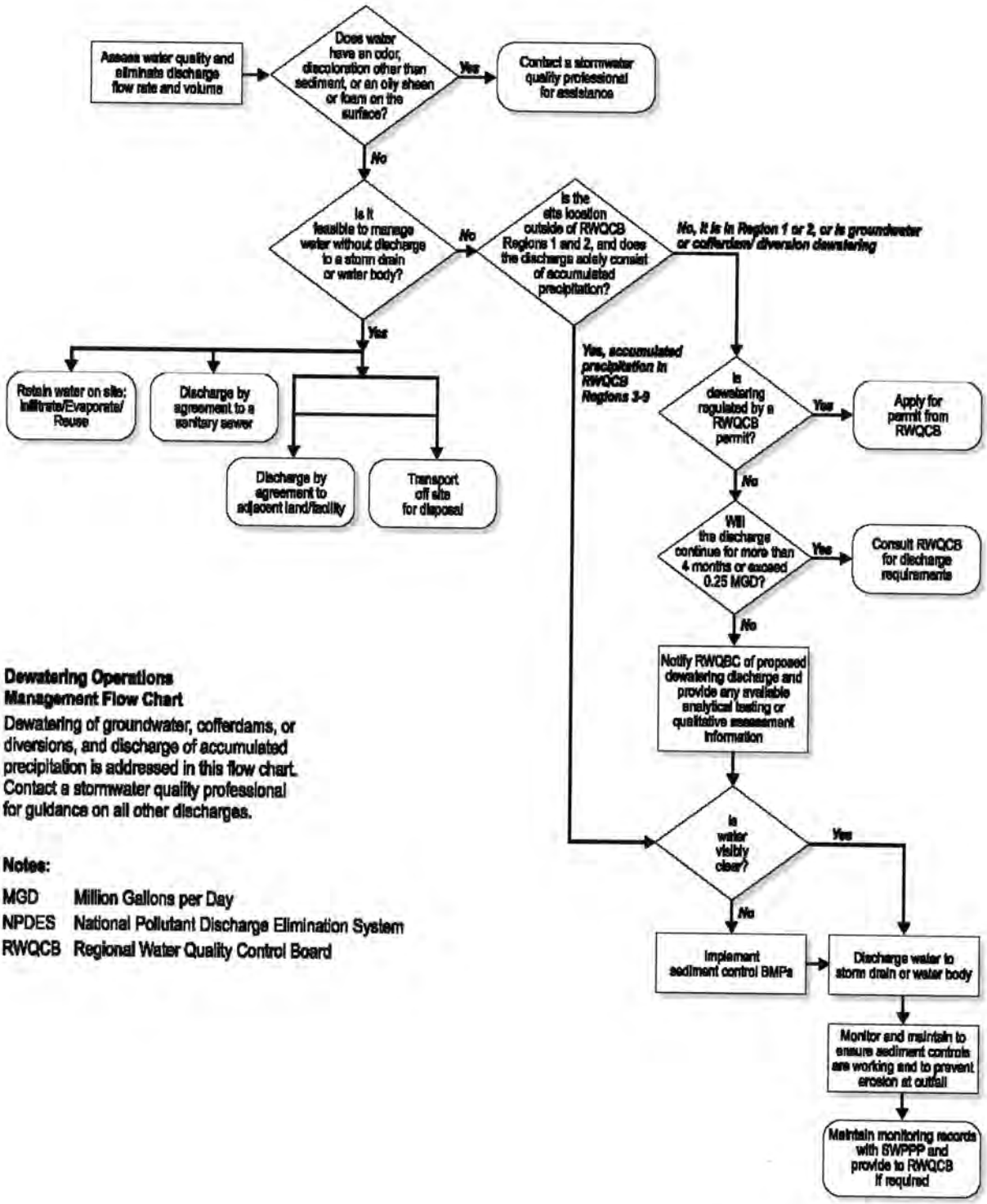


Dewatering Operations Management Flow Chart

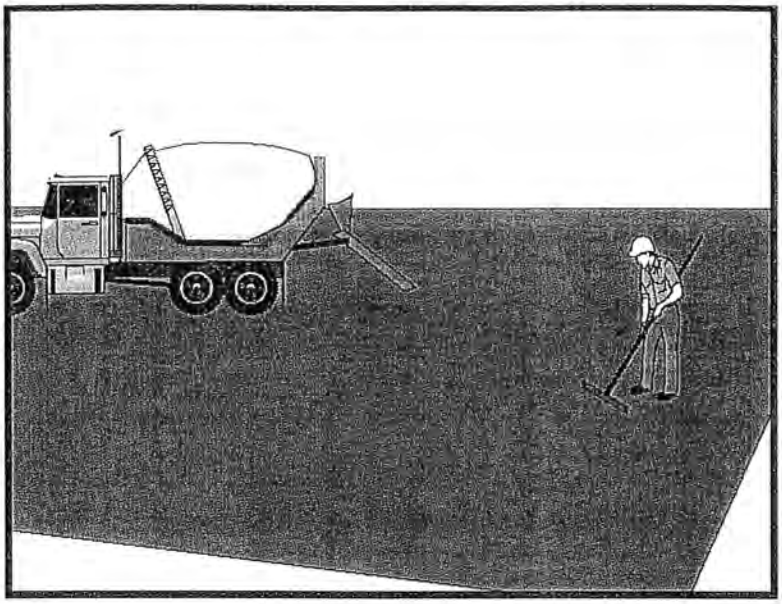
Dewatering of groundwater, cofferdams, or diversions, and discharge of accumulated precipitation is addressed in this flow chart. Contact a stormwater quality professional for guidance on all other discharges.

Notes:

MGD Million Gallons per Day
NPDES National Pollutant Discharge Elimination System
RWQCB Regional Water Quality Control Board

Figure 1
Operations Flow Chart

Paving and Grinding Operations NS-3



Objectives		
EC	Erosion Control	
SE	Sediment Control	
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	☒

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Prevent or reduce the discharge of pollutants from paving operations, using measures to prevent runon and runoff pollution, properly disposing of wastes, and training employees and subcontractors.

Suitable Applications

These procedures are implemented where paving, surfacing, resurfacing, or sawcutting, may pollute stormwater runoff or discharge to the storm drain system or watercourses.

Limitations

- Finer solids are not effectively removed by filtration systems.
- Paving opportunities may be limited during wet weather.

Implementation

General

- Avoid paving during the wet season when feasible.
- Reschedule paving and grinding activities if rain is in the forecast.
- Train employees and sub-contractors in pollution prevention and reduction.
- Store materials away from drainage courses to prevent stormwater runon (see WM-1, Material Delivery and Storage).

- Protect drainage courses, particularly in areas with a grade, by employing BMPs to divert runoff or to trap and filter sediment.
- If paving involves an onsite mixing plant, follow the stormwater permitting requirements for industrial activities.
- Stockpile material removed from roadways away from drain inlets, drainage ditches, and watercourses, These materials should be stored consistent with WM-3, Stockpile Management.
- Disposal of PCC and AC waste should be in conformance with WM-8, Concrete Waste Management.

Saw Cutting, Grinding, and Pavement Removal

- Shovel or vacuum saw-cut slurry and remove from site. Cover or barricade storm drains during saw cutting to contain slurry.
- When paving involves AC, the following steps should be implemented to prevent the discharge of grinding residue, uncompacted or loose AC, tack coats, equipment cleaners, or unrelated paving materials:
  - AC grindings, pieces, or chunks used in embankments or shoulder backing must not be allowed to enter any storm drains or watercourses. Install silt fence until structure is stabilized or permanent controls are in place. Examples of temporary perimeter controls can be found in EC-9, Earth Dikes and Drainage Swales; SE-1, Silt Fence; or SE-5, Fiber Rolls.
  - Collect and remove all broken asphalt and recycle when practical. Old or spilled asphalt must be recycled or disposed.
  - Any AC chunks and pieces used in embankments must be placed above the water table and covered by at least 1 ft of material.
- Do not allow saw-cut slurry to enter storm drains or watercourses. Residue from grinding operations should be picked up by means of a vacuum attachment to the grinding machine, should not be allowed to flow across the pavement, and should not be left on the surface of the pavement. See also WM-8, Concrete Waste Management, and WM-10, Liquid Waste Management.
- Dig out activities should not be conducted in the rain.
- Collect dig out material by mechanical or manual methods. This material may be recycled for use as shoulder backing or base material.
- If dig out material cannot be recycled, transport the material back to an approved storage site.

Asphaltic Concrete Paving

- If paving involves asphaltic cement concrete, follow these steps:

- Do not allow sand or gravel placed over new asphalt to wash into storm drains, streets, or creeks. Vacuum or sweep loose sand and gravel and properly dispose of this waste by referring to WM-5, Solid Waste Management.

- Old asphalt must be disposed of properly. Collect and remove all broken asphalt from the site and recycle whenever possible.

Portland Cement Concrete Paving

- Do not wash sweepings from exposed aggregate concrete into a storm drain system. Collect and return to aggregate base stockpile or dispose of properly.

- Allow aggregate rinse to settle. Then, either allow rinse water to dry in a temporary pit as described in WM-8, Concrete Waste Management, or pump the water to the sanitary sewer if allowed by the local wastewater authority.

Sealing Operations

- During chip seal application and sweeping operations, petroleum or petroleum covered aggregate must not be allowed to enter any storm drain or water courses. Apply temporary perimeter controls until structure is stabilized.

- Drainage inlet structures and manholes should be covered with filter fabric during application of seal coat, tack coat, slurry seal, and fog seal.

- Seal coat, tack coat, slurry seal, or fog seal should not be applied if rainfall is predicted to occur during the application or curing period.

Paving Equipment

- Leaks and spills from paving equipment can contain toxic levels of heavy metals and oil and grease. Place drip pans or absorbent materials under paving equipment when not in use. Clean up spills with absorbent materials rather than burying. See NS-10, Vehicle and Equipment Maintenance, WM-4, Spill Prevention and Control, and WM-10, Liquid Waste Management.

- Substances used to coat asphalt transport trucks, and asphalt spreading equipment should not contain soap and should be non-foaming and non-toxic.

- Use only non-toxic substances to coat asphalt transport trucks and asphalt spreading equipment.

- Paving equipment parked onsite should be parked over plastic to prevent soil contamination.

- Clean asphalt coated equipment offsite whenever possible. When cleaning dry, hardened asphalt from equipment, manage hardened asphalt debris as described in WM-5, Solid Waste Management. Any cleaning onsite should follow NS-8, Vehicle and Equipment Cleaning.

Thermoplastic Striping

- Thermoplastic striper and pre-heater equipment shutoff valves should be inspected to ensure that they are working properly to prevent leaking thermoplastic from entering drain inlets, the stormwater drainage system, or watercourses.
- Pre-heaters should be filled carefully to prevent splashing or spilling of hot thermoplastic. Leave six inches of space at the top of the pre-heater container when filling thermoplastic to allow room for material to move when the vehicle is deadheaded.
- Do not pre-heat, transfer, or load thermoplastic near drain inlets or watercourses.
- Clean truck beds daily of loose debris and melted thermoplastic. When possible, recycle thermoplastic material.

Raised/Recessed Pavement Marker Application and Removal

- Do not transfer or load bituminous material near drain inlets, the stormwater drainage system, or watercourses.
- Melting tanks should be loaded with care and not filled to beyond six inches from the top to leave room for splashing when vehicle is deadheaded.
- When servicing or filling melting tanks, ensure all pressure is released before removing lids to avoid spills.
- On large-scale projects, use mechanical or manual methods to collect excess bituminous material from the roadway after removal of markers.

Costs

- All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
- Keep ample supplies of drip pans or absorbent materials onsite.
- Inspect and maintain machinery regularly to minimize leaks and drips.

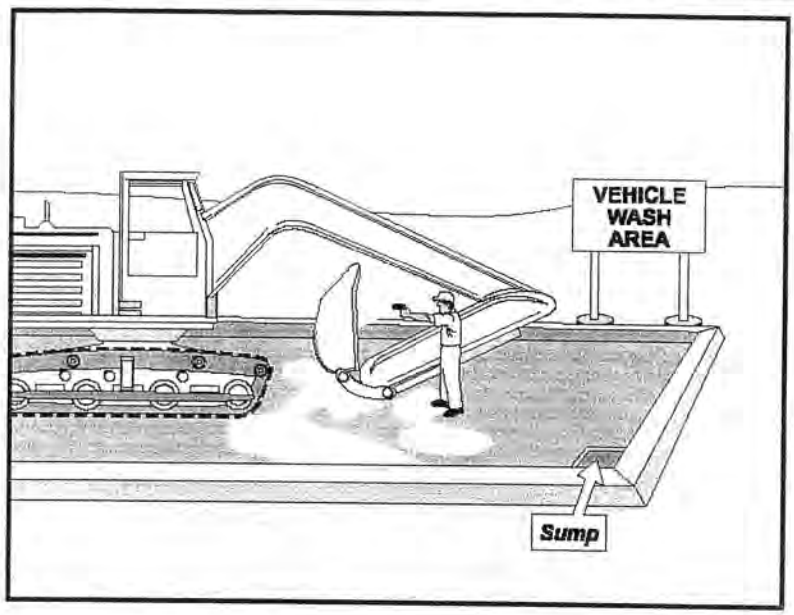
References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Hot Mix Asphalt-Paving Handbook AC 150/5370-14, Appendix I, U.S. Army Corps of Engineers, July 1991.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Vehicle and Equipment Cleaning NS-8



Objectives

EC	Erosion Control	
SE	Sediment Control	
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Vehicle and equipment cleaning procedures and practices eliminate or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning operations. Procedures and practices include but are not limited to: using offsite facilities; washing in designated, contained areas only; eliminating discharges to the storm drain by infiltrating the wash water; and training employees and subcontractors in proper cleaning procedures.

Suitable Applications

These procedures are suitable on all construction sites where vehicle and equipment cleaning is performed.

Limitations

Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades. Sending vehicles/equipment offsite should be done in conjunction with TR-1, Stabilized Construction Entrance/Exit.

Implementation

Other options to washing equipment onsite include contracting with either an offsite or mobile commercial washing business. These businesses may be better equipped to handle and dispose of the wash waters properly. Performing this work offsite can also be economical by eliminating the need for a separate washing operation onsite.

If washing operations are to take place onsite, then:

- Use phosphate-free, biodegradable soaps.
- Educate employees and subcontractors on pollution prevention measures.
- Do not permit steam cleaning onsite. Steam cleaning can generate significant pollutant concentrates.
- Cleaning of vehicles and equipment with soap, solvents or steam should not occur on the project site unless resulting wastes are fully contained and disposed of. Resulting wastes should not be discharged or buried, and must be captured and recycled or disposed according to the requirements of WM-10, Liquid Waste Management or WM-6, Hazardous Waste Management, depending on the waste characteristics. Minimize use of solvents. Use of diesel for vehicle and equipment cleaning is prohibited.
- All vehicles and equipment that regularly enter and leave the construction site must be cleaned offsite.
- When vehicle and equipment washing and cleaning must occur onsite, and the operation cannot be located within a structure or building equipped with appropriate disposal facilities, the outside cleaning area should have the following characteristics:
  - Located away from storm drain inlets, drainage facilities, or watercourses
  - Paved with concrete or asphalt and bermed to contain wash waters and to prevent runon and runoff
  - Configured with a sump to allow collection and disposal of wash water
  - No discharge of wash waters to storm drains or watercourses
  - Used only when necessary
- When cleaning vehicles and equipment with water:
  - Use as little water as possible. High-pressure sprayers may use less water than a hose and should be considered
  - Use positive shutoff valve to minimize water usage
  - Facility wash racks should discharge to a sanitary sewer, recycle system or other approved discharge system and must not discharge to the storm drainage system, watercourses, or to groundwater

Costs

Cleaning vehicles and equipment at an offsite facility may reduce overall costs for vehicle and equipment cleaning by eliminating the need to provide similar services onsite. When onsite cleaning is needed, the cost to establish appropriate facilities is relatively low on larger, long-duration projects, and moderate to high on small, short-duration projects.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Inspection and maintenance is minimal, although some berm repair may be necessary.
- Monitor employees and subcontractors throughout the duration of the construction project to ensure appropriate practices are being implemented.
- Inspect sump regularly and remove liquids and sediment as needed.
- Prohibit employees and subcontractors from washing personal vehicles and equipment on the construction site.

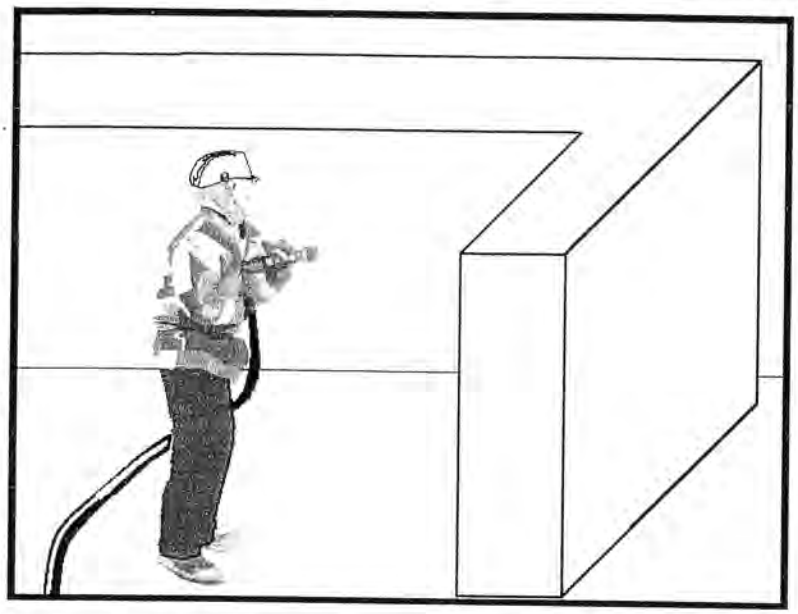
References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Swisher, R.D. Surfactant Biodegradation, Marcel Decker Corporation, 1987.

Concrete Finishing

NS-13



Objectives

EC	Erosion Control	
SE	Sediment Control	
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ Primary Objective

☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	☑

Potential Alternatives

None

Description and Purpose

Concrete finishing methods are used for bridge deck rehabilitation, paint removal, curing compound removal, and final surface finish appearances. Methods include sand blasting, shot blasting, grinding, or high pressure water blasting. Stormwater and non-stormwater exposed to concrete finishing by-products may have a high pH and may contain chemicals, metals, and fines. Proper procedures and implementation of appropriate BMPs can minimize the impact that concrete-finishing methods may have on stormwater and non-stormwater discharges.

Suitable Applications

These procedures apply to all construction locations where concrete finishing operations are performed.

Limitations

None identified.

Implementation

- Collect and properly dispose of water from high-pressure water blasting operations.
- Collect contaminated water from blasting operations at the top of slopes. Transport or dispose of contaminated water while using BMPs such as those for erosion control. Refer to EC-9, Earth Dikes and Drainage Swales, EC-10, Velocity Dissipation Devices, and EC-11, Slope Drains.

- Direct water from blasting operations away from inlets and watercourses to collection areas for infiltration or other means of removal (dewatering). Refer to NS-2 De-Watering Operations.
- Protect inlets during sandblasting operations. Refer to SE-10, Storm Drain Inlet Protection.
- Refer to WM-8, Concrete Waste Management for disposal of concrete based debris.
- Minimize the drift of dust and blast material as much as possible by keeping the blasting nozzle close to the surface.
- When blast residue contains a potentially hazardous waste, refer to WM-6, Hazardous Waste Management.

Costs

These measures are generally of low cost.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Sweep or vacuum up debris from sandblasting at the end of each shift.
- At the end of each work shift, remove and contain liquid and solid waste from containment structures, if any, and from the general work area.

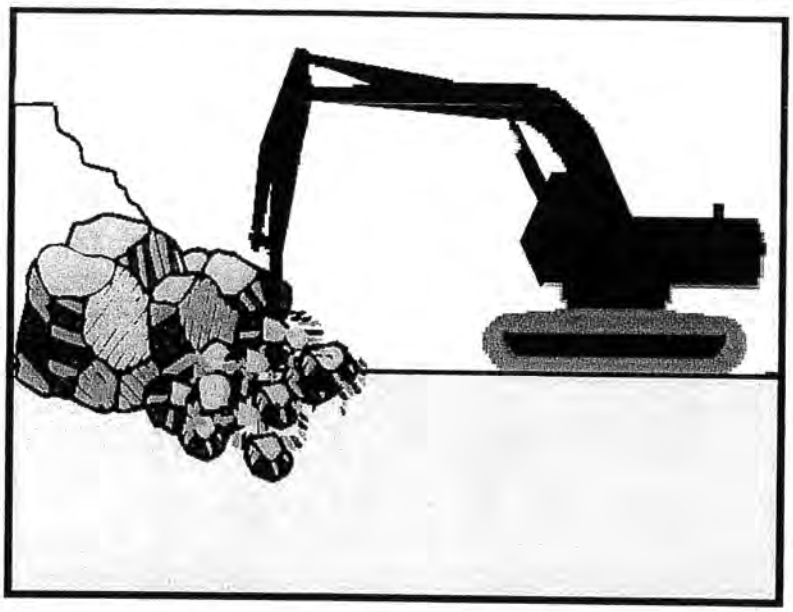
References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Demolition Adjacent to Water NS-15



Objectives		
EC	Erosion Control	
SE	Sediment Control	
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Procedures to protect water bodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses.

Suitable Applications

Full bridge demolition and removal, partial bridge removal (barrier rail, edge of deck) associated with bridge widening projects, concrete channel removal, or any other structure removal that could potentially affect water quality.

Limitations

None identified.

Implementation

- Refer to NS-5, Clear Water Diversion, to direct water away from work areas.
- Use attachments on construction equipment such as backhoes to catch debris from small demolition operations.
- Use covers or platforms to collect debris.
- Platforms and covers are to be approved by the owner.
- Stockpile accumulated debris and waste generated during demolition away from watercourses and in accordance with WM-3, Stockpile Management.
- Ensure safe passage of wildlife, as necessary.

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- Discharges to waterways shall be reported to the Regional Water Quality Control Board immediately upon discovery. A written discharge notification must follow within 7 days. Follow the spill reporting procedures in the SWPPP.
- For structures containing hazardous materials, i.e., lead paint or asbestos, refer to BMP WM-6, Hazardous Waste Management. For demolition work involving soil excavation around lead-painted structures, refer to WM-7, Contaminated Soil Management.

Costs

Cost may vary according to the combination of practices implemented.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Any debris-catching devices shall be emptied regularly. Collected debris shall be removed and stored away from the watercourse and protected from runon and runoff.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

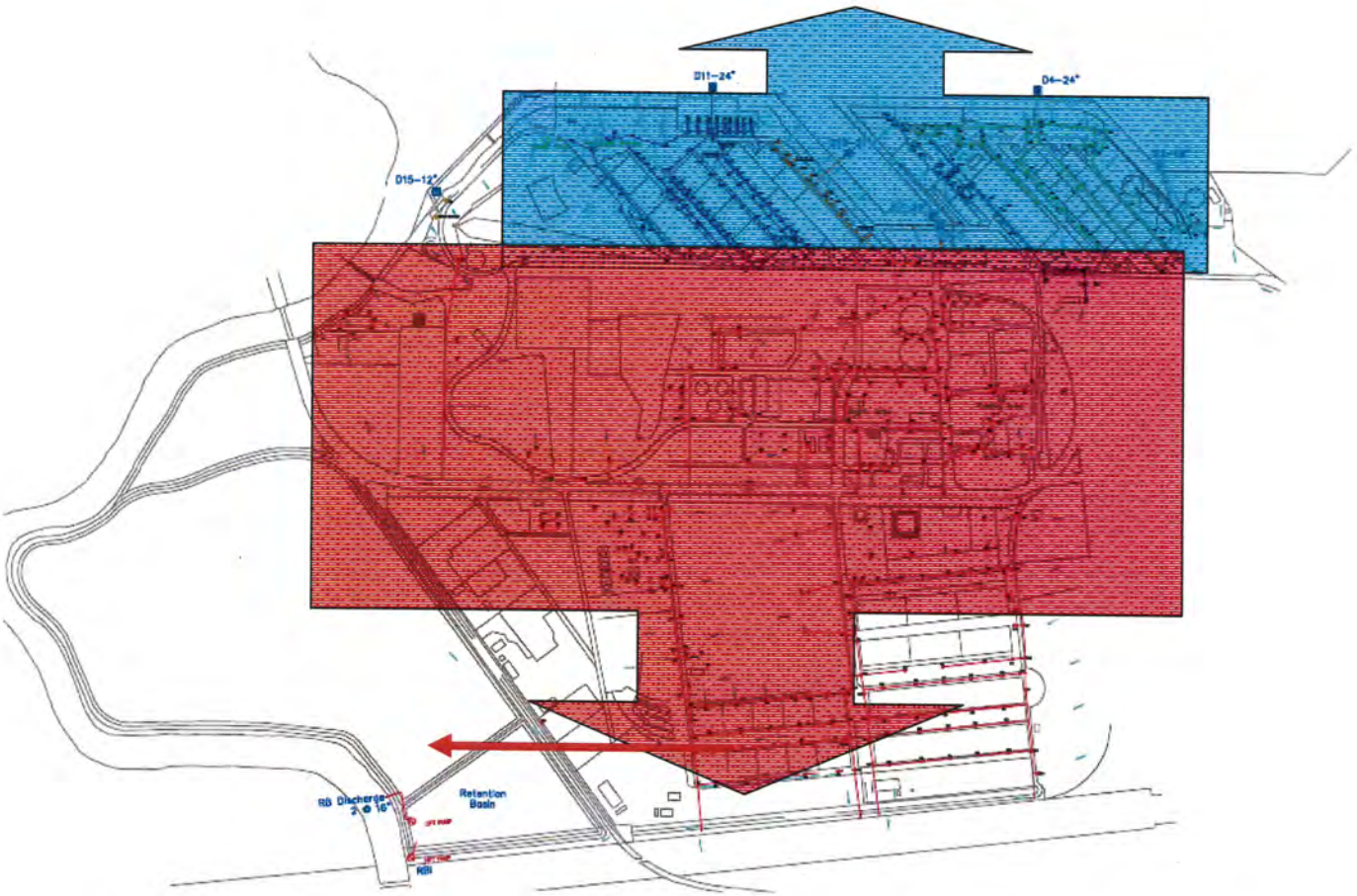
Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Appendix E

Spill Response Plan

Port of Stockton Emergency Spill Response Plan

Surface Flow Runoff Drainage Pattern



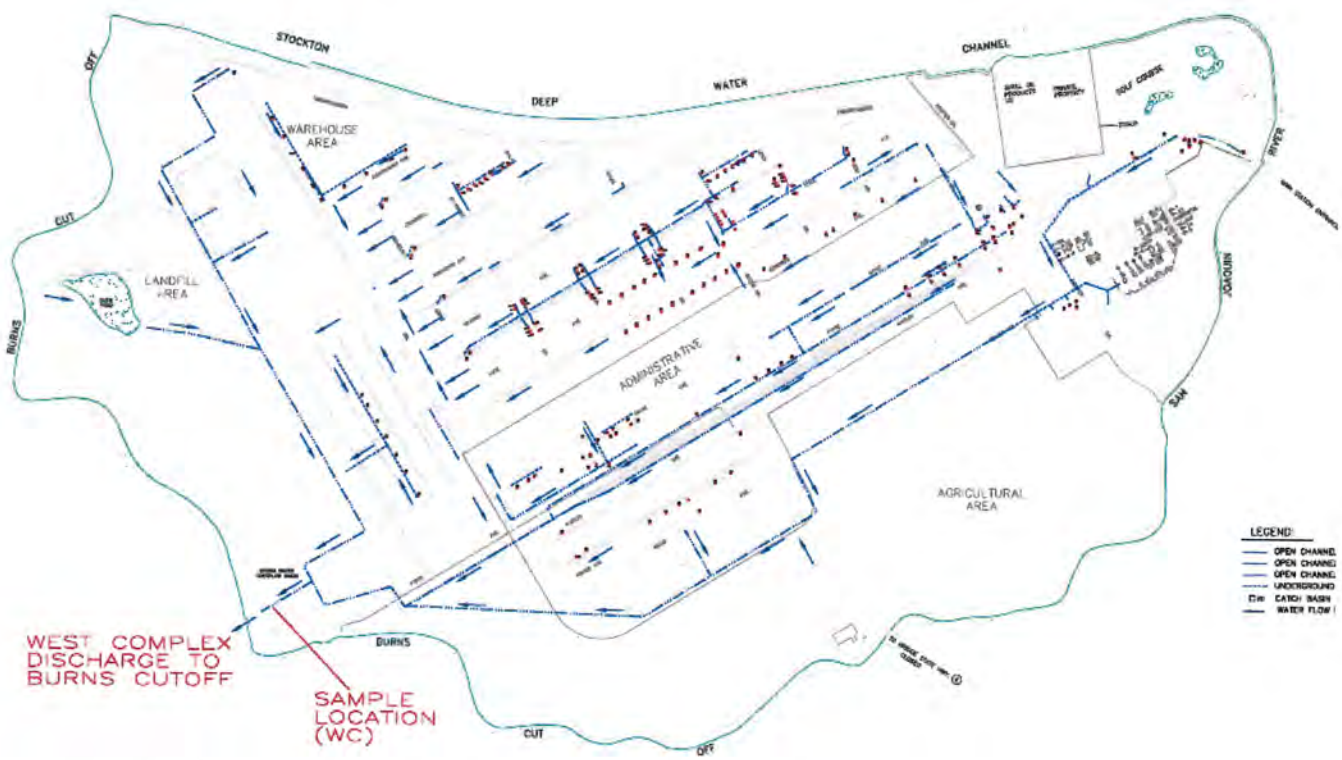
East Complex: The Port maintains and operates a retention basin in the southwest corner of the facility. The retention basin serves as a storm water control structure to moderate the flow and effects of storm water, but may also serve to capture any pollutant release prior to discharge into the San Joaquin River. The retention basin captures all flows into the storm drain system south of Road "A". Storm drain systems north of Road "A" flow into the Stockton Deep Water Channel. Thus, these areas north of Road "A" are higher priority for spill response in order to keep spills and other pollutant releases from reaching the Channel.

Releases of oil at the Port are typically contained and cleaned with portable spill response equipment located at various locations throughout the facility. If a release of oil is significant or undetected, a potential exists for the material to enter the storm drain system. In a worst case scenario, any release south of Road 'A' will flow to the drainage ditch and/or storm water retention pond where the release will be contained. Approximately 75% of the Port drains to the

retention basin, allowing spills to be contained and mitigated prior to release into the San Joaquin River. However, efforts should be made to contain all spills prior to reaching the MS4 and the retention basin whenever possible.

The Port maintains and operates this 12.75-acre retention basin with a capacity of approximately 140 acre-feet, including freeboard. The retention basin will capture all flows, including spills, within the storm drain system south of Road "A" and then within the retention basin system prior to release into the San Joaquin River. This feature allows the Port to respond to large magnitude spills without impacting the receiving water body.

Flows enter the retention basin via the Road "N" ditch, which extends along the southern border of the Port. Accumulated water must be pumped from the Road "N" ditch into the retention basin. If a large magnitude release occurs during dry weather, the Road "N" ditch will act as the primary collection basin of the spilled material. If the release occurs during a heavy rainfall, the capacity of the ditch may be exceeded, and the contaminated water may be pumped directly into the retention basin. Due to its size, the retention basin can reasonably be expected to contain all run-off in its catchment area without necessitating discharge.



West Complex: The entire West Complex's eastern, southern, and western perimeters of the island are bordered by levees. The overall direction of drainage takes place diagonally across the island from the northeast, and from the Embarcadero along the docks, to the south/southwest area of the West Complex. Consequently, all storm water is retained on the island unless removed by pumping. The West Complex's developed area has a drainage system that collects storm water through catch basins and conveys the storm water to existing culverts/pipes, primarily via open channel flow. At some locations, sediment traps have been

installed where storm water pipes exit into open trenches. Culverts and open channels route storm water to the southwest to the storm water overflow basin.

Spill Contingency Plans:

East Complex north of Port Road A:
If a spill or release takes place in the drainage area north of Port Road A, immediate action needs to be taken to contain or stop the flow before reaching a storm drain inlet or channel. This is considered the most vulnerable drainage area because all drains flow directly to the Deep Water Ship Channel. If, despite attempts to contain the spill before it reaches the MS4, a spill or release enters the drainage system, downstream drains must be blocked off to stop and contain the flow prior to reaching the water body. Once the downstream drain line is blocked off, start to address and halt the source if possible. Then, act to contain the spill or release area by securing the area so traffic or pedestrians do not track out the material when exiting the area. All Port Police, Maintenance, and Daily Rounds vehicles are equipped with spill kits and clean up equipment. Additional spill equipment and supplies are available through the Maintenance Department. Consult with the Environmental Department officials for appropriate cleanup measures.

East Complex south of Port Road A:
If a spill or release takes place in the drainage area south of Port road A, downstream drains should be sealed off in order to contain the release. If the spill or release reaches the "south ditch," booms and absorbent should be used down stream to contain the released material. If the spill/release occurs during the "wet season," notify the Maintenance Department of the spill or release in the "south ditch" and ensure the water is not pumped to the retention basin until the cleanup is complete. Consult with the Environmental Department officials for appropriate cleanup measures.

West Complex:
The West Complex's storm water drainage system is less likely to be impacted by a spill or release. This is due to the greater distance that any spilled material would have to travel to get to the West Complex pump station. If a spill or release occurs in the culverts east of the pump station's wetland area, booms and absorbent should be placed in the area downstream of the flow. If the flow reaches the pump station's wetland area, notify the Maintenance Department of the release. Request the pump station's pumps are shut off until the cleanup is complete. Consult with the Environmental Department officials for appropriate cleanup measures.

Appendix F

Drain Maintenance Training Video

Appendix G

Drain Maintenance Frequency

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
1	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lehigh Cement Co.
2	S/E corner of brick WHSE E in D-2 area	2	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
3	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lehigh Cement Co.
4	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	Yes	As Needed	As Needed	As Needed	Maintained by Lehigh Cement Co.
5	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lehigh Cement Co.
6	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lehigh Cement Co.
9	D-2 outfall drain	2	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton and Lehigh Cement Co.
10	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lehigh Cement Co.
11	Next to brick WHSE E	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
12	Next to brick WHSE F	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
13	Next to brick WHSE D	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
14	Next to brick WHSE B	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
15	Middle of Port Rd. 2 north side of Lehigh	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
16	Middle of Port Rd. 2 north side of Lehigh	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
17	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
18	North end of WHSE A	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
19	Next to small shed and Port Rd. B	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
20	Next to small shed and Port Rd. B	3	1	East	Yes	Yes	As Needed	As Needed	As Needed	Maintained by Port of Stockton
21	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
22	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
23	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
24	In R/R tracks D-4 outfall drain	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
25	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
26	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
27	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
28	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
29	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
30	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
31	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
32	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
33	In R/R tracks to the W. of D-4 outfall	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
34	In R/R tracks to the W. of D-4 outfall	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
35	In R/R tracks to the W. of D-4 outfall	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
36	In R/R tracks to the W. of D-4 outfall	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
37	In R/R tracks to the W. of D-4 outfall	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
38	In R/R tracks to the W. of D-4 outfall	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
39	In R/R tracks to the W. of D-4 outfall	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
40	In R/R tracks to the W. of D-4 outfall	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
41	In R/R tracks to the W. of D-4 outfall	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
42	In R/R tracks to the W. of D-4 outfall	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
43	At S/W corner of brick WHSE M	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
44	In front of brick WHSE K	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
45	In front of brick WHSE J	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
46	In front of brick WHSE J	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
47	In front of brick WHSE J	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
48	In front of brick WHSE H	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
49	N/W corner of brick WHSE G	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
50	In middle of Port Rd. B	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
51	Stream Guard Insert & Gravel Around Drain	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
52	N. side of Port Rd. A	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
53	S. side of Port Rd. A across Rd from drain #051	3	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
54	S. side of Port Rd. A in line with drain #53	3	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
55	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
56	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by CPC

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
57	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
58	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
59	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
60	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
61	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
62	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
63	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
64	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
65	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
66	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
67	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
68	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
69	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
70	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
71	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
72	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
73	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
74	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
75	W. side of Port Rd 4 in R/R tracks	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
76	In corner next to dock, at the end of both Port Rd 4 & B	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
77	In corner next to dock, at the end of both Port Rd 4 &	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
78	In corner next to dock, at the end of both Port Rd 4 & B	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
79	In corner next to dock, at the end of both Port Rd 4 & B	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
80	In corner next to dock, at the end of both Port Rd 4 & B	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
82	Corner of Port rd's A & 5	4	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
83	In R/R bed on S. side of Port rd. A	4	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
84	On N. side of Port rd A	4	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
90	Castle & Cook Cold Storage	4	2		Yes	As Needed	As Needed	As Needed	As Needed	WGR
91	Castle & Cook Cold Storage	4	2		Yes	As Needed	As Needed	As Needed	As Needed	WGR
95	Castle & Cook Cold Storage	4	2		Yes	As Needed	As Needed	As Needed	As Needed	WGR
96	Castle & Cook Cold Storage	4	2		Yes	As Needed	As Needed	As Needed	As Needed	WGR
97	Castle & Cook Cold Storage	4	2		Yes	As Needed	As Needed	As Needed	As Needed	WGR
99	Castle & Cook Cold Storage		2		Yes	As Needed	As Needed	As Needed	As Needed	WGR
105	Westway Terminal	4	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Westway Terminal

