WQ XX-XXXX

City of Newport Beach
Priority Project
Preliminary Water Quality Management Plan (WQMP)

Project Name: **Uptown Newport**

PLANNING APPLICATION NO.:	**PA2011-134**
TRACT / LOT NUMBER(S):	**TRACT 7953 / LOTS 1 AND 2**
ASSESSORS PARCEL NUMBER(S):	**445-131-02 AND 445-131-03**
PROJECT SITE ADDRESS:	**4311-4321 JAMBOREE ROAD NEWPORT BEACH, CA 92660**

Prepared for:

Uptown Newport, L.P.
2 Park Plaza, Suite 700
Irvine, CA 92614
(949) 417-1396

Prepared by:

Gavin Powell, P.E., LEED AP
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Gavin D. Powell **R.C.E. 67187**

Prepared: **Dec. 2011**
Revised: **Nov. 2012**

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Project Owner's Certification			
Planning Application No. (If applicable)	PA2011-134	Grading Permit No.	NA
Tract/Parcel Map and Lot(s) No.	Tract No. 7953 Lots 1 and 2	Building Permit No.	NA
Address of Project Site and APN (If no address, specify Tract/Parcel Map and Lot Numbers)			4311 - 4321 Jamboree Road, Newport Beach, CA 92660 APN(s): 445-131-02 445-131-03

This Water Quality Management Plan (WQMP) has been prepared for Uptown Newport, L.P. by Hall & Foreman, Inc. (HFI). The WQMP is intended to comply with the requirements of the City of Newport Beach NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan , including the ongoing operation and maintenance of all best management practices (BMPs), and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

Owner: Uptown Newport, L.P.			
Title	Brian Rupp / Director - Asset Management		
Company	The Shopoff Group		
Address	2 Park Plaza, Suite 700, Irvine, CA 92614		
Email	brupp@shopoff.com		
Telephone #	(949) 417-1396		
I understand my responsibility to implement the provisions of this WQMP including the ongoing operation and maintenance of the best management practices (BMPs) described herein.			
Owner Signature		Date	

Preparer (Engineer): Hall & Foreman, Inc.			
Title	Gavin Powell, P.E., LEED AP / Project Manager	PE Registration #	C 67187
Company	Hall & Foreman, Inc.		
Address	17782 E. 17th Street, Tustin, CA 92780		
Email	gpowell@hfinc.com		
Telephone #	(714) 665-4500		

I hereby certify that this Water Quality Management Plan is in compliance with, and meets the requirements set forth in, Order No. R8-2009-0030/NPDES No. CAS618030, of the Santa Ana Regional Water Quality Control Board.

Preparer Signature	Gavin Powell	Date	11-07-2012
Place Stamp Here			

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Section I Permit(s) and Water Quality Conditions of Approval or Issuance

Provide discretionary or grading/building permit information and water quality conditions of approval, or permit issuance, applied to the project. If conditions are unknown, please request applicable conditions from staff. *Refer to Section 2.1 in the Technical Guidance Document (TGD) available on the OC Planning website (ocplanning.net).*

Project Infomation			
Permit/Application No. (If applicable)	PA2011-134	Grading or Building Permit No. (If applicable)	NA (Not Yet Issued)
Address of Project Site (or Tract Map and Lot Number if no address) and APN	4311-4321 Jamboree Road, Newport Beach, CA 92660		

Water Quality Conditions of Approval or Issuance	
Water Quality Conditions of Approval or Issuance applied to this project. (Please list verbatim.)	Not Applicable for Preliminary / Concept WQMP. Enclosed WQMP prepared as a technical appendiz to the project EIR.

Conceptual WQMP	
Was a Conceptual Water Quality Management Plan previously approved for this project?	No, the enclosed document represents the Conceptual / Preliminary WQMP

Watershed-Based Plan Conditions	
Provide applicable conditions from watershed - based plans including WIHMPs and TMDLS.	**WIHMP:** Not Applicable **303(d) Listed Impairments for San Diego Creek and Newport Bay:** Selenium, Toxaphene, Fecal Coliform, Metals, Copper, Sediment Toxicity, Chlordane, DDT, PCB's (Polychlorinated Biphenyls), Indicator Bacteria, Nutrients, Pesticides, Sedimentation/Siltation **TMDL's for San Diego Creek and Newport Bay:** Bacteria Indicators/Pathogens, Nutrients, Pesticides, Sedimentation/Siltation

Section II Project Description

II.1 Project Description

Provide a detailed project description including:

- Project areas;
- Land uses;
- Land cover;
- Design elements;
- A general description not broken down by drainage management areas (DMAs).

Include attributes relevant to determining applicable source controls. *Refer to Section 2.2 in the Technical Guidance Document (TGD) for information that must be included in the project description.*

Description of Proposed Project				
Development Category (From Model WQMP, Table 7.11-2; or -3):	**Category 8:** Significant Redevelopment Project			
Project Area (ac): 25.05	Number of Dwelling Units: 1,244		SIC Code: 59 (Misc. Retail)	
Project Area	Pervious		Impervious	
	Area (acres)	Percentage	Area (acres)	Percentage
Pre-Project Conditions	3.19	13%	21.86	87%
Post-Project Conditions	5.56	22%	19.49	78%
Drainage Patterns/Connections	The project will maintain the existing drainage pattern of the site and generally flows from the southeasterly property boundary to the northwesterly property boundary. Three (3) separate connections will be made to the existing storm drain system(s) at the northwesterly property boundary. The southernmost connection will join the existing 48-inch RCP that currently serves the site. The remaining two (2) connections will replace three (3) existing 18-inch RCP storm drain lines that currently service the site. These 18-inch storm drain lines ultimately join an existing 66-inch RCP located within the adjacent property to the northwest (Koll Site). There are no offsite flows anticipated to be received by the project.			

	The projects storm drain system will join the existing storm drain infrastructure at the downstream (northwest) side of the project. The existing storm drain infrastructure to be joined includes a 48-inch RCP and a 66-inch RCP storm drain line. These existing lines will discharge into a series of existing detention ponds before ultimately joining a 54-inch RCP storm drain system in MacArthur Boulevard. From there, storm flows continue to San Diego Creek before reaching Newport Bay and the Pacific Ocean.

Narrative Project Description: (Use as much space as necessary.)	The Uptown Newport Planned Community Development Plan (Project), hereinafter referred to as "Uptown Newport" is a planned residential community located on the north side of Jamboree Road, between MacArthur Boulevard and Birch Street, in the City of Newport Beach, California. The street address is 4311-4321 Jamboree Road. The project site is bounded by Jamboree Road to the southeast, a fast food restaurant to the northeast, and by existing office developments within the Koll Center to the northwest and southwest. The property measures approximately 25 acres and is intended to be developed into 1,244 high-density residential units and 11,500 square feet of retail space. The project will incorporate streets, landscaping, parks, courtyards, and development areas that provide a pedestrian friendly environment, with strong connectivity to adjacent commercial/office areas. Approximately six (6) of the twenty-five (25) acres will be landscaped or have a pervious surface. Two (2) parks are planned that represent approximately 1.5 acres of the pervious area while the remaining 4.5 acres consists of landscaping around buildings, walkways, streets, and slope areas. Of the remaining nineteen (19) acres, approximately 3.5-acres will be dedicated to roadway or parking areas that allow for vehicular traffic. These areas are anticipated to be paved with asphalt. The balance of the site will consist of either building footprints, sidewalks, or other hardscape feature. Anticipated pollutants for the proposed land uses include suspended-solids/sediments, nutrients, heavy metals, pathogens (bacteria/virus), pesticides, oil and grease, toxic organic compounds, and trash and debris.

II.2 Potential Stormwater Pollutants

Determine and list expected stormwater pollutants based on land uses and site activities. *Refer to Section 2.2.2 and Table 2.1 in the Technical Guidance Document (TGD) for guidance.*

Pollutants of Concern			
Pollutant	Check One for each: E=Expected to be of concern N=Not Expected to be of concern		Additional Information and Comments
Suspended-Solid/ Sediment	E ☒	N ☐	Attached Residential, Retail, Parking, and Street project components
Nutrients	E ☒	N ☐	Attached Residential, Retail, Parking, and Street project components
Heavy Metals	E ☒	N ☐	Retail, Parking and Street project components
Pathogens (Bacteria/Virus)	E ☒	N ☐	Attached Residential, Retail, Parking, and Street project components
Pesticides	E ☒	N ☐	Attached Residential, Retail, Parking, and Street project components
Oil and Grease	E ☒	N ☐	Attached Residential, Retail, Parking, and Street project components
Toxic Organic Compounds	E ☒	N ☐	Retail, Parking and Street project components
Trash and Debris	E ☒	N ☐	Attached Residential, Retail, Parking, and Street project components

II.3 Hydrologic Conditions of Concern

Determine if streams located downstream from the project area are potentially susceptible to hydromodification impacts. *Refer to Section 2.2.3.1 in the Technical Guidance Document (TGD) for North Orange County or Section 2.2.3.2 for South Orange County.*

☐ No - Show map

☒ Yes - Describe applicable hydrologic conditions of concern below. *Refer to Section 2.2.3 in the Technical Guidance Document (TGD).*

While streams located downstream of the project site are potentially susceptible to hydromodification impacts, there are no 'Hydrologic Conditions of Concern' (HCOC). Because of the increased pervious surface resulting from development of the project, the runoff volume produced by the site is reduced from the existing condition. Approximately 3.15 ac-ft of runoff volume is produced by a 2-year, 24-hour storm event under the post-developed condition. The same frequency and duration storm produces approximately 3.6 ac-ft in the pre-developed condition. This represents just over a 15% decrease in runoff volume. A summary of runoff volumes is provided in the following table. Hydrology calculations for the 2-year, 24-hour storm event are included in the Appendix of this report. Hydrology maps can be found in the projects Preliminary Hydrology Report dated December, 2011.

Time of concentration is increased an average of approximately 2.5 minutes as a result of the project.

It should be noted that the tributary drainage area of the site measures slightly less than the overall property area of 25.05 acres. The tributary drainage area of the site measures 24.78 acres. The difference is attributed to that portion of the property adjacent to Jamboree Road that is tributary to Jamboree Road. It should be further noted that development of the project will result in an increase of 0.76 acres of tributary drainage area to Jamboree Road. This increase is considered less than significant.

Uptown Newport
Runoff Volume Summary
(2-year, 24-hour storm event)

Drainage Area	Pre-Developed Condition Runoff Volume (ac-ft)	Post-Developed Condition Runoff Volume (ac-ft)
Area A	2.6746	2.4023
Area B	0.9706	0.7437
Total	**3.6452**	**3.1460**

II.4 Post Development Drainage Characteristics

Describe post development drainage characteristics. *Refer to Section 2.2.4 in the Technical Guidance Document (TGD).*

The proposed storm drain system will largely maintain the same drainage pattern(s) and connectivity that exists today. Currently there are four (4) existing storm drain lines that exit the project site. Three (3) of these locations are 18-inch storm drain lines located in the northernmost parking area. These 18-inch storm drain lines drain to the northwest and leave the site before joining an existing 66-inch RCP storm drain line located within the parking area of the adjacent property (Koll Site). In the proposed condition, one (1) of these 18-inch storm drain lines is proposed to be eliminated. The other two (2) are proposed to remain, with the connection to the existing system being made near the northwesterly property boundary.