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
106	Westway Terminal	4	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Westway Terminal
107	Westway Terminal	4	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Westway Terminal
108	Westway Terminal	4	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Westway Terminal
109	This drain has been deactivated.	3	1		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Westway Terminal
110	This drain has been deactivated.	3	1		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Westway Terminal
111	On S. side of Port rd B	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
112	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
113	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
114	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
115	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
116	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
117	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
118	On N. side of Port rd B in R/R tracks				Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
119	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
120	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
121	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
122	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
123	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
124	On N. side of Port rd B in tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
125	On N. side of Port rd B in tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
126	On N. side of Port rd B in tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
127	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
128	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
129	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
130	In middle of Port Rd. B		2	East	Yes	As Needed	Yes	As Needed	As Needed	WGR
131	In middle of Port Rd. B	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	WGR
132	Middle of Port rd B	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	WGR
141	Castle & Cook	5	2		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Castle & Cook
142	Castle & Cook	5	2		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Castle & Cook
143	Castle & Cook	5	2		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Castle & Cook
144	Castle & Cook	5	2		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Castle & Cook
145	Castle & Cook	5	2		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Castle & Cook
146	Castle & Cook	5	2		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Castle & Cook
147	On corner of Port rd's A & 6	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
148	W. side of Port rd 6 next to WHSE	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
152	W. side of Port rd 6 next to WHSE	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
153	W. side of Port rd 6 next to WHSE	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
154	W. side of Port rd 6 next to WHSE	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
156	Corner of Port rd's 6 & B next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
157	Corner of WHSE on E. side of Port rd 7	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
158	Corner of WHSE on E. side of Port rd 7	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
159	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
160	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
161	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
162	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
163	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
164	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
165	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
166	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
167	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
168	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
169	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
170	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
171	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
172	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
173	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
174	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
175	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
176	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
177	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
178	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
179	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
180	E. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
181	Corner of WHSE & Port rd's A & 7	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
182	Corner of WHSE & Port rd's A & 7	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
183	S. side of Port rd A	5	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
184	S. side of Port rd A	5	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
185	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
186	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
187	W. side of Port rd 7	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
188	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
189	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
190	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
191	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
192	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
193	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
194	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
195	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
196	W. side ot Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
197	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
198	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
199	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
200	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
201	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
202	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
203	W. side of Port rd 7 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
204	N. side of Port rd A next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
205	Middle of Port rd 8	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
206	On E. side of Port rd 8 next to WHSE	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
207	On E. side of Port rd 8 next to WHSE	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
208	On E. side of Port rd 8 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
209	On E. side of Port rd 8 next to WHSE	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
210	On E. side of Port rd 8 next to WHSE	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
211	On E. side of Port rd 8 next to WHSE	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
212	In middle of Port rd 8	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
213	W. side of Port rd 8	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
214	On E. side of Port rd 8 next to WHSE	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
215	On E. side of Port rd 8 next to WHSE	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
216	Side of Port rd 8 & B	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
217	Middle of Port rd B	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
218	Middle of Port rd B	5	2	East	Yes	Yes	Yes	As Needed	As Needed	Maintained by Port of Stockton
221	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
222	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
224	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
225	On N. side ot Port rd B in R/R tracks	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
226	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
227	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
228	On N. side of Port rd B in R/R tracks	6	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
229	On N. side of Port rd B next to Port Maint. Shop (Sealed off, no flow)		2		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
230	On Calamco's grounds (No Label)	6	3		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
231	Stork	6	4	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
232	Stork	6	4	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
233	N. side of Port rd F next to R/R tracks	6	4	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
234	N. side of Port rd F Next to Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
235	N. side of Port rd F Next to Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
236	Outside Calamco's main entrance gate	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
237	Outside Calamco's main entrance gate	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
238	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
239	On Calamco's grounds		3		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
240	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
241	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
242	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
243	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
245	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
246	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
247	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
248	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
249	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
250	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
251	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
252	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
253	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
254	On Calamco's grounds		3		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
255	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
257	On W. side of Port rd 13 across from Carry Transit	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
258	On E. side of Port rd 13 in front of Carry Transit	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
259	On W. side of Port rd 13 across from Carry Transit	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
260	On W. side of Port rd 13	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
261	On W. side of Port rd 13 @ corner	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
262	N. side of Port rd G	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
263	N. side of Port rd G	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
264	S. side of Port rd G	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
265	N. side of Port rd G	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
266	N. side of Port rd G	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
267	S. side of Port rd G	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
268	N/E Corner of Port maint shop	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
269	W. side of Port rd 14	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
270	Corner of Port rd 14 & F	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
271	Across Port rd F from #270	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
272	In parking lot of Deparment of Food & Ag.	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
273	In parking lot of Deparment of Food & Ag.	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
274	On W. side of Department of Food & Ag building	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
275	In large blacktop parking area S. of port rd F	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
276	In large blacktop parking area S. of port rd F	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
277	In large blacktop parking area S. of port rd F	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
278	In large blacktop parking area S. of port rd F	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
279	Corner of Port rd 14 & E	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
280	N. side of Washington Ave	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
281	Middle of Port rd E. near Trans Marine Bld	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
282	Middle of Port rd E. near Trans Marine Bld	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
283	S. side of Port rd E	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
284	N. side of Port rd E	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
285	N. side of Port rd E	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
286	S. side of Port rd F	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
287	Corner of Port rd's 14 & F	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
288	E. side of Port rd 14	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
289	Middle of dirt lot, E. of Port rd 14	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
290	N. side of Port rd F	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
291	S. side of Port rd F	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
292	S. side of Port rd F	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
293	N. side of Port rd F	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
294	Corner of Port rd F & 13	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
295	W. side of Port rd 13	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
296	E. side of Port rd 13	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
297	N. side of Port rd O	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
298	N. side of Port rd O	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
299	In grass area next to Annex parking lot	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
300	In Annex parking lot	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
301	In middle of Port rd O	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
302	On corner of Port rd's 13 & O	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
303	E. side of Port rd 13	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
304	W. side of Port rd 13	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
305	E. side of Port rd 13	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
306	In parking lot to Port Admin bld.	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
307	In parking lot to Port Admin bld.	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
308	In grass area next to Admin bld parking lot	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
309	In gravel area next to Admin bld.	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
310	In gravel area next to Admin bld.				Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
311	In E. parking lot behind Admin Bld.	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
312	In E. parking lot behind Admin Bld.	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
313	On S. side of Port Admin bld	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
314	On N. side of first driveway to Admin bld	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
315	On N. side of first driveway to Admin bld	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
316	W. side of Port rd 13	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
317	N. side of Port rd E next to restaurant	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
318	N. side of Washington Ave	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
320	E. side of Port rd 21	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
321	Best Logistics, W. side of Port rd 21	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Best Logistics
322	Best Logistics next to WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
323	Best Logistics	3	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
324	Best Logistics	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
325	Best Logistics	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
326	Best Logistics, E. side of Port rd 22 next to port water loader	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
327	Best Logistics	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
328	Best Logistics	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
329	Best Logistics next to WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
330	Best Logistics next to WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
331	Best Logistics next to WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
332	Best Logistics next to WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
333	Best Logistics next to WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
334	Best Logistics in parking lot	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
335	Best Logistics in parking lot	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
336	Best Logistics next to WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
337	Best Logistics next to WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
338	Best Logistics next to WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
339	On E. side of Port rd 22	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
340	Best Logistics on S. side of WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
341	Best Logistics on S. side of WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
342	Best Logistics on S. side of WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
343	On W. side of Port rd 21	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
344	In old Cost-Plus grounds on E. side of WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
345	On W. side of Port rd 21	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
346	In old Cost-Plus grounds on E. side of WHSE	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Best Logistics
347	On E. side of Port rd 21	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
349	On W. side of Port rd 21	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
350	N. side on Sheedy's yard in middle of Port rd K	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
351	N. side on Sheedy's yard in middle of Port rd K	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
352	N. side on Sheedy's yard in middle of Port rd K	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
353	In middle of Port rd K	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton and Cencal
354	In middle of Port rd K	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton and Cencal
357	Next to R/R tracks on N. side of Port rd L	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
358	Next to R/R tracks on N. side of Port rd L	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
359	Next to R/R tracks on N. side of Port rd L	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
360	Next to R/R tracks on N. side of Port rd L, S. side of Sheedy's yard	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
361	Next to R/R tracks on N. side of Port rd L, S. side of Sheedy's yard	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
362	On N. side of Port rd L	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
363	On N. side of Port rd L	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
364	On N. side of Port rd L	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
365	On N. side of Port rd L	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
366	On N. side of Port rd L	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
369	On N. side of Port rd M	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
370	On N. side of Port rd M	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
371	On N. side of Port rd M	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
372	On N. side of Port rd M	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
373	On N. side of Port rd M	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
374	Middle of Port rd M & 21	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
375	In area to the East of the S. ditch	3	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
376	Middle of Port rd M to the W. of rd 21	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
377	Middle of Port rd M	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
378	Middle of Port rd M	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
379	Middle of Port rd M	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
380	Middle of Port rd M	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
381	Middle of Port rd M	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
385	On S. side of Port rd L	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
386	On S. side of Port rd L	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
387	On S. side of Port rd L	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
388	Corner of Port rd's L & 22	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
390	S. side of Cen-Cal's yard	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Cencal
391	S. side of Cen-Cal's yard @ loading ramp	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
392	S. side of Mac-Steels south yard	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
393	S. side of Mac-Steels south yard	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
394	S. side of Mac-Steels south yard	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
396	Middle of Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
397	Middle of Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
399	Corner of Port rd's L & 22	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
400	Corner of Port rd's L & 22	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
401	On S. side of Port rd K	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
402	On S. side of Port rd K	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
403	On S. side of Port rd K	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
404	On S. side of Port rd K	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
405	On S. side of Port rd K	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
406	On S. side of Port rd K	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
407	In Mac-Steel yard near Port rd 22	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Mac Steel
408	On W. side of Port rd 22	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
409	On W. side of Port rd 22	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
410	On E. side of Port rd 22		5		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
411	On W. side of Port rd 22	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
412	On W. side of Port rd 22 close to Washington Av.	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
413	In open field to the W. of Port rd 22	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
414	On W. side of Port rd 23 in front of Posdef plant	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
415	On W. side of Port rd 23 in front of Posdef plant	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
416	On W. side of Port rd 23 in front of Posdef plant office	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	WGR
417	On W. side of Port rd 23	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	WGR
418	In middle of Port rd 23 (Labeled as 734)	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	WGR

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
420	In middle of Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Mac Steel
421	In paved parking area of Mac-Steel (gravel area)	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Mac Steel
422	In paved parking area of Mac-Steel	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Mac Steel
423	On E. side of Port rd 23 next to rails on S. side of Mac-Streel	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Mac Steel
424	On W. side of Port rd 23 next to rail on S. side of Mac-Steel	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Mac Steel
425	On E. side of Navy drive in front of tank farm terminals		5		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
426	On BP grounds next to Washington Av & Stork rd	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by BP Arco
427	On BP grounds next to Washington Av & Stork rd	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by BP Arco
428	On BP grounds next to Washington Av & Stork rd	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by BP Arco
429	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
430	On Posdef grounds next to Port rd 23	3	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
431	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
432	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
433	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
434	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
435	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
436	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
437	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
438	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
439	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
440	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
441	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
442	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
443	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
444	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
445	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
446	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
447	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
448	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
449	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
450	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
451	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
452	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
453	On Posdef grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
454	On Posdef's N. grounds	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
455	On Posdef's N. grounds	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
456	On Posdef's N. grounds	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
457	On Posdef's N. grounds	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by POSDEF
458	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
459	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
460	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
461	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
462	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
463	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
464	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
465	On Martin Midstream grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by DTE
466	On Martin Midstream grounds next to Port rd 23	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by DTE
467	On H J Bakers Grounds	6	4	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by H. J. Baker
468	On H J Bakers Grounds	6	4	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by H. J. Baker
469	On Martin Midstream Grounds	3	4	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Martin Midstream
470	In R/R tracks next to Bay Sulfur	6	4	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
471	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
472	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
473	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
474	On Calamco's grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
475	In between cold storage domes	3	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
476	In between cold storage domes	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
477	In between cold storage domes	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco
478	In between cold storage domes	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Calamco

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
479	On Carry Transit grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Carry Transit
480	On Carry Transit grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Carry Transit
481	On Carry Transit grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Carry Transit
482	On Carry Transit grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Carry Transit
483	On Carry Transit grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Carry Transit
484	On S. side of Port Rd A in California Traction Yard	3	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
485	On S. side of Port Rd A in California Traction Yard	3	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
486	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
487	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
488	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
489	On California/Portland Cement Co. grounds	3	1		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
490	On California/Portland Cement Co. grounds	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
491	On California/Portland Cement Co. grounds	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
492	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
493	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
494	On California/Portland Cement Co. grounds	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
495	On California/Portland Cement Co. grounds	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
496	On California/Portland Cement Co. grounds	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
497	On California/Portland Cement Co. grounds	3	1		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
498	On California/Portland Cement Co. grounds	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
499	On California/Portland Cement Co. grounds	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
501	On California/Portland Cement Co. grounds	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
502	On California/Portland Cement Co. grounds	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
503	On California/Portland Cement Co. grounds		1		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by CPC
505	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
506	On E. side of Port rd 23 in front of Recology grounds		5		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
507	On E. side of Port rd 23 in front of Recology grounds		5		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
508	N side of bldg 134	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
509	N side of bldg 134	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
510	N side of bldg 134	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
514	Pinter Ave. next to whse 719.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
515	Pinter Ave. next to whse 719.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
516	N side of bldg 619	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
517	N side of bldg 619	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
520		7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
521	Wyerhauser product yard (Covered by product)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Wyerhauser
522	Wyerhauser product yard	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Wyerhauser
523	Wyerhauser product yard	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Wyerhauser
524	Wyerhauser product yard	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Wyerhauser
525	N across fence from Wyerhauser product yard empty lot	7	6		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Wyerhauser
526	N across fence from Wyerhauser product yard empty lot	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Wyerhauser
527	N across fence from Wyerhauser product yard empty lot	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Wyerhauser
528	NE corner of bldg. 1002 (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
531	N. side of Cavanaugh Ave. inside Fergusons facility grounds.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Ferguson

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
533	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Ferguson
534	Between bldgs. 805 & 806 W. end	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
535	Across from 534	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
536	SW corner of bldg. 807	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
537	Drain has been paved over	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Drain has been paved over
538	SW corner of bldg 809	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
539	E side of bldg. 811	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
540	E side of bldg. 811	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
541	E side of bldg 812	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
542	E side of bldg 812	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
543		6	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
544	W side of bldg 712	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
545	W side of bldg 712	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
546	W side of bldg 712	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
547	W side of bldg 712	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
548	Cromwell Ave. next to whse 707 (Label Missing)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
550	Cromwell Ave. next to whse 707	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
551	Cromwell Ave. next to whse 707	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
552	Cromwell Ave. next to whse 707	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
553	Cromwell Ave. next to whse 707	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
554	Cromwell Ave. next to whse 707	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
555	Cromwell Ave. next to whse 707	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
556	Cromwell Ave. next to bld 706	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
557	E side of bldg. 711 on Daly	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
558	E side of bldg. 711 on Daly	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
559	E side of bldg. 712	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
560	W side of bldg 612	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
561	W side of bldg 612	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
562	W side of bldg 612	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
563	W side of bldg 612	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
564	W side of bldg. 611 on Daly	7	6		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
565	W side of bldg. 611 on Daly	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
567	E side of bldg 611	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
568	W side of bldg 511	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
570	W side of bldg 512	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
571	E side of bldg 612	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
572	E side of bldg 612	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
574	E side of bldg 612	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
580	SE corner of bldg 511	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
581	Gilmore Ave. next to bld 410	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
582	Gilmore Ave. next to whse 411	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
583	SW corner of bldg 411	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
589	E side of bldg 412	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
591	On Lipes, E. end of bldg 412. (Broke Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
592	Gilmore Ave. next to whse 411 (Label Missing)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
593	Gilmore Ave. next to whse 411	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
594	Gilmore Ave. next to whse 411 (label Missing)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
595	Gilmore Ave. next to whse 411	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
596	Gilmore Ave. next to whse 411	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
597	Gilmore Ave. next to whse 411 (labeled as 689)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
598	NW corner of bldg 312 (No Tag)	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Yara
599	W side of bldg 312	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Yara
601	W side of bldg 312	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Yara
602	SW corner of bldg 312 on Luce Ave	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Yara
603	NW corner of bldg 313 on Luce Ave	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Yara
604	Along S side of bldg 314	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Yara
605	Along S side of bldg 314	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Yara
606	Along S side of bldg 314	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton and Yara
607	SW corner of Bldg. 212 (No Tag)	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Yara
610	South side of bldg 214	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton and Yara
611	South side of bldg 214	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
612	Paved over		6		Yes	As Needed	As Needed	As Needed	As Needed	Drain has been paved over
613	E side of bldg 612		6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
614	Paved over		6	West	Yes	As Needed	As Needed	As Needed	As Needed	Drain has been paved over
615	E side of bldg 812	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
616	W side of bldg 712	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
617	Parking lot by bldg. 916	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
619	Parking lot by bldg. 916	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
620	NE corner of bldg 917	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
621	NW corner of bldg 817	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
622	SW corner of bldg 817	7	6		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
623	S side of bldg 817	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
624	NE side of bldg 817	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
625	(No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
626	N side of bldg 717 on the road (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
627	N side of bldg 717 on the road	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
628	N side of bldg 717 on the road	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
629	N side of bldg 717 on the road	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
630	N side of bldg 717 on the road (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
631	N side of bldg 717 on the road	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
632	N side of bldg 717 on the road	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
633	Corner of Fyffe Ave & Ellsberg Dr.	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
634	N. side of Fyffe Ave. in front of bld 617	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
635	N. side of Fyffe Ave. in front of bld 517	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
636	N. side of Fyffe Ave. in front of bld 517	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
637	N. side of Fyffe Ave. near bld 517	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
638	N. side of Fyffe Ave. near bld 517	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
639	S. side of Fyffe Ave.		6		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
640	S. side of Fyffe Ave.		6		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
641	N. side of Fyffe Ave. near bld 517		6		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
642	N. side of Fyffe Ave. near bld 217-A		6		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
643	S. side of Fyffe Ave.		6		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
644	S. side of Fyffe Ave.		6		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
648	S. side of Fyffe Ave. across from drain #649	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
649	N. side of Fyffe Ave. near bld 217-A	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
650	N. side of Fyffe Ave. near bld 217-A	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
651	S. side of Fyffe Ave. across from drain #650	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
652	S. side of Fyffe Ave. across from drain #653	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
653	N. side of Fyffe Ave. near bld 217	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
654	N. side of Fyffe Ave. in front of bld 217	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
655	S. side of Fyffe Ave. across from drain #654	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
656	Between parking area A-117 and Bldg. 117	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
659	Inside parking lot A-117 (No Tag)	7	6		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
660	E side of parkin lot A-117	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
661	S. side of Fyffe Ave. across from drain #662	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
662	N. side of Fyffe Ave. at corner of Fyffe and James Dr.	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
663	N. side of Fyffe Ave. in front of firehouse	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
664	S. side of Fyffe Ave. across from drain #663	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
665	S. side of Fyffe Ave. across from drain #666	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
666	N. side of Fyffe Ave. near to bld 17	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
667	N. side of Fyffe Ave. near to bld 17	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
668	E of bldg. 17 in the grass (Completely grown over)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
669	Along S. side of rd leading to the golf course.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
670	Along S. side of rd leading to the golf course.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
672	Along S. side of rd leading to the golf course.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
673	Along S. side of rd leading to the golf course.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
674	Along S. side of rd leading to the golf course.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
675	Along S. side of rd leading to the golf course. (Labeled as 764)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
677	Along S. side of rd leading to the golf course.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
678	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Ferguson
679	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Ferguson
680	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Ferguson
681	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Ferguson
682	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Ferguson

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
683	D-2 outfall area & Lehigh Cement Co.	2	6	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Lehigh Cement Co.
684	N side of bldg 134	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
685	Pinter Ave. next to whse 719. (Labeled as 811)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
686	Unknown	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Unknown
687	S side of parking area A-516 (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
688	NE corner of bldg 117	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
691	SW corner of bldg 414 on Edwards	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
696	On S. side of Port rd K	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
699	S. side of Port rd F near rd 15	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
700	N. side of Port rd F near rd 15	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
701	Corner of Washington and Port rd 15 next to drainage ditch	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
702	N. side of Port rd E		3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
704	W. side of Port rd 6 next to WHSE	5	2		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
708	Along S. side of rd leading to the golf course.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
709	In R/R tracks and D-4 area	3	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
710	N/W corner of Port maint shop	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
711	N. side of Washington Ave	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
715	W. side of Port rd 6 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
717	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Lehigh Cement Co.
718	On Carry Transit grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Carry Transit
719	On Carry Transit grounds	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Carry Transit
720	Out on dock 11	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
722	D-2 outfall area & Lehigh Cement Co.		5		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Lehigh Cement Co.
729	On N. side of Port rd L	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
730	On N. side of Port rd L	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
733	On E. side of Port rd 23 in front of A-Plus grounds		5		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
734	On W. side of Port rd 23		5		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
737	In front of brick WHSE L	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
738	On ADM's grounds next to Port rd. A		1		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Westway Terminal

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
742	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
743	On N. side of Port rd B in R/R tracks	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
745	W. side of Port rd 6 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
747	Middle of Port rd A & B	6	2	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
748	SE side of bldg 719 (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
750	Parking lot by bldg. 916	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
751	Could not find				Yes	As Needed	As Needed	As Needed	As Needed	Could not find
752	SW corner of Bldg 212 (No Tag)	7	6		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
753	W side of bldg 312	7	6	West	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Yara
754	On Lipes, E. end of bldg 412	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
756	W side of bldg 512	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
757	Has been paved over	7	6		Yes	As Needed	As Needed	As Needed	As Needed	Has been paved over
758	Cromwell Ave. next to whse 707 (Label Missing)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
759	N. side of Cavanaugh Ave. inside Fergusons facility grounds.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Ferguson

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
760	N. side of Cavanaugh Ave. inside Fergusons facility grounds.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Ferguson
761	S. side of Fergusons facility grounds. (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Ferguson
762	Inside parking lot A-117 (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
765	Pinter Ave. next to whse 719. (Label Missing)		6	West	Yes	As Needed	As Needed	As Needed	As Needed	WGR
768	Middle of Port rd B		6	West	Yes	As Needed	As Needed	As Needed	As Needed	WGR
769	Middle of Port rd B		6		Yes	As Needed	As Needed	As Needed	As Needed	WGR
771	E. side of Port rd 21, in front of Westway	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
776	S/E corner of Cen-Cal Recycle Business	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
777	Middle of Port rd K & 22	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
778	Middle of Port rd's 23 & K	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
780	Inside Lowe's compound (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lowe's
781	Inside Lowe's compound (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lowe's

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
782	Inside Lowes compound (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lowe's
783	E side of bldg 612	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
784	NW side of bldg 613	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
785	NW side of bldg 613	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
786	NW side of bldg 613	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
787	N side of bldg. 613 on Luce Ave	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
788	N side of bldg. 613 on Luce Ave	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
794	Inside Lowes compound (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lowe's
795	Product covering drain	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Product covering drain
796	Inside Lowes compound (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lowe's
797	Inside Lowes compound (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lowe's
798	Inside Lowes compound (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lowe's
799	Inside Lowes compound (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lowe's
800	Inside Lowes compound (No Tag)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Lowe's

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
801	Just to the west of the cul-de-sac (Missing Tag)		6	West	Yes	As Needed	As Needed	As Needed	As Needed	WGR
802	Forrestal Village		6		Yes	As Needed	As Needed	As Needed	As Needed	WGR
803	Forrestal Village (No flow)		6	West	Yes	As Needed	As Needed	As Needed	As Needed	No flow
804	Forrestal Village (No flow)		6	West	Yes	As Needed	As Needed	As Needed	As Needed	No flow
805	Forrestal Village (No flow)		6	West	Yes	As Needed	As Needed	As Needed	As Needed	No flow
807	On the street in front of bldg. 219	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
808	NW corner of bldg 518	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
809	SE corner of the Holding and Reconsignment Yard	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	WGR
810	NE side of bldg 719	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
811	S side of Bldg 214 (No Tag)	7	6		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
812	Between parking area A-117 and Bldg. 117	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
813	NW corner of Bldg 213 (No Tag)	7	6		Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
814	S side of bldg 414 on Edwards	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
815	W side of bldg 511	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
816	E side of bldg 611	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
817	N. side of Fyffe Ave. in dirt lot.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
818	Along S. side of rd leading to the golf course.	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
820	Next to brick WHSE B	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
821	Next to brick WHSE C	3	1	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
823	?????????????????????????????? ???	5			Yes	As Needed	As Needed	As Needed	As Needed	WGR
824	W. side of Port Rd 6 next to WHSE	5	2	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
825	On E. side of Port rd 13 in front of Cargill	6	3	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
826	In E. parking lot behind Admin Bld.	6	3	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
827	On E. side of Port rd 21	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
828	Middle of Port rd 22 & M	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
829	Middle of Port rd 22 & L	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
830	On E. side of Port rd 22 next to Cen-Cal office	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
831	Middle of Port rd L	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
832	Middle of Port rd 23 @ S/W corner of Mac-Steel S. yard	6	5	East	Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton and Mac Steel
834	In middle of Port rd 23	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton

Appendix 7
Drain Maintenance Frequency
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Maint Frequency - Annually Prior to wet season	Maint Frequency - Before storm event	Maint Frequency - After storm event	Maint Frequency - Monthly	Maint Frequency - Weekly	Maintainance Provided By
835	In middle of Port rd 23	6	5	East	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
844	RdG,cold stor		3		Yes	As Needed	Yes	As Needed	As Needed	Maintained by Port of Stockton
10000	Castle & Cook (New Drain)	4	1		Yes	As Needed	As Needed	As Needed	As Needed	New drain
10001	Castle & Cook (No Label)	4	1		Yes	As Needed	As Needed	As Needed	As Needed	New drain
10002	Castle & Cook (No Label)	4	1		Yes	As Needed	As Needed	As Needed	As Needed	New drain
10003	NW side of bldg 719 (Duplicate drain label located at 37.57.194/121.28.990)	7	6	West	Yes	As Needed	As Needed	As Needed	As Needed	Maintained by Port of Stockton
10004	East Port entry				Yes	As Needed	As Needed	As Needed	As Needed	New drain
10005	East Port entry				Yes	As Needed	As Needed	As Needed	As Needed	New drain
10006	East Port entry				Yes	As Needed	As Needed	As Needed	As Needed	New drain

Appendix H

Drain BMP Implementation Plan

Appendix H
BMP Implementation Plan
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Tenant Leased Property?*	Asphalt Surrounding Drain	Sealed with Plastic	Drain Insert	Gravel Around Drain	Railroad Gravel Around Drain	Rock Bags Around Drain	Straw Wattle	Rubber Mat Over Drain	Safe Drain	Screen Over the Grate	Screen Under Grate	Sediment Blocking Screen	Solid Metal Cover Over Drain	Stainless Drain Pan Insert	Oil/Sediment Insert	Yellow Jacket Insert	Routine Inspection & Maintenance	Other (describe):
1	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	Yes		Yes				Yes										Yes	
2	S/E corner of brick WHSE E in D-2 area	2	1	East	Yes	Yes		Yes	Yes												Yes	Yes	
3	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	Yes		Yes														Yes	
4	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	Yes						Yes										Yes	
5	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	Yes		Yes				Yes										Yes	REM Filter
6	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	Yes		Yes				Yes										Yes	REM Filter
9	D-2 outfall drain	2	1	East	Yes	Yes		Yes														Yes	REM Filter
10	D-2 outfall area & Lehigh Cement Co.	2	1	East	Yes	Yes		Yes				Yes										Yes	
11	Next to brick WHSE E	3	1	East		Yes		Yes														Yes	
12	Next to brick WHSE F	3	1	East		Yes		Yes														Yes	
13	Next to brick WHSE D	3	1	East				Yes		Yes												Yes	
14	Next to brick WHSE B	3	1	East				Yes		Yes												Yes	
15	Middle of Port Rd. 2 north side of Lehigh	3	1	East																		Yes	
16	Middle of Port Rd. 2 north side of Lehigh	3	1	East																		Yes	REM Filter
17	In R/R tracks and D-4 area	3	1	East				Yes			Yes											Yes	REM Filter
18	North end of WHSE A	3	1	East						Yes										Yes		Yes	
19	Next to small shed and Port Rd. B	3	1	East				Yes														Yes	
20	Next to small shed and Port Rd. B	3	1	East																		Yes	
21	In R/R tracks and D-4 area	3	1	East																		Yes	
22	In R/R tracks and D-4 area	3	1	East				Yes	Yes				Yes					Yes				Yes	
23	In R/R tracks and D-4 area	3	1	East				Yes		Yes												Yes	
24	In R/R tracks D-4 outfall drain	3	1	East					Yes	Yes	Yes											Yes	
25	In R/R tracks and D-4 area	3	1	East			Yes	Yes	Yes													Yes	
26	In R/R tracks and D-4 area	3	1	East			Yes	Yes												Yes		Yes	
27	In R/R tracks and D-4 area	3	1	East			Yes	Yes												Yes		Yes	
28	In R/R tracks and D-4 area	3	1	East				Yes	Yes		Yes											Yes	
29	In R/R tracks and D-4 area	3	1	East			Yes	Yes	Yes											Yes		Yes	
30	In R/R tracks and D-4 area	3	1	East			Yes															Yes	
31	In R/R tracks and D-4 area	3	1	East			Yes	Yes														Yes	
32	In R/R tracks and D-4 area	3	1	East			Yes	Yes	Yes													Yes	
33	In R/R tracks to the W. of D-4 outfall	3	1	East			Yes	Yes														Yes	
34	In R/R tracks to the W. of D-4 outfall	3	1	East			Yes	Yes														Yes	
35	In R/R tracks to the W. of D-4 outfall	3	1	East			Yes	Yes														Yes	
36	In R/R tracks to the W. of D-4 outfall	3	1	East			Yes	Yes														Yes	
37	In R/R tracks to the W. of D-4 outfall	3	1	East																		Yes	
38	In R/R tracks to the W. of D-4 outfall	3	1	East										Yes								Yes	

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Appendix H
BMP Implementation Plan
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Tenant Leased Property?*	Asphalt Surrounding Drain	Sealed with Plastic	Drain Insert	Gravel Around Drain	Railroad Gravel Around Drain	Rock Bags Around Drain	Straw Wattle	Rubber Mat Over Drain	Safe Drain	Screen Over the Grate	Screen Under Grate	Sediment Blocking Screen	Solid Metal Cover Over Drain	Stainless Drain Pan Insert	Oil/Sediment Insert	Yellow Jacket Insert	Routine Inspection & Maintenance	Other (describe):
39	In R/R tracks to the W. of D-4 outfall	3	1	East			Yes															Yes	
40	In R/R tracks to the W. of D-4 outfall	3	1	East			Yes	Yes														Yes	
41	In R/R tracks to the W. of D-4 outfall	3	1	East														Yes				Yes	
42	In R/R tracks to the W. of D-4 outfall	3	1	East					Yes													Yes	
43	At S/W corner of brick WHSE M	3	1	East						Yes												Yes	
44	In front of brick WHSE K	3	1	East				Yes		Yes												Yes	
45	In front of brick WHSE J	3	1	East						Yes												Yes	
46	In front of brick WHSE J	3	1	East				Yes		Yes												Yes	
47	In front of brick WHSE J	3	1	East				Yes		Yes												Yes	
48	In front of brick WHSE H	3	1	East				Yes		Yes												Yes	
49	N/W corner of brick WHSE G	3	1	East						Yes												Yes	
50	In middle of Port Rd. B	3	1	East		Yes																Yes	
51	Stream Guard Insert & Gravel Around Drain	3	1	East				Yes	Yes													Yes	
52	N. side of Port Rd. A	3	1	East				Yes	Yes													Yes	
53	S. side of Port Rd. A across Rd from drain #051	3	3	East			Yes		Yes													Yes	
54	S. side of Port Rd. A in line with drain #53	3	3	East			Yes		Yes													Yes	
55	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East				Yes														Yes	
56	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East				Yes														Yes	
57	W. side of Port Rd 4 in R/R tracks	3	1	East					Yes												Yes	Yes	
58	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	
59	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	
60	W. side of Port Rd 4 in R/R tracks	3	1	East				Yes					Yes									Yes	
61	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	
62	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	
63	W. side of Port Rd 4 in R/R tracks	3	1	East				Yes	Yes	Yes												Yes	
64	W. side of Port Rd 4 in R/R tracks	3	1	East				Yes	Yes	Yes												Yes	
65	W. side of Port Rd 4 in R/R tracks	3	1	East				Yes		Yes												Yes	
66	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	
67	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	
68	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East				Yes	Yes													Yes	
69	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	

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70	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	
71	W. side of Port Rd 4 in R/R tracks	3	1	East				Yes	Yes													Yes	
72	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	
73	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	
74	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	
75	W. side of Port Rd 4 in R/R tracks	3	1	East						Yes												Yes	
76	In corner next to dock, at the end of both Port Rd 4 & B	3	1	East		Yes																Yes	
77	In corner next to dock, at the end of both Port Rd 4 &	3	1	East																		Yes	Rubbled Seal - No Flow
78	In corner next to dock, at the end of both Port Rd 4 & B	3	1	East		Yes					Yes											Yes	
79	In corner next to dock, at the end of both Port Rd 4 & B	3	1	East									Yes									Yes	
80	In corner next to dock, at the end of both Port Rd 4 & B	3	1	East				Yes			Yes		Yes									Yes	
82	Corner of Port rd's A & 5	4	1	East				Yes	Yes	Yes												Yes	
83	In R/R bed on S. side of Port rd. A	4	3	East						Yes												Yes	
84	On N. side of Port rd A	4	2	East		Yes																Yes	
90	Castle & Cook Cold Storage	4	2		Yes		Yes				Yes											Yes	Castle & Cook maintains this drain.
91	Castle & Cook Cold Storage	4	2		Yes		Yes				Yes											Yes	Castle & Cook maintains this drain.
95	Castle & Cook Cold Storage	4	2		Yes		Yes				Yes											Yes	Castle & Cook maintains this drain.
96	Castle & Cook Cold Storage	4	2		Yes		Yes				Yes											Yes	Castle & Cook maintains this drain.

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BMP Implementation Plan
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Tenant Leased Property?*	Asphalt Surrounding Drain	Sealed with Plastic	Drain Insert	Gravel Around Drain	Railroad Gravel Around Drain	Rock Bags Around Drain	Straw Wattle	Rubber Mat Over Drain	Safe Drain	Screen Over the Grate	Screen Under Grate	Sediment Blocking Screen	Solid Metal Cover Over Drain	Stainless Drain Pan Insert	Oil/Sediment Insert	Yellow Jacket Insert	Routine Inspection & Maintenance	Other (describe):
97	Castle & Cook Cold Storage	4	2		Yes		Yes				Yes											Yes	Castle & Cook maintains this drain.
99	Castle & Cook Cold Storage		2		Yes		Yes				Yes											Yes	Castle & Cook maintains this drain.
105	Westway Terminal	4	1	East	Yes				Yes				Yes									Yes	Drain is located on West Way Terminal grounds.
106	Westway Terminal	4	1	East	Yes				Yes				Yes									Yes	Drain is located on West Way Terminal grounds.
107	Westway Terminal	4	1	East	Yes	Yes			Yes													Yes	Drain is located on West Way Terminal grounds.
108	Westway Terminal	4	1	East	Yes				Yes				Yes									Yes	
109	This drain has been deactivated.	3	1																			Yes	This drain has been deactivated.
110	This drain has been deactivated.	3	1																			Yes	This drain has been deactivated.
111	On S. side of Port rd B	5	2	East					Yes			Yes										Yes	
112	On N. side of Port rd B in R/R tracks	5	2	East				Yes	Yes	Yes			Yes									Yes	
113	On N. side of Port rd B in R/R tracks	5	2	East		Yes							Yes									Yes	
114	On N. side of Port rd B in R/R tracks	5	2	East		Yes							Yes									Yes	
115	On N. side of Port rd B in R/R tracks	5	2	East		Yes		Yes	Yes	Yes			Yes									Yes	
116	On N. side of Port rd B in R/R tracks	5	2	East		Yes							Yes									Yes	
117	On N. side of Port rd B in R/R tracks	5	2	East		Yes							Yes									Yes	

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Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Tenant Leased Property?*	Asphalt Surrounding Drain	Sealed with Plastic	Drain Insert	Gravel Around Drain	Railroad Gravel Around Drain	Rock Bags Around Drain	Straw Wattle	Rubber Mat Over Drain	Safe Drain	Screen Over the Grate	Screen Under Grate	Sediment Blocking Screen	Solid Metal Cover Over Drain	Stainless Drain Pan Insert	Oil/Sediment Insert	Yellow Jacket Insert	Routine Inspection & Maintenance	Other (describe):
118	On N. side of Port rd B in R/R tracks							Yes		Yes			Yes									Yes	
119	On N. side of Port rd B in R/R tracks	5	2	East		Yes							Yes									Yes	
120	On N. side of Port rd B in R/R tracks	5	2	East		Yes							Yes									Yes	
121	On N. side of Port rd B in R/R tracks	5	2	East				Yes	Yes	Yes												Yes	
122	On N. side of Port rd B in R/R tracks	5	2	East		Yes							Yes									Yes	
123	On N. side of Port rd B in R/R tracks	5	2	East				Yes					Yes									Yes	
124	On N. side of Port rd B in tracks	5	2	East				Yes		Yes												Yes	
125	On N. side of Port rd B in tracks	5	2	East		Yes					Yes											Yes	
126	On N. side of Port rd B in tracks	5	2	East		Yes							Yes									Yes	
127	On N. side of Port rd B in R/R tracks	5	2	East				Yes		Yes												Yes	
128	On N. side of Port rd B in R/R tracks	5	2	East		Yes							Yes									Yes	
129	On N. side of Port rd B in R/R tracks	5	2	East		Yes							Yes									Yes	
130	In middle of Port Rd. B		2	East				Yes		Yes												Yes	
131	In middle of Port Rd. B	5	2	East		Yes		Yes		Yes	Yes	Yes	Yes									Yes	
132	Middle of Port rd B	5	2	East		Yes	Yes				Yes	Yes	Yes									Yes	
141	Castle & Cook	5	2		Yes																	Yes	
142	Castle & Cook	5	2		Yes																	Yes	
143	Castle & Cook	5	2		Yes																	Yes	
144	Castle & Cook	5	2		Yes																	Yes	
145	Castle & Cook	5	2		Yes																	Yes	
146	Castle & Cook	5	2		Yes																	Yes	
147	On corner of Port rd's A & 6	5	2	East		Yes																Yes	
148	W. side of Port rd 6 next to WHSE	5	2	East		Yes	Yes									Yes						Yes	
152	W. side of Port rd 6 next to WHSE	5	2	East		Yes	Yes															Yes	
153	W. side of Port rd 6 next to WHSE	5	2	East		Yes	Yes															Yes	
154	W. side of Port rd 6 next to WHSE	5	2	East		Yes	Yes															Yes	
156	Corner of Port rd's 6 & B next to WHSE	5	2	East			Yes															Yes	Lid sealed from bottom / no surface flow
157	Corner of WHSE on E. side of Port rd 7	5	2	East			Yes															Yes	
158	Corner of WHSE on E. side of Port rd 7	5	2	East			Yes															Yes	
159	E. side of Port rd 7 next to WHSE	5	2	East		Yes	Yes															Yes	
160	E. side of Port rd 7 next to WHSE	5	2	East			Yes		Yes													Yes	
161	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
162	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	

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Port of Stockton

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163	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
164	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
165	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
166	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
167	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
168	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
169	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
170	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
171	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
172	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
173	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
174	E. side of Port rd 7 next to WHSE	5	2	East		Yes										Yes						Yes	
175	E. side of Port rd 7 next to WHSE	5	2	East			Yes		Yes													Yes	
176	E. side of Port rd 7 next to WHSE	5	2	East												Yes						Yes	
177	E. side of Port rd 7 next to WHSE	5	2	East												Yes						Yes	
178	E. side of Port rd 7 next to WHSE	5	2	East			Yes															Yes	
179	E. side of Port rd 7 next to WHSE	5	2	East														Yes				Yes	
180	E. side of Port rd 7 next to WHSE	5	2	East			Yes															Yes	
181	Corner of WHSE & Port rd's A & 7	5	2	East			Yes															Yes	
182	Corner of WHSE & Port rd's A & 7	5	2	East			Yes															Yes	
183	S. side of Port rd A	5	3	East																		Yes	No Flow - Non-Op
184	S. side of Port rd A	5	3	East														Yes				Yes	
185	W. side of Port rd 7 next to WHSE	5	2	East						Yes						Yes						Yes	
186	W. side of Port rd 7 next to WHSE	5	2	East												Yes						Yes	
187	W. side of Port rd 7	5	2	East												Yes						Yes	
188	W. side of Port rd 7 next to WHSE	5	2	East			Yes															Yes	
189	W. side of Port rd 7 next to WHSE	5	2	East			Yes															Yes	
190	W. side of Port rd 7 next to WHSE	5	2	East												Yes						Yes	
191	W. side of Port rd 7 next to WHSE	5	2	East			Yes															Yes	
192	W. side of Port rd 7 next to WHSE	5	2	East												Yes						Yes	
193	W. side of Port rd 7 next to WHSE	5	2	East			Yes															Yes	
194	W. side of Port rd 7 next to WHSE	5	2	East			Yes															Yes	
195	W. side of Port rd 7 next to WHSE	5	2	East			Yes															Yes	
196	W. side ot Port rd 7 next to WHSE	5	2	East			Yes											Yes				Yes	
197	W. side of Port rd 7 next to WHSE	5	2	East			Yes															Yes	

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BMP Implementation Plan
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Tenant Leased Property?*	Asphalt Surrounding Drain	Sealed with Plastic	Drain Insert	Gravel Around Drain	Railroad Gravel Around Drain	Rock Bags Around Drain	Straw Wattle	Rubber Mat Over Drain	Safe Drain	Screen Over the Grate	Screen Under Grate	Sediment Blocking Screen	Solid Metal Cover Over Drain	Stainless Drain Pan Insert	Oil/Sediment Insert	Yellow Jacket Insert	Routine Inspection & Maintenance	Other (describe):
198	W. side of Port rd 7 next to WHSE	5	2	East			Yes															Yes	
199	W. side of Port rd 7 next to WHSE	5	2	East			Yes						Yes									Yes	
200	W. side of Port rd 7 next to WHSE	5	2	East			Yes						Yes									Yes	
201	W. side of Port rd 7 next to WHSE	5	2	East			Yes						Yes									Yes	
202	W. side of Port rd 7 next to WHSE	5	2	East			Yes						Yes									Yes	
203	W. side of Port rd 7 next to WHSE	5	2	East			Yes						Yes									Yes	
204	N. side of Port rd A next to WHSE	5	2	East			Yes															Yes	
205	Middle of Port rd 8	5	2	East																		Yes	Solid lid - No surface flow
206	On E. side of Port rd 8 next to WHSE	5	2	East			Yes															Yes	
207	On E. side of Port rd 8 next to WHSE	5	2	East			Yes															Yes	
208	On E. side of Port rd 8 next to WHSE	5	2	East																		Yes	Solid lid - No surface flow
209	On E. side of Port rd 8 next to WHSE	5	2	East															Yes			Yes	
210	On E. side of Port rd 8 next to WHSE	5	2	East										Yes								Yes	
211	On E. side of Port rd 8 next to WHSE	5	2	East										Yes								Yes	
212	In middle of Port rd 8	5	2	East																		Yes	Solid lid - No surface flow
213	W. side of Port rd 8	5	2	East														Yes				Yes	
214	On E. side of Port rd 8 next to WHSE	5	2	East														Yes				Yes	
215	On E. side of Port rd 8 next to WHSE	5	2	East										Yes								Yes	
216	Side of Port rd 8 & B	5	2	East										Yes								Yes	
217	Middle of Port rd B	5	2	East			Yes															Yes	
218	Middle of Port rd B	5	2	East			Yes															Yes	
221	On N. side of Port rd B in R/R tracks	5	2	East					Yes												Yes	Yes	
222	On N. side of Port rd B in R/R tracks	5	2	East									Yes									Yes	
224	On N. side of Port rd B in R/R tracks	5	2	East		Yes							Yes									Yes	
225	On N. side ot Port rd B in R/R tracks	5	2	East									Yes									Yes	
226	On N. side of Port rd B in R/R tracks	5	2	East		Yes		Yes		Yes												Yes	
227	On N. side of Port rd B in R/R tracks	5	2	East		Yes							Yes									Yes	
228	On N. side of Port rd B in R/R tracks	6	2	East									Yes									Yes	

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Appendix H
BMP Implementation Plan
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Tenant Leased Property?*	Asphalt Surrounding Drain	Sealed with Plastic	Drain Insert	Gravel Around Drain	Railroad Gravel Around Drain	Rock Bags Around Drain	Straw Wattle	Rubber Mat Over Drain	Safe Drain	Screen Over the Grate	Screen Under Grate	Sediment Blocking Screen	Solid Metal Cover Over Drain	Stainless Drain Pan Insert	Oil/Sediment Insert	Yellow Jacket Insert	Routine Inspection & Maintenance	Other (describe):
229	On N. side of Port rd B next to Port Maint. Shop (Sealed off, no flow)		2			Yes	Yes															Yes	Sealed/rubber under grate
230	On Calamco's grounds (No Label)	6	3		Yes	Yes		Yes														Yes	
231	Stork	6	4	East			Yes															Yes	
232	Stork	6	4	East			Yes															Yes	
233	N. side of Port rd F next to R/R tracks	6	4	East																		Yes	Vegetation
234	N. side of Port rd F Next to Calamco's grounds	6	3	East		Yes			Yes	Yes												Yes	No Flow - Non-Op
235	N. side of Port rd F Next to Calamco's grounds	6	3	East		Yes			Yes	Yes												Yes	
236	Outside Calamco's main entrance gate	6	3	East			Yes	Yes	Yes	Yes												Yes	
237	Outside Calamco's main entrance gate	6	3	East			Yes	Yes	Yes	Yes												Yes	
238	On Calamco's grounds	6	3	East	Yes	Yes		Yes														Yes	
239	On Calamco's grounds		3		Yes						Yes											Yes	
240	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
241	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
242	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
243	On Calamco's grounds	6	3	East	Yes															Yes		Yes	
245	On Calamco's grounds	6	3	East	Yes															Yes		Yes	
246	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
247	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
248	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
249	On Calamco's grounds	6	3	East	Yes																	Yes	
250	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
251	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
252	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
253	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
254	On Calamco's grounds		3		Yes	Yes		Yes														Yes	
255	On Calamco's grounds	6	3	East	Yes																Yes	Yes	
257	On W. side of Port rd 13 across from Carry Transit	6	3	East		Yes	Yes															Yes	
258	On E. side of Port rd 13 in front of Carry Transit	6	3	East			Yes		Yes	Yes												Yes	
259	On W. side of Port rd 13 across from Carry Transit	6	3	East			Yes		Yes	Yes												Yes	

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260	On W. side of Port rd 13	6	3	East		Yes	Yes															Yes	
261	On W. side of Port rd 13 @ corner	6	3	East		Yes	Yes															Yes	
262	N. side of Port rd G	6	3	East				Yes	Yes	Yes												Yes	
263	N. side of Port rd G	6	3	East				Yes	Yes	Yes												Yes	
264	S. side of Port rd G	6	3	East				Yes	Yes	Yes												Yes	
265	N. side of Port rd G	6	3	East		Yes		Yes														Yes	
266	N. side of Port rd G	6	3	East		Yes		Yes														Yes	
267	S. side of Port rd G	6	3	East		Yes		Yes														Yes	
268	N/E Corner of Port maint shop	6	3	East		Yes		Yes												Yes		Yes	
269	W. side of Port rd 14	6	3	East				Yes	Yes	Yes					Yes							Yes	
270	Corner of Port rd 14 & F	6	3	East																		Yes	Decontamination insert
271	Across Port rd F from #270	6	3	East	Yes			Yes														Yes	
272	In parking lot of Deparment of Food & Ag.	6	3	East	Yes	Yes																Yes	
273	In parking lot of Deparment of Food & Ag.	6	3	East	Yes	Yes																Yes	
274	On W. side of Department of Food & Ag building	6	3	East	Yes	Yes																Yes	
275	In large blacktop parking area S. of port rd F	6	3	East	Yes	Yes																Yes	
276	In large blacktop parking area S. of port rd F	6	3	East	Yes	Yes																Yes	
277	In large blacktop parking area S. of port rd F	6	3	East	Yes	Yes																Yes	
278	In large blacktop parking area S. of port rd F	6	3	East	Yes	Yes																Yes	
279	Corner of Port rd 14 & E	6	3	East		Yes		Yes														Yes	
280	N. side of Washington Ave	6	3	East				Yes	Yes	Yes												Yes	
281	Middle of Port rd E. near Trans Marine Bld	6	3	East		Yes																Yes	Quarterly swept/clean
282	Middle of Port rd E. near Trans Marine Bld	6	3	East		Yes																Yes	Quarterly swept/clean
283	S. side of Port rd E	6	3	East						Yes												Yes	
284	N. side of Port rd E	6	3	East						Yes												Yes	
285	N. side of Port rd E	6	3	East						Yes												Yes	
286	S. side of Port rd F	6	3	East						Yes												Yes	

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287	Corner of Port rd's 14 & F	6	3	East						Yes												Yes	
288	E. side of Port rd 14	6	3	East						Yes												Yes	
289	Middle of dirt lot, E. of Port rd 14	6	3	East					Yes	Yes						Yes						Yes	
290	N. side of Port rd F	6	3	East					Yes	Yes												Yes	
291	S. side of Port rd F	6	3	East		Yes																Yes	
292	S. side of Port rd F	6	3	East				Yes			Yes											Yes	
293	N. side of Port rd F	6	3	East					Yes	Yes												Yes	
294	Corner of Port rd F & 13	6	3	East		Yes																Yes	Quarterly swept/clean
295	W. side of Port rd 13	6	3	East		Yes																Yes	
296	E. side of Port rd 13	6	3	East		Yes																Yes	Daily Street Sweeper
297	N. side of Port rd O	6	3	East					Yes	Yes				Yes								Yes	
298	N. side of Port rd O	6	3	East		Yes			Yes		Yes								Yes			Yes	
299	In grass area next to Annex parking lot	6	3	East				Yes	Yes													Yes	
300	In Annex parking lot	6	3	East												Yes						Yes	
301	In middle of Port rd O	6	3	East		Yes								Yes			Yes					Yes	
302	On corner of Port rd's 13 & O	6	3	East		Yes																Yes	
303	E. side of Port rd 13	6	3	East		Yes																Yes	Daily Street Sweeper
304	W. side of Port rd 13	6	3	East		Yes																Yes	Daily Street Sweeper
305	E. side of Port rd 13	6	3	East		Yes																Yes	Daily Street Sweeper
306	In parking lot to Port Admin bld.	6	3	East		Yes																Yes	Daily Street Sweeper
307	In parking lot to Port Admin bld.	6	3	East																		Yes	
308	In grass area next to Admin bld parking lot	6	3	East																		Yes	Vegetation
309	In gravel area next to Admin bld.	6	3	East		Yes										Yes						Yes	
310	In gravel area next to Admin bld.					Yes		Yes														Yes	
311	In E. parking lot behind Admin Bld.	6	3	East		Yes			Yes													Yes	
312	In E. parking lot behind Admin Bld.	6	3	East					Yes													Yes	
313	On S. side of Port Admin bld	6	3	East					Yes													Yes	
314	On N. side of first driveway to Admin bld	6	3	East		Yes																Yes	Vegetation
315	On N. side of first driveway to Admin bld	6	3	East		Yes																Yes	Vegetation

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316	W. side of Port rd 13	6	3	East		Yes																Yes	Daily Street Sweeper
317	N. side of Port rd E next to restaurant	6	3	East		Yes																Yes	Vegetation
318	N. side of Washington Ave	6	3	East				Yes	Yes	Yes												Yes	
320	E. side of Port rd 21	6	5	East				Yes	Yes	Yes												Yes	
321	Best Logistics, W. side of Port rd 21	6	5	East		Yes		Yes														Yes	
322	Best Logistics next to WHSE	6	5	East				Yes														Yes	
323	Best Logistics	3	5	East		Yes		Yes														Yes	
324	Best Logistics	6	5	East		Yes		Yes														Yes	
325	Best Logistics	6	5	East				Yes			Yes											Yes	
326	Best Logistics, E. side of Port rd 22 next to port water loader	6	5	East				Yes		Yes			Yes									Yes	
327	Best Logistics	6	5	East	Yes			Yes	Yes		Yes											Yes	
328	Best Logistics	6	5	East	Yes			Yes	Yes		Yes											Yes	
329	Best Logistics next to WHSE	6	5	East	Yes	Yes		Yes														Yes	
330	Best Logistics next to WHSE	6	5	East	Yes	Yes		Yes														Yes	
331	Best Logistics next to WHSE	6	5	East	Yes	Yes		Yes														Yes	
332	Best Logistics next to WHSE	6	5	East	Yes	Yes		Yes														Yes	
333	Best Logistics next to WHSE	6	5	East	Yes	Yes		Yes														Yes	
334	Best Logistics in parking lot	6	5	East	Yes	Yes		Yes	Yes													Yes	
335	Best Logistics in parking lot	6	5	East	Yes	Yes		Yes														Yes	
336	Best Logistics next to WHSE	6	5	East	Yes			Yes														Yes	
337	Best Logistics next to WHSE	6	5	East	Yes			Yes														Yes	
338	Best Logistics next to WHSE	6	5	East	Yes	Yes		Yes														Yes	
339	On E. side of Port rd 22	6	5	East	Yes	Yes		Yes														Yes	
340	Best Logistics on S. side of WHSE	6	5	East	Yes	Yes		Yes														Yes	
341	Best Logistics on S. side of WHSE	6	5	East	Yes	Yes		Yes														Yes	
342	Best Logistics on S. side of WHSE	6	5	East	Yes	Yes		Yes													Yes	Yes	
343	On W. side of Port rd 21	6	5	East				Yes	Yes	Yes											Yes	Yes	
344	In old Cost-Plus grounds on E. side of WHSE	6	5	East				Yes			Yes											Yes	
345	On W. side of Port rd 21	6	5	East				Yes			Yes											Yes	
346	In old Cost-Plus grounds on E. side of WHSE	6	5	East				Yes														Yes	
347	On E. side of Port rd 21	6	5	East				Yes	Yes	Yes												Yes	
349	On W. side of Port rd 21	6	5	East				Yes		Yes												Yes	

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350	N. side on Sheedy's yard in middle of Port rd K	6	5	East																		Yes	
351	N. side on Sheedy's yard in middle of Port rd K	6	5	East																		Yes	
352	N. side on Sheedy's yard in middle of Port rd K	6	5	East																		Yes	
353	In middle of Port rd K	6	5	East				Yes	Yes			Yes	Yes									Yes	
354	In middle of Port rd K	6	5	East				Yes	Yes													Yes	
357	Next to R/R tracks on N. side of Port rd L	6	5	East					Yes													Yes	
358	Next to R/R tracks on N. side of Port rd L	6	5	East					Yes													Yes	
359	Next to R/R tracks on N. side of Port rd L	6	5	East					Yes													Yes	
360	Next to R/R tracks on N. side of Port rd L, S. side of Sheedy's yard	6	5	East																		Yes	
361	Next to R/R tracks on N. side of Port rd L, S. side of Sheedy's yard	6	5	East				Yes			Yes											Yes	
362	On N. side of Port rd L	6	5	East			Yes	Yes	Yes													Yes	
363	On N. side of Port rd L	6	5	East			Yes	Yes	Yes													Yes	
364	On N. side of Port rd L	6	5	East			Yes	Yes	Yes													Yes	
365	On N. side of Port rd L	6	5	East			Yes	Yes	Yes	Yes												Yes	
366	On N. side of Port rd L	6	5	East					Yes													Yes	
369	On N. side of Port rd M	6	5	East							Yes									Yes		Yes	
370	On N. side of Port rd M	6	5	East							Yes									Yes		Yes	
371	On N. side of Port rd M	6	5	East							Yes									Yes		Yes	Oil Boom
372	On N. side of Port rd M	6	5	East				Yes			Yes											Yes	Oil boom
373	On N. side of Port rd M	6	5	East				Yes			Yes											Yes	
374	Middle of Port rd M & 21	6	5	East				Yes														Yes	
375	In area to the East of the S. ditch	3	5	East					Yes	Yes												Yes	
376	Middle of Port rd M to the W. of rd 21	6	5	East				Yes	Yes	Yes												Yes	
377	Middle of Port rd M	6	5	East				Yes		Yes												Yes	
378	Middle of Port rd M	6	5	East				Yes		Yes												Yes	
379	Middle of Port rd M	6	5	East				Yes	Yes													Yes	
380	Middle of Port rd M	6	5	East		Yes		Yes														Yes	
381	Middle of Port rd M	6	5	East		Yes		Yes														Yes	
385	On S. side of Port rd L	6	5	East			Yes	Yes														Yes	
386	On S. side of Port rd L	6	5	East			Yes	Yes	Yes													Yes	
387	On S. side of Port rd L	6	5	East		Yes		Yes													Yes	Yes	

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388	Corner of Port rd's L & 22	6	5	East				Yes														Yes	
390	S. side of Cen-Cal's yard	6	5	East	Yes																	Yes	Decontamin ator filter
391	S. side of Cen-Cal's yard @ loading ramp	6	5	East	Yes		Yes	Yes	Yes													Yes	
392	S. side of Mac-Steels south yard	6	5	East	Yes			Yes	Yes	Yes												Yes	
393	S. side of Mac-Steels south yard	6	5	East	Yes			Yes	Yes	Yes												Yes	
394	S. side of Mac-Steels south yard	6	5	East	Yes			Yes	Yes	Yes												Yes	
396	Middle of Port rd 23	6	5	East				Yes														Yes	
397	Middle of Port rd 23	6	5	East				Yes														Yes	
399	Corner of Port rd's L & 22	6	5	East				Yes														Yes	
400	Corner of Port rd's L & 22	6	5	East				Yes														Yes	
401	On S. side of Port rd K	6	5	East				Yes														Yes	
402	On S. side of Port rd K	6	5	East				Yes														Yes	
403	On S. side of Port rd K	6	5	East				Yes														Yes	
404	On S. side of Port rd K	6	5	East				Yes														Yes	
405	On S. side of Port rd K	6	5	East																Yes		Yes	
406	On S. side of Port rd K	6	5	East				Yes														Yes	
407	In Mac-Steel yard near Port rd 22	6	5	East	Yes			Yes			Yes											Yes	
408	On W. side of Port rd 22	6	5	East				Yes			Yes											Yes	
409	On W. side of Port rd 22	6	5	East				Yes		Yes												Yes	
410	On E. side of Port rd 22		5					Yes	Yes	Yes												Yes	
411	On W. side of Port rd 22	6	5	East			Yes	Yes		Yes												Yes	
412	On W. side of Port rd 22 close to Washington Av.	6	5	East				Yes	Yes		Yes											Yes	
413	In open field to the W. of Port rd 22	6	5	East																		Yes	No Flow - Non-Op
414	On W. side of Port rd 23 in front of Posdef plant	6	5	East		Yes		Yes			Yes											Yes	
415	On W. side of Port rd 23 in front of Posdef plant	6	5	East		Yes		Yes			Yes											Yes	
416	On W. side of Port rd 23 in front of Posdef plant office	6	5	East		Yes		Yes														Yes	
417	On W. side of Port rd 23	6	5	East				Yes				Yes										Yes	
418	In middle of Port rd 23 (Labeled as 734)	6	5	East				Yes				Yes										Yes	
420	In middle of Port rd 23	6	5	East				Yes	Yes								Yes					Yes	

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421	In paved parking area of Mac-Steel (gravel area)	6	5	East	Yes			Yes			Yes						Yes					Yes	
422	In paved parking area of Mac-Steel	6	5	East	Yes						Yes									Yes		Yes	
423	On E. side of Port rd 23 next to rails on S. side of Mac-Streel	6	5	East				Yes	Yes	Yes	Yes						Yes					Yes	
424	On W. side of Port rd 23 next to rail on S. side of Mac-Steel	6	5	East				Yes	Yes	Yes	Yes						Yes					Yes	
425	On E. side of Navy drive in front of tank farm terminals		5																			Yes	Sealed Off
426	On BP grounds next to Washington Av & Stork rd	6	5	East				Yes														Yes	
427	On BP grounds next to Washington Av & Stork rd	6	5	East				Yes														Yes	
428	On BP grounds next to Washington Av & Stork rd	6	5	East				Yes														Yes	
429	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
430	On Posdef grounds next to Port rd 23	3	5	East	Yes			Yes														Yes	
431	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
432	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
433	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
434	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
435	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
436	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
437	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
438	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
439	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
440	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
441	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
442	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
443	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
444	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
445	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
446	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
447	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
448	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
449	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	

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Appendix H
BMP Implementation Plan
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Tenant Leased Property?*	Asphalt Surrounding Drain	Sealed with Plastic	Drain Insert	Gravel Around Drain	Railroad Gravel Around Drain	Rock Bags Around Drain	Straw Wattle	Rubber Mat Over Drain	Safe Drain	Screen Over the Grate	Screen Under Grate	Sediment Blocking Screen	Solid Metal Cover Over Drain	Stainless Drain Pan Insert	Oil/Sediment Insert	Yellow Jacket Insert	Routine Inspection & Maintenance	Other (describe):
450	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
451	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
452	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
453	On Posdef grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
454	On Posdef's N. grounds	6	3	East	Yes																	Yes	Sealed, No Flow off site.
455	On Posdef's N. grounds	6	3	East	Yes																	Yes	Sealed, No Flow off site.
456	On Posdef's N. grounds	6	3	East	Yes																	Yes	Sealed, No Flow off site.
457	On Posdef's N. grounds	6	3	East	Yes																	Yes	Sealed, No Flow off site.
458	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East																		Yes	No Flow - Non-Op
459	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East																		Yes	No Flow - Non-Op
460	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East																		Yes	No Flow - Non-Op
461	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East																		Yes	No Flow - Non-Op
462	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East																		Yes	No Flow - Non-Op
463	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East																		Yes	No Flow - Non-Op
464	In WHSE area on E. side of Washington Ave right before crossing bridge to West Complex	6	4	East																		Yes	No Flow - Non-Op

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Appendix H
BMP Implementation Plan
Port of Stockton

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465	On Martin Midstream grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
466	On Martin Midstream grounds next to Port rd 23	6	5	East	Yes			Yes														Yes	
467	On H J Bakers Grounds	6	4	East	Yes			Yes														Yes	
468	On H J Bakers Grounds	6	4	East	Yes			Yes														Yes	
469	On Martin Midstream Grounds	3	4	East	Yes																	Yes	
470	In R/R tracks next to Bay Sulfur	6	4	East																		Yes	
471	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
472	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
473	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
474	On Calamco's grounds	6	3	East	Yes			Yes														Yes	
475	In between cold storage domes	3	3	East	Yes																Yes	Yes	
476	In between cold storage domes	6	3	East	Yes																Yes	Yes	
477	In between cold storage domes	6	3	East	Yes																Yes	Yes	
478	In between cold storage domes	6	3	East	Yes																Yes	Yes	
479	On Carry Transit grounds	6	3	East	Yes																	Yes	Plugged off at outfall
480	On Carry Transit grounds	6	3	East	Yes																	Yes	Plugged off at outfall
481	On Carry Transit grounds	6	3	East	Yes																	Yes	Plugged off at outfall
482	On Carry Transit grounds	6	3	East	Yes																	Yes	Plugged off at outfall
483	On Carry Transit grounds	6	3	East	Yes																	Yes	Plugged off at outfall
484	On S. side of Port Rd A in California Traction Yard	3	3	East					Yes													Yes	
485	On S. side of Port Rd A in California Traction Yard	3	3	East					Yes													Yes	
486	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East				Yes	Yes													Yes	
487	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East				Yes	Yes													Yes	
488	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1					Yes	Yes													Yes	

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Appendix H
BMP Implementation Plan
Port of Stockton

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489	On California/Portland Cement Co. grounds	3	1		Yes		Yes	Yes	Yes													Yes	
490	On California/Portland Cement Co. grounds	3	1	East	Yes		Yes	Yes														Yes	
491	On California/Portland Cement Co. grounds	3	1	East	Yes		Yes	Yes														Yes	
492	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East			Yes	Yes														Yes	
493	E. side of Port Rd 4 next to California/Portland Cement Co.	3	1	East		Yes	Yes	Yes														Yes	
494	On California/Portland Cement Co. grounds	3	1	East	Yes	Yes	Yes	Yes														Yes	
495	On California/Portland Cement Co. grounds	3	1	East	Yes			Yes	Yes													Yes	
496	On California/Portland Cement Co. grounds	3	1	East	Yes			Yes	Yes													Yes	
497	On California/Portland Cement Co. grounds	3	1		Yes			Yes	Yes													Yes	
498	On California/Portland Cement Co. grounds	3	1	East	Yes			Yes	Yes													Yes	
499	On California/Portland Cement Co. grounds	3	1	East	Yes			Yes	Yes													Yes	
501	On California/Portland Cement Co. grounds	3	1	East	Yes		Yes	Yes	Yes													Yes	
502	On California/Portland Cement Co. grounds	3	1	East	Yes		Yes	Yes	Yes													Yes	
503	On California/Portland Cement Co. grounds		1		Yes		Yes	Yes	Yes													Yes	
505	On N. side of Port rd B in R/R tracks	5	2	East				Yes	Yes													Yes	
506	On E. side of Port rd 23 in front of Recology grounds		5					Yes	Yes													Yes	Steel plate with holes
507	On E. side of Port rd 23 in front of Recology grounds		5					Yes				Yes										Yes	Steel plate with holes
508	N side of bldg 134	7	6	West					Yes													Yes	
509	N side of bldg 134	7	6	West					Yes													Yes	
510	N side of bldg 134	7	6	West					Yes													Yes	
514	Pinter Ave. next to whse 719.	7	6	West										Yes								Yes	

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Appendix H
BMP Implementation Plan
Port of Stockton

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515	Pinter Ave. next to whse 719.	7	6	West										Yes								Yes	
516	N side of bldg 619	7	6	West										Yes								Yes	
517	N side of bldg 619	7	6	West										Yes								Yes	
520	McCloy @ gate	7	6	West																		Yes	No Flow - Non-Op
521	Wyerhauser product yard (Covered by product)	7	6	West	Yes	Yes		Yes														Yes	
522	Wyerhauser product yard	7	6	West	Yes	Yes		Yes														Yes	
523	Wyerhauser product yard	7	6	West	Yes	Yes		Yes														Yes	
524	Wyerhauser product yard	7	6	West	Yes	Yes		Yes														Yes	
525	N across fence from Wyerhauser product yard empty lot	7	6			Yes		Yes														Yes	
526	N across fence from Wyerhauser product yard empty lot	7	6	West		Yes		Yes														Yes	
527	N across fence from Wyerhauser product yard empty lot	7	6	West		Yes		Yes														Yes	
528	NE corner of bldg. 1002 (No Tag)	7	6	West		Yes												Yes				Yes	
531	N. side of Cavanaugh Ave. inside Fergusons facility grounds.	7	6	West	Yes	Yes																Yes	
533	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	Yes																Yes	
534	Between bldgs. 805 & 806 W. end	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
535	Across from 534	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
536	SW corner of bldg. 807	7	6	West		Yes																Yes	Drains to leach line in rail bed.
537	Drain has been paved over	7	6	West		Yes																Yes	Drains to leach line in rail bed.
538	SW corner of bldg 809	7	6	West		Yes																Yes	Drains to leach line in rail bed.

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Appendix H
BMP Implementation Plan
Port of Stockton

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539	E side of bldg. 811	7	6	West		Yes		Yes														Yes	Drains to leach line in rail bed.
540	E side of bldg. 811	7	6	West		Yes																Yes	Drains to leach line in rail bed.
541	E side of bldg 812	7	6	West		Yes																Yes	Drains to leach line in rail bed.
542	E side of bldg 812	7	6	West		Yes																Yes	Drains to leach line in rail bed.
543		6	6	West		Yes																Yes	Drains to culvert with Bio-filtration
544	W side of bldg 712	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
545	W side of bldg 712	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
546	W side of bldg 712	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
547	W side of bldg 712	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
548	Cromwell Ave. next to whse 707 (Label Missing)	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
550	Cromwell Ave. next to whse 707	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
551	Cromwell Ave. next to whse 707	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration

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Appendix H
BMP Implementation Plan
Port of Stockton

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552	Cromwell Ave. next to whse 707	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
553	Cromwell Ave. next to whse 707	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
554	Cromwell Ave. next to whse 707	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
555	Cromwell Ave. next to whse 707	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
556	Cromwell Ave. next to bld 706	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
557	E side of bldg. 711 on Daly	7	6	West		Yes																Yes	Drains to leach line in rail bed.
558	E side of bldg. 711 on Daly	7	6	West		Yes																Yes	Drains to leach line in rail bed.
559	E side of bldg. 712	7	6	West		Yes																Yes	Drains to leach line in rail bed.
560	W side of bldg 612	7	6	West		Yes																Yes	Drains to leach line in rail bed.
561	W side of bldg 612	7	6	West		Yes																Yes	Drains to leach line in rail bed.
562	W side of bldg 612	7	6	West		Yes																Yes	Drains to leach line in rail bed.
563	W side of bldg 612	7	6	West		Yes																Yes	Drains to leach line in rail bed.

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Appendix H
BMP Implementation Plan
Port of Stockton

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564	W side of bldg. 611 on Daly	7	6			Yes																Yes	Drains to leach line in rail bed.
565	W side of bldg. 611 on Daly	7	6	West		Yes																Yes	Drains to leach line in rail bed.
567	E side of bldg 611	7	6	West		Yes																Yes	Drains to leach line in rail bed.
568	W side of bldg 511	7	6	West		Yes																Yes	Drains to leach line in rail bed.
570	W side of bldg 512	7	6	West		Yes																Yes	Drains to leach line in rail bed.
571	E side of bldg 612	7	6	West		Yes																Yes	Drains to leach line in rail bed.
572	E side of bldg 612	7	6	West		Yes																Yes	Drains to leach line in rail bed.
574	E side of bldg 612	7	6	West		Yes																Yes	Drains to leach line in rail bed.
580	SE corner of bldg 511	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
581	Gilmore Ave. next to bld 410	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
582	Gilmore Ave. next to whse 411	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
583	SW corner of bldg 411	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration

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Appendix H
BMP Implementation Plan
Port of Stockton

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589	E side of bldg 412	7	6	West		Yes																Yes	Drains to leach line in rail bed.
591	On Lipes, E. end of bldg 412. (Broke Tag)	7	6	West		Yes																Yes	Drains to leach line in rail bed.
592	Gilmore Ave. next to whse 411 (Label Missing)	7	6	West		Yes																Yes	Drains to leach line in rail bed.
593	Gilmore Ave. next to whse 411	7	6	West		Yes																Yes	Drains to leach line in rail bed.
594	Gilmore Ave. next to whse 411 (label Missing)	7	6	West		Yes																Yes	Drains to leach line in rail bed.
595	Gilmore Ave. next to whse 411	7	6	West		Yes																Yes	Drains to leach line in rail bed.
596	Gilmore Ave. next to whse 411	7	6	West		Yes																Yes	Drains to leach line in rail bed.
597	Gilmore Ave. next to whse 411 (labeled as 689)	7	6	West		Yes																Yes	Drains to leach line in rail bed.
598	NW corner of bldg 312 (No Tag)	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
599	W side of bldg 312	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
601	W side of bldg 312	7	6	West		Yes																Yes	Drains to leach line in rail bed.
602	SW corner of bldg 312 on Luce Ave	7	6	West		Yes																Yes	Drains to leach line in rail bed.

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Appendix H
BMP Implementation Plan
Port of Stockton

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603	NW corner of bldg 313 on Luce Ave	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
604	Along S side of bldg 314	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
605	Along S side of bldg 314	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
606	Along S side of bldg 314	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
607	SW corner of Bldg. 212 (No Tag)	7	6	West		Yes		Yes														Yes	
610	South side of bldg 214	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
611	South side of bldg 214	7	6	West		Yes	Yes															Yes	
612	Paved over		6			Yes																Yes	No Flow - Non-Op
613	E side of bldg 612		6	West		Yes																Yes	
614	Paved over		6	West																		Yes	No Flow - Non-Op
615	E side of bldg 812	7	6	West		Yes																Yes	Drains to leach line in rail bed.
616	W side of bldg 712	7	6	West		Yes																Yes	Drains to leach line in rail bed.
617	Parking lot by bldg. 916	7	6	West		Yes	Yes															Yes	
619	Parking lot by bldg. 916	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
620	NE corner of bldg 917	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration

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BMP Implementation Plan
Port of Stockton

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621	NW corner of bldg 817	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
622	SW corner of bldg 817	7	6			Yes																Yes	Drains to culvert with Bio-filtration
623	S side of bldg 817	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
624	NE side of bldg 817	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
625	(No Tag)	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
626	N side of bldg 717 on the road (No Tag)	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
627	N side of bldg 717 on the road	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
628	N side of bldg 717 on the road	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
629	N side of bldg 717 on the road	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
630	N side of bldg 717 on the road (No Tag)	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
631	N side of bldg 717 on the road	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
632	N side of bldg 717 on the road	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration

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Appendix H
BMP Implementation Plan
Port of Stockton

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633	Corner of Fyffe Ave & Ellsberg Dr.	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
634	N. side of Fyffe Ave. in front of bld 617	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
635	N. side of Fyffe Ave. in front of bld 517	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
636	N. side of Fyffe Ave. in front of bld 517	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
637	N. side of Fyffe Ave. near bld 517	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
638	N. side of Fyffe Ave. near bld 517	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
639	S. side of Fyffe Ave.		6			Yes																Yes	Drains to culvert with Bio-filtration
640	S. side of Fyffe Ave.		6			Yes																Yes	Drains to culvert with Bio-filtration
641	N. side of Fyffe Ave. near bld 517		6			Yes																Yes	Drains to culvert with Bio-filtration
642	N. side of Fyffe Ave. near bld 217-A		6			Yes																Yes	Drains to culvert with Bio-filtration
643	S. side of Fyffe Ave.		6			Yes																Yes	Drains to culvert with Bio-filtration
644	S. side of Fyffe Ave.		6			Yes																Yes	Drains to culvert with Bio-filtration

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Appendix H
BMP Implementation Plan
Port of Stockton

Drain	Location Description	Discharge Location	Region	Complex	Tenant Leased Property?*	Asphalt Surrounding Drain	Sealed with Plastic	Drain Insert	Gravel Around Drain	Railroad Gravel Around Drain	Rock Bags Around Drain	Straw Wattle	Rubber Mat Over Drain	Safe Drain	Screen Over the Grate	Screen Under Grate	Sediment Blocking Screen	Solid Metal Cover Over Drain	Stainless Drain Pan Insert	Oil/Sediment Insert	Yellow Jacket Insert	Routine Inspection & Maintenance	Other (describe):
648	S. side of Fyffe Ave. across from drain #649	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
649	N. side of Fyffe Ave. near bld 217-A	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
650	N. side of Fyffe Ave. near bld 217-A	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
651	S. side of Fyffe Ave. across from drain #650	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
652	S. side of Fyffe Ave. across from drain #653	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
653	N. side of Fyffe Ave. near bld 217	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
654	N. side of Fyffe Ave. in front of bld 217	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
655	S. side of Fyffe Ave. across from drain #654	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
656	Between parking area A-117 and Bldg. 117	7	6	West		Yes																Yes	
659	Inside parking lot A-117 (No Tag)	7	6			Yes																Yes	
660	E side of parkin lot A-117	7	6	West		Yes																Yes	
661	S. side of Fyffe Ave. across from drain #662	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
662	N. side of Fyffe Ave. at corner of Fyffe and James Dr.	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
663	N. side of Fyffe Ave. in front of firehouse	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration

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664	S. side of Fyffe Ave. across from drain #663	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
665	S. side of Fyffe Ave. across from drain #666	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
666	N. side of Fyffe Ave. near to bld 17	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
667	N. side of Fyffe Ave. near to bld 17	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
668	E of bldg. 17 in the grass (Completely grown over)	7	6	West		Yes																Yes	No Flow - Non-Op
669	Along S. side of rd leading to the golf course.	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
670	Along S. side of rd leading to the golf course.	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
672	Along S. side of rd leading to the golf course.	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
673	Along S. side of rd leading to the golf course.	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
674	Along S. side of rd leading to the golf course.	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
675	Along S. side of rd leading to the golf course. (Labeled as 764)	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
677	Along S. side of rd leading to the golf course.	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
678	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	Yes																Yes	

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679	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	Yes																Yes	
680	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	Yes																Yes	
681	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	Yes	Yes	Yes														Yes	
682	E. side of Humphreys Dr. inside Fergusons facility grounds.	7	6	West	Yes	Yes																Yes	
683	D-2 outfall area & Lehigh Cement Co.	2	6	East	Yes	Yes	Yes	Yes														Yes	REM filter
684	N side of bldg 134	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
685	Pinter Ave. next to whse 719. (Labeled as 811)	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
686	Unknown	7	6	West																		Yes	Drains to culvert with Bio-filtration
687	S side of parking area A-516 (No Tag)	7	6	West																		Yes	Drains to culvert with Bio-filtration
688	NE corner of bldg 117	7	6	West																		Yes	Drains to culvert with Bio-filtration
691	SW corner of bldg 414 on Edwards	7	6	West																		Yes	Drains to culvert with Bio-filtration
696	On S. side of Port rd K	6	5	East				Yes														Yes	
699	S. side of Port rd F near rd 15	6	3	East		Yes			Yes													Yes	
700	N. side of Port rd F near rd 15	6	3	East		Yes			Yes													Yes	
701	Corner of Washington and Port rd 15 next to drainage ditch	6	3	East		Yes			Yes													Yes	
702	N. side of Port rd E		3	East		Yes																Yes	
704	W. side of Port rd 6 next to WHSE	5	2				Yes															Yes	
708	Along S. side of rd leading to the golf course.	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration

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709	In R/R tracks and D-4 area	3	1	East			Yes		Yes											Yes		Yes	
710	N/W corner of Port maint shop	6	3	East			Yes															Yes	
711	N. side of Washington Ave	6	3	East				Yes	Yes													Yes	
715	W. side of Port rd 6 next to WHSE	5	2	East			Yes															Yes	
717	D-2 outfall area & Lehigh Cement Co.	2	1	East				Yes														Yes	
718	On Carry Transit grounds	6	3	East	Yes																	Yes	Outfall plugged off
719	On Carry Transit grounds	6	3	East	Yes																	Yes	Outfall plugged off
720	Out on dock 11	5	2	East			Yes				Yes	Yes										Yes	
722	D-2 outfall area & Lehigh Cement Co.		5		Yes			Yes														Yes	
729	On N. side of Port rd L	6	5	East			Yes	Yes														Yes	
730	On N. side of Port rd L	6	5	East			Yes	Yes									Yes				Yes	Yes	
733	On E. side of Port rd 23 in front of A-Plus grounds		5					Yes				Yes										Yes	
734	On W. side of Port rd 23		5					Yes				Yes										Yes	
737	In front of brick WHSE L	3	1	East						Yes											Yes	Yes	
738	On ADM's grounds next to Port rd. A		1		Yes				Yes				Yes									Yes	
742	On N. side of Port rd B in R/R tracks	5	2	East				Yes	Yes													Yes	
743	On N. side of Port rd B in R/R tracks	5	2	East				Yes	Yes													Yes	
745	W. side of Port rd 6 next to WHSE	5	2	East			Yes															Yes	
747	Middle of Port rd A & B	6	2	East		Yes				Yes												Yes	
748	SE side of bldg 719 (No Tag)	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
750	Parking lot by bldg. 916	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
751	Could not find																					Yes	Paved over No Flow
752	SW corner of Bldg 212 (No Tag)	7	6			Yes		Yes														Yes	
753	W side of bldg 312	7	6	West		Yes																Yes	Drains to leach line in rail bed.
754	On Lipes, E. end of bldg 412	7	6	West		Yes																Yes	Drains to leach line in rail bed.

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756	W side of bldg 512	7	6	West		Yes																Yes	Sump installed
757	Has been paved over	7	6																			Yes	Paved over No Flow
758	Cromwell Ave. next to whse 707 (Label Missing)	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
759	N. side of Cavanaugh Ave. inside Fergusons facility grounds.	7	6	West	Yes	Yes																Yes	
760	N. side of Cavanaugh Ave. inside Fergusons facility grounds.	7	6	West	Yes	Yes																Yes	
761	S. side of Fergusons facility grounds. (No Tag)	7	6	West	Yes	Yes																Yes	
762	Inside parking lot A-117 (No Tag)	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
765	Pinter Ave. next to whse 719. (Label Missing)		6	West		Yes																Yes	Drains to culvert with Bio-filtration
768	Middle of Port rd B		6	West		Yes	Yes															Yes	
769	Middle of Port rd B		6			Yes																Yes	Drains to culvert with Bio-filtration
771	E. side of Port rd 21, in front of Westway	6	5	East				Yes	Yes	Yes												Yes	
776	S/E corner of Cen-Cal Recycle Business	6	5	East	Yes	Yes																Yes	Decontamin ator filter
777	Middle of Port rd K & 22	6	5	East		Yes		Yes														Yes	
778	Middle of Port rd's 23 & K	6	5	East		Yes		Yes														Yes	
780	Inside Lowe's compound (No Tag)	7	6	West	Yes																	Yes	Storm receptor vault
781	Inside Lowe's compound (No Tag)	7	6	West	Yes	Yes																Yes	Storm receptor vault
782	Inside Lowes compound (No Tag)	7	6	West	Yes	Yes																Yes	Storm receptor vault

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783	E side of bldg 612	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
784	NW side of bldg 613	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
785	NW side of bldg 613	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
786	NW side of bldg 613	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
787	N side of bldg. 613 on Luce Ave	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
788	N side of bldg. 613 on Luce Ave	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
794	Inside Lowes compound (No Tag)	7	6	West	Yes	Yes																Yes	
795	Product covering drain	7	6	West		Yes																Yes	
796	Inside Lowes compound (No Tag)	7	6	West	Yes	Yes																Yes	Storm receptor vault
797	Inside Lowes compound (No Tag)	7	6	West	Yes	Yes																Yes	Storm receptor vault
798	Inside Lowes compound (No Tag)	7	6	West	Yes	Yes																Yes	
799	Inside Lowes compound (No Tag)	7	6	West	Yes	Yes																Yes	
800	Inside Lowes compound (No Tag)	7	6	West	Yes	Yes																Yes	
801	Just to the west of the cul-de-sac (Missing Tag)		6	West																		Yes	No Flow - Non-Op
802	Forrestal Village		6																			Yes	No Flow - Non-Op
803	Forrestal Village (No flow)		6	West																		Yes	No Flow - Non-Op
804	Forrestal Village (No flow)		6	West																		Yes	No Flow - Non-Op

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805	Forrestal Village (No flow)		6	West																		Yes	No Flow - Non-Op
807	On the street in front of bldg. 219	7	6	West																		Yes	Drains to culvert with Bio-filtration
808	NW corner of bldg 518	7	6	West																		Yes	Drains to culvert with Bio-filtration
809	SE corner of the Holding and Reconsignment Yard	7	6	West																		Yes	Drains to culvert with Bio-filtration
810	NE side of bldg 719	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
811	S side of Bldg 214 (No Tag)	7	6			Yes																Yes	Drains to culvert with Bio-filtration
812	Between parking area A-117 and Bldg. 117	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
813	NW corner of Bldg 213 (No Tag)	7	6			Yes																Yes	Drains to leach line in rail bed.
814	S side of bldg 414 on Edwards	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
815	W side of bldg 511	7	6	West		Yes																Yes	Drains to leach line in rail bed.
816	E side of bldg 611	7	6	West		Yes																Yes	Drains to leach line in rail bed.
817	N. side of Fyffe Ave. in dirt lot.	7	6	West					Yes													Yes	
818	Along S. side of rd leading to the golf course.	7	6	West		Yes																Yes	Drains to culvert with Bio-filtration
820	Next to brick WHSE B	3	1	East				Yes		Yes												Yes	

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821	Next to brick WHSE C	3	1	East				Yes		Yes												Yes	
824	W. side of Port Rd 6 next to WHSE	5	2	East		Yes										Yes						Yes	
825	On E. side of Port rd 13 in front of Cargill	6	3	East			Yes			Yes												Yes	
826	In E. parking lot behind Admin Bld.	6	3	East				Yes														Yes	
827	On E. side of Port rd 21	6	5	East				Yes	Yes	Yes												Yes	
828	Middle of Port rd 22 & M	6	5	East				Yes														Yes	
829	Middle of Port rd 22 & L	6	5	East				Yes														Yes	
830	On E. side of Port rd 22 next to Cen-Cal office	6	5	East				Yes											Yes			Yes	
831	Middle of Port rd L	6	5	East				Yes									Yes					Yes	
832	Middle of Port rd 23 @ S/W corner of Mac-Steel S. yard	6	5	East				Yes														Yes	
834	In middle of Port rd 23	6	5	East				Yes				Yes										Yes	
835	In middle of Port rd 23	6	5	East				Yes				Yes										Yes	
844	RdG,cold stor		3			Yes		Yes	Yes													Yes	
10000	Castle & Cook (New Drain)	4	1		Yes			Yes	Yes													Yes	
10001	Castle & Cook (No Label)	4	1		Yes			Yes	Yes													Yes	
10002	Castle & Cook (No Label)	4	1		Yes			Yes	Yes													Yes	
10003	NW side of bldg 719 (Duplicate drain label located at 37.57.194/121.28.990)	7	6	West																		Yes	Drains to culvert with Bio-filtration
10004	East Port entry							Yes														Yes	
10005	East Port entry							Yes														Yes	
10006	East Port entry							Yes														Yes	
																						Yes	

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Appendix 6

Retention Basin O&M Guidelines

Storm Water Retention Basin Operation and Maintenance Guidelines

PORT OF STOCKTON

EAST COMPLEX

Developed by
WGR SOUTHWEST, Inc.
For the
Port of Stockton Environmental Department
(Revised April 2013)

1.0 Introduction

Inspection and maintenance of the Port of Stockton (Port) East Complex Retention Basin (retention basin) is vital to the effectiveness of this storm water pollution prevention Best Management Practice (BMP). The structural integrity, operability, and volume capacity of the basin are vital to the effective management of storm water at the Port.