The fourth (4th) connection will be made further south and will join the existing 48-inch RCP storm drain line that currently serves the site. Again, the connection will be made near the northwesterly property boundary.

Both the existing 48-inch and 66-inch storm drain systems that receive the project storm flows discharge into an existing drainage pond to the northwest of the project site, along Von Karmen Avenue. This pond appears to operate as a detention facility before again entering an existing 54-inch RCP within MacArthur Boulevard. These flows discharge to San Diego Creek before ultimately reaching Newport Bay and the Pacific Ocean.

Because of the flat nature of the proposed site, a number of 'bird bath' or sump areas will be created in order to maintain the grades necessary to promote drainage. These sump areas will collect the storm drainage and route it through an underground storm drain system before ultimately joining the existing storm drain(s) located downstream of the project site.

II.5 Property Ownership/Management

Describe property ownership/management. *Refer to Section 2.2.5 in the Technical Guidance Document (TGD).*

The property will be privately owned and maintained. This includes all street and storm drain improvements as well as all applicable site design, source control, and treatment control BMP's. A 'Homeowners Association' will be formed that will manage and be responsible for the maintenance obligations of the site.

Section III Site Description

III.1 Physical Setting

Fill out table with relevant information. *Refer to Section 2.3.1 in the Technical Guidance Document (TGD).*

Name of Planned Community/Planning Area (if applicable)	Uptown Newport
Location/Address	4311-4321 Jamboree Road, Newport Beach, CA 92660
	APN(s): 445-131-02 and 445-131-03
General Plan Land Use Designation	MU-HZ (Mixed Use Horizontal)
Zoning	PC (Planned Community)
Acreage of Project Site	25.05-acres
Predominant Soil Type	'D'

III.2 Site Characteristics

Fill out table with relevant information and include information regarding BMP sizing, suitability, and feasibility, as applicable. *Refer to Section 2.3.2 in the Technical Guidance Document (TGD).*

Site Characteristics	
Precipitation Zone	Between 0.7-inches and 0.75-inches (24-hour, 85th percentile rainfall) from Figure XVI-1 (Rainfall Zones) from the Orange County Technical Guidance Document.
Topography	The project site is flat with the maximum grade differential measuring approximately 10-feet over a distance of approximately 650-feet. Under the proposed condition, multiple sump-areas (bird baths) are proposed in order to facilitate drainage. Flow direction is to the northwest.

Drainage Patterns/Connections	The project will maintain the existing drainage pattern of the site and generally flows from the southeasterly property boundary to the northwesterly property boundary. Three (3) separate connections will be made to the existing storm drain systems at the northwesterly property boundary. The southernmost connection will join the existing 48-inch RCP that currently serves the site. The remaining two (2) connections will replace three (3) existing 18-inch RCP storm drain lines that currently service the site. These 18-inch storm drain lines ultimately join an existing 66-inch RCP located within the adjacent property to the northwest (Koll Site). There are no offsite flows anticipated to be received by the project site.
Soil Type, Geology, and Infiltration Properties	The site primarily consists of 'D' classified soils, with the northwest tip of the project site consisting of 'B' classified soils. This determination is based on Soil Map 'B' from the Orange County Hydrology Manual. The geologic units present within the site can be generally characterized as stiff to very stiff silty to sandy clay fill soils overlaying native sands, silts, clays and gravels of marine terrace deposits. Further information in regards to soil type, geology, and infiltration properties can be seen in the *Preliminary Geologic and Geotechnical Engineering Investigation for Uptown Newport*, prepared by Ginter & Associates and dated November, 2011.
Hydrogeologic (Groundwater) Conditions	Groundwater monitoring wells were installed on the site in September of 1984. Since that time, the groundwater monitoring network has continually expanded. In general, the unsaturated zone extends from the surface down to the shallow water table surface which is generally encountered at depths approximately 15-30 feet below existing ground. The unsaturated zone is very heterogeneous and there is poor lateral correlation of specific layers between monitoring wells. Historically, water levels have not appeared to fluctuate seasonally to any significant degree. Over the last year, depth to groundwater has ranged from approximately 20 to 30 feet below finished ground. Additional information in regards to groundwater conditions can be seen in the *2010 Annual Groundwater Report and SVE Operations Progress Report* prepared by Jacob & Hefner Associates, Inc, dated May 2010. Excerpts from this report are included in the Appendix of the enclosed WQMP.
Geotechnical Conditions (relevant to infiltration)	The site generally consists of marine terrace and bay deposits to the depths up to 100 feet below finished ground. These sediments can range from fine to medium grained sands with minor gravels, silty sands, sandy clays, and clays. These soils are crudely stratified with lenses and pods interspersed indicative of terrace and backbay environments. A distinctive olive-green to olive-gray clay to silty clay horizon is present throughout the site and is commonly found at a depth of approximately 30 feet below existing ground. This is depicted

	in Section A-A from the *Preliminary Geologic and Geotechnical Engineering Investigation for Uptown Newport*, prepared by Ginter & Associates and dated November, 2011. Section A-A from this report is included in the Appendix of the enclosed WQMP.
Off-Site Drainage	No offsite drainage is anticipated to be received by the site. No comingling is anticipated of on-site and off-site drainage.
Utility and Infrastructure Information	Existing utilities are not anticipated to constrain site design in regards to implementing BMP strategies.

III.3 Watershed Description

Fill out table with relevant information and include information regarding BMP sizing, suitability, and feasibility, as applicable. *Refer to Section 2.3.3 in the Technical Guidance Document (TGD).*

Receiving Waters	**San Diego Creek (Reach 1)** **Newport Bay (Upper)** **Newport Bay (Lower)** **Pacific Ocean**
303(d) Listed Impairments	**San Diego Creek (Reach 1)** - Selenium, Toxaphene, Fecal Coliform, Sedimentation/Siltation, Nutrients, Pesticides **Newport Bay (Upper)** - Metals, Copper, Sediment Toxicity, Chlordane, DDT (Dichlorodiphenyl Trichloroethane), PCB's (Polychlorinated Biphenyls), Indicator Bacteria, Nutrients, Pesticides, Sedimentation/Siltation **Newport Bay (Lower)** - Copper, Sediment Toxicity, Chlordane, DDT, PCB's, Indicator Bacteria, Nutrients, Pesticides
Applicable TMDLs	**San Diego Creek (Reach 1)** - Indicator Bacteria, Nutrients, Pesticides, Sedimentation/Siltation **Newport Bay (Upper)** - Indicator Bacteria, Nutrients, Pesticides, Sedimentation/Siltation **Newport Bay (Lower)** - Nutrients, Pesticides
Pollutants of Concern for the Project	**Primary Pollutants of Concern:** Suspended-Solid / Sediment, Nutrients, Heavy Metals, Pathogens (Bacteria/Virus), Pesticides, and Toxic Organic Compounds **Other Pollutants of Concern:** Oil and Grease, Trash and Debris

Environmentally Sensitive and Special Biological Significant Areas	**San Diego Creek (Reach 1)** **Newport Bay (Upper)** **Newport Bay (Lower)**

Section IV Best Management Practices (BMPs)

IV. 1 Project Performance Criteria

Describe project performance criteria. Several steps must be followed in order to determine what performance criteria will apply to a project. These steps include:

- If the project has an approved WIHMP or equivalent, then any watershed specific criteria must be used and the project can evaluate participation in the approved regional or sub-regional opportunities. (Please ask your assigned planner or plan checker regarding whether your project is part of an approved WIHMP or equivalent.)
- Determine applicable hydromodification control performance criteria. *Refer to Section 7.II-2.4.2.2 of the Model WQMP.*
- Determine applicable LID performance criteria. *Refer to Section 7.II-2.4.3 of the Model WQMP.*
- Determine applicable treatment control BMP performance criteria. *Refer to Section 7.II-3.2.2 of the Model WQMP.*
- Calculate the LID design storm capture volume for the project. *Refer to Section 7.II-2.4.3 of the Model WQMP.*

(NOC Permit Area only) Is there an approved WIHMP or equivalent for the project area that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis?	YES ☐	NO ☒
If yes, describe WIHMP feasibility criteria or regional/sub-regional LID opportunities.		

Project Performance Criteria	
If HCOC exists, list applicable hydromodification control performance criteria (Section 7.II-2.4.2.2 in MWQMP)	Hydrologic Conditions of Concern (HCOC) do not exist. Refer to Section II.3 'Hydrologic Conditions of Concern' for additional information.
List applicable LID performance criteria (Section 7.II-2.4.3 from MWQMP)	**Performance Criteria**: • Goal is to infiltrate, harvest and use, evapotranspire, or biotreat/biofilter, the 85th percentile, 24-hour storm event (Design Capture Volume). • A properly designed biotreatment system may only be considered if infiltration, harvest and use, and evapotranspiration (ET) cannot be feasibly implemented for the full design capture volume. In this case, infiltration, harvest and use, and ET practices must be implemented to the greatest extent feasible and biotreatment may be provided for the remaining design capture volume. Or, equivalent LID performance Criteria: LID BMP's must be designed to retain, on-site, (infiltrate, harvest and use, or evapotranspire) stormwater runoff up to 80 percent average annual capture efficiency. LID BMPs must be designed to: • Retain, on-site, (infiltrate, harvest and use, or evapotranspire) stormwater runoff as feasible up to the Design Capture Volume, and • Recover (i.e., draw down) the storage volume as soon as possible after a storm event, and, if necessary • Biotreat, on-site, additional runoff, as feasible, up to 80 percent average annual capture efficiency (cumulative, retention plus biotreatment), and, if necessary • Fulfill alternative compliance obligations for runoff volume not retained or biotreated up to 80 percent average annual capture efficiency using treatment controls or other alternative approaches.

List applicable treatment control BMP performance criteria (Section 7.II-3.2.2 from MWQMP)	Treatment control BMP's shall be provided that have a medium to high effectiveness for reducing the primary pollutants of concern (POC), as shown in Section III-3 'Watershed Description' of this WQMP. Treatment control BMP's may only be used as an alternative compliance path if the full design capture volume (DCV) cannot be treated by the use of infiltration, retention, and/or biotreatment BMP's.
Calculate LID design storm capture volume for Project.	The design capture volume (DCV) for the entire project is 45,377 cu-ft. Calculations of the DCV for each drainage management area (DMA) / BMP area, is summarized in the table provided in Section IV.2 'Drainage Pattern' of this WQMP.

IV.2. Site Design and Drainage

Describe site design and drainage including

- A narrative of site design practices utilized or rationale for not using practices;
- A narrative of how site is designed to allow BMPs to be incorporated to the MEP
- A table of DMA characteristics and list of LID BMPs proposed in each DMA.
- Reference to the WQMP "BMP Exhibit."
- Calculation of Design Capture Volume (DCV) for each drainage area.
- A listing of GIS coordinates for LID and Treatment Control BMPs.