2.0 Inspection

2.1 Dry Season Inspection

An inspection of the retention basin will be conducted once during the dry season between June 1 and September 30. This inspection will occur after all impounded storm water has naturally dissipated and the base sediment is sufficiently dry to allow pedestrian access. If wet weather continues beyond the wet season and makes access impossible, the Maintenance Department evaluated alternative methods for performing dry season inspections or delay until access is possible. Reason for deviation from this plan will be documented in the annual report. The following areas of the retention basin will be inspected.

Dry Season Inspection	
Location	**Items to inspect**
Effluent Pump	Pump intake screening Pump operation
Effluent Piping	Piping for any signs of deterioration Erosion at discharge point Blockages
Influent Piping	Piping for any signs of deterioration Erosion at discharge point Blockages
Retention Basin Levees	Erosion Slumping Structural Integrity
Retention Basin floor	Sediment accumulation Trash or other debris (to be removed)

2.2 Wet Season Inspection

An inspection of the retention basin will be conducted monthly during the wet season between October 1 and May 31. The wet season inspections will occur at least 16 days apart. The following areas of the retention basin will be inspected.

Wet Season Inspection	
Location	**Items to inspect**
Effluent Piping	Piping for any signs of deterioration Erosion at discharge point Blockages
Influent Piping	Piping for any signs of deterioration Erosion at discharge point Blockages
Retention Basin Levees	Erosion Slumping Structural Integrity Seepage

3.0 Maintenance

3.1 Sediment and debris removal will occur on an as-needed basis during the dry season. The decision to remove sediment will be based on the observations made during the annual dry season inspection. Factors to be considered will include interference with suction for the effluent discharge pump, degradation of retention basin treatment efficiency, and reduction of retention basin holding capacity. It is anticipated that sediment removal will occur a minimum of once each ten years, but this period of time may be shortened or extended based upon the previously mentioned factors.

3.2 Retention basin levee maintenance will occur on an as-needed basis. The decision to perform work on the retention basin levees will be based on the observations made during all retention basin inspections. Retention basin levee maintenance activities will include grading, repair of erosion, stabilizing vegetation, maintenance, repair of structural compromise, and repair of seepage.

3.3 Debris and litter removal will occur prior to each storm season. Removal of debris and litter from the entire pond will minimize outlet clogging and remove material that might affect water quality.

4.0 Operation

Storm water is allowed to accumulate in the Retention Basin throughout the wet season. The storm water is allowed to remain in the basin as long as practicable for maximum settling and removal. Discharge during the wet season may occur if the water level in the basin approaches a high water level where discharge pumping is required to maintain safe operating levels and contain additional water coming into the basin. In the event that discharge pumping is required during the wet season, the Port staff will review weather conditions to facilitate discharge at least 10 days after each rain event. This allows settling and also eliminates the possibility of inlet pumping while the discharge pumps are on. In the event that the high water level is reached and discharge pumping must occur while inlet pumping is also occurring, the maintenance staff will coordinate with the Port's Environmental staff to ensure that daily testing of the Retention Basin occurs during discharge pumping.

The retention time in the basin depends on the total amount of rainfall in a season. During most wet seasons, the Retention Basin contains storm water flows and is only discharged after the wet season.

The Retention Basin discharge pumps are manually operated. Prior to commencing discharge, the Port's Environmental staff conducts sampling of the water in the retention basin. Theses samples are sent to the laboratory for analysis. Upon receiving and reviewing the results, the Environmental staff will coordinate with the Maintenance staff to begin discharge pumping. During discharge pumping, the Environmental staff will take receiving water samples from upstream and downstream locations in accordance with the adopted Monitoring and Reporting Program.

5.0 Notification

If a retention basin inspection finds evidence of levee seepage, the Port will notify the Regional Board within two weeks.

6.0 Documentation

Any routine maintenance or repairs done to the storm water retention basin will be documented and maintained in the Port's Maintenance Department files.

Appendix 7

Port Street-Sweeping Plan

Port of Stockton – Street Sweeping Summary Sheet

Daily Routes

Route 1 *(2 hours, every day)*

Roadways and open paved areas in the vicinity of the Fertilizer Warehouse. This includes the entire open area surrounding the Port's Fertilizer Warehouse and the Operator Wash Pad along with the three northwest-southeast running streets south of it. On ship loading/unloading days, sweeping activities should occur more frequently (~ 2 or 3 times per day).

Weekly Routes

Route 2 *(2 hours, once/week)*

Turn off W. Washington Rd. and head southward down Port Rd 21. Target debris areas along both sides of Rd 21. Turn right (west) on Port Rd M and sweep areas along the north side of the road around the drain inlets. Traverse Port Rd M between Road 21 and 22. Turn north on Port Road 22 and sweep the general area on Port Rd 22 between Road L and M. Turn right (east) off Port Rd 22 and sweep Port Rd L targeting areas around drains along the southern and northern side of the street. Traverse Port Rd L between Road 21 and 22 to collect visible debris.

Route 3 *(2 hours, once/week)*

Turn off W. Washington Rd. and head southward down Port Rd 22. Target debris areas along the sides of Road 22 and traverse until most of the debris has been collected. Clean ground at the intersection on Road 22 and Road L where trash and debris has accumulated. Turn right (west) on Port Rd L. Restrict sweeping to paved areas where debris has accumulated. Much of this paved area is located approximately 70 yards away from Road 22.

Route 4 *(2 hours, once/week)*

Turn off W. Washington Rd. and head southward down Port Rd 23. Avoid sweeping areas where asphalt appears to already be broken up. Sweep along the east fence of the POSDEF property and around drains along the western side of Rd 23. Turn left (east) on Port Road K and sweep along both sides of the street. Return back to Road 23 and turn left (south) on Port Rd 23. Clean all areas of Road 23 where debris has accumulated. Turn left (east) on Port Road M and sweep all areas where debris has accumulated, especially areas around storm water drain inlets.

Bi-weekly (twice a week) Routes

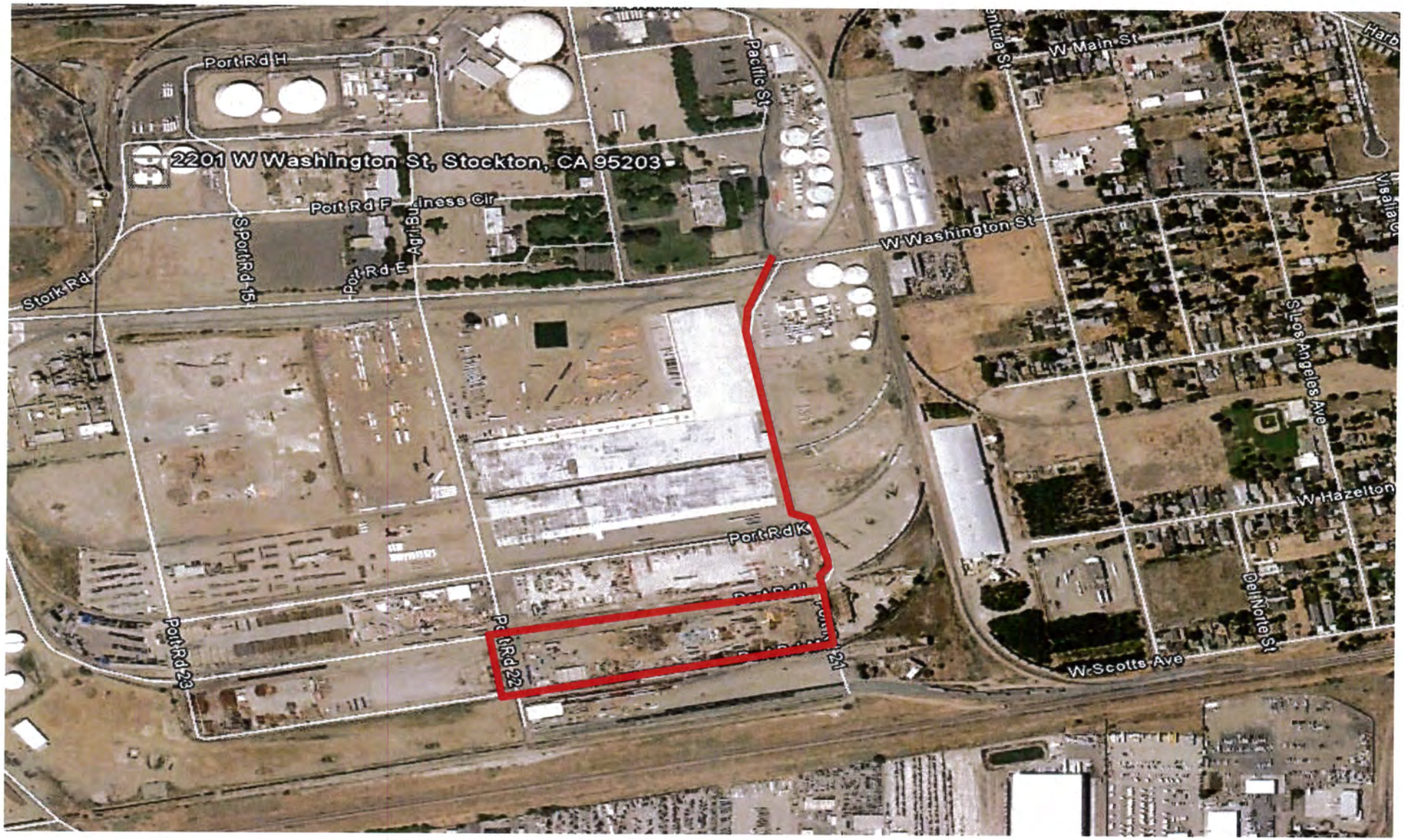
Route 5 *(4 hours, once every 2 weeks)*
Focus sweeping to areas along the raised curb along the southern side of Port Rd F. Turn left (north) onto Port Rd 14 and right onto Port Rd G and clean up any traces of track-out debris left by trucks. Go to Port Rd 13 and turn left (north) sweeping any areas of debris accumulation. Go through security gates and turn right (east) onto Port Rd A. Turn left (northwest) onto Port Rd 4 and right (east) on Port Road B. Continue east down Road B as road veers right onto Port Road 2 and go to the intersection of Port Rd B and Road 3. Turn back northwest up Road 2 and turn left (west) on Port Rd B. Take a sharp left turn (southeast) and sweep the road all the way to Port Road A. Turn left (east) onto Port Road B and sweep the road until it intersects with Port Rd 2. After finishing this area, operator will return back towards the Maintenance Yard. Sweep truck track-out areas, drain areas and the south curb of Port Road F. Turn left (south) onto Port Rd 14 and sweep along West Washington Street. Turn north up Port Rd 14 and turn left (west) onto Port Rd F to sweep south side of Road F to Road 15.

Route 6 *(1 hour, once every 2 weeks)*
Enter the West Complex and drive westward down Fyffe Road. Sweep all debris from along the curb along the northern side of the street. Turn back eastward at Boone Drive, sweep all debris from along the curb along the southern side of Fyffe Road.

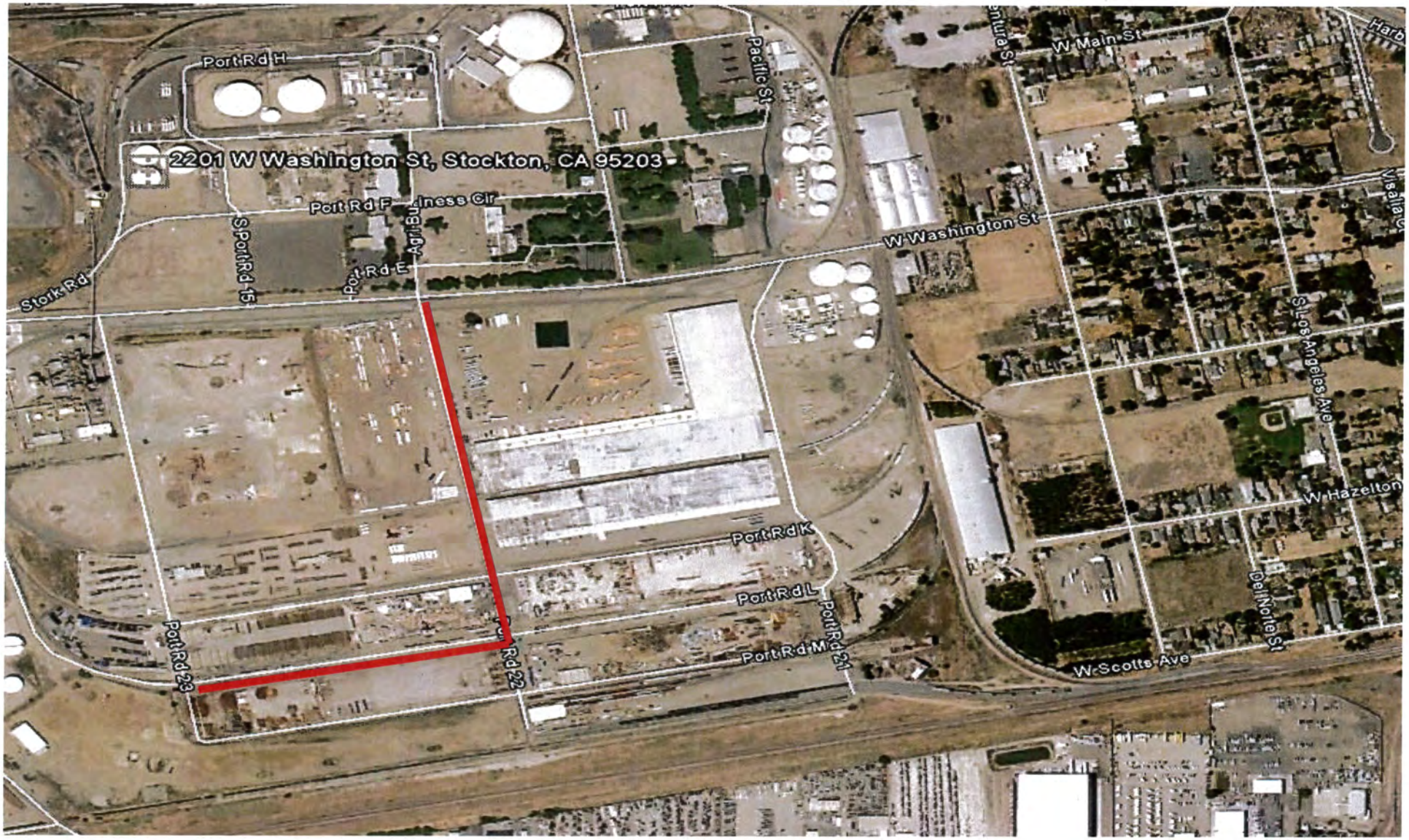
Route 1 **Green = Daily**

Route 2

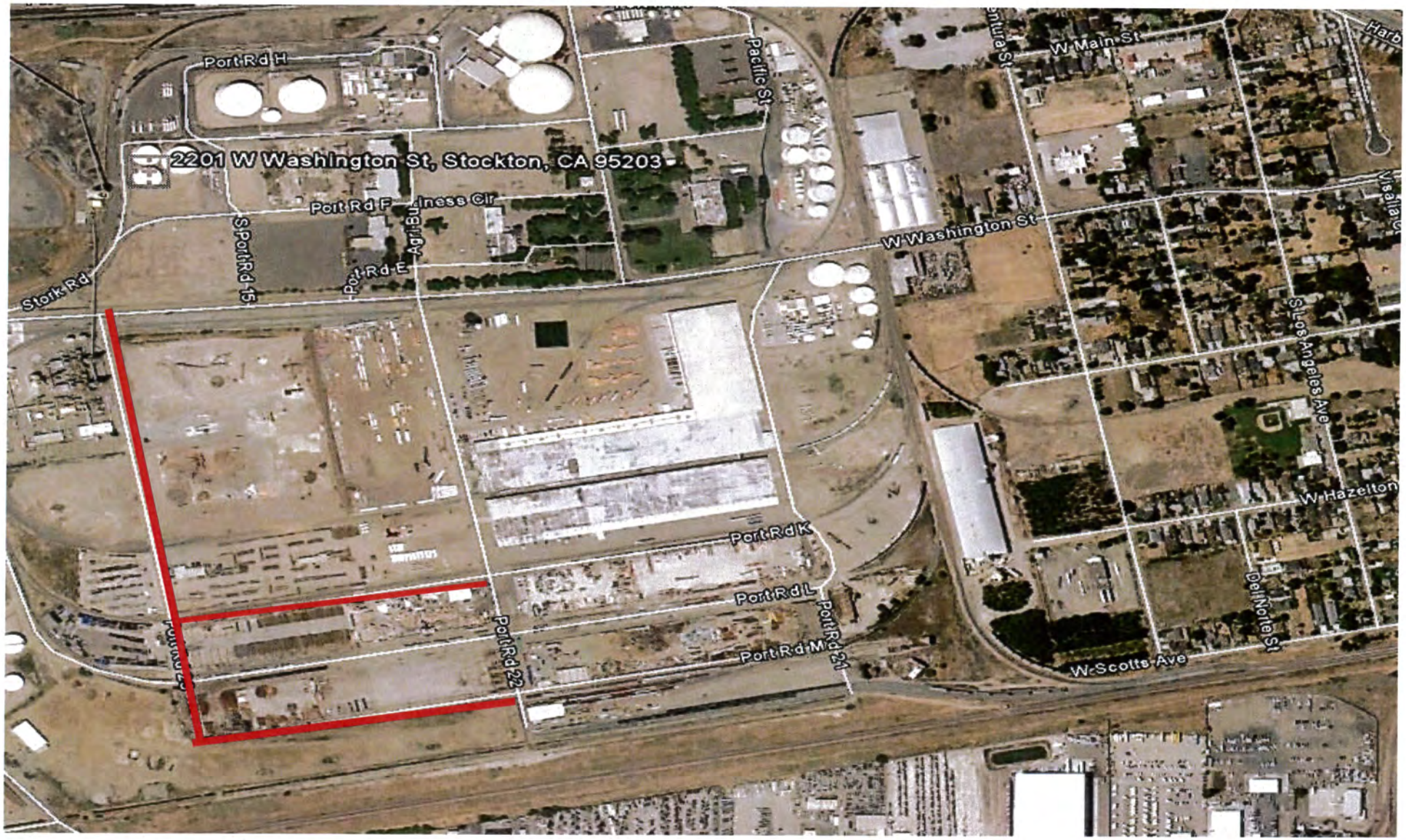
Red = Weekly



Route 3 **Red = Weekly**



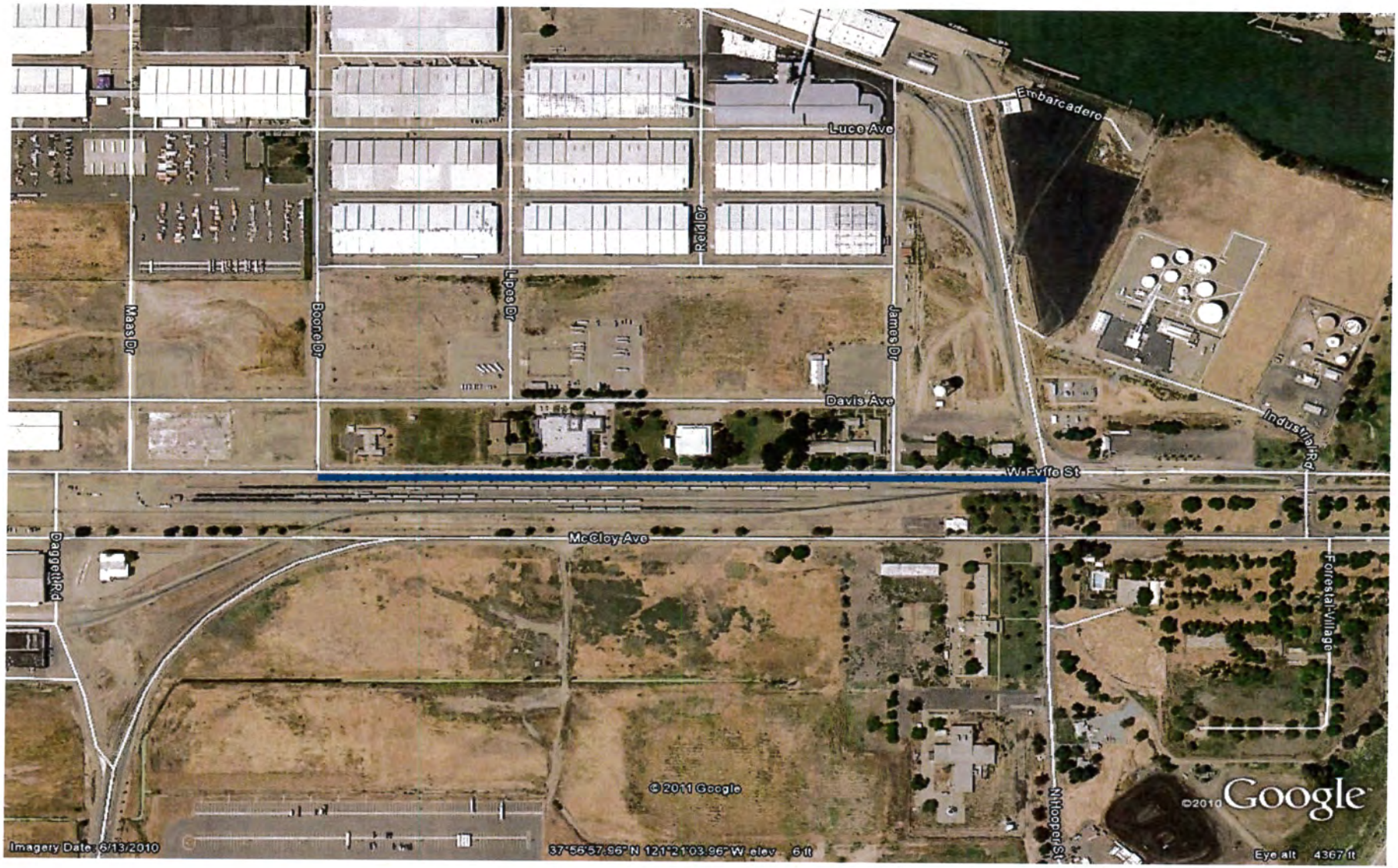
Route 4 **Red = Weekly**



Route 5

Blue = Twice A Week

Route 6 **Blue = Twice A Week**



Appendix 8

Maintenance Practices for Sawcutting and Concrete Work

Maintenance Practices for Saw Cutting & Concrete Waste

NOTE: Be sure to add absorbent to slurry to solidify material before disposal. Utilize high pressure and a low volume of water with saw and use maximum clean up.

- **All saw cutting wastes shall be recovered and disposed of properly;**
- **In no case shall saw cutting or concrete waste be left on a roadway or allowed to enter the storm sewer;**
- **Concrete and other street and road maintenance materials and wastes shall be managed to prevent discharge to the storm sewer;**
- **Concrete truck and chute washout shall only occur in designated areas;**
- **Concrete rinse shall not be discharged to the storm sewer, open ditches, or streets.**
- **Concrete, paving and saw cutting operations shall be managed according to the CASQA Best Management Practices (BMPs). See the attached CASQA cut sheets.**

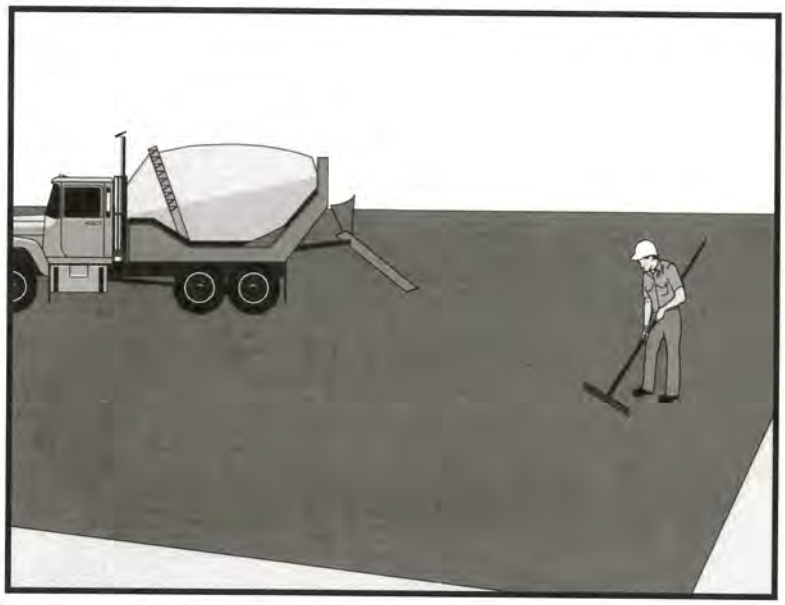
1. CASQA WM-5, Solid Waste Management: Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

2. CASQA WM-8, Concrete Waste Management: Concrete waste management procedures and practices are designed to prevent the discharge of pollutants to stormwater from concrete waste by conducting washout onsite or offsite in a designated area.

3. CASQA WM-10, Liquid Waste Management: Liquid waste management includes procedures and practices to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes.

4. CASQA NS-3, Paving and Grinding Operations: Paving and grinding operations includes procedures and practices designed to prevent or reduce the discharge of pollutants from paving operations.

Paving and Grinding Operations NS-3



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	☒

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

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Description and Purpose

Prevent or reduce the discharge of pollutants from paving operations, using measures to prevent runon and runoff pollution, properly disposing of wastes, and training employees and subcontractors.

The General Permit incorporates Numeric Action Levels (NAL) for pH and turbidity (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials associated with paving and grinding operations, including mortar, concrete, and cement and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows, which could lead to exceedances of the General Permit requirements.

Suitable Applications

These procedures are implemented where paving, surfacing, resurfacing, or sawcutting, may pollute stormwater runoff or discharge to the storm drain system or watercourses.

Limitations

- Paving opportunities may be limited during wet weather.

  Discharges of freshly paved surfaces may raise pH to environmentally harmful levels and trigger permit violations.

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Implementation

General

- Avoid paving during the wet season when feasible.
- Reschedule paving and grinding activities if rain is forecasted.
- Train employees and sub-contractors in pollution prevention and reduction.
- Store materials away from drainage courses to prevent stormwater runon (see WM-1, Material Delivery and Storage).
- Protect drainage courses, particularly in areas with a grade, by employing BMPs to divert runoff or to trap and filter sediment.
- Stockpile material removed from roadways away from drain inlets, drainage ditches, and watercourses. These materials should be stored consistent with WM-3, Stockpile Management.
- Disposal of PCC (Portland cement concrete) and AC (asphalt concrete) waste should be in conformance with WM-8, Concrete Waste Management.

Saw Cutting, Grinding, and Pavement Removal

- Shovel or vacuum saw-cut slurry and remove from site. Cover or barricade storm drains during saw cutting to contain slurry.
- When paving involves AC, the following steps should be implemented to prevent the discharge of grinding residue, uncompacted or loose AC, tack coats, equipment cleaners, or unrelated paving materials:
  - AC grindings, pieces, or chunks used in embankments or shoulder backing should not be allowed to enter any storm drains or watercourses. Install inlet protection and perimeter controls until area is stabilized (i.e. cutting, grinding or other removal activities are complete and loose material has been properly removed and disposed of)or permanent controls are in place. Examples of temporary perimeter controls can be found in EC-9, Earth Dikes and Drainage Swales; SE-1, Silt Fence; SE-5, Fiber Rolls, or SE-13 Compost Socks and Berms
  - Collect and remove all broken asphalt and recycle when practical. Old or spilled asphalt should be recycled or disposed of properly.
- Do not allow saw-cut slurry to enter storm drains or watercourses. Residue from grinding operations should be picked up by a vacuum attachment to the grinding machine, or by sweeping, should not be allowed to flow across the pavement, and should not be left on the surface of the pavement. See also WM-8, Concrete Waste Management, and WM-10, Liquid Waste Management.
- Pavement removal activities should not be conducted in the rain.
- Collect removed pavement material by mechanical or manual methods. This material may be recycled for use as shoulder backing or base material.

- If removed pavement material cannot be recycled, transport the material back to an approved storage site.

Asphaltic Concrete Paving

- If paving involves asphaltic cement concrete, follow these steps:
  - Do not allow sand or gravel placed over new asphalt to wash into storm drains, streets, or creeks. Vacuum or sweep loose sand and gravel and properly dispose of this waste by referring to WM-5, Solid Waste Management.
  - Old asphalt should be disposed of properly. Collect and remove all broken asphalt from the site and recycle whenever possible.

Portland Cement Concrete Paving

- Do not wash sweepings from exposed aggregate concrete into a storm drain system. Collect waste materials by dry methods, such as sweeping or shoveling, and return to aggregate base stockpile or dispose of properly. Allow aggregate rinse to settle. Then, either allow rinse water to dry in a temporary pit as described in WM-8, Concrete Waste Management, or pump the water to the sanitary sewer if authorized by the local wastewater authority.

Sealing Operations

- During chip seal application and sweeping operations, petroleum or petroleum covered aggregate should not be allowed to enter any storm drain or water courses. Apply temporary perimeter controls until structure is stabilized (i.e. all sealing operations are complete and cured and loose materials have been properly removed and disposed).
- Inlet protection (SE-10, Storm Drain Inlet Protection) should be used during application of seal coat, tack coat, slurry seal, and fog seal.
- Seal coat, tack coat, slurry seal, or fog seal should not be applied if rainfall is predicted to occur during the application or curing period.

Paving Equipment

- Leaks and spills from paving equipment can contain toxic levels of heavy metals and oil and grease. Place drip pans or absorbent materials under paving equipment when not in use. Clean up spills with absorbent materials and dispose of in accordance with the applicable regulations. See NS-10, Vehicle and Equipment Maintenance, WM-4, Spill Prevention and Control, and WM-10, Liquid Waste Management.
- Substances used to coat asphalt transport trucks and asphalt spreading equipment should not contain soap and should be non-foaming and non-toxic.
- Paving equipment parked onsite should be parked over plastic to prevent soil contamination.
- Clean asphalt coated equipment offsite whenever possible. When cleaning dry, hardened asphalt from equipment, manage hardened asphalt debris as described in WM-5, Solid Waste Management. Any cleaning onsite should follow NS-8, Vehicle and Equipment Cleaning.

Thermoplastic Striping

- Thermoplastic striper and pre-heater equipment shutoff valves should be inspected to ensure that they are working properly to prevent leaking thermoplastic from entering drain inlets, the stormwater drainage system, or watercourses.
- Pre-heaters should be filled carefully to prevent splashing or spilling of hot thermoplastic. Leave six inches of space at the top of the pre-heater container when filling thermoplastic to allow room for material to move.
- Do not pre-heat, transfer, or load thermoplastic near drain inlets or watercourses.
- Clean truck beds daily of loose debris and melted thermoplastic. When possible, recycle thermoplastic material.

Raised/Recessed Pavement Marker Application and Removal

- Do not transfer or load bituminous material near drain inlets, the stormwater drainage system, or watercourses.
- Melting tanks should be loaded with care and not filled to beyond six inches from the top to leave room for splashing.
- When servicing or filling melting tanks, ensure all pressure is released before removing lids to avoid spills.
- On large-scale projects, use mechanical or manual methods to collect excess bituminous material from the roadway after removal of markers.

Costs

- All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of paving and grinding operations.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Sample stormwater runoff required by the General Permit.
- Keep ample supplies of drip pans or absorbent materials onsite.
- Inspect and maintain machinery regularly to minimize leaks and drips.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Hot Mix Asphalt-Paving Handbook AC 150/5370-14, Appendix I, U.S. Army Corps of Engineers, July 1991.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

Solid Waste Management WM-5

Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction
- Packaging materials including wood, paper, and plastic
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces, and masonry products
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes
- Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, styrofoam and other materials used to transport and package construction materials

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- Highway planting wastes, including vegetative material, plant containers, and packaging materials

Limitations

Temporary stockpiling of certain construction wastes may not necessitate stringent drainage related controls during the non-rainy season or in desert areas with low rainfall.

Implementation

The following steps will help keep a clean site and reduce stormwater pollution:

- Select designated waste collection areas onsite.
- Inform trash-hauling contractors that you will accept only watertight dumpsters for onsite use. Inspect dumpsters for leaks and repair any dumpster that is not watertight.
- Locate containers in a covered area or in a secondary containment.
- Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy.
- Cover waste containers at the end of each work day and when it is raining.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.
- Collect site trash daily, especially during rainy and windy conditions.
- Remove this solid waste promptly since erosion and sediment control devices tend to collect litter.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor.
- Arrange for regular waste collection before containers overflow.
- Clean up immediately if a container does spill.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas.

Education

- Have the contractor's superintendent or representative oversee and enforce proper solid waste management procedures and practices.
- Instruct employees and subcontractors on identification of solid waste and hazardous waste.
- Educate employees and subcontractors on solid waste storage and disposal procedures.

- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Require that employees and subcontractors follow solid waste handling and storage procedures.
- Prohibit littering by employees, subcontractors, and visitors.
- Minimize production of solid waste materials wherever possible.

Collection, Storage, and Disposal

- Littering on the project site should be prohibited.
- To prevent clogging of the storm drainage system, litter and debris removal from drainage grates, trash racks, and ditch lines should be a priority.
- Trash receptacles should be provided in the contractor's yard, field trailer areas, and at locations where workers congregate for lunch and break periods.
- Litter from work areas within the construction limits of the project site should be collected and placed in watertight dumpsters at least weekly, regardless of whether the litter was generated by the contractor, the public, or others. Collected litter and debris should not be placed in or next to drain inlets, stormwater drainage systems, or watercourses.
- Dumpsters of sufficient size and number should be provided to contain the solid waste generated by the project.
- Full dumpsters should be removed from the project site and the contents should be disposed of by the trash hauling contractor.
- Construction debris and waste should be removed from the site biweekly or more frequently as needed.
- Construction material visible to the public should be stored or stacked in an orderly manner.
- Stormwater runon should be prevented from contacting stored solid waste through the use of berms, dikes, or other temporary diversion structures or through the use of measures to elevate waste from site surfaces.
- Solid waste storage areas should be located at least 50 ft from drainage facilities and watercourses and should not be located in areas prone to flooding or ponding.
- Except during fair weather, construction and highway planting waste not stored in watertight dumpsters should be securely covered from wind and rain by covering the waste with tarps or plastic.
- Segregate potentially hazardous waste from non-hazardous construction site waste.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.

- For disposal of hazardous waste, see WM-6, Hazardous Waste Management. Have hazardous waste hauled to an appropriate disposal and/or recycling facility.
- Salvage or recycle useful vegetation debris, packaging and surplus building materials when practical. For example, trees and shrubs from land clearing can be used as a brush barrier, or converted into wood chips, then used as mulch on graded areas. Wood pallets, cardboard boxes, and construction scraps can also be recycled.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur
- Inspect construction waste area regularly.
- Arrange for regular waste collection.

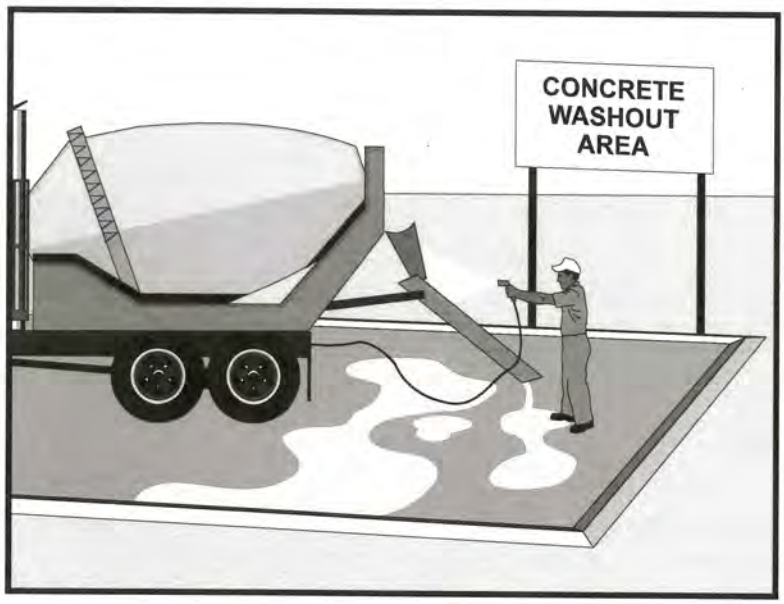
References

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Concrete Waste Management WM-8



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☒
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Prevent the discharge of pollutants to stormwater from concrete waste by conducting washout onsite or offsite in a designated area, and by employee and subcontractor training.

The General Permit incorporates Numeric Effluent Limits (NEL) and Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials, including mortar, concrete, stucco, cement and block and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows and raising pH to levels outside the accepted range.

Suitable Applications

Concrete waste management procedures and practices are implemented on construction projects where:

- Concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Slurries containing portland cement concrete (PCC) are generated, such as from saw cutting, coring, grinding, grooving, and hydro-concrete demolition.

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- Concrete trucks and other concrete-coated equipment are washed onsite.
- Mortar-mixing stations exist.
- Stucco mixing and spraying .
- See also NS-8, Vehicle and Equipment Cleaning.

Limitations

- Offsite washout of concrete wastes may not always be possible.
- Multiple washouts may be needed to assure adequate capacity and to allow for evaporation.

Implementation

The following steps will help reduce stormwater pollution from concrete wastes:

- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Store dry and wet materials under cover, away from drainage areas. Refer to WM-1, Material Delivery and Storage for more information.
- Avoid mixing excess amounts of concrete.
- Perform washout of concrete trucks in designated areas only, where washout will not reach stormwater.
- Do not wash out concrete trucks into storm drains, open ditches, streets, streams or onto the ground. Trucks should always be washed out into designated facilities.
- Do not allow excess concrete to be dumped onsite, except in designated areas.
- For onsite washout:
  - On larger sites, it is recommended to locate washout areas at least 50 feet from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
  - Washout wastes into the temporary washout where the concrete can set, be broken up, and then disposed properly.
  - Washout should be lined so there is no discharge into the underlying soil.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash.
- See typical concrete washout installation details at the end of this fact sheet.

Education

- Educate employees, subcontractors, and suppliers on the concrete waste management techniques described herein.

- Arrange for contractor's superintendent or representative to oversee and enforce concrete waste management procedures.
- Discuss the concrete management techniques described in this BMP (such as handling of concrete waste and washout) with the ready-mix concrete supplier before any deliveries are made.

Concrete Demolition Wastes

- Stockpile concrete demolition waste in accordance with BMP WM-3, Stockpile Management.
- Dispose of or recycle hardened concrete waste in accordance with applicable federal, state or local regulations.

Concrete Slurry Wastes

- PCC and AC waste should not be allowed to enter storm drains or watercourses.
- PCC and AC waste should be collected and disposed of or placed in a temporary concrete washout facility (as described in Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures, below).
- A foreman or construction supervisor should monitor onsite concrete working tasks, such as saw cutting, coring, grinding and grooving to ensure proper methods are implemented.
- Saw-cut concrete slurry should not be allowed to enter storm drains or watercourses. Residue from grinding operations should be picked up by means of a vacuum attachment to the grinding machine or by sweeping. Saw cutting residue should not be allowed to flow across the pavement and should not be left on the surface of the pavement. See also NS-3, Paving and Grinding Operations; and WM-10, Liquid Waste Management.
- Concrete slurry residue should be disposed in a temporary washout facility (as described in Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures, below) and allowed to dry. Dispose of dry slurry residue in accordance with WM-5, Solid Waste Management.

Onsite Temporary Concrete Washout Facility, Transit Truck Washout Procedures

- Temporary concrete washout facilities should be located a minimum of 50 ft from storm drain inlets, open drainage facilities, and watercourses. Each facility should be located away from construction traffic or access areas to prevent disturbance or tracking.
- A sign should be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.
- Temporary concrete washout facilities should be constructed above grade or below grade at the option of the contractor. Temporary concrete washout facilities should be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations.

- Temporary washout facilities should have a temporary pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.
- Temporary washout facilities should be lined to prevent discharge to the underlying ground or surrounding area.
- Washout of concrete trucks should be performed in designated areas only.
- Only concrete from mixer truck chutes should be washed into concrete wash out.
- Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designated washout area or properly disposed of or recycled offsite.
- Once concrete wastes are washed into the designated area and allowed to harden, the concrete should be broken up, removed, and disposed of per WM-5, Solid Waste Management. Dispose of or recycle hardened concrete on a regular basis.
- Temporary Concrete Washout Facility (Type Above Grade)
  - Temporary concrete washout facility (type above grade) should be constructed as shown on the details at the end of this BMP, with a recommended minimum length and minimum width of 10 ft; however, smaller sites or jobs may only need a smaller washout facility. With any washout, always maintain a sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations.
  - Materials used to construct the washout area should conform to the provisions detailed in their respective BMPs (e.g., SE-8 Sandbag Barrier).
  - Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.
  - Alternatively, portable removable containers can be used as above grade concrete washouts. Also called a "roll-off"; this concrete washout facility should be properly sealed to prevent leakage, and should be removed from the site and replaced when the container reaches 75% capacity.
- Temporary Concrete Washout Facility (Type Below Grade)
  - Temporary concrete washout facilities (type below grade) should be constructed as shown on the details at the end of this BMP, with a recommended minimum length and minimum width of 10 ft. The quantity and volume should be sufficient to contain all liquid and concrete waste generated by washout operations.
  - Lath and flagging should be commercial type.
  - Plastic lining material should be a minimum of 10 mil polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

- The base of a washout facility should be free of rock or debris that may damage a plastic liner.

Removal of Temporary Concrete Washout Facilities

- When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and properly disposed or recycled in accordance with federal, state or local regulations. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and properly disposed or recycled in accordance with federal, state or local regulations..

- Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

Costs

All of the above are low cost measures. Roll-off concrete washout facilities can be more costly than other measures due to removal and replacement; however, provide a cleaner alternative to traditional washouts. The type of washout facility, size, and availability of materials will determine the cost of the washout.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Temporary concrete washout facilities should be maintained to provide adequate holding capacity with a minimum freeboard of 4 in. for above grade facilities and 12 in. for below grade facilities. Maintaining temporary concrete washout facilities should include removing and disposing of hardened concrete and returning the facilities to a functional condition. Hardened concrete materials should be removed and properly disposed or recycled in accordance with federal, state or local regulations.

- Washout facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75% full.

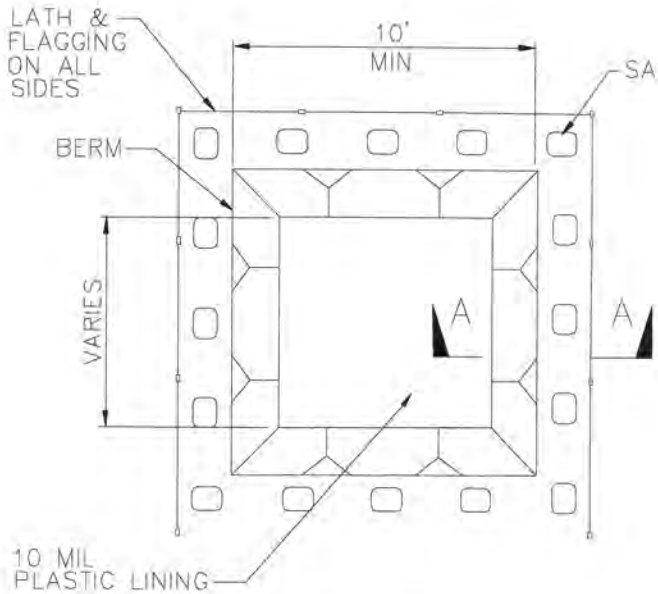
- Inspect washout facilities for damage (e.g. torn liner, evidence of leaks, signage, etc.). Repair all identified damage.

References

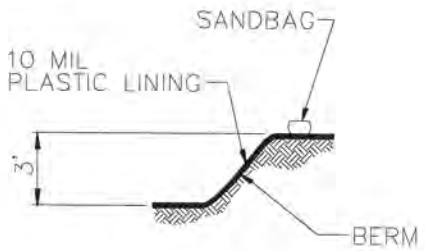
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000, Updated March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.



PLAN
NOT TO SCALE
TYPE "BELOW GRADE"



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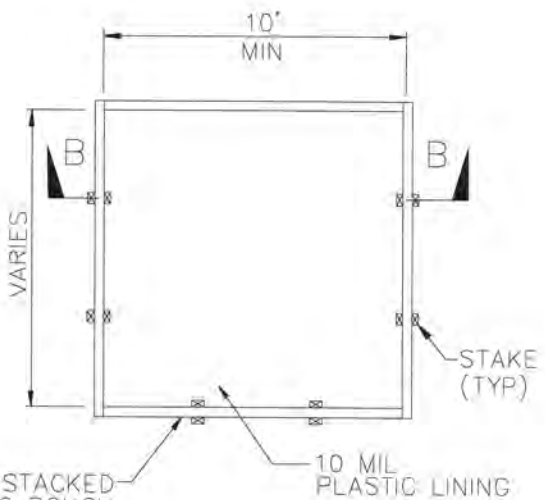

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NOT TO SCALE
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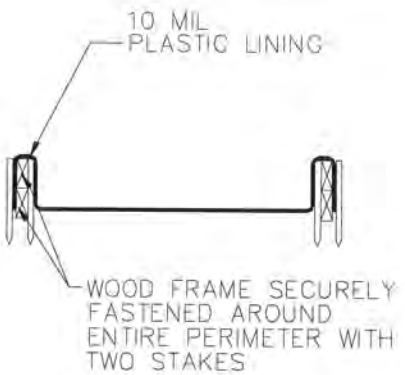
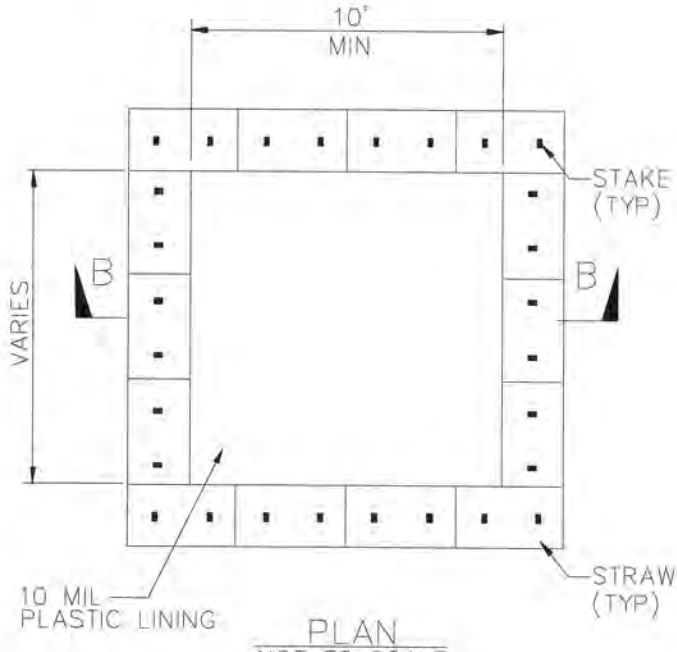


SECTION B–B
NOT TO SCALE

NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.



PLAN
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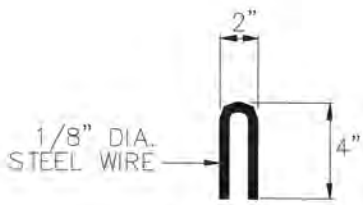
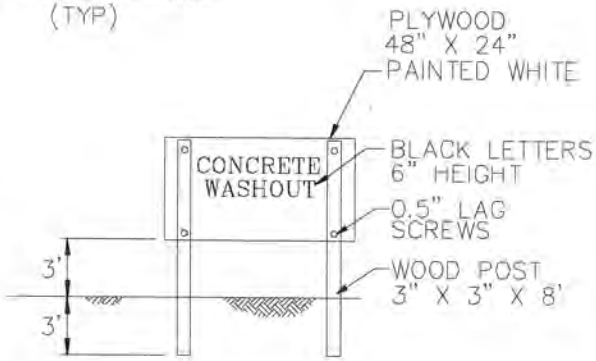
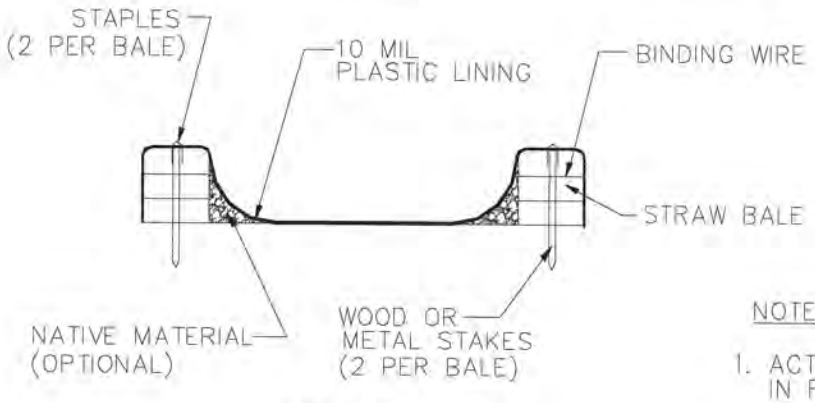
TYPE "ABOVE GRADE"
WITH STRAW BALES



STAPLE DETAIL



CONCRETE WASHOUT
SIGN DETAIL
(OR EQUIVALENT)

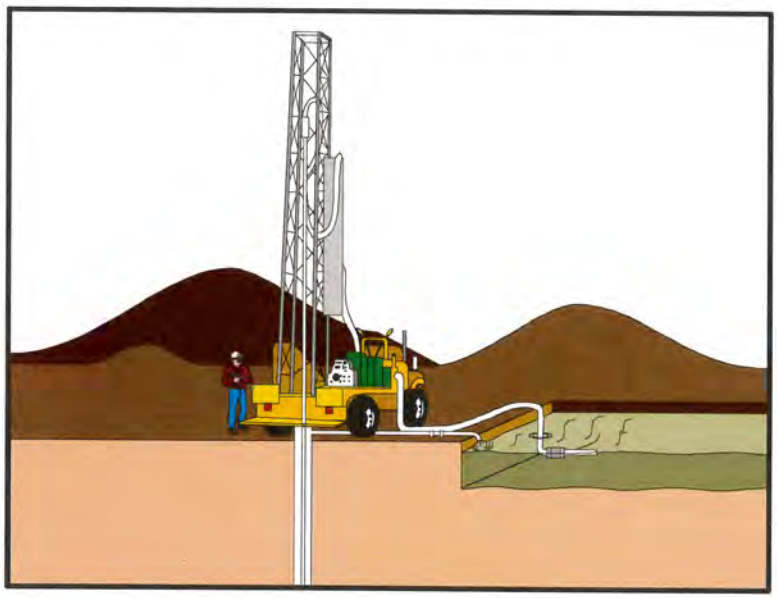


SECTION B-B
NOT TO SCALE

NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

Liquid Waste Management WM-10



Description and Purpose

Liquid waste management includes procedures and practices to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes.

Suitable Applications

Liquid waste management is applicable to construction projects that generate any of the following non-hazardous by-products, residuals, or wastes:

- Drilling slurries and drilling fluids
- Grease-free and oil-free wastewater and rinse water
- Dredgings
- Other non-stormwater liquid discharges not permitted by separate permits

Limitations

- Disposal of some liquid wastes may be subject to specific laws and regulations or to requirements of other permits secured for the construction project (e.g., NPDES permits, Army Corps permits, Coastal Commission permits, etc.).
- Liquid waste management does not apply to dewatering operations (NS-2 Dewatering Operations), solid waste management (WM-5, Solid Waste Management), hazardous wastes (WM-6, Hazardous Waste Management), or concrete slurry residue (WM-8, Concrete Waste

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

Management).

- Typical permitted non-stormwater discharges can include: water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated pumped ground water; discharges from potable water sources; foundation drains; irrigation water; springs; water from crawl space pumps; footing drains; lawn watering; flows from riparian habitats and wetlands; and discharges or flows from emergency fire fighting activities.

Implementation

General Practices

- Instruct employees and subcontractors how to safely differentiate between non-hazardous liquid waste and potential or known hazardous liquid waste.
- Instruct employees, subcontractors, and suppliers that it is unacceptable for any liquid waste to enter any storm drainage device, waterway, or receiving water.
- Educate employees and subcontractors on liquid waste generating activities and liquid waste storage and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Verify which non-stormwater discharges are permitted by the statewide NPDES permit; different regions might have different requirements not outlined in this permit.
- Apply NS-8, Vehicle and Equipment Cleaning for managing wash water and rinse water from vehicle and equipment cleaning operations.

Containing Liquid Wastes

- Drilling residue and drilling fluids should not be allowed to enter storm drains and watercourses and should be disposed of.
- If an appropriate location is available, drilling residue and drilling fluids that are exempt under Title 23, CCR § 2511(g) may be dried by infiltration and evaporation in a containment facility constructed in conformance with the provisions concerning the Temporary Concrete Washout Facilities detailed in WM-8, Concrete Waste Management.
- Liquid wastes generated as part of an operational procedure, such as water-laden dredged material and drilling mud, should be contained and not allowed to flow into drainage channels or receiving waters prior to treatment.
- Liquid wastes should be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank.
- Containment devices must be structurally sound and leak free.
- Containment devices must be of sufficient quantity or volume to completely contain the liquid wastes generated.

- Precautions should be taken to avoid spills or accidental releases of contained liquid wastes. Apply the education measures and spill response procedures outlined in WM-4, Spill Prevention and Control.
- Containment areas or devices should not be located where accidental release of the contained liquid can threaten health or safety or discharge to water bodies, channels, or storm drains.

Capturing Liquid Wastes

- Capture all liquid wastes that have the potential to affect the storm drainage system (such as wash water and rinse water from cleaning walls or pavement), before they run off a surface.
- Do not allow liquid wastes to flow or discharge uncontrolled. Use temporary dikes or berms to intercept flows and direct them to a containment area or device for capture.
- Use a sediment trap (SE-3, Sediment Trap) for capturing and treating sediment laden liquid waste or capture in a containment device and allow sediment to settle.

Disposing of Liquid Wastes

- A typical method to handle liquid waste is to dewater the contained liquid waste, using procedures such as described in NS-2, Dewatering Operations, and SE-2, Sediment Basin, and dispose of resulting solids per WM-5, Solid Waste Management.
- Methods of disposal for some liquid wastes may be prescribed in Water Quality Reports, NPDES permits, Environmental Impact Reports, 401 or 404 permits, and local agency discharge permits, etc. Review the SWPPP to see if disposal methods are identified.
- Liquid wastes, such as from dredged material, may require testing and certification whether it is hazardous or not before a disposal method can be determined.
- For disposal of hazardous waste, see WM-6, Hazardous Waste Management.
- If necessary, further treat liquid wastes prior to disposal. Treatment may include, though is not limited to, sedimentation, filtration, and chemical neutralization.

Costs

Prevention costs for liquid waste management are minimal. Costs increase if cleanup or fines are involved.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.

- Remove deposited solids in containment areas and capturing devices as needed and at the completion of the task. Dispose of any solids as described in WM-5, Solid Waste Management.
- Inspect containment areas and capturing devices and repair as needed.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Appendix 9

Sampling and Analysis Plan (SAP)

Port of Stockton
Sampling and Analysis Plan

I. BACKGROUND

This Sampling and Analysis Plan (SAP) was prepared to comply with the monitoring and Reporting requirements of the Waste Discharge Requirements and NPDES Permit, Order No. R5-2011-0005, issued to the Port of Stockton (Port) for its Municipal Separate Storm Sewer System (MS4) on February 3, 2011 (hereafter, called the Permit).

The SAP describes the Port's sampling program elements as mandated by the Permit, summarizes the rules of engagement for sampling activities, and establishes quality control measures for the field activities.

II. SAMPLING PROGRAM OVERVIEW

The Port's sampling program is outlined into the following elements:

A. Baseline Monitoring

These foundational sampling activities are performed to monitor the baseline quality of storm water discharged from the Port and its influence on the surrounding receiving waters:

1. *Urban Discharge Monitoring* - The Port takes samples of the direct discharge from the East Complex outfalls: D-2, D-4, D-10, and D-11; the East Complex Retention Basin (RB) outfall; and the West Complex (WC) outfall. Samples are collected from three qualifying storm events and two dry season discharges per year.

2. *Up-gradient Monitoring* – The Port takes samples from the Retention Basin Inlet (RBI) and other up-gradient monitoring locations to help identify pollutant sources. The RBI sampling frequency is not defined in the Permit. Historically, the Port monitored the RBI location during the same qualifying storm events as the Urban Discharge Monitoring, but not during the dry season because the pump at RBI is disabled during this period. Starting in 2014/2015 storm water year, RBI will be sampled during the early wet season sampling event (i.e., first flush). A select number of up-gradient locations are sampled based on the previous year's storm water results. The up-gradient locations are chosen through the process of the Port's effectiveness evaluation and annual report preparation. If benchmark exceedances have occurred at a direct discharge outfall and the pollutant source is unknown, up-gradient monitoring locations are chosen, identified in the annual report and annual work plan, and sampled during the next storm season to assist the Port in identifying the source of the observed pollutant(s) that exceeded a benchmark level. Based on the results of the up-gradient samples, the sampling locations

and criteria may be altered during the course of the year to help the Port more precisely identify the pollutant source.

3. *Industrial Activities Monitoring* - The Port's industrial activities are monitored in accordance with its Facility Water Pollution Prevention Plan (FPPP) at the maintenance shop, fleet vehicle fueling area, equipment wash pad, and fertilizer warehouses. Monitoring includes the collection of storm water samples at these locations from the first qualifying storm event of the year and during one other storm event. Visual observations are also performed during the monitoring events. Quarterly inspections are performed year-round to observe for any authorized or unauthorized non-storm water discharges.
4. *Receiving Water Monitoring* – Whenever Urban Discharge Monitoring is performed, Receiving Water Monitoring is done simultaneously to allow the Port to assess the potential impact of its discharges, if any, to the local waterways. Samples are collected from specific receiving water locations named R-1 through R-5.
5. *Water Column Toxicity Monitoring* – During the 2011/2012 and 2013/1014 storm water years, water column toxicity samples will also be collected at the time receiving water samples (R-1 through R-5) are collected. Toxicity samples will be collected from two of the direct discharges outfalls, RB and WC (if discharging). During the years requiring toxicity sampling, these samples are collected during the three wet season sampling events and the two dry season monitoring events (if a discharge from the outfalls is occurring).
6. *Dry Weather Field Screening* – During the dry season, if unauthorized non-storm water discharges occur, the Port will conduct a dry weather field screening of the discharge to help identify and eliminate the source. Representative up-gradient locations and outfalls that have sufficient flow are required to be field analyzed for temperature, specific conductance, chlorine, turbidity, and pH. A sample of the unauthorized non-storm water discharge is also collected and submitted to the laboratory for analysis of phenols, total copper, and Methyl Blue Activated Substances (MBAS).

B. Water Quality Based Programs

These additional monitoring programs are designed to monitor and assess specific contamination concerns at the Port.

1. *Pesticide Toxicity Control Program* – All pesticide monitoring is performed in conjunction with the Urban Discharge Monitoring and Receiving Water Monitoring. Pesticide constituents included in the monitoring are found on Tables B1 and Table D of the Permit.
2. *Dissolved Oxygen Monitoring Plan* – All dissolved oxygen monitoring is performed in conjunction with the Urban Discharge Monitoring and Receiving Water Monitoring. Dissolved Oxygen (DO), Chemical Oxygen Demand (COD), and Biological Oxygen Demand (BOD) are analyzed per the requirements on Tables B1 and Table D of the Permit.

3. *Total Mercury and Methyl Mercury Plan* – All mercury and methyl mercury monitoring is performed in conjunction with the Urban Discharge Monitoring and Receiving Water Monitoring. These constituents are analyzed per the requirements on Tables B1 and Table D of the Permit, using clean hands sampling methods and specialized laboratory services to detect low levels of mercury.

C. Special Studies

The Permit required two "special studies" to be conducted during this permit term. The required studies included Retention Basin water and sediment monitoring, and a Best Management Practice (BMP) effectiveness study.

1. *Retention Basin/Sediment Monitoring Plan* – The following is the proposed monitoring program for the Retention Basin. In addition to the Urban Discharge Monitoring and the Water Column Toxicity monitoring described in Section A.1. and A.5. above, the Port will perform the following program during the 2013/2014 and 2014/2015 storm water years:

A. *Inlet Monitoring:*

The RBI will be sampled and tested for the parameters specified in Table A below concurrent with the RBI sampling events described in Section A.2.

B. *Effluent Monitoring:*

The RB discharge will be sampled and tested for the parameters specified in Table A below concurrent with the *Retention Basin* Monitoring as described in Section II. E. of the Permit's MRP. The samples will be analyzed for the parameters specified in Table A below.

C. *RB Sediment Monitoring:*

Two dry season and two wet season samples of RB sediment shall be collected for the study. During the dry season, after the water has evaporated / percolated from the RB, one shallow sediment sample will be collected and homogenized from the RB floor. The surface sediment samples will be collected from the middle and opposing sides of the RB floor, and combined into one sample. Each (homogenized) sediment sample will be analyzed for the parameters specified in Table A below.

Table A
Retention Basin Monitoring Program

Constituent	Inlet Monitoring	Effluent Monitoring	Sediment Monitoring
Pyrethroids	X	X	X
Methylmercury	X	X	X
Mercury, total	X	X	X
Total suspended solids	X	X	
Bacteria	X	X	
Turbidity	X	X	
Total dissolved solids	X	X	
Chlorpyrifos	X	X	
Diazinon	X	X	

2. *Dissolved Oxygen Plan*

DO levels are monitored daily, year-round using data collected at the West Complex monitoring station at Dock 20. The data is processed, plotted, and included in quarterly reports submitted to the RWQCB. A 15-minute average is used for purposes of triggering aeration given the large diurnal fluctuations of DO in the Deep Water Ship Channel (DWSC). Storm water urban discharge monitoring and receiving water samples are field tested for DO and samples are analyzed for COD and BOD.

3. *BMP Effectiveness Studies*

As described in the Port's Storm Water Management Plan (SWMP), the Port will be conducting BMP effectiveness studies. Each storm water treatment technology assessment will include an analytical testing element. The testing program for these studies will be identified in the Annual Work Plans.

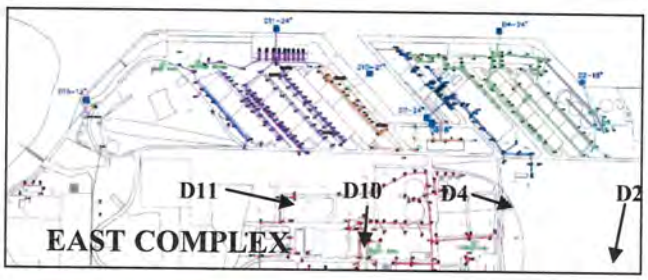
III. Rules of Engagement for Sampling Events

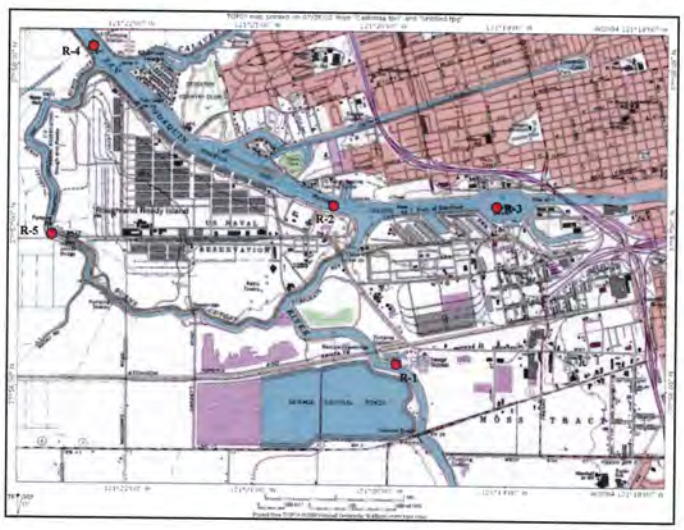
The following guidelines are the "rules of engagement" for the various Permit-required sampling events.

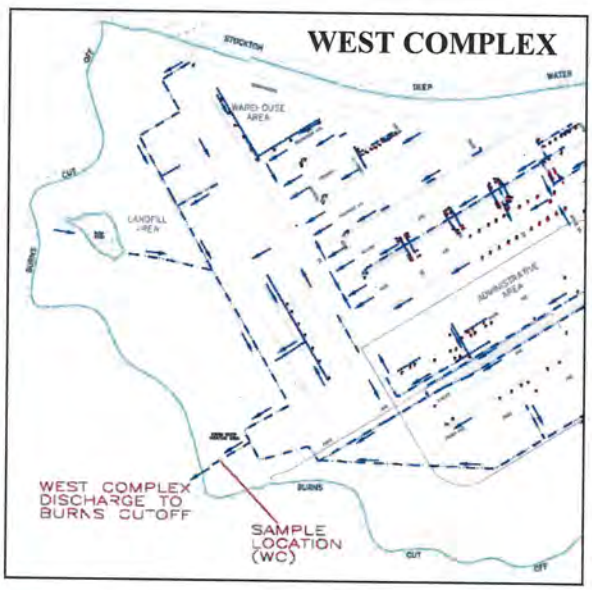
A. Urban Discharge and Receiving Water Monitoring (Wet Season)

The following are the Port's rules of engagement for the wet season Urban Discharge Monitoring:

Sampling Locations: Urban Discharge Monitoring is performed at East Complex outfalls: D-2, D-4, D-10, and D-11; at the East Complex RB; and at the West Complex outfall (WC). Outfalls with an active discharge are sampled. When Urban Discharge Monitoring stations are sampled, receiving water is also sampled at sampling stations R-1 through R-5.







Sampling Frequency: Urban Discharge Monitoring is required to be performed three times during the wet season and two times during the dry season (if a discharge is occurring). The Permit splits the wet season into three periods: early season, midseason, and late season; and requires one of the three samples to be collected in each seasonal period. The Permit did not define the start and stop dates of each of these sampling periods. Therefore, the Port has defined the three seasonal periods as follows for purposes of sampling frequency in order to comply with the Permit:

Early Season:	October 1 – December 31
Mid Season:	January 1 – February 28
Late Season:	March 1 – May 31

The Port will attempt to collect one sample in each of the three wet season periods, as defined above. However, if an earlier period does not have a qualifying storm event, as defined below, then more than one sample may be collected during a remaining period.

"Qualifying Storm Event" Definition: A qualifying storm event is one that occurs during normal daylight business hours (when the Port docks are open for business), **except for the first-flush even if it occurs on weekends and holidays**; is a rain event greater than 0.25 inches in 24 hours, and when there is sufficient rainfall to produce a continuous discharge of storm water for an hour or more (a storm event must generate sufficient runoff to be considered a qualified storm event). The Port will target storm events with a predicted probability of at least a fifty percent (50%) chance of 0.25 inches of daily rainfall according to the NOAA website for the zip code of 95203.

http://forecast.weather.gov/MapClick.php?CityName=Stockton&state=CA&site=STO&lat=37.9527&lon=-121.328

Storms events that do not have at least a 50% probability of rain 12 hours before the event will not be considered a qualifying storm event and will not be sampled. Storm events commencing within three hours of sunrise will be considered qualifying. Except for first flush, storm events commencing prior to three hours before sunrise are not qualifying because there is not enough time to collect all of the needed samples from all locations before dark.

Storm Event Commencement: A storm event commences when the Port's East Complex weather station rain gauge reaches a measurement of 0.2 inches for that storm event. During most storm events, this precipitation amount is sufficient to cause runoff. However, some storm events that consist only of light rain or drizzle for a prolonged period of time can generate a 0.2 inches of rainfall, but yet not have runoff. In such cases, sampling will begin when actual runoff is observed and is expected to continue for an hour or more. Mobilization of staff to collect samples will occur after sufficient rainfall has accumulated, which is typically 0.2 inches, but may vary depending on actual on-site conditions.

Sampling Safety: Sampling activities will not be performed in potentially dangerous or hazardous conditions (e.g., during strong winds (above 25 miles per hour), high flooding, electrical storms, after sundown or before sunrise, etc.) to ensure protection of the health and safety of the people collecting samples for the Port. It is at the discretion of the Sample Coordinator, the Port boat operator and/or the Port of Stockton to call off sampling due to hazardous conditions.

"Dry Day" Definition: A day with a storm event too small to generate runoff (typically, but not limited to, 0.1 inches or less of rainfall) is considered a dry weather day.

First Flush: The Port will plan to sample the first qualified storm event ("first flush") of each year. The first flush must be preceded by at least 30 dry days. Due to the priority and importance of monitoring the first flush event, this event will be sampled even if it occurs on weekends or holidays. For a first flush sample event, if the receiving water samples cannot be collected before sunset within the window of 2 to 6 hours after the start of discharge, the receiving water samples will be collected on the next day after sunrise. For first flush events *beginning after sunset but continuing through the night*, samplers will attempt to collect grab samples during the first 60 minutes after sunrise. The time the event began will be noted on the field sheet along with the time when the samples were actually collected.

Subsequent Sampling Events: The second and third sampling events must be preceded by at least three (3) dry days. In addition, each monitoring event should be separated by at least 20 days.

Receiving Water Sampling: Urban Discharge Monitoring samples will only be collected when corresponding receiving water samples can be taken. Receiving water samples will be collected within a window of 1 to 6 hours after 0.2" of rain has been recorded at the Port's weather station. A minimum of one hour (and two hours during toxicity sampling years) is required to perform the collection of receiving water samples. For health and safety reasons, receiving water samples will not be collected after sunset. Therefore, if 0.2" of rainfall accumulates with *3 hours or less time remaining before sunset*, making it impossible to complete the receiving water samples before sunset, the Port will not take receiving water samples for that event. However, if the same storm is expected to continue to produce precipitation until at least *3 hours prior to sunrise*, the direct discharge samples will be collected that afternoon, and the receiving water samples will be collected the next morning. If the precipitation is expected to end *more than 3 hours prior to sunrise*, then the storm will be considered a non-qualifying storm event.

Grab Samples: Grab samples will be collected within the first sixty (60) minutes after the first 0.2 inches of rainfall is recorded on the Port's East Complex weather station during a qualified event. If grab samples are not collected within this time constraint, the cause for the delay in collection and the actual time after discharge that the samples were collected will be documented in the Port's Annual Report. For events beginning *three hours or more prior to sunset*, samplers will attempt to collect grab samples within the first 60 minutes of the event. For storm events commencing *within three hours before sunrise*, a grab sample will be collected within one hour after sunrise.

Composite Samples: The Port will collect flow-weighted composite samples as a series of three (3) separate aliquots over the first three (3) hours of a qualified event. To the extent possible, these aliquots will be collected during the first, second and third hours of the event. Aliquots will then be combined in the Port's field sample room based on the flow-weighted rainfall recorded on the Port's East Complex weather station for each hour of sample collection. (Note that aliquots for oil and grease samples and volatile organic compound samples will be collected directly into the required sample containers (e.g., glass containers for oil and grease) and submitted to the laboratory for compositing and analysis.) For events beginning *three hours or*

more before sunset, samplers will attempt to collect composite samples. The first aliquot will be collected during the first hour of discharge. The second and third aliquots will be collected during the second and third hours of the discharge event. For storm events that *begin after sunset with precipitation continuing through the night*, composite samples will be collected as three aliquots over the first three hours after sunrise. The time the event began will be noted on the field sheet along with the time that the samples were actually collected. If the rainfall and runoff temporarily ceases, compositing will be discontinued until the rainfall resumes. If the Port's storm water coordinator determines using available weather forecasting tools that the storm event will have a short duration, a decision concerning a modification to the compositing protocol will be made. This may include lessening the time between the three aliquots, or reducing the number of aliquots.

Field Decisions and Sampling Protocol Modifications: Because storm events can be highly variable, many decisions will be made at the discretion of the Port's sampling coordinator. Field decisions to modify the sampling protocols will be summarized in the Port's Annual Report. The RWQCB staff has suggested that adjustments to the sampling protocols that do not meet the strict letter of the Permit will be acceptable if the reasons for the modifications are adequately described and justified in the Port's Annual Report.

B. Water Column Toxicity Monitoring (Wet Season)

The following are the Port's rules of engagement for the wet season Toxicity Monitoring:

Sampling Locations: Receiving water toxicity samples are collected at sampling stations R-1 through R-5; from the West Complex outfall (WC); and from the Retention Basin (RB), if a discharge is occurring.

Sampling Frequency: Water column toxicity samples will be collected during the 2011/2012 and 2013/2014 storm water seasons. The samples are collected concurrently with the Urban Discharge Monitoring and the Receiving Water Monitoring. The water column toxicity samples for the Retention Basin are collected concurrently with each retention basin sampling during the toxicity testing storm seasons. During retention basin discharges, toxicity samples will be collected from the receiving water concurrently with the routine receiving water sampling, the constraints on which are described above.

Grab Samples: Toxicity samples consist of a 15-gallon grab sample collected at the same time as the Urban Discharge, Receiving Water, and/or Retention Basin monitoring event.

Testing Protocol: Toxicity testing is performed in accordance with 40 CFR Part 136.3 and the testing protocol set forth in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (2002), EPA/821/R-02/013*, or an updated version of these methods.

C. Up-Gradient Source Identification Monitoring (Wet Season)

The following are the Port's rules of engagement for the wet season Up-Gradient Monitoring:

Sampling Locations: As specified by the Permit, the RBI represents a permanent up-gradient sample location. All other up-gradient sampling locations are selected as a result of the previous year's monitoring data in order to assist with the identification of potential pollutant sources, if the potential pollutant source is unknown. For example, if Outfall D-4 has a benchmark exceedance for nitrates, upstream main branches of the drainage system flowing to the D-4 outfall may be tested for nitrates during one of the subsequent Urban Discharge Monitoring events. If one of the branches is found to contain elevated levels of the targeted constituent, the up-gradient sampling locations may be modified to narrow the pollutant source search along that branch of the drainage system.

Sampling Frequency: RBI samples are collected when the South Ditch lift station pumps are actively pumping water from the South Ditch to the Retention Basin. To the extent possible, the Port attempts to coordinate this sampling with the Urban Discharge Monitoring events, as described in Section A.2. Other up-gradient sampling is performed concurrently with the Urban Discharge Monitoring events.

Grab Samples: All up-gradient samples are collected as grab samples excluding RBI which requires both Composite and Grab sample collection.

D. Industrial Monitoring (Wet Season)

The following are the Port's rules of engagement for Industrial Monitoring of Port owned and operated facilities:

Sampling Locations: Industrial Monitoring is performed at the following Port owned and operated industrial facilities:

Vehicle and Equipment Maintenance Shop

Vehicle Fueling Area

Equipment Wash Pad

Fertilizer Warehouse and Unloading Areas

Sampling Frequency: Samples will be collected twice per wet season, corresponding to the first Urban Discharge qualifying rain event and the other sample from another qualifying rain event during the wet season.

Wet Season: The wet season for Industrial Monitoring is October 1 through May 31.

Grab Samples: All Industrial Monitoring samples are to be collected as grab samples and must be collected within the first hour of discharge. If industrial samples are not collected within this time restraint, the cause for the delay in collection and the actual time after discharge that the sample was collected will be documented in the Port's Annual Report.

Sampling Safety: Sampling activities will not be performed in hazardous or dangerous conditions (e.g., strong winds above 25 miles per hour, high flooding, electrical storms, after sundown or before sunrise, etc.) in order to protect the health and safety of the people performing the sampling activities for the Port. It is at the discretion of the Sample Coordinator, the Port of Stockton boat operator, and/or the Port of Stockton to call off sampling due to hazardous conditions.

E. Urban Discharge and Receiving Water Monitoring (Dry Season)

The following are the Port's rules of engagement for dry season Urban Discharge Monitoring:

Sampling Locations: Urban Discharge Monitoring is performed at East Complex outfalls: D-2, D-4, D-10, and D-11; at the East Complex Retention Basin (RB) outfall; and at the West Complex outfall (WC). All outfalls with an active discharge are sampled. Receiving water should also be sampled at closest upstream and downstream sampling stations (from R-1 to R-5) from the discharge site.

Sampling Frequency: Two dry season samples are required to be collected. The definition of the "Dry Season" is as follows:

Dry Season: June 1 – September 30

Dry season sampling is dependent on the existence of a discharge at the outfall. The two dry season sampling events at each outfall must be preceded by seven (7) dry days and must be separated by at least fourteen (14) dry days.

"Qualifying Dry Event" Definition: A qualifying dry season event is a non-storm water discharge preceded by seven (7) dry days. If an outfall does not have a discharge, no water quality sampling of the outfall or receiving water is required. However, weekly visual inspections should be conducted to ensure no discharges are occurring.

F. Dry Weather Field Screening

The following are the Port's rules of engagement for dry weather field screening:

Triggers: Dry weather field screening is triggered by the following two conditions:

1) A non-storm water discharge is occurring; and

2) The non-storm water discharge has been identified as an "unauthorized" discharge.

Field Screening Activities: If non-storm water discharges are occurring, representative up-gradient locations and outfalls having sufficient flow will be analyzed in the field for temperature, specific conductance (EC), chlorine, turbidity, and pH (field measurements). A sample will also be collected and submitted to the laboratory for analysis of phenols, total copper, and MBAS (i.e. detergents/ surfactants).

Follow Up Activity: The Port will perform a follow-up investigation to verify the presence of an illicit connection if any of the following action levels on Table B below are exceeded:

Table B. Dry Weather Field Screening Action Levels

Constituent	Units	Action Levels
Phenols	mg/L	>0.017
Total copper	mg/L	>2
Electrical Conductivity	µmhos/cm	>700
Methyl Blue Activated Substances (MBAS)	mg/L	>0.275
Turbidity	NTU	>55

IV. Quality Assurance Program

To assure that field and analytical data are reliable and defendable, the Port has implemented the following Quality Assurance Program (QAP).

A. Quality Assurance Plan and Sampling Procedures

The Port has prepared a written QAP for its storm water sampling program, which is attached to the SWMP as Appendix 10. The QAP covers the quality control measures used in the field and in the laboratory to assure that the data collected are both accurate and precise. Storm water samplers are trained on the contents and requirements of the QAP and the sampling procedures (which are attached to the QAP as an appendix).

B. Sample Techniques and Training

Sampling techniques are described in the procedures included in the QAP. Techniques are witnessed and/or practiced by all potential samplers during the sampling training event before the beginning of each storm season. Sampling personnel at the training event are trained on all field equipment in order to be fully prepared and capable to use that equipment accurately in the field. Personnel will also have opportunity to tour the Port and see all the sampling locations.