Refer to Section 2.4.2 in the Technical Guidance Document (TGD).

Site Design Practices Utilized:

- **Minimize Impervious Area:** 1.) Roadway widths are proposed at the minimum required to satisfy City ordinance and Fire access requirements. 2.) Proposed building types include low-rise row-houses and 4- and 5- story apartments or condominiums. Building vertically rather than horizontally contributes to a minimized building/impervious footprint. 3.) Primary parking is proposed as below ground, covered parking beneath the apartment units, minimizing the impervious area required for parking. 4.) Pervious surface area will be increased approximately 2.4-acres (or roughly 9%) from the existing condition as a result of the project.

- **Maximize Natural Infiltration Capacity:** The project site is within an area designated with a soil classification of 'D' (from Figure XVI-2a from the Technical Guidance Document), and is also on an already developed site. Therefore the natural infiltration capacity is considered minimal and was not a consideration when locating pervious/infiltration areas on the site.

- **Preserve Existing Drainage Patterns and Time of Concentration:** The existing site consists of 87% impervious surface, and utilizes an underground storm drain system. Under the post-developed condition, drainage patterns will be consistent with the existing condition. Points of connection to the downstream, connecting storm drain system will also be consistent with the existing condition. Post-developed grading and storm drain design results in a time of concentration increase from the existing condition, while peak flows and storm volumes are decreased from the existing condition. Time of concentration is increased an average of approximately 2.5 minutes as a result of the project.

- **Disconnect Impervious Areas:** Pervious landscaped areas are located throughout the project site and provide a disconnection of impervious areas. Roof drainage shall be directed into said landscaped areas, as appropriate. This concept shall be implemented to the maximum extent practicable, noting that large tributary areas (large roof areas) may not be practical to discharge directly onto the adjacent landscaped areas. Final design shall dictate the extent of utilizing this site design concept.

- **Protect Existing Vegetation and Sensitive Areas:** The existing site condition is a fully developed site with 87% impervious surface coverage. Existing vegetation is minimal. The entire site is targeted for redevelopment. Therefore this site design concept is not applicable.

- **Revegetate Disturbed Areas:** The post-development condition increased the amount of pervious surface by approximately 2.4-acres (9%). These pervious surfaces are targeted to be vegetated. In addition, parkway areas along the roadways will include street trees that provide canopy coverage. Native plant species shall be used to the maximum extent practicable while accomplishing the overall landscape goals of the project.

- **Soil Stockpiling and Site Generated Organics:** The existing site condition is a fully developed site with 87% impervious surface coverage. Existing areas of topsoil is minimal. Stockpiling of topsoil material on-site is not anticipated and not considered applicable.

- **Firescaping:** Landscaping shall be provided in accordance with all applicable Fire Code requirements.

- **Xeriscape Landscaping:** Landscaping shall apply the principles of xeriscaping to the maximum extent practicable. Objectives of xeriscaping are to reduce water use, decrease energy use, reduce heating and cooling costs (to adjacent building), minimize runoff from both irrigation and adjacent rooftops, reduce maintenance waste, habitat creation, and lower labor and maintenance costs.

- **Slope and Channel Buffers:** There are no slopes or channels that exist on, or adjacent to, the project site. Any slopes resulting from development of the project shall be stabilized as quickly as possible, and shall be planted with native and drought tolerant plants, or as indicated on an approved Landscape Architect plan.

- **Minimize Land Disturbance:** The proposed project is a redevelopment of an already improved site. The entire project site is targeted for redevelopment. The minimizing land disturbance site design concept is not applicable.

BMP utilization in Site Design to Maximum Extent Practicable (MEP):

As was previously described, the Uptown Newport Project proposes 1,244 high-density residential units and 11,500 square feet of retail space. It will also incorporate streets, landscaping, courtyards, park areas, and development areas. The site design incorporates two (2) parks that contribute to increasing the amount of pervious surface on the site. Due to the addition of the parks and other landscape areas, it is estimated that an increase of approximately 2.4-acres (or roughly 9%) of pervious surface will result from development of the project.

The site was designed with an emphasis on disconnecting impervious areas and increasing the amount of plantings on the site from the existing condition. The increase results in more surface area providing natural infiltration. The configuration and overall coverage of the landscaping/plantings will allow for increased opportunities for evapotranspiration to occur.

There are no known constraints within the project area that would preclude the use of infiltration BMP's to treat the entire Design Capture Volume (DCV). Three (3) primary infiltration BMP's are proposed for the project and they include: INF-4 Bioinfiltration, INF-6 Permeable Pavement, and INF-7 Underground Infiltration. BMP's are identified on the WQMP Site Plan / BMP Exhibit with corresponding BMP Area Designations. Those BMP Area designations are consistent with the following BMP Sizing (Volume and Flow) Summary table.

BMP Sizing (Volume and Flow) Summary					
Area Description	Tributary (acres)	'i' (% impervious)	'C'	V_{LID} (cu-ft)	BMP Strategy
BR1	0.09	0.10	0.225	55	INF-4 Bioinfiltration
BR2	0.36	0.88	0.810	794	INF-4 Bioinfiltration
BR3	0.30	0.90	0.825	674	INF-4 Bioinfiltration
BR4	0.32	0.87	0.803	699	INF-4 Bioinfiltration
BR5	0.35	0.88	0.810	772	INF-4 Bioinfiltration
PP1	0.28	0.15	0.263	200	INF-6 Permeable Pavement
PP2	0.08	0.15	0.263	57	INF-6 Permeable Pavement
BR6	0.48	0.90	0.825	1,078	INF-4 Bioinfiltration
PP3	0.99	0.44	0.480	1,294	INF-6 Permeable Pavement
BR7	0.52	0.87	0.803	1,136	INF-4 Bioinfiltration
BR8	0.59	0.90	0.825	1,325	INF-4 Bioinfiltration
PP4	0.84	0.60	0.600	1,372	INF-6 Permeable Pavement
BR9	0.70	0.87	0.803	1,529	INF-4 Bioinfiltration
PP5	0.33	0.15	0.263	236	INF-6 Permeable Pavement
BR10	0.50	0.87	0.803	1,092	INF-4 Bioinfiltration
PP6	0.08	0.15	0.263	57	INF-6 Permeable Pavement
PP7	0.10	0.15	0.263	71	INF-6 Permeable Pavement
BR11	0.08	0.10	0.225	49	INF-4 Bioinfiltration
PP8	0.12	0.15	0.263	86	INF-6 Permeable Pavement
BR12	1.06	0.90	0.825	2,381	INF-4 Bioinfiltration
BR13	0.07	0.10	0.225	43	INF-4 Bioinfiltration
BR14	0.18	0.10	0.225	110	INF-4 Bioinfiltration
PP9	0.83	0.72	0.690	1,559	INF-6 Permeable Pavement
BR15	1.91	0.76	0.720	3,744	INF-4 Bioinfiltration
BR16	1.10	0.84	0.780	2,336	INF-4 Bioinfiltration
PP10	0.99	0.77	0.728	1,961	INF-6 Permeable Pavement
BR17	0.19	0.10	0.225	116	INF-4 Bioinfiltration
BR18	0.40	0.10	0.225	245	INF-4 Bioinfiltration
BR19	0.80	0.35	0.413	898	INF-4 Bioinfiltration
PP11	0.89	0.82	0.765	1,854	INF-6 Permeable Pavement
BR20	0.58	0.88	0.810	1,279	INF-4 Bioinfiltration
BR21	0.69	0.87	0.803	1,508	INF-4 Bioinfiltration
IB1	7.22	0.77	0.728	14,300	INF-7 Underground Infiltration
LS1	0.76	0.10	0.225	466	None
Entire Site	**24.78**	**0.70**	**0.673**	**45,377**	

Because the full DCV can be treated by the use of infiltration BMP's, retaining water for re-use was not considered for the project.

If during the final design phase of the project and development of the projects Final WQMP it is determined the full DCV cannot be met through infiltration BMP's, then infiltration BMP's shall be implemented to the maximum extent practicable. Any unmet treatment of the DCV shall be met through the use of evapotranspiration and/or harvest and use BMP's to the maximum extent practicable in order to satisfy Permit requirements, as described in the TGD.

If during the final design phase of the project and development of the projects Final WQMP it is determined the full DCV cannot be met through infiltration, evapotranspiration, and/or harvest and use BMP's, then infiltration, evapotranspiration, and harvest and use BMP's shall be implemented to the maximum extent practicable. Any unmet treatment of the DCV shall be met through the use of biotreatment BMP's to the maximum extent practicable in order to satisfy Permit requirements, as described in the TGD.

The reader shall refer to the 'WQMP Site Plan' included in this report for additional information regarding the site design and drainage concept.

As eluded to earlier, treatment of the design capture volume will utilize multiple BMP strategies. For the 'BMP Area IB1', treatment of the design capture volume will occur after the drainage from this area has been collected in the main storm drain system serving this area. A low-flow bypass system will then direct the design capture volume from this area through a hydrodynamic separator for pre-treatment, prior to entering an underground infiltration basin. The location of the hydrodynamic separator and underground infiltration basin is indicated on the 'WQMP Site Plan' included with this report.

As is shown on the 'WQMP Site Plan', a tributary drainage area increase of roughly 0.76-acres (BMP Drainage Area LS1) will occur along Jamboree Road as a result of the proposed development. This area is primarily within a landscaped area with a pervious surface. Because of this reason, and because the acreage is relatively small, the water quality and hydrologic impacts from the increased drainage area should be considered less than significant. It is recommended that a small berm be provided within the landscape area at the property boundary to further encourage the drainage from this area to be retained on site where it can be slowly infiltrated through the underlying soils.

IV.3 LID BMP Selection and Project Conformance Analysis

Each sub-section below documents that the proposed design features conform to the applicable project performance criteria via check boxes, tables, calculations, narratives, and/or references to worksheets. *Refer to Section 2.4.2.3 in the Technical Guidance Document (TGD) for selecting LID BMPs and Section 2.4.3 in the Technical Guidance Document (TGD) for conducting conformance analysis with project performance criteria.*

Name	Included?
Localized on-lot infiltration	☐
Impervious area dispersion (e.g. roof top disconnection)	☐
Street trees (canopy interception)	☒
Residential rain barrels (not actively managed)	☐
Green roofs/Brown roofs	☐
Blue roofs	☐
Impervious area reduction (e.g. permeable pavers, site design)	☒
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐

Retention criteria is being satisfied by other LID BMP's and therefore Hydrologic Source Controls (HSCs) are not required.

IV.3.2 Infiltration BMPs

Identify infiltration BMPs to be used in project. If design volume cannot be met, state why.

Name	Included?
Bioretention without underdrains	☐
Rain gardens	☐
Porous landscaping	☐
Bioinfiltration Basins (Infiltration planters)	☒
Retention swales	☐
Infiltration trenches	☐
Infiltration basins	☐
Drywells	☐
Subsurface infiltration galleries	☒
French drains	☐
Permeable pavement (asphalt, concrete, or pavers)	☒
Permeable concrete	☐
Permeable concrete pavers	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with infiltration BMPs. If not, document how much can be met with infiltration and document why it is not feasible to meet the full volume with infiltration BMPs.