Appendix 10

Quality Assurance Plan (QAP)

Port of Stockton
Quality Assurance Plan
for the
NPDES Monitoring Program

Prepared by

WGR
Southwest, Inc.
11780 N. HWY 99
Lodi, CA 95240
(Revised May 2013)

Table of Contents

1 Project/Task Description 1
2 Data Quality Indicators and Representativeness 2
2.1 Accuracy 2
2.2 Precision 3
2.3 Comparability 3
3 Documentation and Records 4
3.1 Analysis Request Chain of Custody 4
3.2 Field Notes 5
3.3 Laboratory Report 5
3.4 Laboratory Quality Assurance & Quality Control Data 6
4 Field Quality Control Practices 6
4.1 Field Preparation of Containers, Volume, Preservation 7
4.2 Sample Collection 7
4.2.1 Decontamination of sample collection devices 7
4.2.2 Gloves 7
4.2.3 Collecting a Representative Sample 7
4.2.4 Sample Handling and Training 8
4.2.5 Labeling 8
4.2.6 Travel (Trip) Blank 8
4.2.7 Field Duplicates 8
4.2.8 Ambient or Equipment Blank 9
4.3 Sample Handling & Custody Requirements 9
4.3.1 Sample Custody Documentation 9
4.3.2 Sample Transportation 9
4.3.3 Sample Custody Transfer 10
5 Laboratory Quality Control Practices 10
5.1 Analytical Method Requirements 10
5.1.1 Holding Times 10
5.1.2 Method Detection Levels and Reporting Limits 11
5.1.3 Level of QA/QC 11
5.1.4 Sample Analysis Turnaround 12
5.2 Analysis of Field Duplicates 12
5.3 Sample Tracking 12
5.4 Matrix Spike Duplicate Analysis Samples 13
5.5 Laboratory Control Sample Analysis 13
6 Data Management 13
6.1 Review of Analytical Results 13
6.2 Error Detection and Correction 14
6.3 Document Retention 14

Table of Contents

Attachments:

Appendix A – Analysis Request Chain of Custody Documents
Appendix B – Procedure Documents
Appendix C – Storm Water Sampling Chart
Appendix D – McCampbell Analytical– Quality Assurance Program Manual
Appendix E – Sierra Foothill, Inc. – Quality Assurance Program Manual

NPDES PERMIT
SAMPLING QUALITY ASSURANCE PLAN
DISTRIBUTION

Port of Stockton
2201 W. Washington Street
Stockton, CA 95203
(209) 946-3734

Consultant Copy
WGR Southwest, Inc.
11780 N. HWY 99
Lodi, CA 95240
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NPDES PERMIT
SAMPLING QUALITY ASSURANCE PLAN
REVISION HISTORY

Revision No.	Date	Revised By	Reason for Revision	Sections Revised
0	4/3/08	Steve Teravskis WGR Southwest, Inc.	Original Document	All
1	6/7/08	Chris Strong WGR Southwest, Inc.	Additional NPDES Permit Compliance	All
2	7/25/11	Steve Teravskis WGR Southwest, Inc.	Major revision for submittal with SWMP	All
3	5/6/13	Steve Teravskis WGR Southwest, Inc.	Minor revisions for SWMP Approval by RWQCB	All

1 Project/Task Description

Storm water sampling is required by the National Pollution Discharge Elimination System (NPDES) Permit (Order No. R5-2011-0005) to regulate waste discharge from the Port of Stockton's (Port) municipal separate storm sewer system (MS4). These samples must be accurate, precise, and representative of the facility's effluent. The data generated by laboratory analysis of these samples are key to identifying pollutant sources and determining permit compliance at the Port.

This purpose of this Quality Assurance Plan (QAP) is to ensure that analytical results are representative of site conditions. A summary of data quality indicators will be included in section 2.0. A description of all field documents used during field activities, along with measures to be taken to ensure quality control, is provided in section 3.0. Quality control practices for all field activities, including sample collection and handling, are described in section 4.0. Quality control practices for all laboratory activities are described in section 5.0. Data management practices for review and final validation of all field and analytical data are described in section 6.0.

The following is a summary of the NPDES monitoring and reporting requirements for sampling stations at the Port.

Type of NPDES Permit	Types of Sample	Permit & Order No.	Monitored Constituents
MS4	Wet and Dry Season monitoring of urban discharges; Receiving water monitoring; Industrial sampling; Upgradient source investigation sampling; Toxicity monitoring	CAS0084077, R5-2011-0005	Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), Dissolved Oxygen (DO), pH, Specific Conductance (EC), Temperature, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Turbidity, Oil and Grease, Heavy Metals, Ammonia, Nitrate/Nitrite as N, Phosphorus, Diazinon, Chlorpyrifos, Mercury, Methylmercury, Dioxin, Furan Compounds, Polychlorinated Biphenyls (PCBs), Sulfate, Sulfide, Sulfur, Total Kjeldahl Nitrogen (TKN), Pesticides, Total Coliform bacteria, E. Coli bacteria, Total Organic Carbon, BTEX, Ethanol, TPHg, TPHD, Phenols, Chlorine, Total Copper, and Methyl Blue Activated Substances (MBAS)

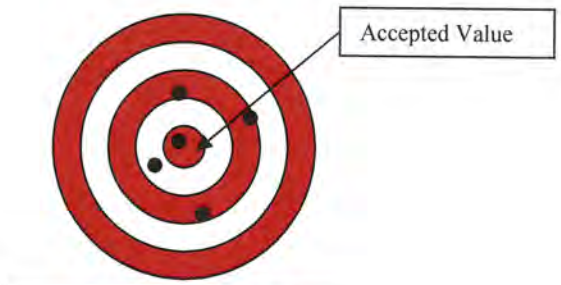
2 Data Quality Indicators and Representativeness

It is important that samples are collected during storm events that are representative of average rainfall storms. Sampling protocols and rules for engagement are discussed in the Port's Sampling and Analysis Plan (SAP), which is presented in Appendix 8 of the SWMP.

Data quality indicators are used to evaluate the degree of acceptability or usability of analytical data. The three data quality indicators that are used by this plan are accuracy, precision, and comparability. The absence of quality data in any of these areas will significantly degrade the usability of the collected data. If the analytical results are accurate, but not precise, then the true value of an analytical result will be in question. If the analytical results are precise but not accurate, then the accepted value will differ from the true value. If the analytical results are not comparable, the analytical results from different sampling events will have no ability to indicate or predict trends.

2.1 Accuracy

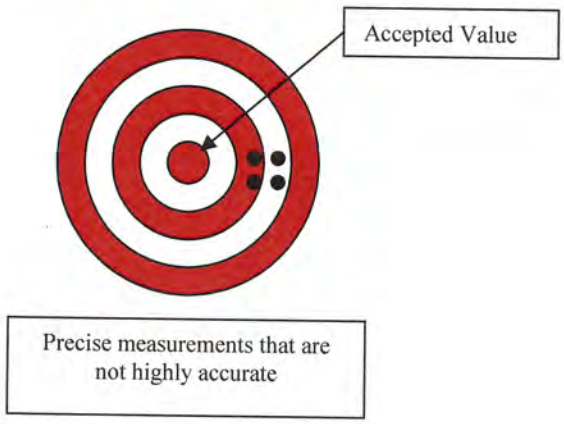
Accuracy is a measurement of how closely analytical results correspond to a "true" or accepted value. Data that are not accurate are not useable as a tool for determining the presence or absence of pollutants. In this QAP, accuracy is primarily addressed in the laboratory by evaluating the percent recovery of surrogates, laboratory control samples (LCS), and/or matrix spikes (MS).



Accurate measurements which are not highly precise

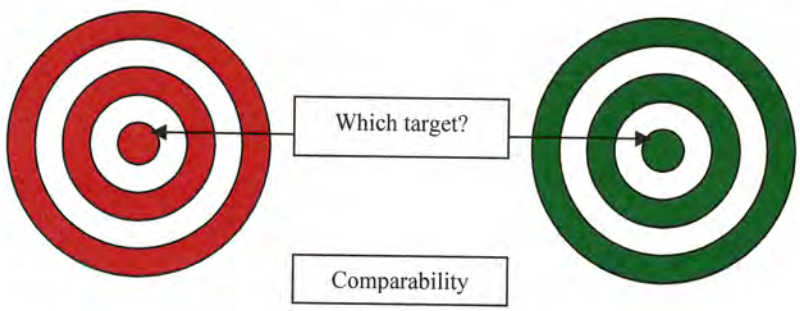
2.2 Precision

Precision is a measurement of how closely analytical results can be duplicated. In this QAP, precision is addressed by the collection and analysis of replicate samples (blind split samples). Precision is also monitored by the laboratory with the use of LCS and MS duplicates. The precision is usually reported as a standard deviation or relative percent difference (RPD).



2.3 Comparability

In order to appropriately compare data from multiple sampling events, standard methods of sample handling and analysis must be used. Using standard methods, such as following instructions described in Procedure Documents, eliminates many variables that might result in unusable data because the data are not comparable. This comparability of data is accomplished by using only U.S. Environmental Protection Agency (EPA) approved sampling techniques and analytical methods, such as those found in EPA regulations at 40 C.F.R. Part 136.



3 Documentation and Records

Documentation is the underpinning of this QAP. Documentation supports and legitimizes the sampling program from the time that samples are collected through the confirmation of data precision and accuracy. Documentation in this program includes analysis requests, chain of custody forms, field notes, laboratory reports, and laboratory quality assurance and quality control data reports. Sample Analysis Request/Chain of Custody Documents are included in **Appendix A**.

All field and office activities are standardized by procedure documents that contain step-by-step instructions on how each activity should be properly performed according to regulatory guidelines. Procedure documents that pertain to the field activities included in this QAP are included in **Appendix B**.

3.1 Analysis Request Chain of Custody

A chain of custody document is used to request each analysis and to document proper sample chain of custody. The chain of custody allows an accurate step-by-step recreation of the sampling path, from origin through analysis. All analytical methods requested and used should be conducted according to test procedures under Environmental Protection Agency (EPA) regulations at 40 CFR Part 136. If EPA-approved test methods are not able to be performed by the state-certified laboratory, an alternative test method will be proposed by the Port and performed after approval by the RWQCB. A table showing the analytical constituents and the corresponding test methods, sample containers, preservatives and holding times is presented in the Storm Water Sampling Chart in **Appendix C.**

Chain of custody documents are initially distributed in an electronic format. By using the electronic version as the single source of the analysis request and chain of custody document, the Port assures the accuracy and consistency of the documents. The possibility of errors being introduced is significantly reduced when an individual manually completes the pre-set document. If a modification to the template document is required, that change can be made in one location, by a knowledgeable person, and distributed to the appropriate facilities. The chain of custody form will need to be printed out before the first custody transfer of the samples to enable documentation of the custody transfer. All subsequent sample transfers must be documented on the chain of custody form as well. The procedure document for Chain of Custody Generation and Use (POS-QAP-001) is included in **Appendix B**.

Chain of Custody documents must include, at a minimum, the following information:

- The name of the person(s) taking the samples.
- Confirmation of the correct sample container type, size and the preservative required for each analysis.
- The exact date, time, and location that the samples are taken.
- The name and address of the analytical laboratory to be used.
- The name and method of the analysis requested for each sample.
- The name and phone number of the person to contact in the event of a question or issue regarding the sample.
- The signature of each person that relinquishes and accepts custody of the sample from the time the sample is collected to the point that it is transferred to the custody of the analytical laboratory.

3.2 Field Notes

Field notes should be taken during all field activities. Field documentation serves as evidence of actual observations made in the field. Information such as time, date and location of sampling, weather conditions, specific field observations, etc. can prove to be crucial to the accuracy of the sample collection information after the field work has been completed. The procedure document for Field Preparation and Documentation (POS-QAP-002) is included in **Appendix B**.

3.3 Laboratory Report

Analytical data is provided to the Port of Stockton in the form of a laboratory report. The laboratory will also email WGR Southwest an electronic (PDF) copy of the analytical results and the data in a spreadsheet format. The data will be entered into the historic database which is a part of the Environmental Compliance Database. The Port currently uses McCampbell Analytical Inc. (McCampbell) for the bulk of their storm water sample analyses and Sierra Foothill Laboratory (Sierra Foothill) for their toxicity tests. McCampbell and Sierra Foothill are California state-certified laboratories. The McCampbell ELAP certification number is 1644 and Sierra Foothill number 6245.

Laboratory reports must include, at a minimum, the following information:

- Sample name and date sample received
- The constituent(s) being analyzed
- Unit(s) of measure
- Analytical results

- Reporting limit
- Analytical method used and Method Detection Limit
- Laboratory sample ID
- Date the sample was analyzed
- A copy of the completed analysis request/ Chain of Custody document
- The name of the individual performing the analysis and initialization by the lab manager on each page confirming quality assurance

McCampbell Analytical Inc.
1534 Willow Pass Road,
Pittsburg, CA 94565-1701
Contact: Rosa Venegas
(877) 252-9262
rosa@mccampbell.com

Sierra Foothill Laboratory
225 Scottsville Blvd,
Jackson, CA 94642
Contact: Sandy Nurse
(209) 223-2800
sandy@sierrafoothilllab.com

3.4 Laboratory Quality Assurance & Quality Control of Data

All analytical laboratories used by the Port must be certified by the State of California's Environmental Laboratory Accreditation Program (ELAP). Each ELAP certified analytical laboratory is required to have a quality assurance program in place. All laboratories used by the Port are required to supply laboratory quality assurance and quality control (QA/QC) data as a supplement to the laboratory report. This QA/QC information provides the analytical report reader with further confirmation that all analytical results are precise and accurate, and are comparable with each other. The quality assurance and quality control data is provided towards the end of each analytical report.

Both laboratories also have their own quality control documents that describe the processes and procedures implemented to ensure representative and comparable results. The quality assurance document from McCampbell is included in **Appendix D** and the quality assurance document from Sierra Foothill is included in **Appendix E**.

4 Field Quality Control Practices

Field quality control practices encompass all activities from sampling preparation of sample kits to sample of specimen through final sample custody being accepted by the analytical laboratory. In order to assure that these practices are correctly and consistently followed, all samplers are trained and have supervised field experience. The procedure documents for Grab Storm Water Sampling (POS-QAP-003), Composite Storm Water Sampling (POS-QAP-004), and Receiving Water/Toxicity Sampling (POS-QAP-005) are included in **Appendix B**.

4.1 Field Preparation of Containers, Volume, Preservation

The analytical laboratory provides sample containers. These containers are certified clean, are made of appropriate materials for each constituent, have adequate volume, and have the correct preservatives added. The type of sample containers, sample volume, and sample preservative for each sample are specified on the analysis request/Chain of Custody document.

4.2 Sample Collection

Sample collection includes all stages of sampling from initial capture to maintenance of the sample, assuring that the sample is a true representation of the discharge or the receiving water, and that possible cross contamination sources for the sample are prevented. Samples will be kept preserved on ice in a cooler immediately following sampling.

4.2.1 Decontamination of sample collection devices

Decontamination of equipment is the first link in the sample collection chain. Failure to decontaminate sample collection devices may result in incorrect analytical results due to cross contamination. For this reason, all sample collection devices are decontaminated prior to any sampling events. Sampling devices used repeatedly in one event must be thoroughly decontaminated between each sample collection to ensure prevention of cross contamination between the different sampling locations at the site. The procedure document for Sampling Device Decontamination (POS-QAP-006) is included in **Appendix B**.

4.2.2 Gloves

All samplers are required to wear chemical resistant gloves. Wearing gloves eliminates skin contact as a possible source of sample contamination. Gloves also protect the sample collector from the potential contaminants in the water or other material being sampled and the preservative in the sample bottle. Gloves will be replaced between sample locations to ensure cross contamination does not occur between each sample.

4.2.3 Collecting a Representative Sample

In order to provide usable information, samples need to be representative of the actual site material being sampled. All the Port sample collectors are required to follow the guidelines described below:

- Sample locations will be chosen to be representative of the overall quality of the effluent stream.
- Dedicated tubing will also be used per sample location to prevent cross-contamination from occurring between sample locations.
- Only new or decontaminated equipment will be used.

4.2.4 Sample Handling and Training

To prevent improper sample container filling and handling, the Port requires that sampling activities are conducted only by properly trained personnel. Proper training is designed to effectively prevent sample control complications and contamination. The training will include the correct methods for filling and handling of all variations of sample containers and preservatives. Trained personnel will be instructed on the proper choice of sampling containers for the specific constituents and the specific sampling locations. They will be referred to the Storm Water Sampling Chart found in **Appendix C**. Trained personnel will be instructed to always keep sample containers on ice once they have been filled. Storm water sampling training will be performed before each storm season during the late summer of each year to ensure that sampling personnel have proper recent and complete training instruction. The Port will transport the samples to the laboratory via Port personnel or laboratory courier.

4.2.5 Labeling

Sample container labels are prepared electronically by the laboratory or manually in the field. The sample labels are applied to their corresponding sample container before transferring custody of the sample to the laboratory. Labels should be applied to sample containers before sample collection in the field to avoid confusion or difficulty in distinguishing sample containers later. All sample names and sampling dates/times must match corresponding data on their respective Chain of Custody form for each sample. Instructions for the procedure for label preparation are included in the procedure document for Field Preparation and Documentation (POS-QAP-002) included in **Appendix B**.

4.2.6 Travel (Trip) Blank

Travel blanks, or trip blanks, are used to determine if there is any cross-contamination within and/or between sample containers or the introduction of pollutants during transport. These blanks contain pre-filled laboratory grade de-ionized (DI) water prepared and provided by the analytical laboratory. One set of travel (trip) blanks are kept in various coolers used during the storm water sampling event. Field blanks should remain under the same cooler conditions as the rest of the samples stored in that cooler, or as near as possible, from the time immediately after sampling to the time of drop-off at the analytical laboratory. The procedure document for Field Blank Samples, including travel blanks, is included in **Appendix B** as POS-QAP-007.

4.2.7 Field Duplicates

A field duplicate sample must be taken simultaneously with the primary sample. Field duplicates are submitted for laboratory analysis without the

laboratory knowing the source of the sample. Because the laboratory cannot know which original the duplicate is from, field duplicates provide a check of analytical accuracy and precision. Approximately three field duplicates will be collected during each storm event for blind analysis by the laboratory. The number of field duplicates collected during storm water sampling may change upon specific request by the Port or the overseeing agency. The Port will select the sample locations test methods for duplicate analysis. The procedure document for Field Blank Samples, including duplicate blanks, is included in **Appendix B** as POS-QAP-007.

4.2.8 Ambient or Equipment Blank

Ambient and/or equipment blanks are used to ensure that potential sample contamination that could occur during the field sample collection process is highly unlikely. These blanks contain pre-filled laboratory grade DI water prepared and provided by the analytical laboratory. Field blanks should be collected under the same conditions as the sample collection, or as near to the same conditions as possible. Field blanks are not required under the Port Permit's storm water sampling requirements and will only be required during storm water sampling if requested specifically by the Port or the overseeing agency. The procedure document for Field Blank Samples, including ambient/equipment blanks is included in **Appendix B** as POS-QAP-007.

4.3 Sample Handling & Custody Requirements

Sampling personnel at the Port are responsible for the accurate completion of Analysis Request/Chain of Custody documents when collecting effluent samples. The sample collector is also responsible for the care and custody of the samples from the time of collection until the documented transfer of the samples to the laboratory or the courier. During custody transfer, the original sample handler must transfer custody of the samples to the sample recipient and provide a signature along with the date and time to document that transfer on the Chain of Custody form.

4.3.1 Sample Custody Documentation

Please see section 3.1 for detailed information on sample custody and documentation. The procedure document for Chain of Custody Generation and Use (POS-QAP-001) is included in **Appendix B**.

4.3.2 Sample Transportation

Samples collected at the Port must be transported from the sampling location to the analytical laboratory in an ice-filled cooler. Each container lid will be tight enough to keep the sample it contains from leaking or becoming contaminated from an outside source. Samples will be physically transported to the analytical laboratory by the sample collector, his designee, or a courier arranged by the analytical laboratory. The samples must be accompanied by a complete, accurate and legible copy of

the Analysis Request/Chain of Custody document. Instructions regarding proper sample transportation are included in the procedure document for Chain of Custody Generation and Use (POS-QAP-001) is included in **Appendix B**.

4.3.3 Sample Custody Transfer

As mentioned above in section 4.0, custody transfer will be documented each time the physical custody of the sample transferred to any other person. Custody transfer must be documented by the person accepting custody by putting the date, time and their signature in the appropriate location on the Analysis Request/Chain of Custody document. This process will be repeated when samples are relinquished custody to the laboratory courier upon his arrival. The procedure document for Chain of Custody Generation and Use, including sample custody transfer, is included in **Appendix B** as POS-QAP-001.

5 Laboratory Quality Control Practices

Laboratory quality control practices include laboratory activities once the samples are accepted by the analytical laboratory. The collection and analysis of sample blanks (equipment blanks, duplicate blanks, travel blanks, etc.) along with matrix spike/matrix spike duplicate pairs and other techniques used by laboratories assess the precision and accuracy of sample collection, handling and analytical procedures. These techniques also confirm the potential for false positive results (due to laboratory contamination), the accuracy of laboratory analysis, and the accuracy and precision due to laboratory procedures and matrix interferences. Laboratory specific information for McCampbell Analytical can be found in **Appendix D** and Laboratory specific information for Sierra Foothill, Inc. can be found in **Appendix E**.

5.1 Analytical Method Requirements

Analytical method requirements for the Port are identified in the NPDES Permit and are included as part of the Analysis Request/Chain of Custody Document.

5.1.1 Holding Times

The holding time is the length of time a sample can be stored after collection and prior to analysis without significantly affecting the analytical results. The length of the holding time varies based upon the analytical method, the preservative used, and sample matrix. Holding times are included in the Storm Water Sampling Chart in **Appendix C**. **MAI's** Analytical Sample Container and Preservation Guide is presented in **Appendix D**.

5.1.2 Method Detection Levels and Reporting Limits

Method Detection Levels (MDLs) are the lowest level that the laboratory can accurately detect a pollutant and represent the absolute minimum level of analytical detection EPA defines MDLs as the "minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero." (40 CFR Part 136, Appendix B) MDLs are specific to each laboratory instrument.

Reporting Limits (RLs) are the statistically proven "safe" detection limit that the laboratory uses on its reports for all of its analyses. An RL is an instrument-dependent quantity based on the lowest point on the calibration curve that has sufficient statistical rigor. The MDL is almost always lower than the RL. Laboratories generally report pollutant levels below the MDL, or sometimes even the RL, as non-detect or ND. However, the laboratory can be instructed to report target constituents that are detected above the MDL and below the RL. When this occurs, the data is shown on the laboratory as "Detected, but Not Quantified" or DNQ, and/or can contain an estimated level indicated with a "j" (often called "j-flagged data"). Laboratory MDLs and the RLs are compared with the State of California **Minimum Levels (MLs)** specified in the State Water Resources Control Board's Policy for Implementation of Toxics Standards for the Inland Surface Waters, Enclosed Bays and Estuaries of California (SIP). An ML is the lowest point on calibration curve where a signal is quantified.

5.1.3 Level of QA/QC

McCampbell Analytical, Inc.

McCampbell Analytical (MAI) offers their clients multiple levels of quality control data. These levels range from the Level I standard QC data package through the Level IV Quaternary Data Package. The Port has requested that the Level I standard QC data package is supplied with all of their analytical reports. The Level I standard QC data package contains the following:

- Analytical Report with Cover Page
- Chain of Custody (COC) Form (including those for subcontracted analyses)
- Method Blank
- Matrix Spike/Spike Duplicate Summary (MS/MSD) - with Control Limits
- Laboratory Control Sample Summary (LCS) - with Control Limits
- Reporting Limits listed on all reports

- Surrogate Recoveries for GC and GC/MS analyses - with Control Limits
- Corrective Action Reports when necessary

Sierra Foothill, Inc.

Sierra Foothill, Inc. has a quality assurance system that is implemented and maintained based on requirements contained in chapter 5 of the National Environmental Laboratory Accreditation Conference (NELAC) standard. The quality system documentation consists, among other things, of:

- Written policy and objectives statement
- Written quality manual
- Written Standard Operating Procedure (SOP) documents
- Appropriate reference documents and texts

5.1.4 Sample Analysis Turnaround

Sample analysis turnaround is the amount of time required from the receipt of samples by the analytical laboratory to the laboratory analytical report becoming available to the Port. The standard turnaround time for McCampbell Analytical is ten (10) business days. If analytical results are required in a shorter period of time, a shorter turnaround time is available for an additional fee. The Port has requested a standard turnaround time for their analytical submittals.

5.2 Analysis of Field Duplicates

As mentioned in section 4.2.7, field duplicates are samples that are collected from the same source as the original sample, but are labeled so that the laboratory does not know the sample's source. These samples are split from the original samples and submitted separately for analysis. Since laboratory results from these field duplicates are the approximately the same as original samples, the field duplicates serve the QA purposes of ensuring laboratory testing is precise. Approximately three (3) field duplicates will be collected for blind analysis during each storm event. The Port will select the locations and time from which the sample will be collected and submitted.

5.3 Sample Tracking

Tracking of samples after receipt by McCampbell Analytical is accomplished using the Laboratory Information Management System (LIMS). Upon receiving a sample, the laboratory logs the sample into LIMS. From that point the sample is tracked, analytical results are revised, documented and reported using LIMS.

5.4 Matrix Spike Duplicate Analysis Samples

A matrix spike analysis is performed by using a sample that has a known concentration of a target analyte. The spiked sample is compared with the original sample to make sure that spiked analytical results increase accordingly. This process helps to check for accuracy and precision of analysis, which in turn assures quality control and representativeness of analytical results.

5.5 Laboratory Control Sample Analysis

Laboratory control sample (LCS) analysis is another test used to evaluate accuracy. The laboratory control samples are carried through the same analytical procedures as the environmental samples, but are used to evaluate method and analytical procedure performance. This process helps to confirm the precision of the laboratory results.

6 Data Management

This section describes the process of handling data in terms of data generation, review, and compliance. Laboratory data corrective actions are outlined in the laboratory's quality control program in section K. The procedure document for Quality Control for Data Entry is included in **Appendix B** as POS-QAP-008.

6.1 Review of Analytical Results

Analytical results will be reviewed within three (3) days by a qualified individual associated with the Port upon reception of the analytical report. Performing the review immediately will increase the opportunity to have a sample re-analyzed prior to the expiration of the hold time should any errors or unusual results be discovered. The review process will include a comparison of the analytical results with Permit limits and requirements, receiving water quality standards, and EPA benchmark levels. The analytical results will also be compared with the MDLs, RLs and MLs.

All documents and data generated are also peer-reviewed for accuracy and precision. This includes the review of analytical results, hold times, method blanks, as well as the relative percent difference of the matrix spike duplicate and laboratory control samples.

All sampling-related documents generated are reviewed for accuracy, precision, completeness and representativeness. This includes the review of field-completed forms, Chain of Custody documents and laboratory reports.

If sampling results are above the ML and above any applicable Permit limits, receiving water standards, or EPA benchmark levels, these data must be reported to the Port's Environmental Department so that appropriate reports may be given to the RWQCB and other steps (e.g., source control, additional sampling) may be taken in a timely manner.

6.2 Error Detection and Correction

Errors on a field form or a laboratory report are struck with a thin, single line, replaced with the correct data inserted, and the correction should be initialed and dated. Besides the line through, the incorrect data is not written over, obscured, or obliterated in any way. Once the document is corrected, it becomes the final version of the document suitable for reporting purposes. Laboratory errors should be sent to the laboratory and corrected by the laboratory using their internal corrective action procedures.

6.3 Document Retention

All hard copies of the report will be on file at the Port for a minimum of five (5) years. Electronic copies of the data will be placed on the storm water database which contains all of the Port's previous years of data.

Appendix A

- **Analysis Request/Chain of Custody Documents**

Appendix B

- **Procedure Documents**

PORT OF STOCKTON	Storm Water Sampling
	POS-QAP-001
	Chain of Custody Generation and Use

Work Instruction Overview

Scope / Purpose	The purpose of this work instruction is to describe the process in creating and using a Chain of Custody (COC) document.
Responsibility	• The Sample Coordinator has primary responsibility for execution of the work instruction.
Work Instruction Deviation	Circumstances may arise that warrant deviating from some steps of this work instruction, but this can only be done with the **Supervisor's** knowledge and approval.
Job Preparation / Prerequisites	• Receive training on stormwater sampling requirements under the NPDES Storm Water Sampling Guidance Document and 40 CFR 136. • Complete training on this work instruction with a Trainer. • Complete sign-off and file documentation of training participation.
Health / Safety Precautions / Environmental	• Chemical burns may occur from preservatives used to extend the hold time of the specimen. • Personal Protective Equipment (PPE) required – Nitrile gloves. • Deviation from this work instruction may result in injuries or non-representative samples or injury from preservative acid.
Equipment Required	• Required Paper Work: Chain-of-custody (COC), Sample Analysis Packet, and procedures. • Sample bottles/containers and labels

Action

1. Pre-Season Sampling Preparations

1.1. Review Chain of Custody forms for accuracy against the Sample Analysis Chart.

1.2. Send the laboratory the reviewed Chain of Custody forms and request corresponding sample kits.

1.3. Request that each bottle be labeled with the following:
- 1.3.1. Facility name
- 1.3.2. Sample identification name
- 1.3.3. Analysis required
- 1.3.4. Preservative (if any) used
- 1.3.5. Type of sample (grab or composite)

1.4. The following will be include on the sample label prior to sample submission to the laboratory:
- 1.4.1. Sample collector's name
- 1.4.2. Date and time of sample collection
- 1.4.3. Location where sample taken

1.5. Confirm sample kits are complete and properly labeled by comparing each kit with its corresponding COC once delivered to the Port.

1.6. If additional labels are needed, the Sample Coordinator shall use their discretion to either handwrite a replacement label or use pre-printed bottle labels.

1.7. Ensure the appropriate Chain of Custody is kept with the corresponding sample kit in the Port's sample laboratory.

2. Sample Event

Sample Collectors

2.1. Sample collector will pick up sample collection devices, containers, observation forms and Chain of Custody for sample field filled bottles.

2.2. The field sampler who maintains possession of field samples shall keep the COC in their possession throughout entire sampling procedure. If the custody of samples is

completely transferred to another field sampler, the initial custodian shall sign off custody along with the date and time of transfer and the next receiving custodian shall sign to accept custody. This process must be repeated should additional transfers occur.

2.3. Once sampling is complete, the sample collector delivers the samples to the Port's sample laboratory and signs off custody on the COC to the sampling coordinator or any other assigned custodian.

3. Post Sample Collection

Sampling Coordinator/Bottle Fillers

1.1. Accept the incoming samples and, if necessary, redirect the field samplers to the next need. Ensure proper samples are distinguished according to their own respective COC.

1.2. Use the date and times from the field data form and ensure the container labels and COC match and are correct.

1.3. Persons filling bottles shall ensure the sample bottle count is the same as the COC bottle count.

1.4. If there is a discrepancy in bottle count, the bottle filler shall investigate until the counts are reconciled.

1.5. Ensure the COC has the following information:

1.5.1. Sampler names

1.5.2. Sample collection time and date

1.5.3. Bottle Count

1.5.4. Field parameters (pH, Temp., D.O., EC, Etc.)

1.5.5. Previous custody signatures

1.5.6. Final Port Custody signature

1.6. Coordinate sample delivery or courier pickup so the COC is signed over to laboratory and signatures of all previous custodians appear on the COC.

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1.7. Make a copy of the signed COC and place the original in a plastic bag and place in the appropriate cooler that accompanies the corresponding samples.

End of Procedure

Document Administration

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Approver:	Jeff Wingfield	

PORT OF STOCKTON	Storm Water Sampling
	POS-QAP-002
	Field Preparation and Documentation

Work Instruction Overview

Scope / Purpose	The purpose of this work instruction is to describe the process for the preparation and documentation of activities during work in the field.
Responsibility	• The Sampling Coordinator has primary responsibility for the execution of this work instruction and the oversight of field activities.
Work Instruction Deviation	Circumstances may arise that warrant deviating from some steps of this work instruction, but this can only be done with the **Supervisor's** knowledge and approval.
Job Preparation / Prerequisites	• Field personnel must clearly understand the assigned task(s) along with any specific instructions for the job. • If necessary to a specific task, field personnel must complete training on this work instruction with a Trainer. • Complete sign-off and file documentation of training participation.
Health / Safety Precautions / Environmental	• Chemical burns may occur from preservatives used to extend the hold time of the specimen. • Personal Protection Equipment (PPE) required – Nitrile gloves, shatterproof eye protection, traffic vest, steel-toed boots, hard hat, ear plugs (if necessary). • Deviation from this work instruction may result in injuries or non-representative samples.
Equipment Required	• Required Paper Work: Field notebook or clipboard with paper for field notes, pens, wax pencils, Chain of Custody document for samples, and procedures. • Job-specific equipment such as sample bottles/containers and labels, pumps, meters, instruments, etc., should all be prepared beforehand and gathered into a sampling kit for each location.

Action

1. Pre-Storm Season
Sampling Coordinator

1.1. Document Management.

1.1.1. The Sample Coordinator will review and revise (as necessary) all Chain of Custody forms, labels, field observation forms, monitoring forms, and procedure documents.

1.2. Laboratory, Equipment, and Instrument Preparation.

1.2.1. Analytical kits shall be evaluated for completeness and shall check sample bottles for integrity and proper labels. (Replace or add bottles as necessary)

1.2.2. Sample collection devices (pumps, booms, dust pans, etc.) shall be checked for overall condition and will be decontaminated, repaired and replaced as necessary.

1.2.3. Sample field instrumentation shall be checked and tested for field readiness. If repairs or service is needed, the Sample Coordinator will communicate those to the Environmental Department.

1.2.4. Field instrumentation calibration standards will be checked for expiration dates and remaining supplies should also be inventoried. The Sample Coordinator will communicate replacement requests to the Environmental Department.

1.2.5. The Sample Coordinator will prepare each team's sample kits with all necessary items identified in each team's procedure and field kit checklist.

1.3. Field readiness.

1.3.1. The Sample Coordinator will work with the drain maintenance team to ensure maintenance has been performed and BMPs have been implemented in areas where sampling is scheduled to be performed.

1.3.2. All previously installed sample collection devices will be checked for integrity and sample tubes will be replaced prior to the first flush event.

1.4. Train Sample Teams.

1.4.1. All sampling personnel shall undergo training by qualified personnel to ensure sample collectors are prepared to work safely and in accordance with proper sampling requirements.

2. Pre-Sample Event

Sampling Coordinator

2.1. Monitor Weather (Wet Season) and Formulate Sample Team Response.

2.1.1. Monitor weather reports (during Wet Season) and target any potential imminent qualifying sample events (Dry or Wet) as specified in the Permit's MRP.

2.1.2. Coordinate an adequate field response and frequently provide weather pattern updates and response timing.

2.1.3. Communicate with the analytical laboratories that the Port intends to perform sampling in the next few days.

2.1.4. If toxicity tests are required during the storm water year (Years 10/11 and 13/14), contact Sierra Foothill Laboratory and order toxicity specimens no later than 48 hours prior to the storm's arrival.

2.2. Preparation of Field Materials

2.2.1. The Sample Coordinator shall prepare the sample team's kits with all sample equipment, necessary analytical bottles, procedures, COC and other needed forms, and PPE.

2.2.2. The Sample Coordinator will stage each team's kits and supplies separate from other teams to avoid confusion.

3. Day of Sample Event

3.1. Monitor Weather (Wet Season) and Communicate Sample Team Response.

3.1.1. Once it is determined that a qualifying sample event is occurring, make a final call to all sample collectors to set a response time.

3.1.2. Delegate instrument calibration responsibilities to a primary storm event responder.

3.1.3. Ensure all calibration activities are logged in the calibration log book.

3.1.4. Assemble at a designated location at the Port and coordinate storm event response.

4. Field Activities and Documentation

Field Personnel

4.1. Field personnel should greet the sample coordinator and wait for sample team assignment.

4.2. After being assigned to their sample location area, field personnel should document all major phases of work on the observation form along with any important data obtained during field activities.

4.3. All fields of the field observation forms and sample bottle labels should be completed prior to sample teams returning to the Port offices to meet a courier or delivering the samples to the laboratory.

5. Post Sample Collection

Sampling Coordinator

5.1. After arrival at office from field activities, personnel should promptly report to the Project Manager or Supervisor concerning the task accomplished and provide a brief description of events during the day and any problems, difficulties and possible improvements for future jobs.

5.2. Field personnel should share all field documentation with other personnel in the lab sample room and the Sample Coordinator.

5.3. Field personnel should file field documentation and other job-related data or materials appropriately for future data entry or reporting.

End of Procedure

Document Administration

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Reviewer:	Steve Teravskis, WGR Southwest, Inc.	5/7/13
Approver:	Jeff Wingfield	

PORT OF STOCKTON	Storm Water Sampling
	POS-QAP-003
	Grab Sample Collection

Work Instruction Overview

Scope / Purpose	The purpose of this work instruction is to describe the process of taking storm water samples.
Responsibility	• The Sample Coordinator has primary responsibility for execution of the work instruction.
Work Instruction Deviation	Circumstances may arise that may warrant deviating from some steps of this work instruction, but this can only be done with the **Supervisor's** knowledge and approval.
Job Preparation / Prerequisites	• Receive training on stormwater sampling requirements under the NPDES Storm Water Sampling Guidance Document and 40 CFR 136. • Complete training on this work instruction with a Trainer. • Complete sign-off and file documentation of training participation.
Health / Safety Precautions / Environmental	• Chemical burns may occur from preservatives used to extend the hold time of the specimen. • Slip, trip, and fall hazards in and around the sampling landscape. • Potential exposure extreme weather i.e. cold, wet, etc. • PPE required – Shatterproof eye protection, work boots/rain boots, rain gear, nitrile gloves. • Deviation from this work instruction may result in injury, death, or non-representative samples.

Equipment Required	• Required Paper Work: Call-out sheet, chain-of-custody (COC), field data sheets, maps, and procedures. • Sample bottles/containers and labels • Sampling kits with the above, including dust pans, pitchers, and pumps. • Field Analysis Equipment (Wet Season): (pH pen, Temperature Meter, and Dissolved Oxygen Pen) • Field Analysis Equipment (Dry Season): (pH pen, Temperature Meter, Specific Conductance, Turbidity Meter, and Chlorine Analyzer)

1. Grab Sample Collection

1.1. Three collection methods are currently used for Grab sample collection at the Port.
- 1.1.1. Pump
- 1.1.2. Surface
- 1.1.3. Canal or Channel

2. Grab by Pump

2.1. The pump connects to pre-existing drain tubes that are custom sized and fitted into previously determined sample locations. (See demonstration to the right).

2.2. Submersible pumps are used to collect Grab samples from the Retention Basin and from Receiving Water locations.

3. Grab by Surface Sample

3.1. Surface samples are collected by capturing surface runoff flow prior to the water reaching the drain inlet or outfall.

3.2. Care should be taken to collect a representative sample (i.e. sampling actual runoff and not puddles)

3.3. Surface collection techniques must be taught and practiced. (See below)

3.4. Water scoop must be decontaminated after each use.

Instructions for sampling drains:

Pull up the drain tube and connect to the pump tube. Run the pump tube through the pump and purge for 30 seconds. Then place the end of the tube into the sample container. Turn pump on to collect sample.

The proper surface sample collection technique is to allow the surface water to flow onto your collection device. The sampler should never scoop a water sample from the surface. This will contribute a non-representative amount of sediment and other potential pollutants to be collected along with the Grab sample. This material would likely not be discharged through the runoff otherwise.

4. Grab Sample by Canal or Channel

4.1. Grab samples collected from a sample point such as a canal or channel should be collected using a sample boom device.
4.2. The boom should be decontaminated in between sample locations.
4.3. If decontamination of the sample boom is not possible in the field, then the "triple rinse method" should be utilized.

Triple Rinse Decontamination Method
The triple rinse method shall be used when a more thorough decontamination is not possible. After using the sample boom for sampling and before moving on to the next sample collection location, dip the sample boom in the water to be sampled three times before collecting your Grab sample.

4.4. Care should be taken when collecting the sample to collect only a representative water sample. Do not drag the sample boom along the bottom of a canal or channel.

5. Grab Sample Container Decanting

5.1. Using any collection method (i.e. pump, surface sample or sample boom device), pour the collected sample into either laboratory provided analytical containers or a new intermediate container* to store the sample until a transfer to laboratory provided containers is possible.

***NOTE: EPA's NPDES Storm Water Sample Guidance Document requires Oil and Grease and VOCs be filled directly into the appropriate laboratory provided sample containers.**

5.2. Note time, date, and name of sampler(s) on the analytical containers and intermediate container.
5.3. Place all containers on ice and secure until transportation to the Port's sample lab is possible.

6. Post Sample Collection

6.1. Ensure grab samples are properly labeled and distinguished from all other samples.

6.2. Use the date and times from the field data form and ensure the container labels are correct.

6.3. If not already done, fill sample bottles.

Directions for filling sample bottles:

1. Make sure appropriate safety PPE is worn (ex. Nitrile gloves).
2. Take the correct cooler with bottles that match the sample container(s).
3. Use dispenser on the side of the sample container to transfer the sample to bottles.
4. Re-check bottle count while putting filled bottles back into the coolers.
5. Place ice in coolers with sample bottles

6.4. Place bottles in individual coolers with ice for each sample location.

6.5. Double check that all samples are accounted for.

6.6. Call McCampbell Analytical to notify them that sampling is finished (ask for a courier to pick-up samples unless the Port is transporting the samples).