Infiltration of the full 'Design Capture Volume' for the site is feasible. The following tables are being provided in order to show the required infiltration capacity of each BMP in relation to their respective BMP Area/Drainage Management Area (DMA). A separate table was created for each infiltration BMP. These tables are also included in the Appendix of this Preliminary WQMP for reference.

INF-4 Bioinfiltration Basin Sizing Calculations

BMP Area	Gravel Layer Depth (D_G)	Planting Media Depth (D_{soil})	Ponding Depth (D_P)	Total Effective Depth ($D_{effective}$)	BMP Volume Required (V_{LID})	BMP Area Required (A_{LID})	BMP Area Provided (A_{BMP})
	(ft)	(ft)	(ft)	(ft)	(cu-ft)	(sq-ft)	(sq-ft)
BR1	0.00	1.00	0.25	0.50	55	110	120
BR2	0.90	1.50	0.50	1.19	794	667	672
BR3	0.90	1.50	0.50	1.19	674	566	576
BR4	0.90	1.50	0.50	1.19	699	588	600
BR5	0.90	1.50	0.50	1.19	772	649	672
BR6	0.90	1.50	0.50	1.19	1,078	906	913
BR7	0.90	1.50	0.50	1.19	1,136	955	960
BR8	0.90	1.50	0.50	1.19	1,325	1,114	1,125
BR9	0.90	1.50	0.50	1.19	1,529	1,285	1,296
BR10	0.90	1.50	0.50	1.19	1,092	918	1,098
BR11	0.00	1.00	0.25	0.50	49	98	120
BR12	0.90	1.50	0.50	1.19	2,381	2,001	2,026
BR13	0.00	1.00	0.25	0.50	43	86	90
BR14	0.00	1.00	0.25	0.50	110	221	240
BR15	0.90	1.50	0.50	1.19	3,744	3,146	3,160
BR16	0.90	1.50	0.50	1.19	2,336	1,963	2,000
BR17	0.00	1.00	0.25	0.50	116	233	240
BR18	0.90	1.50	0.25	0.94	245	261	270
BR19	0.90	1.50	0.25	0.94	898	956	1,020
BR20	0.90	1.50	0.50	1.19	1,279	1,075	1,088
BR21	0.90	1.50	0.50	1.19	1,508	1,267	1,280

Objective:
BMP Area Provide (A_P) > BMP Area Required (A_{LID})
Total Effective Depth ($D_{effective}$) < Maximum Depth (D_{max})

Assumptions:

K_{measur} = 1.0 in/hr
K_{design} = 0.30 in/hr (= 1.0 in/hr with 3.375 factor of safety applied per Worksheet
n_{gravel} = 0.35
n_{soil} = 0.25
D_{max} = (K_{design} /12) * 48 = 1.2 ft (maximum depth that can be drawn down in 48-
48-Hour Draw Down

Calculations / Formulas:

V_{LID} from Table 'B-1' - BMP Sizing (Volume and Flow) Calculations
$D_{effectiv}$ = (D_G*n_{gravel}) + (D_{soil}*n_{soil}) + D_p
A_{LID} = V_{LID} / $D_{effective}$

INF-6 Permeable Pavement Sizing Calculations

BMP Area	Gravel Layer Depth (D_G)	Total Effective Depth ($D_{effective}$)	BMP Volume Required (V_{LID})	BMP Area Required (A_{LID})	BMP Area Provided (A_{BMP})
	(ft)	(ft)	(cu-ft)	(sq-ft)	(sq-ft)
PP1	0.50	0.18	200	1,143	1,630
PP2	0.50	0.18	57	327	430
PP3	1.75	0.61	1,294	2,112	2,240
PP4	1.75	0.61	1,372	2,240	2,300
PP5	0.50	0.18	236	1,348	1,900
PP6	0.50	0.18	57	327	480
PP7	0.50	0.18	71	408	550
PP8	0.50	0.18	86	490	690
PP9	1.75	0.61	1,559	2,546	2,560
PP10	1.75	0.61	1,961	3,201	3,280
PP11	1.75	0.61	1,854	3,026	3,120

Objective:

BMP Area Provide (A_P) > BMP Area Required (A_{LID})
Total Effective Depth ($D_{effective}$) > Maximum Depth (D_{max})

Assumptions:

$K_{measured}$ = 1.0 in/hr
K_{design} = 0.30 in/hr (= 1.0 in/hr with 3.375 factor of safety applied per
n_{gravel} = 0.35
D_{max} = (K_{design} /12) * 48 = 1.2 ft (maximum depth that can be drawn down in **48-Hour Draw Down**

Calculations / Formulas:

V_{LID} from Table 'B-1' - BMP Sizing (Volume and Flow) Calculations
$D_{effective}$ = D_G*n_{gravel}
A_{LID} = V_{LID} / $D_{effective}$

INF-7 Underground Infiltration Basin Sizing Calculations

BMP Area	Storage Chamber Diameter and Material (D)	Storage Chamber Length (L)	Storage Chamber Capacity (V) *	Gravel Depth below Storage	Ponding Depth (D_P)	Gravel Media Storage (V_G)	CMP Infiltration Basin Storage (V_{CMP})	BMP Volume Provided (V_P)	BMP Volume Required (V_{LID})
	(in)	(ft)	(sq-ft/ft)	(ft)	(ft)	(cu-ft)	(cu-ft)	(cu-ft)	(cu-ft)
IB	12 CMP	11,121	0.78	0.50	1.18	5,672	8,674	14,346	14,300

* per Contech Engineered Solutions Metal

Objective:

BMP Volume Provide (V_P) > BMP Volume Required (V_{LID})
Ponding Depth (D_P) < Maximum Depth (D_{max})

Assumptions:

K_m = 1.0 in/hr
K_{de} = 0.30 in/hr (= 1.0 in/hr with 3.375 factor of safety applied per Worksheet 'H')
n_{gr} = 0.35
A_{gr} = 0.51 sq-ft per lf of Storage Chamber Length (see Site Plan / BMP Exhibit)
48-Hour Draw Down

Calculations / Formulas:

V_{LI} from Table 'B-1' - BMP Sizing (Volume and Flow) Calculations

$V_{pr} = V_G + V_{CMP}$

$V_G = L * A_G$

$V_C = L * V$

$D_p = D_G * n_{gravel} + D$

$D_m = K_{design} * 48 \text{ hrs} * (1/12) = 1.2 \text{ feet}$

IV.3.3 Evapotranspiration, Rainwater Harvesting BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, describe any evapotranspiration and/or rainwater harvesting BMPs included.

Name	Included?
All HSCs; *See Section IV.3.1*	☐
Surface-based infiltration BMPs	☐
Biotreatment BMPs	☐
Above-ground cisterns and basins	☐
Underground detention	☐
Other:	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with evapotranspiration and/or rainwater harvesting BMPs in combination with infiltration BMPs. If not, document below how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with these BMP categories.

As was described in the Section IV.3.2, the full LID Design Storm Capture Volume can be met with the use of infiltration BMP's. Therefore, additional evapotranspiration and/or rainwater harvesting BMP's are not required.

If during the final design phase of the project and development of the projects Final WQMP it is determined the full DCV cannot be met through infiltration BMP's, then infiltration BMP's shall be implemented to the maximum extent practicable. Any unmet treatment of the DCV shall be met through the use of evapotranspiration and/or harvest and use BMP's to the maximum extent practicable in order to satisfy Permit requirements, as described in the TGD.

IV.3.4 Biotreatment BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, and/or evapotranspiration and rainwater harvesting BMPs, describe biotreatment BMPs included. Include sections for selection, suitability, sizing, and infeasibility, as applicable.

Name	Included?
Bioretention with underdrains	☐
Stormwater planter boxes with underdrains	☐
Rain gardens with underdrains	☐
Constructed wetlands	☐
Vegetated swales	☐
Vegetated filter strips	☐
Proprietary vegetated biotreatment systems	☐
Wet extended detention basin	☐
Dry extended detention basins	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with infiltration, evapotranspiration, rainwater harvesting and/or biotreatment BMPs. If not, document how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with these BMP categories.

As was described in the Section IV.3.2, the full LID Design Storm Capture Volume can be met with the use of infiltration BMP's. Therefore, additional biotreatment BMP's are not required.

If during the final design phase of the project and development of the projects Final WQMP it is determined the full DCV cannot be met through infiltration, evapotranspiration, and/or harvest and use BMP's, then infiltration, evapotranspiration, and harvest and use BMP's shall be implemented to the maximum extent practicable. Any unmet treatment of the DCV shall be met through the use of biotreatment BMP's to the maximum extent practicable in order to satisfy Permit requirements, as described in the TGD.

IV.3.5 Hydromodification Control BMPs

Describe hydromodification control BMPs. *See Section 5 of the Technical Guidance Document (TGD).* Include sections for selection, suitability, sizing, and infeasibility, as applicable. Detail compliance with Prior Conditions of Approval (if applicable).

There are no Hydrologic Condition of Concern (HCOC) on this project. Hydromodification Control BMP's are not proposed.

Hydromodification Control BMPs	
BMP Name	**BMP Description**

IV.3.6 Regional/Sub-Regional LID BMPs

Describe regional/sub-regional LID BMPs in which the project will participate. *Refer to Section 7.II-2.4.3.2 of the Model WQMP.*

Regional/Sub-Regional LID BMPs
Not Applicable

IV.3.7 Treatment Control BMPs

Treatment control BMPs can only be considered if the project conformance analysis indicates that it is not feasible to retain the full design capture volume with LID BMPs. Describe treatment control BMPs including sections for selection, sizing, and infeasibility, as applicable.

Treatment Control BMP's are not proposed for the majority of the site. However, pre-treatment shall be provided for the design capture volume tributary to the proposed underground infiltration basin.

Treatment Control BMPs	
BMP Name	**BMP Description**
Hydrodynamic Separator Device	Used for pre-treatment of the design capture volume tributary to the proposed underground infiltration basin. Unit shall be Contech CDS or approved equal.

IV.3.8 Non-structural Source Control BMPs

Fill out non-structural source control check box forms or provide a brief narrative explaining if non-structural source controls were not used.

Non-Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
N1	Education for Property Owners, Tenants and Occupants	☒	☐	
N2	Activity Restrictions	☒	☐	
N3	Common Area Landscape Management	☒	☐	
N4	BMP Maintenance	☒	☐	
N5	Title 22 CCR Compliance (How development will comply)	☒	☐	
N6	Local Industrial Permit Compliance	☐	☒	Not applicable for proposed land use.
N7	Spill Contingency Plan	☐	☒	Not applicable for proposed land use.
N8	Underground Storage Tank Compliance	☐	☒	Not applicable for proposed land use.
N9	Hazardous Materials Disclosure Compliance	☒	☐	
N10	Uniform Fire Code Implementation	☒	☐	
N11	Common Area Litter Control	☒	☐	
N12	Employee Training	☒	☐	
N13	Housekeeping of Loading Docks	☐	☒	Not applicable for proposed land use.
N14	Common Area Catch Basin Inspection	☒	☐	
N15	Street Sweeping Private Streets and Parking Lots	☒	☐	
N16	Retail Gasoline Outlets	☐	☒	Not applicable for proposed land use.