6.7. Make a copy of the signed COC and place the original in a plastic bag and place in the appropriate cooler that accompanies the corresponding samples.

End of Procedure

Document Administration

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Approver:	Jeff Wingfield	

PORT OF STOCKTON	Storm Water Sampling
	POS-QAP-004
	Composite Storm Water Sampling

Work Instruction Overview

Scope / Purpose	The purpose of this work instruction is to describe the process of taking storm water samples.
Responsibility	• The Storm Coordinator has primary responsibility for execution of the work instruction.
Work Instruction Deviation	Circumstances may arise that warrant deviating from some steps of this work instruction, but this can only be done with the **Supervisor's** knowledge and approval.
Job Preparation / Prerequisites	• Receive training on stormwater sampling requirements under the NPDES Storm Water Sampling Guidance Document and 40 CFR 136. • Completed training on this work instruction with a Trainer. • Complete sign-off and file documentation of training participation.
Health / Safety Precautions / Environmental	• Chemical burns may occur from preservatives used to extend the hold time of the specimen. • Slip, trip, and fall hazards in and around the sampling landscape. • Potential exposure extreme weather i.e. cold, wet, etc. • Personal Protection Equipment (PPE) required – Shatterproof eye protection, work boots/rain boots, rain gear, nitrile gloves. • Deviation from this work instruction may result in injury, death, or non-representative samples.
Equipment Required	• Required Paper Work: Call-out sheet, COCs, field data sheets, maps, and procedures. • Sample bottles / containers and labels. • Sampling kits with the above and : dust pans, pitchers, and pumps.

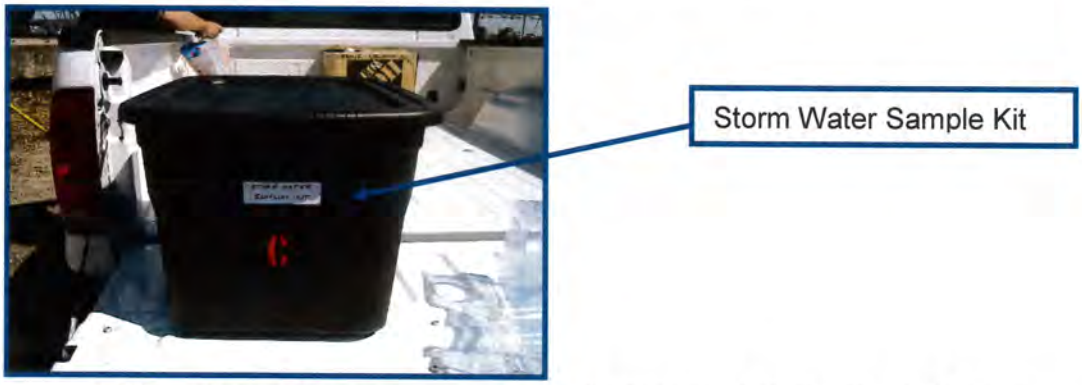
Action

1. **Pre-Storm**

Sampling Coordinator

1.1.1. Ensure each sample team has four sample cubes for each outfall. (1-Grab & 3-Composites)

1.1.2. Place meters into each of the 5 sample kits.



1.1.3. Check freezer in middle sample room and stock with ice if necessary.

Sample Collector

1.2. Day of an anticipated storm

1.2.1. Receive assigned sampling location(s) from the Sample Coordinator.

1.2.2. Before leaving to collect samples make sure you have the following:

1. Sample kit
2. Sample Pump
3. Battery Pack
4. Sample collection containers\
5. Sample Bottles needed to be filled in the field. (VOCs, Oil and Grease (glass bottle), and Phenols)
6. Sampling Boom (if necessary)
7. Life Jackets (if sampling within six feet of deep water)

Contents of a sample kit:

1. Field sample devices (pH pens, DO meter, and Temperature meter).
2. Laminated field data sheets.
3. Grease pens and markers.
4. Nitrile Gloves

2. Composite Sample Collection

Sample Collector

2.1. Pick up assigned sample kit and sample containers.

2.2. Drive to sample location.

2.3. Connect pump to the sample tube and fill Grab sample bottles.

2.4. Immediately after, fill the first composite sample cube and the first set of bottles that are required to be filled in the field.

2.5. Write the sample ID (i.e. D4 Comp 1), location, time and date on both the cube sample container and the field filled bottles.

2.6. Complete the field observation form with observations of the Grab and the first Composite.

2.7. Repeat steps 2.4 – 2.6 for collecting the composite for the second and third rounds of composite sample collection for each of the following two hours.

2.8. Return all samples and equipment to the sample room at the Annex. Check in with the Sample Coordinator for further instructions.

What to do if the rain/flow stops or soon will…..

If the storm event is letting up early in the day and more rain is expected later in the day, finish the current collection and return to the Annex.

If the storm event is letting up late in the day or no other storms are expected that day, call the Sample Coordinator and ask for further directions.

If sampling a single discharge stream that, due to volume or physical properties, requires taking multiple samples to be properly representative, the individual samples should be composited to more accurately represent the discharge stream as a whole.

3. Post Sample Collection

Sampling Coordinator or Designated Person

3.1. Accept the incoming sample containers and redirect the responders to the next need. Ensure composite samples are correctly labeled and placed on ice.

3.2. Use the date and times from the field data form and label the containers accordingly.

3.3. Composite the collected composite aliquots in the following manner:

Directions for pouring-up composite sample bottles:

1. Make sure all safety PPE is worn (Clear safety glasses, and nitrile gloves).
2. Use the rainfall rates from the Port's rain gauge for each of the first three hours of the discharge and determine the composite ratios.

Example:

1st Hour = .15

2nd Hour = .10

3rd Hour = .05

The ratio would be…

3 parts (1st Hour) + 2 parts (2nd Hour) + 1 part (3rd Hour)

*** If less than three composites were collected ratio will only reflect the hours collected.**

**** Oil and Grease field filled containers will be composited by the laboratory.**

3. Include ratio formulas on each applicable observation sheet.

3.4. Pour sample bottles, if necessary, into properly designated containers.

3.5. Place bottles in individual coolers with ice for each sample location.

3.6. Check to make sure all samples have been accounted for.

3.7. Call McCampbell Analytical to let them know the sampling is finished (ask for a courier to pick-up samples unless the Port is transporting the samples).

3.8. Make a copy of the signed COC and place the original in a plastic bag and place in the appropriate cooler that accompanies the corresponding samples.

End of Procedure

Document Administration

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Reviewer:	Steve Teravskis, WGR Southwest, Inc.	5/7/13
Approver:	Jeff Wingfield	

PORT OF STOCKTON	Storm Water Sampling
	POS-QAP-005
	Receiving Water Storm Water Sampling

Work Instruction Overview

Scope / Purpose	The purpose of this work instruction is to describe the process of taking storm water samples.
Responsibility	• The Storm Coordinator has primary responsibility for execution of the work instruction.
Work Instruction Deviation	Circumstances may arise that may warrant deviating from some steps of this work instruction, but this can only be done with the **Supervisor's** knowledge and approval.
Job Preparation / Prerequisites	• Receive training on stormwater sampling requirements under the NPDES Storm Water Sampling Guidance Document and 40 CFR 136. • Complete training on this work instruction with a Trainer. • Complete sign-off and file documentation of training participation.
Health / Safety Precautions / Environmental	• Chemical burns may occur from preservatives used to extend the hold time of the specimen. • Slip, trip, and fall hazards in and around the boat. • Potential exposure extreme weather i.e. cold, wet, etc. • Personal Protection Equipment (PPE) required – Shatterproof eye protection, work boots/rain boots, rain gear, nitrile gloves. • Deviation from this work instruction may result in injury, death, or non-representative samples.
Equipment Required	• Required Paper Work: Call-out sheet, COCs, field data sheets, maps, and procedures. • Sample bottles/containers and labels, water meters • Sampling kits with the above along with dust pans, pitchers, pumps.

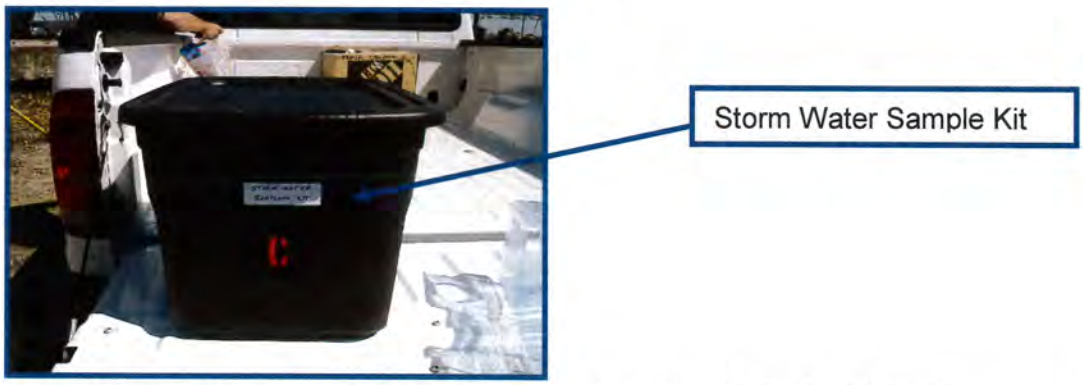
Action

1. Pre-Storm

Sampling Coordinator

1.1.1. Ensure each sample team has three 5-gallon sample cubes and one 2.5 gallon cube for each receiving water location (five locations, R-1 to R-5).

1.1.2. Place meters into the sample kits.



1.1.3. Check freezer in middle sample room and stock with ice if necessary.

Sample Collector

1.2. Day of an anticipated storm

1.2.1. Receive assigned sampling location(s) from the Sample Coordinator.

1.2.2. Before leaving to collect samples make sure you have the following:

1. Sample kit (see list on following page)
2. Sample Pump
3. Sample collection containers
4. Sample Bottles needed to be filled in the field. (VOCs, Oil and Grease (in glass bottles), and Phenols)
5. Life Jackets (If sampling within six feet of deep water.)

Contents of a sample kit:

1. Field sample devices (pH pens, DO meter, and Temperature meter).
2. Laminated field data sheets.
3. Grease pens and markers.
4. Nitrile Gloves

2. Receiving Water Sample Collection

Sample Collector

2.1. Pick up assigned sample kit along and sample containers.

2.2. Drive out to boat loading dock, load boat and head to sampling location.

2.3. Connect pump to the sample tube and fill Grab sample bottles and sample cubes.

2.4. Write the sample ID location (i.e. R-1), time and date on all sample cube container and the field filled bottles.

2.5. Complete the field observation form with observations of surrounding conditions and of the Grab sample.

2.6. Repeat steps 2.3 – 2.6 for collecting from the other receiving water locations.

2.7. If the boat is getting too heavy or full with sample water, arrange to meet a team member at the dock to help unload samples, ice them and take them to the sampling room for bottling.

2.8. Return all samples and equipment to the sample room at the Annex. Check in with the sample coordinator for further instructions.

What to do if the rain/flow stops or soon will…..

If the storm event is letting up early in the day and more rain is expected later in the day, finish the current collection and return to the Annex.

If the storm event is letting up late in the day or no other storms are following that day, call the sample coordinator and ask for further directions.

3. Post Sample Collection

Sampling Coordinator or Designated Person

3.1. Accept the incoming sample containers and redirect the responders to the next need. Ensure composite samples are correctly labeled and placed on ice.

3.2. Use the date and times from the field data form and label the containers accordingly.

3.3. Pour-up sample bottles, if necessary, into properly designated containers.

3.4. Place bottles in individual coolers with ice for each sample location.

3.5. Check to make sure all samples have been accounted for.

3.6. Call McCampbell Analytical and/or Sierra Foothill to let them know the sampling is finished (ask for a courier to pick-up samples unless the Port is transporting the samples).

3.7. Make a copy of the signed COC and place the original in a plastic bag and place in the appropriate cooler that accompanies the corresponding samples.

End of Procedure

Document Administration

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Approver:	Jeff Wingfield	

PORT OF STOCKTON	Storm Water Sampling
	POS-QAP-006
	Sampling Device Decontamination

Procedure Overview

Scope / Purpose	This procedure describes the proper process of properly cleaning contaminated sampling devices.
Responsibility	• Port of Stockton Storm Water Sampling Team
Procedure Deviation	Deviation from this procedure may result in injury or inaccurate analytical results.
Job Preparation / Prerequisites	• Receipt and review of this procedure. • Training based upon the protocols spelled out in the USEPA Storm Water Sampling Guidelines. • Knowledge of the Port's storm water permit requirements.
Health, Safety, & Environmental Precautions	• Proper personal protective equipment (PPE) must be worn during decontamination activities.
Equipment Required	• Deionized (DI) water • Liqui-nox (Alconox, Inc. Catalog Number 1201), or equivalent. • Two clean 5-gallon buckets • One to two soft bristle brushes, and disposable towels • PPE (Eye Protection, Protective Outer Clothing, and Nitrile Gloves). Note: Clothing may be ruined due to chemical contact.
Related Documents	• USEPA Storm Water Sampling Guidelines • 40 CFR Part136

Sampling Device Decontamination Procedure

Cleaning of sampling equipment takes place usually the day after a sampling event.

1.0. Cleaning of sampling equipment

1.1. Ensure the decontamination cleaning supplies are present and a sufficient amount of cleaning solution is on hand.

Decontamination supplies include…

- **2 Clean buckets**
- **Liqui-nox detergent**
- **Disposable towels**
- **Soft bristle brushes**
- **Nitrile gloves**
- **Safety glasses**

1.2. Completely clean each sampling device with tap water to remove any visible particles.

1.3. Prepare one 5-gallon bucket of Liqui-nox Detergent at a ratio of 1 ¼ oz. of detergent to each gallon of warm water.

Use measurement cup to assist with portioning the detergent to tap water.

1.4. Fill one 5 gallon bucket with deionized water.

Use the battery operated pump to easily control deionized water flow.

1.5. Wet the sampling device by dipping it in the bucket of Liqui-nox Detergent solution.

1.6. Clean the surface of the sampling device by completely scrubbing the surface thoroughly with the soft bristle brush. If more Liqui-nox Detergent solution is needed dip the soft bristle brush in the 5-gallon bucket of Liqui-nox Detergent solution.

1.7. Rinse all surfaces with running tap water, assuring that the entire surface of the sampling device has been rinsed for at least 10 seconds.

1.8. Shake the sampling device to remove all excess tap water.

1.9. Dip the sampling device in the 5-gallon bucket of deionized water, assuring that the entire surface of the sampling device is rinsed for at least 10 seconds.

1.10. Shake the sampling device to remove all excess deionized water.

1.11. Wipe down the storm information written on the white board and on the field data sheets.

Erase all storm data recorded on the white board. Leave outfall information.

Use soap, water and a rag to remove the data written with the grease marker.

2.0. Post cleaning

2.1. If the sampling device is not going to be used immediately place it on a clean dry surface and allow to air dry.

2.2. Seal the portion of the sampling device most likely to come into contact with the sample in a plastic bag labeled with the name of the device, the word **Clean**, and the date cleaned.

2.3. Wait approximately 48 hours before disposing of residual decontamination water and collection containers.

2.4. When disposing of the sample collection containers, crush and/or poke holes into the container to ensure it will not hold water.

END OF PROCEDURE

Document Administration

Last Review & Approval Date:	Review and update for RWQCB SWMP approval.	
	Signature	Date
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Approver:	Jeff Wingfield	

PORT OF STOCKTON	Storm Water Sampling
	POS-QAP-007
	Field Blank Samples

Work Instruction Overview

Scope / Purpose	The purpose of this work instruction is to describe the process in the preparation and use of blank samples during field sampling activities.
Responsibility	• The Project Manager has primary responsibility for execution of the work instruction and the oversight of field activities.
Work Instruction Deviation	Circumstances may arise that warrant deviating from some steps of this work instruction, but this can only be done with the **Supervisor's** knowledge and approval.
Job Preparation / Prerequisites	• Field personnel must be instructed on which, if any, blank samples are required for their assigned task along with how to prepare each of the required blank samples. • If necessary to that specific task, completed training on this work instruction should be done with a Trainer. • Once completed, the field personnel must sign-off and file documentation of training participation.
Health / Safety Precautions / Environmental	• Chemical burns may occur from preservatives used to extend the hold time of the specimen. • Personal Protective Equipment (PPE) required – Shatterproof eye protection, nitrile gloves, steel-toed boots and hard hat. • Deviation from this work instruction may result in injuries or non-representative samples.
Equipment Required	• Required Equipment/Paper Work: PPE, field notebook or clipboard with paper for field notes, pens, Chain of Custody (COC) documents when sampling, and copy of applicable procedures. • Job-specific equipment such as sample bottles/containers and labels, pumps, meters, instruments, etc.

Action

1. **Pre-Storm**
   Sampling Coordinator and Field Personnel

   1.1. Preparation for Travel Blank

   1.1.1. Based on analytical requirements, Project Manager should understand and assemble the size and quantity of sample containers to be used as travel blanks.

   1.1.2. Field or laboratory personnel should dispense distilled or de-ionized (DI) water into sample containers and place the containers in a secure place where containers will not be broken, cracked, or damaged.

   1.2. Preparation of Field, Ambient or Equipment Blank

   1.2.1. Based on analytical requirements, Project Manager should understand and assemble the size and quantity of sample containers to be used as field or ambient blanks.

   1.2.2. In the case of ambient and equipment blanks, field personnel will need to bring DI water to the field.

   1.3. Preparation of Duplicate Blank

   1.3.1. Project Manager should understand and demonstrate to field personnel which samples will have duplicate samples. Field personnel will also need to be clearly shown how to document duplicate blank information on their field sheet and COC (i.e. insert time and date of duplicate on COC, denote on field sheets which samples were duplicated, and how many sample containers, preservatives, etc. were used for each duplicate).

   1.4. Preparation of Chain of Custody Forms

   1.4.1. As stated above, field personnel must know or be shown how to fill out the necessary information, such as time and date from blank samples, on the field sheet and COC. Information and procedures will likely vary based on the type of blank.

2. Field Activities and Documentation

Field Personnel

2.1. Travel Blank

2.1.1. Once all preparatory work is complete, field personnel should remember to bring travel blanks when they travel to the job site. Samples should be kept on ice during field activities.

2.2. Field, Ambient or Equipment Blanks

2.2.1. During the time when samples are being collected at a sample location, field personnel should also fill assigned sample containers with DI water brought to the field. Samplers should fill these containers in the same way as the containers of the original sample.

2.2.2. Equipment blanks help to assure no cross-contamination occurs, and are generated by pouring DI water on sampling equipment (such as pumps, bailers, etc.) after standard decontamination processes have been followed. The same water is collected into a sample container and submitted for laboratory analyses.

2.2.3. Samples should be kept in a secure place to prevent breakage and then in an iced cooler for preservative purposes.

2.3. Duplicate Blank

2.3.1. Duplicate blanks should be labeled in a way to prevent the laboratory from recognizing which actual sample location they correspond to. The actual specifics of this labeling method will have been arranged and decided before the sampling event.

2.3.2. Samples should be kept in a secure place to prevent breakage and in an iced cooler for preservative purposes along with its corresponding original samples.

3. Post Sample Collection

Sampling Coordinator

1.1. After arrival back at the office from field activities, personnel should promptly report to Project Manager or supervisor concerning the task(s) accomplished and provide a brief description of events during the day and any problems, difficulties and

possible improvements for future jobs. Field personnel and the Project Manager should review the COC to confirm all information is precise and accurate.

1.2. Once all samples and COCs have been completed, field personnel or the Project Manager should communicate with the laboratory and confirm that samples are ready for courier pick-up. Otherwise, field personnel will hand deliver samples to the laboratory.

End of Procedure

Document Administration

Last Review & Approval Date:	Review and update for RWQCB SWMP approval.	
	Signature	Date
Reviewer:	Steve Teravskis, WGR Southwest, Inc.	5/7/13
Approver:	Jeff Wingfield	

PORT OF STOCKTON	Storm Water Sampling
	POS-QAP-008
	Quality Control for Data Entry

Work Instruction Overview

Scope / Purpose	The purpose of this work instruction is to describe the process to assure all reported laboratory analytical results are correctly entered and represented in the tables, figures and text of the final report.
Responsibility	• The Project Manager has primary responsibility for oversight of quality control procedures.
Work Instruction Deviation	Circumstances may arise that warrant deviating from some steps of this work instruction, but this can only be done with the **Supervisor's** knowledge and approval.
Job Preparation / Prerequisites	• Complete training/instruction on this task with a Trainer. • Communicate with peer reviewer(s) to coordinate timing of task completion. • If necessary, complete sign-off and file documentation of training participation.
Health / Safety Precautions / Environmental	• Field PPE not required – task performed indoors on a computer. • Proper ergonomics should be practiced to avoid hand/wrist/back/eye strain.
Equipment Required	• Required Paper Work: Final analytical laboratory results, Chain of Custody (COC) document, and procedures.

Action

1. **Pre-Storm**
   Supervisor and Data Entry Personnel

   1.1. Preparation for Data Entry

   1.1.1. Supervisor must coordinate peer review method with data entry personnel.

   1.1.2. Supervisor should also determine from previous tables and figures from the site how recent analytical data should be updated and reformatted to include new analytical results.

2. **Field Activities and Documentation**
   Supervisor and Data Entry Personnel

   2.1. Initial Analytical Review

   2.1.1. Once final laboratory analytical results have been reported, data entry personnel should review analytical results to ensure results are within historical limits. If no historical results are available for reference, results should be inspected for abnormalities such as mislabeling of samples, incorrect Reporting Limits (RLs), incorrect units, etc.

   2.1.2. Supervisor should also review and inspect analytical results for potential errors, such as presented in section 2.1.1.

   2.2. Data Entry and Review Process

   2.2.1. Once analytical review has ensured that the final laboratory analytical report is precise and accurate, data entry personnel can begin to copy laboratory data into the table from laboratory-provided data into an excel format.

   Note: Laboratory data should never be manually transferred from a hard report to an excel program. Doing so increases the possibility of human error.

   2.2.2. Once initial data entry has been completed, tables and figures should be spot checked for accuracy.

3. Post Sample Collection
Sampling Coordinator

3.1. Report Completion

3.1.1. Once peer review of the tables and figures has been completed and all corrections have been made to ensure that tables and figures are accurate and complete, drafts should be submitted to the Supervisor or Project Manager for final review and drafting of the text of the report.

End of Procedure

Document Administration

Last Review & Approval Date:	Review and update for RWQCB SWMP approval.	
	Signature	Date
Reviewer:	Steve Teravskis, WGR Southwest, Inc.	5/7/13
Approver:	Jeff Wingfield	

McCampbell Analytical, Inc.

1534 Willow Pass Road,
Pittsburg, CA 94565-1701
1(877)252-9262
FAX (925)-252-9269

Port of Stockton Chain Of Custody Record

Send Invoice to:
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Department of Environment and Regulatory Affairs
P.O. Box 2089
Stockton, CA 95201-2089
Attn.: Rita Koehnen

DATE: _____

PAGE: 1 of 1

CONSULTANT COMPANY: **WGR Southwest, Inc.**

ADDRESS: **315 W. Pine Street, Suite 8**

CITY: **Lodi, California 95240**

TELEPHONE: **(209) 334-5363** FAX: **(209) 334-5374** E-MAIL: steravskis@wgr-sw.com

SITE ADDRESS (Street and City): **Port of Stockton**

PROJECT CONTACT (Report to): Rita Koehnen

CONSULTANT PROJECT NO.: **704.PRI.01**

SAMPLER NAME(S) (Print):

LAB USE ONLY

TURNAROUND TIME (BUSINESS DAYS):

☑ 10 DAYS ☐ 5 DAYS ☐ 72 HOURS ☐ 48 HOURS ☐ 24 HOURS ☐ LESS THAN 24 HOURS

SPECIAL INSTRUCTIONS OR NOTES:

STORM WATER NPDES PERMIT SAMPLES
2012 / 2013 Up-gradient monitoring

TEMPERATURE ON RECEIPT C°

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Al 200.7	Nitrate/NitriteasN - Method 300.1	TSS - Method 160.2
	Upstream D2 - Drain _____			Aq.	3	X	X	X

Metals - 200.7 Al

Sample Containers per Sample Location
1 - 250 mL Poly with HNO3 (Aluminum)
1 - 250 mL with no preserv. (Nitrate/ Nitrite as N)
1 - 1 L Poly with no preservative (TSS)

FIELD NOTES:

Mail report to the invoice address listed above. Email data to:

steravskis@wgr-sw.com

rkoehnen@stocktonport.com

TEAM A

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
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12/19/11 Revision

McCampbell Analytical, Inc.

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CONSULTANT PROJECT NO.: **704.PRI.01**

SAMPLER NAME(S) (Print):

LAB USE ONLY

TURNAROUND TIME (BUSINESS DAYS):

☑ 10 DAYS ☐ 5 DAYS ☐ 72 HOURS ☐ 48 HOURS ☐ 24 HOURS ☐ LESS THAN 24 HOURS

SPECIAL INSTRUCTIONS OR NOTES:

Storm Water NPDES PERMIT SAMPLES

TEMPERATURE ON RECEIPT C°

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	COD - Method 410.4	BOD - Method 405.1	Mercury 1631	Methylmercury 1630	PCBs - Method 608	Total Coliform SM 9221B	E. Coli SM 9223B
	WC - Grab			Aq.	8	X	X	X	X	X	X	X

FIELD NOTES:

Mail report to the invoice address listed above. Email data to:

steravskis@wgr-sw.com

rkoehnen@stocktonport.com

Total Coliform and E. Coli need to be sent to the lab ASAP!

ONLY AN 8 Hour Hold Time.

Sample Containers
2 - VOA with H2SO4 (COD)
1 - 1L poly with no preservative (BOD)
1 - 1L glass with no pres. (608)
2 - 500 ml Glass no pres. / pre-cleaned (1630 & 1631)
2 - 125 ml Poly with Na2S2O3 (9221 & 9223)

TEAM C

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
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12/19/11 Revision

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SITE ADDRESS (Street and City): Port of Stockton

PROJECT CONTACT (Report to): Rita Koehnen

SAMPLER NAME(S) (Print):

LAB USE ONLY

TURNAROUND TIME (BUSINESS DAYS):

☑ 10 DAYS ☐ 5 DAYS ☐ 72 HOURS ☐ 48 HOURS ☐ 24 HOURS ☐ LESS THAN 24 HOURS

SPECIAL INSTRUCTIONS OR NOTES:

STORM WATER NPDES PERMIT SAMPLES
Industrial Areas

TEMPERATURE ON RECEIPT C°

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Total Organic Carbon 415.3	Total Suspended Solids 160.2	Ethanol - 624	BTEX - 624	Ammonia as N- 350.1	Nitrate/Nitrite as N - 300.1	Cam 17- 200.8	TPHD - 8015M	TPHg - 8015M	
	Vehicle and Equipment Maint. Shop			Aq.	9	X	X	X	X	X	X	X			TEAM E
	Vehicle Fueling Area			Aq.	8	X	X	X	X				X	X	TEAM E
	Influent Vehicle and Equipment Maint. Shop			Aq.	3		X				X	X			TEAM E

FIELD NOTES:

Mail report to the invoice address listed above. Email data to:

steravskis@wgr-sw.com

rkoehnen@stocktonport.com

Influent Metals
Only Analyze and Report:
Copper & Zinc

Required containers:
1 - 500 mL amber with H2SO4 (ammomia)
2 - 1 L poly w/ no preservative (TSS)
1 - 250 ml poly no Preserv (NO3)
1 - 250 ml w/ HNO3 (Metals)
8 - VOAs w/ HCl (BTEX / Ethanol)
4 - VOAs w/ HCl (TOC)
1 - 1 L w/ HCl (TPHD)
2 - VOAs w/ HCl (TPHg)

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08/07/09 Revision

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TURNAROUND TIME (BUSINESS DAYS):
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SPECIAL INSTRUCTIONS OR NOTES:
STORM WATER NPDES PERMIT SAMPLES

TEMPERATURE ON RECEIPT C°

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	COD - Method 410.3	BOD - Method 405.0	TDS - Method 160.1	TSS - Method 160.2	Turbidity - Method 180.1	Oil & Grease - Method 1664A	Total Metals - Method 200.8	Ammonia as N - Method 350.1	Nitrate/NitriteasN - Method 300.1	Phosphorus - Method 365.1	Diaz.-Chlorpyr. - Method 525.2 for 507 Target List)	Mercury 1631	Methylmercury 1630	Dioxin & Furan Compounds (1613B)	PCBs - Method 608	TKN - Method 351.2	Triazine Pesticides - Method 507	Organochlorine Pesticides - Method 608	Organophosphorus Pesticides - Method 507	Sulfate - Method 300.1
	RB - Grab			Aq.	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Ambient Blank (Hg)			Aq.	1												X								

FIELD NOTES:

Mail report to the invoice address listed above. Email data to:

steravskis@wgr-sw.com

rkoehnen@stocktonport.com

Mercury needs to be analyzed using detection limits at or below 0.5 ng/L (0.0005 µg/L)

Methylmercury needs to be analyzed using detection limits at or below 0.05 ng/L (0.00005 µg/L)

Metals - 200.8: Al, Sb, As, Ba, Be, Cd, Total Cr, Co, Cu, Pb, Mo, Ni, Se, Ag, Tl, V, Zn

Diazinon and Chloropyrifos need to be analyzed using detection limits of 0.01 µg/L

Cr+6 - Holding Time is 24 hrs.

Sample Containers

2 - VOA with H2SO4 (COD)
1 - 1L poly with no preservative (BOD)
1 - 500 ml Poly with no pres. (TDS)
1 - 1 L Poly with no preservative (TSS)
2 - 250 mL with no preserv. (Nitrate-Sulfate, Turbidity)
1 - 1 L Amber glass with HCl (Oil & Grease)
2 - 250 ml Poly with HNO3 (Metals)
1 - 500 mL with H2SO4 (Ammonia, Total Phosphorus)
1 - 250 mL with no preserv. (Nitrate/ Nitrite as N)
4 - 1 L Amber glass with no preserv. (608, 625, 625LL, Pyrethroids)
3 - 500 mL glass with HCL (1630 & 1631)
3 - 1L Amber glass with no pres. (1613B)
2 - 120 ml Poly with Na2S2O3 (9221 & 9223)
1 - 125 mL with Na2CO3+NaHCO3 (Cr+6)

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09/04/12 Revision

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SAMPLER NAME(S) (Print):

LAB USE ONLY

TURNAROUND TIME (BUSINESS DAYS):
☑ 10 DAYS ☐ 5 DAYS ☐ 72 HOURS ☐ 48 HOURS ☐ 24 HOURS ☐ LESS THAN 24 HOURS

SPECIAL INSTRUCTIONS OR NOTES:

STORM WATER NPDES PERMIT SAMPLES
Up-gradient monitoring

TEMPERATURE ON RECEIPT C°

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	COD - Method 410.4	BOD - Method 405.1	TSS - Method 160.2	TDS - Method 160.1	Oil & Grease - Method 1664	Total Metals - Method 200.8	Ammonia as N - Method 350.1	Nitrate/NitriteasN - Method 300.1	Phosphorus - Method 365.1	Diaz.-Chlorpyr. - Method 525.2 for 507 Target List	Dioxin & Furan Compounds (1613B)	Total Kjeldahl Nitrogen (TKN)	Triazine Pesticides - Method 507	Organochlorine Pesticides - Method 608	Organophosphorus Pesticides - Method 507	Sulfide - Method 376.2	Sulfate - Method 300.1	Sulfur, Total - Method 200.7	Turbidity 180.1	CR6 218.6
	RBI - Composite			Aq.	22	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	RBI - Comp1			Aq.	1					X															
	RBI - Comp2			Aq.	1					X															
	RBI - Comp3			Aq.	1					X															

Cr6 - 24 hr. Holding Time!! - Chlorpyrifos/Diazinon both need 0.01 µg/L MDL

Metals - 200.7/200.8
aluminum, antimony, arsenic, barium, beryllium, cadmium, total chromium, hexavalent chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc.

Discreetly run 3 Oil and Grease Ambers tests to get 3 results. Then calculate to get one COMP result based on ratios given by WGR

FIELD NOTES:

Mail report to the invoice address listed above. Email data to:

steravskis@wgr-sw.com

rkoehnen@stocktonport.com

Sample Containers
2 - VOA with H2SO4 (COD)
1 - 1 L poly with no preservative (BOD)
1 - 1 L Poly with no preservative (TSS)
1 - 500 mL Poly with no preservative (Turbidity)
3 - 1 L Amber glass with no preserv. (507, 625, 608)
2 - 1 L Amber glass with no preserv. (525.2)
1 - 500 ml Poly with no pres. (TDS)
3 - 1 L Amber glass with HCl (Oil & Grease-COMP)
1 - 1 Liter with H2SO4 (Ammonia, Total Phosphorus)
2 - 1 L Amber glass with no preserv. (525.2)
2 - 1L Amber glass with H2SO4 (1613B)
1 - 250 mL with no preserv. (Nitrate/ Nitrite as N)
2 - 500 ml Poly with HNO3 (Metals/Sulfur)
1 - 500 ml Poly with NaOH+ZnAc (Sulfide)
1 - 125 mL with no preserv. (Sulfate)
1 - 1 Liter with H2SO4 (TKN)

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09/04/12 Revision

McCampbell Analytical, Inc.

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CONSULTANT COMPANY: WGR Southwest, Inc.
ADDRESS: 315 W. Pine Street, Suite 8
CITY: Lodi, California 95240
TELEPHONE: (209) 334-5363 FAX: (209) 334-5374 E-MAIL: steravskis@wgr-sw.com

SITE ADDRESS (Street and City): Port of Stockton
PROJECT CONTACT (Report to): Rita Koehnen
CONSULTANT PROJECT NO.: 704.PRI.01
SAMPLER NAME(S) (Print):
LAB USE ONLY

TURNAROUND TIME (BUSINESS DAYS):
☑ 10 DAYS ☐ 5 DAYS ☐ 72 HOURS ☐ 48 HOURS ☐ 24 HOURS ☐ LESS THAN 24 HOURS

SPECIAL INSTRUCTIONS OR NOTES:
STORM WATER NPDES PERMIT SAMPLES

TEMPERATURE ON RECEIPT C°:

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	COD - Method 410.4	BOD - Method 405.1	TSS - Method 160.2	TDS - Method 160.1	Oil & Grease - Method 1664	Total Metals - Method 200.8	Ammonia as N - Method 350.1	Nitrate/NitritteasN - Method 300.1	Phosphorus - Method 365.1	Diaz.-Chlorpyr. - Method 625LL	Dioxin & Furan Compounds (1613B)	PCBs - Method 608	Triazine Pesticides - Method 625	Organochlorine Pesticides - Method 608	Organophosphorus Pesticides - Method 625	Total Kjeldahl Nitrogen (TKN)	E. Coli SM 9223B	Total Coliform SM 9221B	Sulfate - Method 300.1	Sulfur, Total - Method 200.7
	R-5			Aq.	21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

FIELD NOTES:
Mail report to the invoice address listed above. Email data to:
steravskis@wgr-sw.com
rkoehnen@stocktonport.com

Total Coliform and E. Coli need to be sent to the lab ASAP!
ONLY AN 8 Hour Hold Time.

Cr6 - 24 hr. Holding Time!!
Chlorpyrifos/Diazinon both need 0.01 µg/L ML
Mercury needs to be analyzed using detection limits at or below 0.5 ng/L (0.0005 µg/L)
Methylmercury needs to be analyzed using detection limits at or below 0.05 ng/L (0.00005 µg/L)
Metals - 200.7/200.8 - aluminum, antimony, arsenic, barium, beryllium, cadmium, total chromium, hexavalent chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc.

Sample Containers
2 - VOA with H2SO4 (COD)
1 - 125 mL with Na2CO3+NaHCO3 (Cr+6)
2 - 1 L poly with no preservative (BOD, TSS)
1 - 500 ml Poly with no pres. (TDS)
1 - 1 L Amber glass with HCl (Oil & Grease)
1 - 1 Liter with H2SO4 (Ammonia, TKN, Total Phosphorus)
3 - 1 L Amber glass with no preserv. (608, 625LL, 625)
3 - 1L Amber glass with H2SO4 (1613B)
2 - 250 mL with no preserv. (Nitrate-Sulfate, Turbidity)
1 - 500 mL Poly with HNO3 (Metals, Sulfur)
2 - 120 mL Poly with Na2S2O3 (9221 & 9223)
2 - 500 mL glass with HCL (1630 & 1631)

Team E

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09/04/12 Revision

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TELEPHONE: (209) 334-5363 FAX: (209) 334-5374 E-MAIL: steravskis@wgr-sw.com

SITE ADDRESS (Street and City): Port of Stockton

PROJECT CONTACT (Report to): Rita Koehnen

SAMPLER NAME(S) (Print):

LAB USE ONLY

TURNAROUND TIME (BUSINESS DAYS):
☑ 10 DAYS ☐ 5 DAYS ☐ 72 HOURS ☐ 48 HOURS ☐ 24 HOURS ☐ LESS THAN 24 HOURS

SPECIAL INSTRUCTIONS OR NOTES:

TEMPERATURE ON RECEIPT C°

STORM WATER NPDES PERMIT SAMPLES
Industrial Areas

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Total Organic Carbon 415.3	Total Suspended Solids 160.2	Ethanol - 624	BTEX - 624	Ammonia as N- 350.1	Nitrate/Nitrite as N - 300.1	Cam 17- 200.8	
	Equipment Wash Pad			Aq.	9	X	X	X	X	X	X	X	TEAM D (or coordinator)
	Fertilizer Warehouse and Unloading Areas			Aq.	9	X	X	X	X	X	X	X	TEAM D (or coordinator)

FIELD NOTES:

Mail report to the invoice address listed above. Email data to:

steravskis@wgr-sw.com

rkoehnen@stocktonport.com

Required containers:
2 - 500 mL amber with H2SO4 (ammomia)
2 - 1 L poly w/ no preservative (TSS)
2 - 250 ml poly no Preserv (NO3)
4 - 250 ml w/ HNO3 (Metals)
8 - VOAs w/ HCl (BTEX / Ethanol)
4 - VOAs w/ HCl (TOC)

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

08/07/09 Revision

Appendix C

- **Storm Water Sampling Chart**

Stormwater Sampling Chart - Port of Stockton

Constituent	EPA Test Method	WGR Sample Container	WGR Preservative	Holding Times
TPHg	EPA Method 8015M	3 VOAs	HCl	14 days
TPHd	EPA Method 8015M	1L	HCl (or no)	7 days
MTBE (VOC)	EPA Method 602	3 VOAs	HCl	14 days
VOC's	EPA Method 624	3 VOAs	HCl	14 days
Semi-VOC's	EPA Method 625	1-1L Amber glass	No Preservative	7 days
BTEX (VOCs)	EPA Method 602	3 VOAs	HCl	14 days
PCB's (SVOC)	EPA Method 608	1-1L Amber glass	No Preservative	7 days
PNA (SVOC)	EPA Method 608	1-1L Amber glass	No Preservative	7 days
Oil and Grease	EPA Method 413.1	1-1L Amber glass	HCl	28 days
Ethanol (VOC)	EPA Method 624	3 VOAs	HCl	14 days
Total Metals*	EPA Method 200.8	1-500 mL Poly	HNO_3	28 days
Dissolved Al	EPA Method 200.8	1-250 mL Poly (24-hr.)	No Preservative	28 days
Mercury	EPA Method 245.2	1-500 mL Poly	HNO_3	28 days
Methylmercury	EPA Method E1630	1-500 mL Amber glass	HCl	28 days
Hexavalent Chromium	EPA Method 218.6	2-40 mL VOAs (24-hr.)	No Preservative	24 hours
*also CAM 17/heavy metals/etc.	EPA Method 200.8	1-500 mL Poly	HNO_3	28 days
TDS	EPA Method 160.1	1-L Poly	No Preservative	7 days
TSS	EPA Method 160.2	1-L Poly	No Preservative	7 days
Turbidity	EPA Method 180.1	1-100 mL Poly	No Preservative	48 hours
Hardness	EPA Method 200.7	1-100 mL Poly	HNO_3	6 months
Specific Conductance	EPA Method 120.1	1-500 mL Poly	No Preservative	28 days
Conductivity	EPA Method 120.1	1-500 mL Poly	No Preservative	28 days
pH	EPA Method 150.1	1-100 mL Poly	No Preservative	15 minutes
COD	EPA Method 410.4	2-40 mL VOAs	H_2SO_4	28 days
BOD	EPA Method 405.1	1-L Poly	No Preservative	48 hours
TOC	EPA Method 415.3	2-40 mL VOAs	HCl	28 days
Total Coliform Bacteria	EPA Method 9223B	1-120 mL Sterile Plastic	$Na_2S_2O_3$	8 hours
Fecal Coliform Bacteria	EPA Method 9221E	1-120 mL Sterile Plastic	$Na_2S_2O_3$	8 hours
Ammonia	EPA Method 350.1	1-500 mL Amber glass	H_2SO_4	28 days
Ammonia Nitrate	EPA Method 350.3	1-500 mL Amber glass	H_2SO_4	28 days
Nitrogen as TKN	EPA Method 351.2	1-500 mL Amber glass	H_2SO_4	28 days
Nitrate/Nitrite	EPA Method 300.1	1-500 mL Poly	No Preservative	28 days
Phosphorus	EPA Method 365.1	1-500 mL Amber glass	H_2SO_4	6 months
Sulfate	EPA Method 300.0	1-500 mL Poly	No Preservative	28 days
Sulfide	EPA Method 376.2	1-500 mL Poly	NaOH + ZnAc	7 days
Sulfur	EPA Method 415.1m	1-500 mL Poly	HNO_3	6 months
Carbamates	EPA Method 8318M	2 amber VOAs	HCl	NS
Organochlorine Pesticides	EPA Method 608	1-1L Amber glass	No Preservative	NS
Organophosphorus Pesticides	EPA Method 507	1-1L Amber glass	No Preservative	NS
Triazine Pesticides	EPA Method 507	1-1L Amber glass	No Preservative	NS
Diazinon & Chlorpyrifos	EPA Method 525.2 SIM	1-1L Amber glass	No Preservative	7 days
Chlorophenoxyacid Herbicides	EPA Method 515.3	1-1L Amber glass	No Preservative	NS
Dioxins & Furan Compounds	EPA Method 613	2-1L Amber glass	No Preservative	30 days

Appendix D

- **McCampbell Analytical Inc. – Quality Assurance Program Manual**
  - **See MAI laboratory handbook in attached CD**

McCAMPBELL ANALYTICAL INC.
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Website: www.mccampbell.com • E-mail: main@mccampbell.com

IX Quality Assurance Program

For

McCampbell Analytical Incorporated

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Table of Contents

Title Page	
Organization, Responsibility and Goals	A
Chain of Custody for Samples	B
Maintenance and Calibration of Simple Machines	C
Analytical Procedures	D
GC, GC-MS, HPLC, IC and IR Analyses	D1
Metals	D2
Wet Chemistry Test	E
Bacterial Testing (SM9020-9060, SM9223B, Idexx SIM Plate, Idexx Enterolert)	F
Data Reduction and Reporting	G
Internal Quality Control Checks	H
External Quality Control Checks	H
Chemical Standards and Reagents	I
Confidentiality of Data	J
Corrective Actions	K
Error Log	L
Staff Training	M
Client Feedback	N
Quality Assurance Reports	O

A. Organization, Responsibility and Goals

McCampbell Analytical currently has a staff of approximately fifty. The lab director Edward Hamilton, lab manager Angela Rydelius, QC Officer Shino Hamilton, and shift supervisors Oanh Cao & Phuong Doan share final responsibility for all decisions.