IV.3.9 Structural Source Control BMPs

Fill out structural source control check box forms or provide a brief narrative explaining if structural source controls were not used.

Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
S1	Provide storm drain system stenciling and signage	☒	☐	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	☐	☒	Not applicable for proposed land use.
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☒	☐	
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	
S5	Protect slopes and channels and provide energy dissipation	☒	☐	
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	☒	☐	
S6	Dock areas	☐	☒	Not applicable for proposed land use.
S7	Maintenance bays	☐	☒	Not applicable for proposed land use.
S8	Vehicle wash areas	☐	☒	Not applicable for proposed land use.
S9	Outdoor processing areas	☐	☒	Not applicable for proposed land use.
S10	Equipment wash areas	☐	☒	Not applicable for proposed land use.
S11	Fueling areas	☐	☒	Not applicable for proposed land use.
S12	Hillside landscaping	☐	☒	Not applicable for proposed land use.
S13	Wash water control for food preparation areas	☐	☒	Not applicable for proposed land use.
S14	Community car wash racks	☐	☒	Not applicable for proposed land use.

IV.4 Alternative Compliance Plan (If Applicable)

Describe an alternative compliance plan (if applicable). Include alternative compliance obligations (i.e., gallons, pounds) and describe proposed alternative compliance measures. *Refer to Section 7.II 3.0 in the WQMP.*

Not Applicable.

IV.4.1 Water Quality Credits

Determine if water quality credits are applicable for the project. *Refer to Section 3.1 of the Model WQMP for description of credits and Appendix VI of the Technical Guidance Document (TGD) for calculation methods for applying water quality credits.*

<table>
<tr><th colspan="5">Description of Proposed Project</th></tr>
<tr><td colspan="5">Project Types that Qualify for Water Quality Credits (Select all that apply):</td></tr>
<tr><td colspan="2">☐Redevelopment projects that reduce the overall impervious footprint of the project site.</td><td colspan="2">☐Brownfield redevelopment, meaning redevelopment, expansion, or reuse of real property which may be complicated by the presence or potential presence of hazardous substances, pollutants or contaminants, and which have the potential to contribute to adverse ground or surface WQ if not redeveloped.</td><td>☐ Higher density development projects which include two distinct categories (credits can only be taken for one category): those with more than seven units per acre of development (lower credit allowance); vertical density developments, for example, those with a Floor to Area Ratio (FAR) of 2 or those having more than 18 units per acre (greater credit allowance).</td></tr>
<tr><td colspan="2">☐ Mixed use development, such as a combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that can demonstrate environmental benefits that would not be realized through single use projects (e.g. reduced vehicle trip traffic with the potential to reduce sources of water or air pollution).</td><td colspan="2">☐ Transit-oriented developments, such as a mixed use residential or commercial area designed to maximize access to public transportation; similar to above criterion, but where the development center is within one half mile of a mass transit center (e.g. bus, rail, light rail or commuter train station). Such projects would not be able to take credit for both categories, but may have greater credit assigned</td><td>☐ Redevelopment projects in an established historic district, historic preservation area, or similar significant city area including core City Center areas (to be defined through mapping).</td></tr>
<tr><td>☐Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.</td><td>☐ Developments in a city center area.</td><td>☐ Developments in historic districts or historic preservation areas.</td><td>☐ Live-work developments, a variety of developments designed to support residential and vocational needs together – similar to criteria to mixed use development; would not be able to take credit for both categories.</td><td>☐In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.</td></tr>
</table>

Calculation of Water Quality Credits (if applicable)	Not applicable.

IV.4.2 Alternative Compliance Plan Information

Describe an alternative compliance plan (if applicable). Include alternative compliance obligations (i.e., gallons, pounds) and describe proposed alternative compliance measures. *Refer to Section 7.II 3.0 in the Model WQMP.*

Not applicable.

Section V Inspection/Maintenance Responsibility for BMPs

Fill out information in table below. Prepare and attach an Operation and Maintenance Plan. Identify the funding mechanism through which BMPs will be maintained. Inspection and maintenance records must be kept for a minimum of five years for inspection by the regulatory agencies. *Refer to Section 7.II 4.0 in the Model WQMP.*

BMP Inspection/Maintenance			
BMP	**Reponsible Party(s)**	**Inspection/ Maintenance Activities Required**	**Minimum Frequency of Activities**
Underground Infiltration Basin (Contech CMP Infiltration System or approved equal)	Property Management Association	Regular inspections of system to observe sediment build up and infiltration capacity. Cleaning of accumulated trash, debris, and sediment as determined by inspections. Cleaning is recommended during dry weather. Per manufacturer recommendations	At a minimum, quarterly inspections and within 48-hours following a significant storm event to verify there is no standing water in the chambers. Per manufacturer recommendations.
Bioinfiltration Basin	Property Management Association	Inspection and repair or replacement of the treatment area components.	As part of routine periodic maintenance of project landscaped area. Minimum of once per month and after any significant storm event.

Permeable Pavement	Property Management Association	Inspection and repair or replacement of the treatment area components. Vacuum pavement openings in the dry season or when pavement area has been flooded with sediment or landscape waste. Sweeping and/or spraying of the BMP area is not recommended as it tends to move the sediment rather than remove it. Also, sweeping and spraying may move the sediment deeper into the surface openings, making them more difficult to remove.	At minimum 2-times per year, both before the rainy season and after at least one major storm to check for standing water. Adjust inspection schedule as needed.
N1 - Education for Property Owners, Tenants and Occupants	Property Management Association	Provide environmental awareness educational materials made available by the City of Anaheim and/or the County of Orange. These materials will describe the use of chemicals that should be limited to the property, with no discharges of wastes via hosing or other direct discharge to gutters, catch basins and storm drains.	Upon initial tenancy and ongoing thereafter.

N2 - Activity Restrictions	Property Management Association	Use restrictions that may include car washing, rinsing, waste disposal, or other activity potentially detrimental to downstream receiving waters. Restricted activities to be developed by the PMA and implemented through lease terms.	Upon initial tenancy and ongoing thereafter.
N3 - Common Area Landscape Management	Property Management Association	Utilize landscape maintenance practices aimed at minimizing use of irrigation, fertilizers and pesticides. Usage shall be consistent with Management Guidelines for Use of Fertilizers (DAMP Section 5.5). Landscaping shall correlate to the climate, soil, and related natural resources of the area. Plantings shall be grouped with plants of similar water requirements.	Ongoing. Review and revise annually, and as needed.
N4 - BMP Maintenance	Property Management Association	Inspection of all structural and non-structural BMP's. Scheduling of required cleaning and maintenance activities. BMP inspection and any resulting	Varies by BMP. Annually at a minimum (prior to the rainy season).

		maintenance activity shall be performed at regular intervals as part of the overall Landscape Management program, and prior to the start of the rainy season.	
N5 - Title 22 CCR Compliance	Property Management Association	Comply with all applicable local water quality ordinances. The local jurisdiction (City), under local water quality ordinances, have authority to ensure clean stormwater discharges from areas of concern to public properties.	Ongoing. Review and revise annually, and as needed.
N9 - Hazardous Materials Disclosure Compliance	Property Management Association	Comply with State regulations dealing with hazardous materials, enforced by the City on behalf of the State. Hazardous materials shall either be placed in an enclosure that prevents contact with runoff or is protected by a secondary containment structure such as a berm, dyke, or curb. Any storage area containing hazardous materials shall be paved and sufficiently impervious to	Ongoing. Review and revise annually, and as needed.

		contain any leaks and/or spills. Storage areas containing hazardous materials shall have a roof or awning to minimize direct precipitation and collection of stormwater within the secondary containment area. Any stormwater retained within the containment area shall be disposed of in accordance with the applicable hazardous material disposal ordinances. Hazardous materials shall be disposed of at the nearest Hazard Materials Disposal Center. CASQA BMP Handbook SC-34 and SC-60 shall be used as a resource when developing applicable hazardous material cleanup and prevention strategies.	
N10 - Uniform Fire Code Implementation	Property Management Association	Comply with Article 80 of the Uniform Fire Code enforced by the fire protection agency.	Ongoing. Review and revise annually, and as needed.
N11 - Common Area Litter Control	Property Management Association	Good housekeeping practices shall be adhered to that aim to minimize litter and trash production on the site. Good	Ongoing. Review and revise annually, and as needed.

		housekeeping practices include but are not limited to: covering storage areas, using drip pans or absorbent materials when working with oils/greases, checking storage containers regularly for leaks or damage, regular sweeping and clean-up of trash storage and recycling areas, and regular clean-up of loose trash and debris around site. Trash management and litter control procedures on the site aim to reduce pollution of stormwater. Contracted maintenance firms may provide this service during regularly scheduled maintenance, which should consist of litter patrol, proper disposal of pet litter, emptying of trash receptacles, and noting trash disposal violations and reporting the violations to the Owner for correction. CASQA BMP Handbook SC-34 and SC-60 shall be used as a resource when	

		developing applicable trash and litter control cleanup and prevention strategies.	
N12 - Employee Training		Provide employee training / education information to janitorial, maintenance, landscaping, and other staff for activities that may impact water quality. Educational materials will utilize brochures obtained from the City, County and State resources Public Education Materials is available in Attachment E of this WQMP.	Employee training shall take place at a minimum at the time of hiring, and annually thereafter.
N14 - Common Area Catch Basin Inspection	Property Management Association	Conduct regular inspection, cleaning, and maintenance of common area catch basins. Cleaning and maintenance activities may include removal of trash, sediment, debris, or other deleterious material from the catch basin. Catch basins shall be visually inspected for illegal dumping. If illegal dumping has occurred the proper authorities shall be notified as soon as practicable.	At minimum 2-times per year, both before the rainy season and after at least one major storm to check for standing water. Adjust inspection schedule as needed.

N15 - Street Sweeping Private Streets and Parking Lots	Property Management Association	Provide vacuum sweeping for paved areas. Sweeping operations shall be performed during dry weather. CASQA BMP Handbook SC-43 and SC-70 shall be used as a resource for determining the frequency and procedures for providing vacuum sweeping of the paved areas. Sweeping and/or spraying of permeable paver areas is not recommended as it tends to move the sediment rather than remove it. Also, sweeping and spraying may move the sediment deeper into the surface openings, making them more difficult to remove.	At minimum 2-times per year, both before the rainy season and after at least one major storm to check for standing water. Adjust inspection schedule as needed.
S1 - Provide storm drain system stencilling and signage	Property Management Association	Provide stencilling that is easily visible on or near each catch basin. Stencilling shall provide a brief statement, which prohibits the dumping of improper materials into the storm drain.	Stencilling shall be inspected annually, and maintained or repainted as needed.
S3 - Design and construct trash and waste storage areas to reduce pollution introduction	Owner then Property Management Association	All trash enclosure areas shall be paved with an impervious surface, designed not to allow run-on from	During design/construction activities. Ongoing inspection and maintenance

		adjoining areas, designed to divert drainage from adjoining roofs and pavements around the area, screened or walled to prevent off-site transport of trash, and shall include solid roofing or an awning to prevent direct precipitation. Trash area drains to the storm drain system is prohibited.	thereafter.
S4 - Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	Owner then Property Management Association	Implement irrigation methods to minimize runoff of excess irrigation water across impervious surfaces and into the stormwater conveyance system. Such measures include employing rain-triggered shutoff devices to eliminate or reduce irrigation during and immediately after precipitation, using mulches (such as wood chips) to minimize sediment in runoff and to maintain soil infiltration capacity, and coordinating design of the irrigation system and landscape to minimize overspray and runoff. Irrigation systems should consider the	During design/construction activities. Ongoing inspection and maintenance thereafter.

		use of flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or water supply lines. Water conservation devices such as programmable irrigation timers, drip irrigation, and soil moisture sensors should also be considered. Regular inspection and any resulting maintenance of irrigation systems shall be on-going and part of the overall Landscape/Site Management program.	
S5 - Protect slopes and channels and provide energy dissipation	Property Management Association	Protect slopes, channels, and energy dissipation devices so function is maintained. The potential for erosion of slopes and/or channels shall be minimized by incorporating the following BMP's, as applicable: immediate stabilization of disturbed slopes; vegetate slopes with native or drought tolerant vegetation; control and treat	Regular inspection and any resulting maintenance of slopes, channels, and energy dissipation devices shall be on-going and part of the overall Landscape/Site Management program.

		flows in landscaping prior to reaching existing natural drainage system.	

Section VI BMP Exhibit (Site Plan)

VI.1 BMP Exhibit (Site Plan)

Include a BMP Exhibit (Site Plan), at a size no less than 24" by 36," which includes the following minimum information:

- Insert in the title block (lower right hand corner) of BMP Exhibit: the WQMP Number (assigned by staff) and the grading/building or Planning Application permit numbers
- Project location (address, tract/lot number(s), etc.)
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural BMP locations
- Drainage delineations and flow information
- Delineate the area being treated by each structural BMP
- GIS coordinates for LID and Treatment Control BMPs
- Drainage connections
- BMP details
- Preparer name and stamp

Please do not include any areas outside of the project area or any information not related to drainage or water quality. The approved BMP Exhibit (Site Plan) shall be submitted as a plan sheet on all grading and building plan sets submitted for plan check review and approval. The BMP Exhibit shall be at the same size as the rest of the plan sheets in the submittal and shall have an approval stamp and signature prior to plan check submittal.

See Appendix A for WQMP Site Plan / BMP Exhibit.

VI.2 Submittal and Recordation of Water Quality Management Plan

Following approval of the Final Project-Specific WQMP, three copies of the approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be submitted. In addition, these documents shall be submitted in a PDF format.

Each approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be recorded in the Orange County Clerk-Recorder's Office, prior to close-out of grading and/or building permit. Educational Materials are not required to be included.

Section VII Educational Materials

Refer to the Orange County Stormwater Program (ocwatersheds.com) for a library of materials available. Please only attach the educational materials specifically applicable to this project. Other materials specific to the project may be included as well and must be attached.

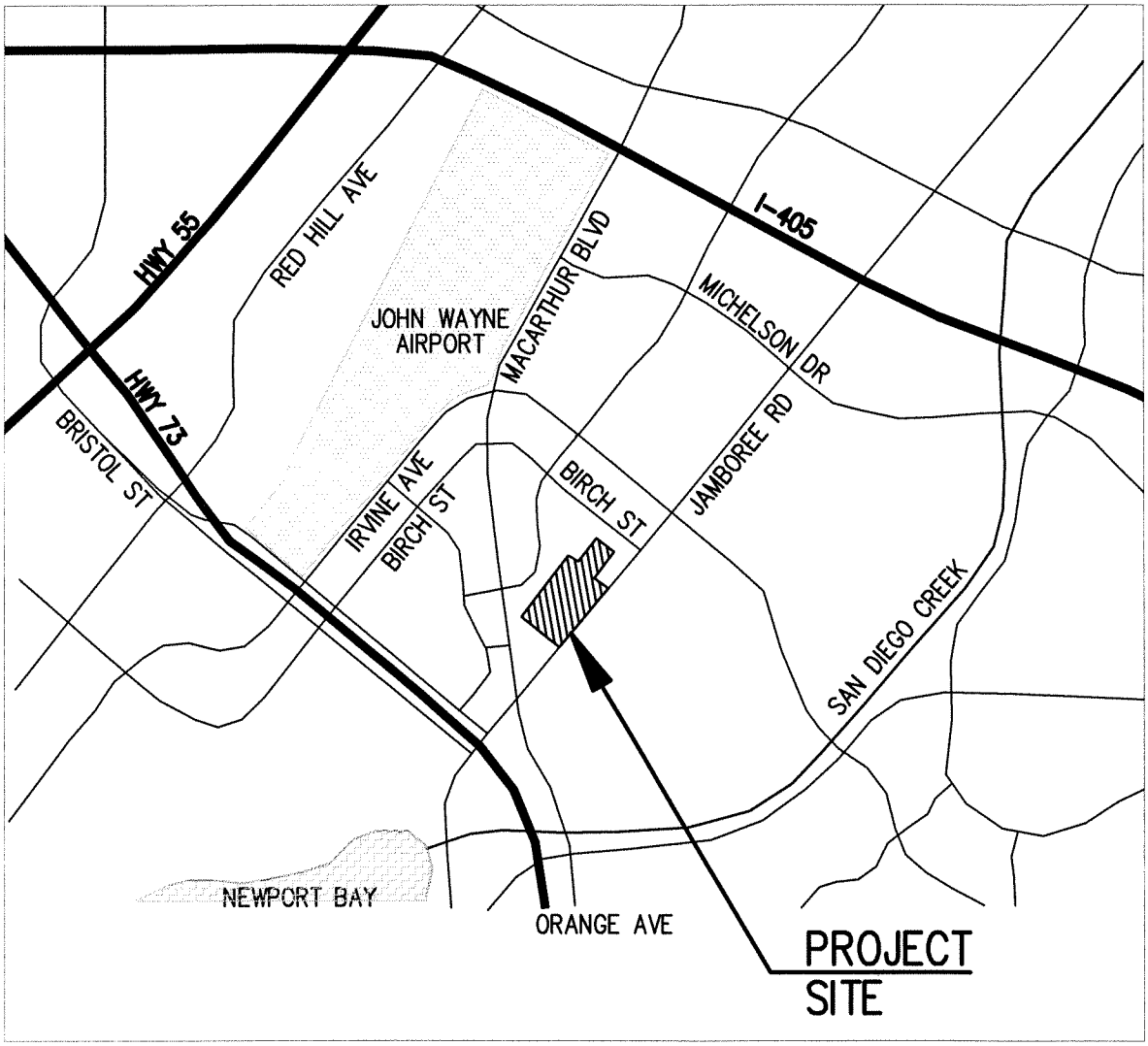
See Appendix F for Educational Materials.

Education Materials			
Residential Material (http://www.ocwatersheds.com)	**Check If Applicable**	**Business Material (http://www.ocwatersheds.com)**	**Check If Applicable**
The Ocean Begins at Your Front Door	☒	Tips for the Automotive Industry	☐
Tips for Car Wash Fund-raisers	☐	Tips for Using Concrete and Mortar	☒
Tips for the Home Mechanic	☐	Tips for the Food Service Industry	☒
Homeowners Guide for Sustainable Water Use	☒	Proper Maintenance Practices for Your Business	☒
Household Tips	☒	**Other Material**	**Check If Attached**
Proper Disposal of Household Hazardous Waste	☒		
Recycle at Your Local Used Oil Collection Center (North County)	☒	Orange County Watersheds Brochure	☒
Recycle at Your Local Used Oil Collection Center (Central County)	☐	Stormwater General Information (reference City of Newport Beach)	☒
Recycle at Your Local Used Oil Collection Center (South County)	☐	How to Protect our Bay and Ocean (reference City of Newport Beach)	☒
Tips for Maintaining a Septic Tank System	☐	Pollution Reporting (reference City of Newport Beach)	☒
Responsible Pest Control	☒	Hazardous Waste and Oil Recycling (reference City of Newport Beach)	☒
Sewer Spill	☒	Commercial Trash Enclosure (reference San Bernardino County)	☒
Tips for the Home Improvement Projects	☒	Food and Restaurant Pollution Prevention (reference San Bernardino County)	☒
Tips for Horse Care	☐	Managing Fats, Oils, and Greases (reference San Bernardino County)	☒
Tips for Landscaping and Gardening	☒		☐
Tips for Pet Care	☒		☐
Tips for Pool Maintenance	☐		☐

Tips for Residential Pool, Landscape and Hardscape Drains	☐		☐
Tips for Projects Using Paint	☒		☐

Appendix A - Maps, Figures, and Exhibits

- **Vicinity Map**
- **Figure XVI-1: Orange County Rainfall Zones Map**
- **Figure XVI-2a: NRCS Hydrologic Soils Groups Map**
- **Figure XVI-3d: Susceptibility Analysis Newport Bay-Newport Coastal Streams**
- **WQMP Site Plan / BMP Exhibit**