Our goal is generate scientifically valid & reproducible data using published technical protocols, including EPA, SSSA, AOAC, ASTM & other methodologies. When discrepant data arises, that is data that is serially inconsistent or is inconsistent with different but related test methodologies, we will investigate the cause, including reanalysis & re-extraction of the sample, until arriving at a conclusion as to the cause of the discrepancy & the probability of which data are correct. If there is a probability of lab error we will revise our published data. If there is a probability of sampling error we will inform the sample submitter. If there is a probability of sample inhomogeneity we will average the data & we will publish either the entire data or averaged value & flag the data as such. Our goal to generate scientifically valid & reproducible data & these procedures guide our lab towards publishing only unbiased & scientifically valid data that is free from third party influence.

The lab and QA managers are also responsible for data review and have the authority to approve or disapprove specific analyses and final reports. Periodically lab and QA mangers will review internal documents including but not limited to SOP's, Published methods, etc and if and when deemed necessary will revise and or update to ensure continuing suitability and compliance with applicable requirements. In addition, any documents that are outdated and or superceded will be replaced by the updated document; the superceded document will be stored in our "Obsolete" folder and will no longer be used within the laboratory; this in effort of diminishing any unintended use. Obsolete documents are stored in the "Obsolete" folder and are available at any time for review at the request of an interested party. Lab and QA managers are responsible for advising on all aspects of QA/QC including: assuring proper QA/QC procedures are employed during data generation; periodically reviewing QA/QC procedures; and, if problems are detected, making recommendations to ensure that appropriate corrective actions are taken. Our QA officer reviews all QC data prior to its release to our clients.

The Supervisory Chemists are considered competent and proficient in a wide variety of analyses and instrument troubleshooting / repair and serve as technical advisors to the less experienced technicians and chemists. They are responsible for training new employees and ensuring that analytical methods and instruments are working properly. Other chemists and technicians may also be experienced and proficient enough to conduct training and instrument troubleshooting and maintenance but are generally knowledgeable in fewer analyses.

Veteran employees train the new employees. Training includes hands-on instrumental operation, becoming familiar with the appropriate SOPs and completing a satisfactory initial demonstration of proficiency. In addition, the trainer

will review the trainee's data until proficiency has been established. Proficiency is defined as being able to independently and satisfactorily perform an analysis error free for a period of two weeks to one month.

The pursuit of quality is one of the primary goals of this laboratory and this document outlines some of the specific steps taken to achieve this goal. While no QA program can achieve absolute perfection, the identification of problems and subsequent corrective actions will move the laboratory steadily towards this goal.

B. Chain of Custody for Samples

Samples shall be delivered to the lab by the contractor or a third party, and will not be collected in the field by McCampbell Analytical personnel. The chain of custody will record the following:

a) the time and date of sampling and the sampler's signature,
b) the time and date when the samples were relinquished to the lab,
c) the signatures of persons who relinquished and received the samples,
d) a description of each sample matrix,
e) a unique identifier for each sample,
f) the type of analysis requested,
g) a description of the condition of the samples, for example, whether or not they were kept cool, the presence of head space, preservatives, or the smell of fuel products, and,
h) client name;
i) for bacteriological tests the sample type (repeat positive, repeat invalid,...) water type (drinking, surface, effluent, recreational – marine, 'not-for-compliance') and collection time to the minute shall be recorded because they are required for protocol compliance;
j) for drinking water testing, the name of the drinking water facility must be given;
k) any initial in lab processing or testing of the sample, such as filtration, addition of preservative, confirmation of low pH or the absence of chlorine, shall be recorded on the COC.

Additional useful information includes Client Contact name, Project ID, TAT, billing, phone, fax and email information.

Clients shall be informed immediately of any sample identity discrepancies between the COC and actual sample container, or if hold time, preservatives, or containers are invalid, or if sampling times are not present on the COC, or if testing instructions are ambiguous.

Samples may be couriered to the lab by a third party service. In such instances, the courier must formally receive and relinquish the samples by signing the COC. Some courier companies such as FedEx, UPS and CA Overnite will not participate in the chain of receiving and relinquishing and MAI recommends that the client seal the cooler with a tamper

proof seal prior to shipment. In such instances, MAI personnel will note on the COC the name of the courier service, and if found true by observation, that the samples were received sealed and intact.

Our laboratory shall note the following on the sample's chain of custody: ice, head space, appropriate containers, preservative, sample handling procedures prior to sample storage such as dechlorination and filtration, and approximate sediment content of each water sample. The sediment content of a water sample is based upon observation of one randomly chosen or more of its clear and transparent containers. Dissolved metals rather than total metals shall be assumed for the analysis of water samples containing significant sediment unless otherwise specified on the COC. It will be noted on the chain of custody if samples are removed from the lab.

Log In staff shall clarify with client ASAP any ambiguities they find upon receipt of new COCs. They shall determine whether a particular test will be performed in house or sub-contracted to another lab, & shall ascertain by consultation with the lab manager or staff chemists whether we have the capability and capacity to meet the clients analytical needs & TATs.

Each sample will be assigned a unique number, which will be used to identify it within the laboratory. Once the sample is given a lab ID, the sample is either refrigerated when required by method or given to our extraction department, depending upon the flow of work within the lab. When the extraction department is finished with the sample it is returned to a refrigerator or other appropriate storage area. Our staff is trained to not allow any sample requiring refrigeration to remain un-refrigerated longer than is necessary, with a maximum time of 2 hours. Samples are handled in accordance with regulations set forth by the State of California and the federal government, the EPA, the LUFT manual, SW-846 and other publications.

Samples will be stored for a minimum of one month, and are stored separately from the standards. Water and soil blanks will be placed in refrigerators that contain samples in order to assess the possibility of vapor phase cross contamination. Samples will be discarded in accordance with local, state and federal regulations.

C. Maintenance and Calibration of Simple Machines

Refrigerator and Freezer temperatures will be recorded daily and drying ovens as used. The thermostats of these appliances will be adjusted as necessary to maintain their working range, or the equipment repaired or replaced.
The accuracy of the gravimetric balance will be checked monthly against class S weights and a record kept of these measurements. The manufacturer will be consulted for corrective action if discrepancies greater than 2% are observed.
All pipettes will be tested for accuracy monthly. Pipettes with an error greater than 2% will be refurbished or replaced.
Method specified rotation rates (rpms) will be verified annually for rotating extraction devices.
Autoclaves will be tested periodically for sterility, maximum temperature and timer accuracy. Results will be recorded and corrective action taken if necessary.

Incubators will be tested periodically for sterility and temperature accuracy. Results will be recorded and corrective action taken if necessary.

All measuring devices used to record temperatures, weights & volumes, including thermometers, balances & volumetric devices, shall be periodically calibrated against traceable standards, and this calibration documented.

D. Analytical Procedures

The analytical procedures and methodologies that are used here are described in EPA SW-846, 600/4-79-020, 600/4-84-017, 600/4-82-057, CFR40 (parts 260-299), Standard Methods for the Examination of Water & Wastewater, the California LUFT manual, and California State Title 22 as well as other published paper and internet documents. When ambiguity exists in these sources, common sense and good scientific practices are followed.

1. GC, GC-MS, HPLC, IC and IR Analyses

TPH (g/ss) (8015), volatile aromatics (8020/ 602), volatile halocarbons (8021/ 8010/ 601/ 502) and VOCs (8240/ 8260/624/ 524) solids and liquids are direct loaded or extracted with methanol, polyethylene glycol or other suitable solvents. Semi-volatiles including TPH (d/k/mo) (8015), Oil & Grease (SM5520), TRPH (418.1), EDB-DBCP-TCPA (504.1/8011), endothall (548), phenyl ureas (532), Diquat-Paraquat (549.2), PNAs (550/ 550.1/ 8310), HAAs (552.1/ 552.2),aldehydes / carbonyls (554/ 8315), anions (300.0/ 300.1), hexachrome (218.6), perchlorate (314.0), chlorinated pesticides and PCBs (8082/ 8081/ 608/ 505/ 508), SVOCs (8270/ 625/ 525/ 526/ 528), NP pesticides (8141/ 507), nitroaromatics & nitramines (8330), chlorinated herbicides (8151/ 515) solids and liquids are solid-liquid, liquid-liquid, or liquid-SPE extracted with methylene chloride, hexane, diethylether, acetone, MTBE, deionized water, or trichlorotrifluoroethane according to EPA methods 3510, 3520, 3550, 418.1 or the relevant analytical method and derivitized when proscribed by the method. Volatiles are analyzed using purge & trap (EPA method 5030) or whole container (EPA method 5035) methodology. Aqueous samples testing for acrolein-acrylonitrile-acrylamide (8316), glyphosate (547), carbamates (531.1/ 8318), anions (300.0/ 300.1) or hexachrome (218.6) are filtered and directly loaded for HPLC analysis; glyphosate and carbamates, as proscribed by method, are derivitized on line prior to detection. These procedures are documented in our company SOPs, which are derived from published methods.

Two separate standards, each made from a stock standard having a different lot number or manufacturer, are utilized. One stock standard is used to calibrate the instrument and to prepare daily matrix spikes and LCS QC, and may be used for the CCV if a second source standard (ERS) is also analyzed. The CCV will be run daily to confirm that the instrument is still within calibration. This system ensures high quality data by spotting inaccurately prepared (by the manufacturer or analyst) or "aged" standards. A standards logbook will be kept detailing the preparation of working standards and uniquely identifying them.

The variability of gasoline and diesel preclude the use of multi-source standards. However the constancy over time of the FID detector's response is assessed by comparison of the historical calibration to the daily standard and to the matrix spikes.

CCV acceptance criteria vary by method; for example hexachrome (218.6) is ±5%, EPA GC 8000 series are ±15%, drinking water chromatography range from ±10-20%, and are found in their respective SOPs.

The GC's are calibrated using a minimum of five concentrations of the same standard. The highest concentration defines the upper working range of the calibration while the lowest concentration equals the working instrumental detection limit. A linear calibration is typically used for all compounds and is considered acceptable if the %RSD of the CF or RF of each target analyte is ≤ 20% as required by the CA DHS and federal EPA. Alternatively, a non-linear calibration may be used. A non-linear calibration is considered acceptable if the coefficient of determination (COD) for each target analyte is ≥ 0.99.

Many GC / LC methods, especially those pertaining to drinking water (504.1, 505, 508, 508.1, 515.x, 524.2, 525.2) but also 8081, 8260, 8270, 314.0 & others, require special LPC (Laboratory Performance Check standards) to be analyzed and passed prior to the analysis of samples. The procedural details, acceptance criteria and corrective actions are found in the relevant SOPs.

A blank shall be run initially and a daily mid-level standard (continuing calibration verification standards) initially and approximately every 10 samples or 12 hours and evaluated against method criteria. Corrective action includes re-analysis and/ or the instrument re-calibration.

Surrogate standards, when known, are added prior to extraction; this encompasses most of these analyses. Matrix spike and surrogate recoveries must fall within the ranges outlined in the method or corrective action will be taken.

The techniques for quantitating and resolving complex chlorinated mixtures are detailed in EPA method 8081. Dual column confirmation will be done on all positive pesticide samples and will be done on positive volatile analytes (non-GC-MS methods) by request. Dual detector confirmation (example PID-FID or PID-ELCD) is present for most volatile analytes.

EPA methods 8240/ 8260/ 624/ 524 shall be run as follows. A historical five-point calibration shall be conducted. Three surrogates and three internal standards are added to each injection. The system performance check compounds, SPCCs (chloromethane, 1,1-dichloroethane, bromoform, 1,1,2,2-tetrachloroethane, chlorobenzene) must have RRFs ≤ 0.1, 0.1, 0.25, 0.3, 0.3, respectively, and the calibration check compounds, CCCs (1,1-dichloroethene, chloroform, 1,2-dichloropropane, toluene, ethylbenzene, vinyl chloride) must have %RSDs < 30% in order that the calibration be valid.

On a daily basis, the MS is tuned and the mass ratios shown in method 8240 for BFB must be met initially and after every 12 hours (8 hours for 524) of analysis. A mid-range daily standard will be run after 12 hours of analysis; the above-mentioned SPCC criteria must be met and the CCCs must be within 20% of their daily calibration values for the run to continue. Additional continuance criteria are that any internal standard's retention time must not have changed by more than 30 seconds or its area by a factor of two from that last daily calibration unless by design (tuning or column shortening). Criteria for qualitative and tentative identification and quantitation of a compound are detailed in EPA method 8240. Each analyst will demonstrate their capability through a precision and accuracy study of four QC samples as outlined in the method. Matrix spike and surrogate recoveries must fall within the ranges outlined in the method or corrective action will be taken.

EPA methods 8270/ 625/ 525/ 526/ 528 shall be run as follows. A historical five-point calibration shall be conducted. Each injection will contain the six recommended internal and six recommended surrogate standards. The MS will be tuned to fulfill the method criteria for DFTPP before a run can be initiated. The system performance check compounds, SPCCs (N-nitroso-di-n-propylamine, hexachlorocyclopentadiene, 2,4-dinitro-phenol, 4-nitrophenol) must have RRFs $\geq$ 0.05, and the calibration check compounds, CCCs (see method 8270) must have % RSDs $<$ 30% in order that the calibration be valid. On a daily basis, the MS is tuned and the mass ratios shown in method 8270 for DFTPP must be met initially and after 12 hours (8 hours for 525/ 526/ 528) of analysis. A mid-range daily standard will be run after 12 hours of analysis; the above-mentioned SPCC criteria must be met and the CCCs must be within 20% of their daily calibration values for the run to continue. Additional continuance criteria are that any internal standard's retention time must not have changed by more than 30 seconds or its area by a factor of two from that last daily calibration unless by design (tuning or column shortening). Criteria for qualitative and tentative identification and quantitation of a compound are detailed in EPA method 8270. Each analyst will demonstrate their capability through a precision and accuracy study of four QC samples as outlined in the method or corrective action will be taken.

For GC and IR analyses in general, a daily LCS and LCSD (and matrix spike and spike duplicate when sufficient sample containers are provided) will be analyzed every 20 samples for each matrix being analyzed on a given instrument. The quantitated value of LCS, LCSD, spike and spike duplicate must be within 60-140% recovery or the method acceptance criteria, whichever is more stringent. One method blank must also be run initially for that day's sequence. A volatiles water/air blank is reagent grade water defined as tap water that has been brought to a rolling boil for 30 minutes, cooled and continuously purged with N_2. Method blanks must contain less than the reporting limit of each method analyte. In the event that any of the CCVs or QC samples fail their criteria they should be immediately reanalyzed. If they continue to fail, an investigation must be conducted to determine the root cause and the sequence scrutinized for validity by an independent QA officer. Some data may be usable depending on the type and severity of the problem. Corrective action should be taken to resolve the problem and the instrument recalibrated if necessary. If it is determined that there is unusable data, the affected samples will need to be reanalyzed in a new sequence.

The failure of standards, surrogates or QC to fall within accepted ranges is not the only criteria for rerunning samples. The suspicion of contamination arising from the previously injected sample, the previous sample in the same purge & trap vessel / port position, or contamination that exists instrument-wide in flow pathways or valves, or the analyte concentration being greater than the highest calibration standard will necessitate that the effected sample(s) be rerun.

The statistical analysis of replicate samples will be used to determine the minimum detection limit for each individual and group analyte and for external standard methods to determine relative retention time windows, as outlined in chapter one and method 8000 of SW-846. An initial demonstration of proficiency will be conducted for each instrument to assess the precision and accuracy of the instrument and operator. On a daily basis, precision and accuracy are found by comparison of the spike and spike duplicate or a chosen sample and its duplicate.

Records shall be kept of all this data for each instrument and updated as new information is generated. This data will be analyzed for trends that may indicate the onset of problems.

2. Metals

Soil, sludge and water samples for metals analysis are digested using EPA methods (200.7, 200.8, 200.9, 3005, 3010, 3020, 3040, 3050, 6020B method 245.2/ 7470/ 245.7/ 1631F for mercury) and analyzed according to EPA methods in 600/4-79-020, SW-846 and elsewhere and documented in our company SOPs.

In general, MAI uses EPA 200.7/ 200.8/ 200.9 for metals in water matrix and 7010/ 6010B/ 6020A for analyzing metals in solids, sludge, and other non-aqueous matrices. EPA 1631E (AFS) is used for ultra low level Hg in water.

All atomic absorption methods (FAA, GFAA, HGAA, CVAA) will run in the following manner. Each run will be preceded by a minimum three-point calibration and a blank, followed by an independent check standard (± 15% of the calibration curve), followed by samples. A mid-point calibration standard will be run after each set of 10 samples and at the end of each run. A matrix-spike, spike-duplicate, reagent-blank and one serial dilution will be analyzed with each batch (or 20 samples). Background correction will be used unless it is known to degrade the quality of results. All GFAA standards and samples will be matrix matched to whenever possible.

ICP will be run as follows. An initial 5-point calibration will be performed for each metal to define its range of linearity. On a daily basis, a single mid-point standard will be run to "re-slope" the calibration curve, followed by a blank and an instrument performance check standard. The instrument performance check standard must be within 5% of its true value before the run can proceed. A matrix-spike, spike-duplicate and reagent-blank will be analyzed with each batch (or 20 samples). A mid-point calibration standard and calibration blank will be run after each set of 10 samples and at the end of each run. The standard must be ± 10% of the true value and the calibration blank must be below the RL for all

elements for the run to proceed. An ERS standard must be analyzed once per run and must be ± 10% of the true value. Appropriate background corrections will be made for each element.

ICP-MS will be run as follows. On a daily basis, a tune must be performed for all three modes and each pass the relevant criteria outlined in the SOP for 6010B. A 5-point calibration will be performed for each metal at the beginning of each sequence to define its response factor and range of linearity. A minimum of 3 IS must be used for a full mass range scan and each must exhibit 60-125% recovery of the values found in the calibration blank (200.8). If the IS recovery is <30% "and the cause is not due to instrument drift" then the sample must be diluted and reanalyzed until >70% IS recovery is achieved (6020B). An internal standard should be no more than 50 amu removed from the analyte. A CCV must be analyzed initially, after every 10 samples, and at the end of the run to verify the calibration curve, and must be within 10% of its true value. It is followed in each instance by a reagent blank which must be below the RL for each element. At a minimum 3 replicates of each standard and sample must be analyzed and averaged. An LCS-LCSD (± 15% for 200.8 / waters, ± 25% & RSD<20% for 6020B / solids), MS-MSD (± 30% if spike > 30% of sample for 200.8 / waters, ± 25% & RSD<20% for 6020B / solids), and reagent-blank will be analyzed with each batch (or 20 samples). A mid-point calibration standard and calibration blank will be run after each set of 10 samples and at the end of each run. The standard must be ± 10% of the true value and the calibration blank must be below the RL for all elements for the run to proceed. An ERS standard must be analyzed once per run and must be ± 10% of the true value. For each element, all interfering masses must be monitored and isobaric correction equations used when appropriate. The Interference check standard, ICS (see 6010B SOP), must be analyzed initially and every 12 hours to demonstrate the magnitude of elemental and molecular ion isobaric interferences and the adequacy of any corrections used. The percent of interference correction applied to reported data using an interference equation must be stated in the analytical report. One dilution test (1:5 serial dilution) must be included for each batch of each matrix and must be within 10% agreement. HCl must be integral to all digestions that are analyzed for Hg.

EPA 1631E, Hg by AFS, will be run as follows. A statistical MDL study must be performed initially and yield an MDL < 0.2 ng/L or MDL < 1/3 regulating limit, whichever is greater. An initial precision and recovery (IPR) should be performed by analyzing 4 replicates of the calibration standard at a concentration of 5 ng/L Hg in reagent water. Percent recoveries must be 79-121% and RSD ≤ 21%. MAI will test one new bottle blank per lot.

A batch is a set of up to 20 samples oxidized with the same batch of reagents, and analyzed during the same 12-hour shift. Each batch must be accompanied by 3 system blanks (< 0.50 ng/L Hg) which precede the calibration. The calibration must contain a minimum of 5 non-zero points (ex: 0.5, 5, 25, 50, 100 ng/L) and the results of analysis of 3 system blanks, and must be performed at a minimum every 12 hours. The lowest calibration point must be at the minimum level (ML). If the average RSD ≤ 15% and the recovery of the lowest standard is in the range of 75-125%, the calibration is acceptable.

Analyze 5 ng/L CCV (=OPR) solution prior to the analysis of each analytical sample batch, every 12 hours, and at the end of each analytical sequence. The recovery must be 77-123%for the run to proceed. The ERS (=QCS) should be analyzed at the beginning of each batch following the CCV. At least 3 method blanks (<0.5 ng/L) should be analyzed per batch and there must be 1 MS and 1 MSD sample for every 10 samples (71-125% recovery, RPD 71-125% but may exceed this range if the subsequent OPR (=CCV) passes. The RPD for MS-MSD pair must be ≤ 24%, but may exceed this range if the subsequent CCV passes. Field blanks are required at a frequency no less than 1 per 10 samples. Field duplicates, if taken, should have RPD < 20% or the sampling personnel should be alerted

The statistical analysis of replicate samples will be used to determine the minimum detection limit for each individual and group analyte. Records shall be kept of all QC data for each element and updated as new information is generated. This data will be analyzed for trends that may indicate the onset of problems.

E. Wet Chemistry Tests

Acidity, alkalinity, ammonia, BOD, TOC, NPOC, IC, titrimetric Cl^-, residual chlorine, COD, color, cyanide, dissolved O_2, MBAS, hardness, Karl Fisher water, colorimetric nitrate-nitrite, TKN, total N (combustion, UV-persulfate, summation of forms), odor, total P, paint filter test, phenolics, physical properties, RCI, redox potential, settleable solids, sulfide, TDS, TSS, TS, TVS, turbidity, UV_{254}, pH, 5520 Oil & Grease, specific conductivity, colorimetric hexachrome, ignitability and other miscellaneous tests that are conducted here are performed in accordance with their methods outlined in EPA SW-846, 600/4-84-017, 600/4-82-057, CRF40 (parts 260-299), Standards Methods for the Examination of Water & Wastewater, the California LUFT manual, and the California State Title 22 and detailed in our SOPs. In general, for all QC, a matrix-spike, spike-duplicate and blank are analyzed every 20 samples. The quantitated value of both spike and spike duplicate must be within 60-140% recovery. One method blank must also be run for each matrix being analyzed on that day's sequence and must be less than the reporting limit. Where the analytical technique or sample is not amenable to spiking then one out of every ten samples will be analyzed in duplicate or by serial dilution.

When the analysis requires a calibration curve (cyanide, TOC, NPOC, ammonia, etc) a five point calibration is performed with low standard defining the minimum RL and the high standard the upper working range and a CCV is analyzed every 10 samples and at the end of the run. Acceptance criteria are generally ±15% for the CCV but method specific values are given in their respective SOPs. An initial MDL study and operator precision package are performed and statistically analyzed for the IDOC.

F. Bacteriological Testing (SM 9020-9060, SM9223B, Idexx SIM plate, Idexx Enterolert)

The type of water, such as drinking (chlorinated or non-chlorinated specified), ground water, effluent, waste water for disposal, surface waters (lacustrine, estuarine, marine, fluvial, urban), recreational waters (marine or fresh), storm water

run off, etc. must be specified because hold time and analytical protocols may follow. The sample category, whether routine, repeat, repeat positive, or repeat invalid should be recorded on the COC.
If chlorinated, samples must be dechlorinated at the time of sample collection by having a dechlorinating agent (100mg/L sodium thiosulfate) present in the sample container.

Samples must be stored at <10°C for transit times > 1 hour and refrigerated for lab storage. Potable waters (drinking water) must be analyzed within 30 hours of collection for coliform and 8 hours for HPC for compliance purposes. Non-potable water (source water, stream pollution, recreational water, waste water) has a maximum specified transport time of 6 hours from time of collection and should be processed by the lab within 2 hours of receipt for an 8 hour total hold time. Other water types for non-compliance purposes are to be held at <10°C during transport and storage and analyzed within 24 hours of collection. The date and time that the analysis was begun MUST be on the report for the purposes of hold time compliance.

Conduct 'Use test' for each new batch of materials, for sterility, and for inhibitors as described in the SOP, in particular monitor each new sample container lot, EST (Enzyme Substrate Technology) container lot, and reagent lot.
Each water sample MUST be shaken vigorously about 25X before analysis. Monitor incubator temperature 2X daily, > 4 hours apart. Perform duplicate analyses on at least 10% of the samples or one time per week if less than 10 samples per week are analyzed. Include known positive culture as QC tests, once per quarter if no sample positives.

For HPC always analyze a sterility control with each batch. Bottled water must be incubated for 72 rather than 48 hours.

Invalid samples (hold time, technical problems) MUST be repeated, sampled within 24 hours for compliance purposes.

G. Data Reduction and Reporting

Data will be acquired from all instruments using the manufacturers software, Agilent ChemStation or a LIMS system and analyzed by user-set methods. Formula for external and internal standard calculations are used that is identical to those found in method 8000 of SW-846. The chromatograms are scrutinized and the quantitations are reviewed before being reported in a run log or sent on to the LIMS. High values are double-checked for calculation mistakes and low values for the possibility of contamination. Raw data is converted to standard reporting units by the usual method of numerator and denominator unit cancellation. The lab manager gives the report the final review, before the data is sent via mail, email or faxed to the client.

It is our standard procedure to protect and back up all of our electronic records. In order for an employee to access or use LIMS they must have a user password or code; each code and password are unique. This is done in effort of minimizing unauthorized use of the system and any manipulation of data/records. Raw data from ChemStation is backed to a CD. Duplicate copies are made of the CD's, one set is stored in the lab for chemist convenience; the other

set is stored in high capacity hard drive and placed in a safe box to prevent from disaster. All records, including but not limited to instrumental raw data, run logs, analytical reports, instrument maintenance logs, standard logs and QA documents will be retained in the lab for a period of seven years. Records older than seven years will be destroyed.

Our goal is generate scientifically valid & reproducible data using published technical protocols. When discrepant data arises, that is data that is serially inconsistent or is inconsistent with different but related test methodologies, we will investigate the cause, including reanalysis & re-extraction of the sample, until arriving at a conclusion as to the cause of the discrepancy & the probability of which data are correct. If there is a probability of lab error we will revise our published data. If there is a probability of sampling error we will inform the sample submitter. If there is a probability of sample inhomogeneity we will average the data & we will publish either the entire data or averaged value & flag the data as such. Clients will occasionally contest the results of a specific sample and the subsequent re-analysis of this sample provides further feedback on the quality of analytical work. If re-analysis shows that the lab's original results are in error, then the analysis is free of charge and corrective action will be taken. If and when ethical concerns issues arise; it is immediately brought to the attention of both QA and laboratory management for further investigation. Together they will work towards resolving the matter. We strive towards publishing only unbiased & scientifically valid data that is free from third party influence.

H. Internal Quality Control Checks

QC, standards, blanks, method performance check standards, surrogates and internal standards are examined daily within each analytical batch or sequence and evaluated against their acceptance criteria, and corrective action taken if needed. These parameters are plotted & their graphs examined on a regular basis to determine trends & anticipate problems.

MAI has a dedicated internal QC officer who reviews all QC data, monitors QC compliance with established and method specified criteria. They report their findings to the lab manager & lab director.

When needed, and in consultation with the lab managers, the QA officer may implement new quality control procedures on a laboratory-wide or group basis.

External Quality Control Checks

QC samples are solicited from clients and are welcomed from governmental agencies in an ongoing effort to maintain and improve analytical quality. NVLAP & CA certified third party external performance evaluation samples are tested as an external QC check at a minimum of once per year for water and soil (when available) matrices. Our results for these blind QC samples are reported to the third party supplier who evaluates them against their true values, and reports this data and acceptance criteria ranges to MAI and the California DHS / ELAP. These reports are available for review upon request and will at a future time be published on our website for client access. External audits of our lab are performed by state agencies and other third party accreditors, as well as by our clients, and are welcomed. Complete supporting data (calibrations, CCVs, MB, QC, PCS & chromatograms / instrument records) are available to our clients when they want to audit particular data sets.

I. Chemical Standards & Reagents

Chemical standards and reagents are stored in a computerized log and identified with consistent numeclacier. Our goal and practice is to use one lot number or manufacturer, for CCV, QC or both. Our reagents/consumable materials are purchased through our known vendors. These reagents/consumables are tested to make sure that they meet our requirements and are compatible with our machines, this in effort to get the best results.

J. Confidentiality of Data

It is our policy not to release any data to third parties without the client's authorization. When asked for data by a third party we must first obtain our client's permission before releasing data. Data that is electronically transmitted by fax or email contains a confidentiality notice directing any unintended recipient to inform us of our error & destroy the received documents. Electronically stored data within the lab's computer network is protected by firewall security.
We will comply with any written request by a client or government agency to maintain strict confidentiality regarding any data or techniques that are proprietary or matters of national security. The agreement must be in writing & will be signed by all pertinent parties within the lab.

K. Corrective Actions

Errors, deficiencies and data that do not pass acceptance criteria will be investigated. Some of these instances may require corrective actions. These corrective actions will be documented in appropriate locations including instrument-specific maintenance logs, run logs and the company error log. Clients will occasionally contest the results of a specific sample and the subsequent re-analysis of this sample provides further feedback on the quality of analytical work. If re-analysis shows that the lab's original results are in error, then the analysis is free of charge and corrective action will be taken. An overall lab error log is kept as record of our laboratory's performance and is available for client inspection.

L. Error Log

We keep an error log of mistakes that we have made, in terms of reported data, log in, hold time or service errors. This helps us track the relative error rate of the lab overall.

M. Staff Training

Staff that is well trained is essential to the error free operation of the laboratory & to the generation of high quality analytical data. A training document is signed by each chemist attesting that they have been adequately trained; and have read and understand the laboratory SOPs and published methods and they will conduct analysis according the method criteria. All method criteria, whether for CCV, calibration, method blanks, performance check standards, & quality control are readily available to all in a convenient format. When method criteria do not exist we define in house acceptance criteria.

If method criteria cannot be met chemists are required to bring the matter to the attention of a supervisor for remedial action.

We have laboratory SOP's and published methods in proximity to each chemist. Each chemist is instilled with the philosophy that "We are not in the business of guessing, we are in the business or certainty." As such any questions that they have regarding data acceptability, suitability, or procedures must be brought to the attention of a higher authority that can resolve any questions.

The Supervisory Chemists are considered competent and proficient in a wide variety of analyses and instrument troubleshooting / repair and serve as technical advisors to the less experienced technicians and chemists. They are responsible for training new employees and ensuring that analytical methods and instruments are working properly. Other chemists and technicians may also be experienced and proficient enough to conduct training and instrument troubleshooting and maintenance but are generally knowledgeable in fewer analyses.

Veteran employees are in charge of training new employees. Training includes hands-on instrumental operation, becoming familiar with the appropriate SOPs and published methods and completing a satisfactory initial demonstration of proficiency. A training check list is signed by all chemists. In addition, the trainer will review the trainee's data until proficiency has been established. Proficiency is defined as being able to independently and satisfactorily perform an analysis error free for a period of two weeks to one month.

Our staff is trained to look for discrepant data & to examine as fully as is needed to characterize its source.

N. Client Feedback

Our staff welcome client feedback & carefully listen to spontaneous feedback that comes to us from clients so as to improve our quality & service. If a data result is questioned, we carefully and fully investigate it. Our first response is to ascertain whether the correct number & units were reported as well whether the sample was logged in correctly. Second, we reanalyze the original sample or its extract and simultaneously begin re extraction and re analysis of the

sample. When discrepant data is found, that is data that is serially inconsistent or is inconsistent with different but related test methodologies, we investigate the cause of the discrepancy until arriving at a conclusion as to the probability of which data are correct. If there is a probability of lab error we will revise our published data. If there is a probability of sampling error we will inform the sample submitter. If there is a probability of sample inhomogeneity we will average the data & we will publish either the entire data or averaged value & flag the data as such.

O. Quality Assurance Reports

The QA program will be reviewed and reported on at least annually by the lab/QA manager. This report will include an assessment of the overall effectiveness of the program and identify any deficiencies. The report will also include suggestions on how to deal with deficiencies as well as on improvements if necessary.

Appendix E

- **Sierra Foothill, Inc. – Quality Assurance Program Manual**
  - **See Sierra Foothill laboratory handbook in attached CD**

Appendix 11

CD Copy of SWMP

SIERRA FOOTHILL LABORATORY INC

URBAN RUNOFF AND WATER COLUMN TOXICITY MONITORING IN SUPPORT OF ORDER# R5-2004-0136, NPDES #CAS0084077 FOR STOCKTON PORT DISTRICT

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Sierra Foothill Laboratory Inc, in business since 1979, new building late 2000

Experience and expertise, high-quality analyses, and cutting-edge technology are provided by Sierra Foothill Lab Inc. NELAP laboratory accreditation #CA06245.
Please contact Sandy Nurse or Larry Kepner.

MRP Order #R5-2004-0136. II.H. Urban Runoff and Water Column Toxicity Monitoring

Comment 1. Sierra Foothill Lab Inc notes that the EPA Method for short-term chronic toxicity testing is not referenced in the Order or MRP portions of the permit. Laboratory recommends use of the most-recent EPA test method, not only because it is promulgated but also because it is associated with method guidance and method variability guidance documents which will assist in the generation of and interpretation of toxicity data.

- EPA821-R02-013. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Fourth Edition. October 2002.
- EPA821-B00-004. Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136). July 2000.
- EPA833-R00-003. Understanding and Accounting for Method Variability In Whole Effluent Toxicity Applications Under the National Pollutant Discharge Elimination System Program. June 2000.

Comment 2. SFL Inc notes that short-term chronic toxicity testing for Stockton Port District for storm events will be performed as per the requirements of the referenced test manuals, with the following exceptions

- Stormwater samples will be collected one time for the test, in exception to the method manual requirement of a minimum of three samples collected over the test period (8.3.2);
- Because of the inherent "short-notice" to the laboratory for stormwater samples, the laboratory will obtain *Ceriodaphnia dubia* (water flea) neonates from individual cultures (13.10.2.3), but records of survival of brood organisms may be obtained from a combination of mass-culture records and brood board records (rather than from only brood board records as per 13.6.16.6.6). Because the actual number of stormwater samples collected is noticed to the laboratory just prior to sample arrival, tests will be initiated with neonates isolated into 8-hour age batches and randomly selected from the batch for test initiation rather than using the arrangement known as "blocking by known parentage" (13.10.2.4, 13.10.2.5). This will not affect quantal data generation as required by the permit;
- In addition to the warming of samples to prescribed test temperature, laboratory will gently aerate for .5hours any sample with dissolved oxygen below 4mg/L PRIOR to use of the sample in test initiation or daily renewal (8.8.3). Other sample adjustments suggested by Section 8.8 of the test method manual will be included in subsequent testing of the sample, if needed, and with approval to the laboratory.

Comment 3. SFL Inc acknowledges that the permit does not explicitly define "toxicity" when comparing upstream vs downstream receiving waters. Also, the permit directs the calculation of Toxic Units, directs the immediate initiation of Phase I TIEs when samples are "substantially toxic" without explicitly stating that Toxic Unit 2 is the trigger, and offers alternatives instead of Phase I TIE when there are "strong indications as to the cause(s) of toxicity". Indeed this is confusing for the laboratory.

- SFL Inc suggests that the goal of toxicity testing for the first storm event for the 2007 test season be to accurately calculate the Toxic Units as per footnote [10] for each monitoring site. This means that each monitoring

sample test be initiated using a 5-concentration dilution series (0.5x steps) with laboratory control water as diluent. The monotonic dose steps for a 0.5 dilution series employs 100%, 50%, 25%, 12.5%, and 6.25% concentrations. **Note** that the lowest test concentration is 6.25% and not ≤6% of the sample as indicated in the permit.

- The permit footnote [10] indicates that the calculated median test response value (e.g. LC_{50} or EC_{50}) is used for calculation of Toxic Units. Laboratory will observe and record quantal data (responses recorded as response/no response , e.g., dead or alive) and LC_{50} or EC_{50} concentrations will be derived using point estimation techniques. Point estimation techniques commonly quantify the uncertainty of each test point estimate using 95% confidence intervals, which can be used to reflect within-test variability. Toxic Units will be calculated by dividing 100 by the LC_{50}, as well as 100 divided by the upper and lower confidence intervals. For example, if LC50 = 48% (CI 30%- 57%) this is read to say that the statistical package prescribed by the test manual says that 48% is the estimation of the concentration at which 50% of the test organisms are dead, …but we are 95% confident that this effect concentration is between 30% and 57%. Calculated Toxic Units = 2.1 (CI 3.3- 1.8). This, along with other guidance documents, may become useful in the determination of "substantial" toxicity as defined in footnote [10] of the permit. **Note** that permit calculations for "substantial toxicity" and Toxic Units relies upon biological observations of "dead or alive", which will be reported by the laboratory.
- Laboratory control and concurrent reference toxicant tests will be used to determine if testing meets EPA acceptability criteria.

SFL Inc Flow Chart for II.H. and including II.H.1.0 and footnote [10]

Diluted Mineral Water (DMW) Lab Control	KCl reference toxicant testing for *Pimephales promelas* (fathead minnow) $ZnSO_4$ reference toxicant testing for *Ceriodaphnia dubia* (water flea)

All 2007 first-event storm event samples collected for II..H Urban Runoff and Water Column Toxicity Monitoring, diluted 0.5x steps, DMW diluent, testing *Pimephales promelas* and *Ceriodaphnia dubia*, calculating Toxic Units as 100 / LC_{50}

→ If Toxic Unit 100/ LC_{50} ≥ 2 →

Notify WGR Southwest Inc and Port of Stockton, via email.

Immediately initiate Phase 1 TIE using sample water kept in reserve for this purpose.

Alternatively, discharger may direct lab to employ "directed" TIE methods instead of Phase 1 TIE when strong indications of toxicant(s) exist