N

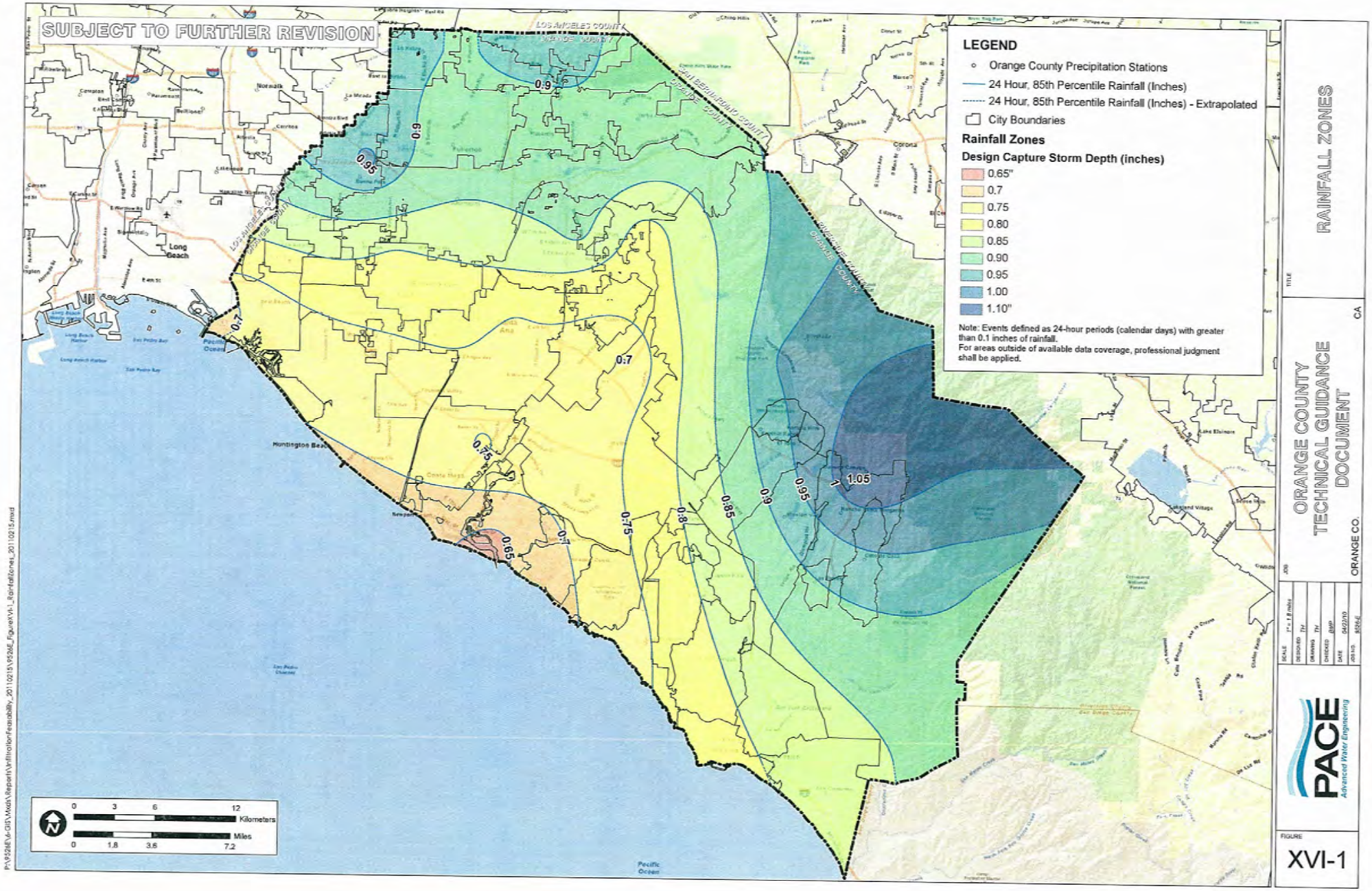
N.T.S.

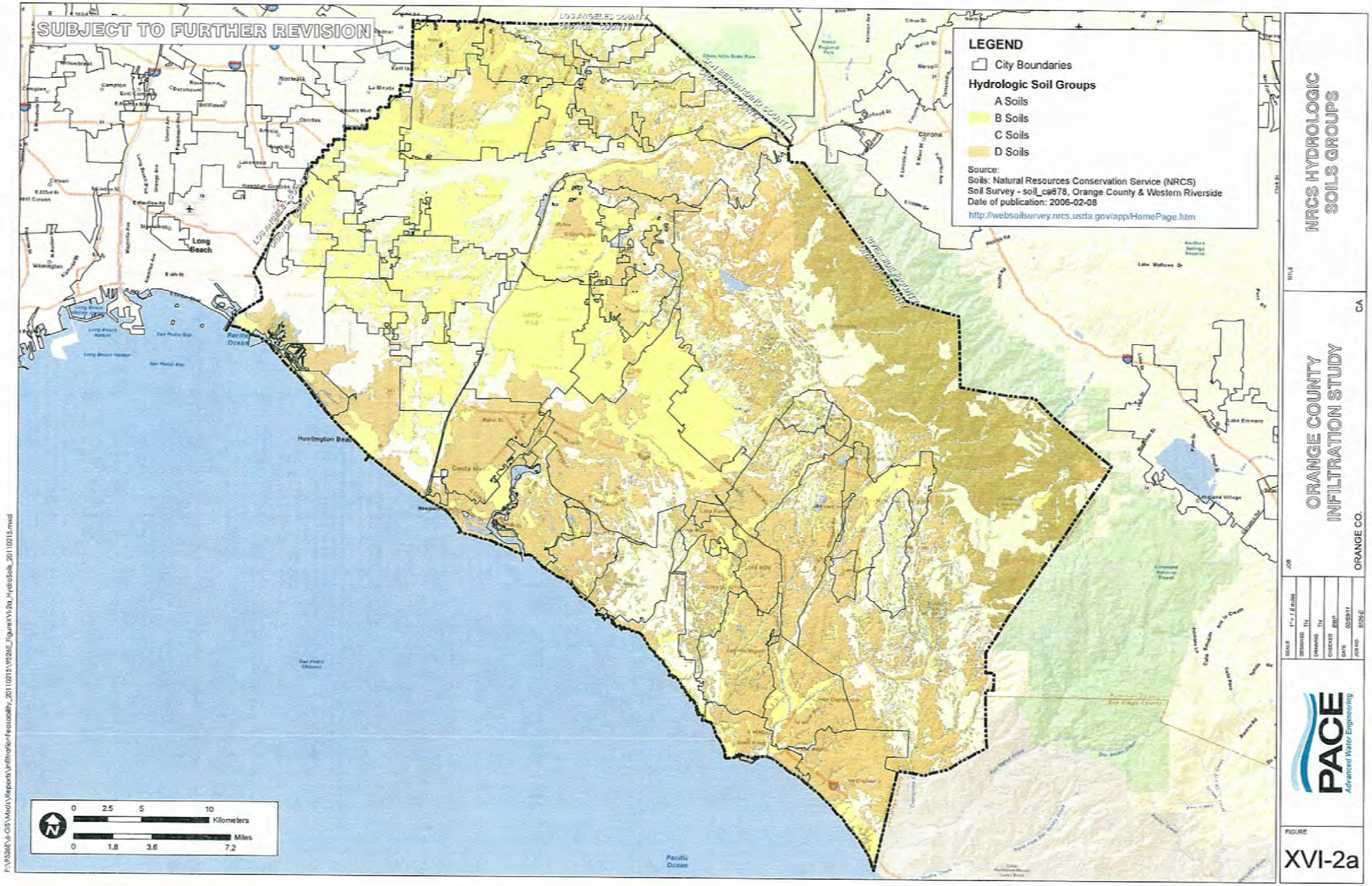
UPTOWN NEWPORT PROJECT
VICINITY MAP

Hall & Foreman, Inc.
Engineering • Planning • Surveying
17782 17TH STREET, SUITE 200 • TUSTIN, CA 92780-1947 • 714-665-4500

Job Number:	II.100288.1000
Date:	NOV. 22, 2011
Scale:	N.T.S.
Sheet 1 of	1 Sheets

Drawing Name: S:\100288\Eng\100288-000\Hm\Hydrology Report\Appendix A - Vicinity Map\Vicinity Map.dwg
Last Opened: Nov 23, 2011 - 9:30am by: GPowell


SUBJECT TO FURTHER REVISION
LEGEND
Orange County Precipitation Stations
24 Hour, 85th Percentile Rainfall (Inches)
24 Hour, 85th Percentile Rainfall (Inches) - Extrapolated
City Boundaries
Rainfall Zones
Design Capture Storm Depth (inches)
0.65"
0.7
0.75
0.80
0.85
0.90
0.95
1.00
1.10"
Note: Events defined as 24-hour periods (calendar days) with greater than 0.1 inches of rainfall.
For areas outside of available data coverage, professional judgment shall be applied.
0.9
0.95
0.7
0.75
0.8
0.85
1
1.05
0.65
Long Beach
Huntington Beach
Newport
Corona
Norwalk
Pacific Ocean
0 3 6 12
Kilometers
0 1.8 3.6 7.2
RAINFALL ZONES
TITLE
ORANGE COUNTY
TECHNICAL GUIDANCE
DOCUMENT
CA
ORANGE CO.
PACE
Advanced Water Engineering
FIGURE
XVI-1



NRCS HYDROLOGIC SOILS GROUPS

ORANGE COUNTY INFILTRATION STUDY

CA

ORANGE CO.

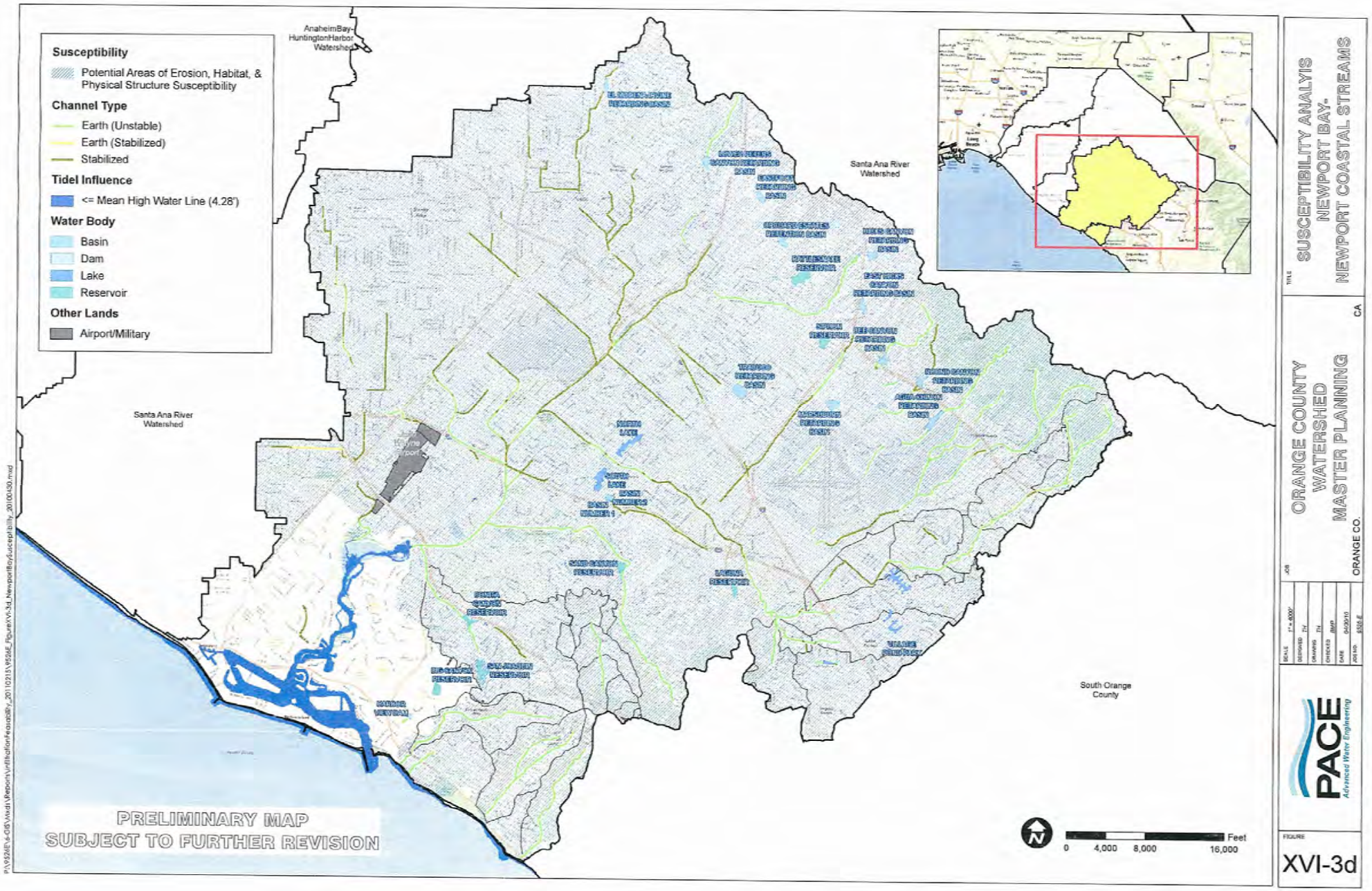
JOB

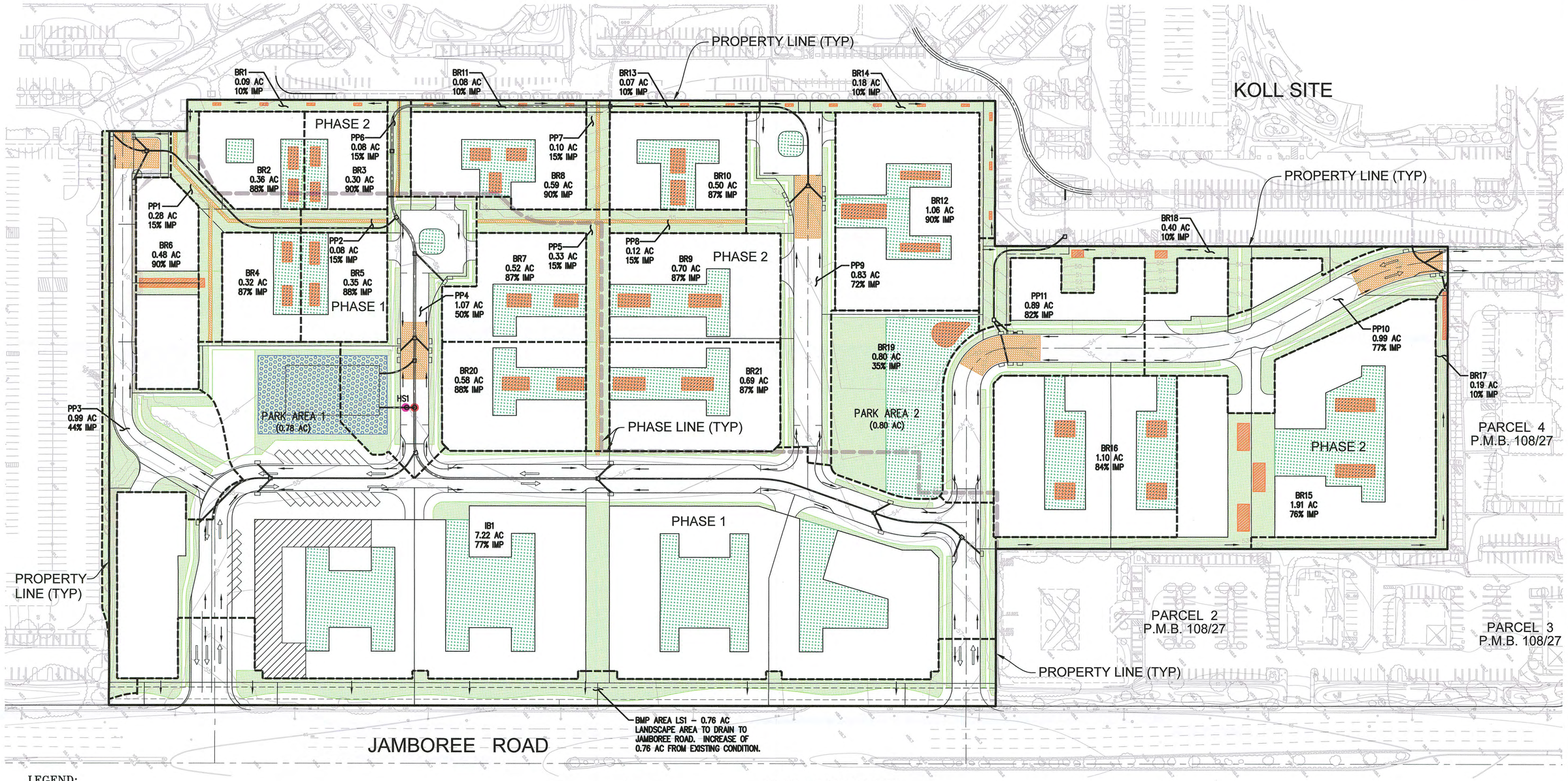
SCALE	1" = 5 Miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	05/09/11
JOB NO	8536E

PACE
Advanced Water Engineering

FIGURE
XVI-2a

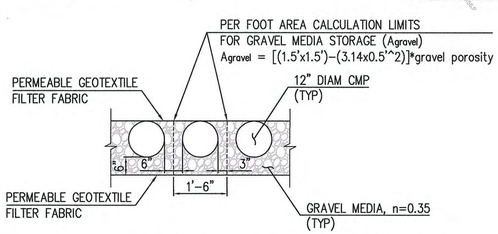
F:\P536E\Ja-GIS\Mxds\Reports\Infiltration Feasibility_20110215\P536E_FigureXVI-2a_HydroSols_20110315.mxd


Susceptibility
Potential Areas of Erosion, Habitat, & Physical Structure Susceptibility
Channel Type
Earth (Unstable)
Earth (Stabilized)
Stabilized
Tidel Influence
<= Mean High Water Line (4.28')
Water Body
Basin
Dam
Lake
Reservoir
Other Lands
Airport/Military
Anaheim Bay-Huntington Harbor Watershed
Santa Ana River Watershed
Santa Ana River Watershed
South Orange County
PRELIMINARY MAP
SUBJECT TO FURTHER REVISION
0
4,000
8,000
16,000
Feet
SUSCEPTIBILITY ANALYIS
NEWPORT BAY-
NEWPORT COASTAL STREAMS
ORANGE COUNTY
WATERSHED
MASTER PLANNING
ORANGE CO.
CA
PACE
Advanced Water Engineering
FIGURE
XVI-3d

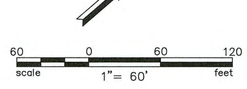


LEGEND:

BMP AREA F8 0.12 AC	BMP TRIBUTARY DRAINAGE AREA
F5	BMP DESIGNATION
●	LOW–FLOW BYPASS STRUCTURE
●	BMP – HYDRODYNAMIC SEPARATOR (PRE–TREATMENT)
	BMP – BIOINFILTRATION BASIN
	BMP – PERMEABLE PAVEMENT/PAVER SYSTEM
	LAND USE – LANDSCAPE AREA DESIGNATION (PLANTER AREA ASSUMES 10% IMPERVIOUS)
	LAND USE – LANDSCAPE AREA DESIGNATION (COURTYARD AREA ASSUMES 50% IMPERVIOUS)
	LAND USE – IMPERVIOUS AREA (BUILDING OR PAVEMENT)
	BMP – UNDERGROUND INFILTRATION BASIN
	BMP TRIBUTARY DRAINAGE AREA BOUNDARY
→	SURFACE FLOW DIRECTION
	CONSTRUCTION PHASE BOUNDARY LINE



INF–7 UNDERGROUND INFILTRATION BASIN
(TYPICAL SECTION)
N.T.S.



TRACT NO. 7953, LOTS 1 AND 2

SITE ADDRESS:
4311–4321 JAMBOREE ROAD
NEWPORT BEACH, CA 92660

APN:
445–131–02
445–131–03

WQMP NO.: XX-XXXX
PLANNING APPLICATION NO.: PA2011-134

DIGALERT
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1–800–227–2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

NO.	DESCRIPTION	DATE	BY
	REVISONS		

REGISTERED PROFESSIONAL ENGINEER GAVIN D. POWELL NO. C67187 EXP. 09–30–12 CIVIL STATE OF CALIFORNIA

Hall & Foreman, Inc.
Engineering · Planning · Surveying
17782 17TH ST, SUITE 200 · TUSTIN, CA 92780–1947 · 714–665–4500
PREPARED UNDER THE SUPERVISION OF:
GAVIN D. POWELL R.C.E. 67187 DATE:

CITY OF NEWPORT BEACH
UPTOWN NEWPORT
PRELIMINARY WQMP
SITE PLAN / BMP EXHIBIT

DRAWN BY: GP	SCALE: 1"=60'
DESIGNED BY: GP	DATE: 11/06/2012
CHECKED BY: JH	SHT NO.: 01 OF 01
APPROVED BY: CITY ENGINEER DATE	

Drawing Name: S:\100286\Admin\Reports\WQMP\Preliminary WQMP\Appendix A – Maps, Figures, and

Appendix B - BMP Sizing Worksheets

- **Table 'B-1' BMP Sizing (Volume and Flow) Calculations**
- **Table 'B-2' INF-7 Underground Infiltration Basin Sizing Calculations**
- **Table 'B-3' INF-4 Bioinfiltration Basin Sizing Calculations**
- **Table 'B-4' INF-6 Permeable Pavement Sizing Calculations**
- **Worksheet 'H' - Factor of Safety and Design Infiltration Rate and Worksheet**
- **Figure III.4 - Capture Efficiency Nomograph for Off-Line Flow-based Systems in Orange County**

UPTOWN NEWPORT - PA2011-134

Preliminary Water Quality Management Plan (WQMP)

Table 'B-1'

BMP Sizing (Volume and Flow) Calculations						
Area Description	Tributary Area (acres)	'i' (% impervious)	'C'	V_{LID} (cu-ft)	Q_{LID} (cfs)	BMP Strategy
BR1	0.09	0.10	0.225	55	0.005	INF-4 Bioinfiltration
BR2	0.36	0.88	0.810	794	0.078	INF-4 Bioinfiltration
BR3	0.30	0.90	0.825	674	0.066	INF-4 Bioinfiltration
BR4	0.32	0.87	0.803	699	0.069	INF-4 Bioinfiltration
BR5	0.35	0.88	0.810	772	0.076	INF-4 Bioinfiltration
PP1	0.28	0.15	0.263	200	0.020	INF-6 Permeable Pavement
PP2	0.08	0.15	0.263	57	0.006	INF-6 Permeable Pavement
BR6	0.48	0.90	0.825	1,078	0.106	INF-4 Bioinfiltration
PP3	0.99	0.44	0.480	1,294	0.127	INF-6 Permeable Pavement
BR7	0.52	0.87	0.803	1,136	0.112	INF-4 Bioinfiltration
BR8	0.59	0.90	0.825	1,325	0.130	INF-4 Bioinfiltration
PP4	0.84	0.60	0.600	1,372	0.135	INF-6 Permeable Pavement
BR9	0.70	0.87	0.803	1,529	0.150	INF-4 Bioinfiltration
PP5	0.33	0.15	0.263	236	0.023	INF-6 Permeable Pavement
BR10	0.50	0.87	0.803	1,092	0.107	INF-4 Bioinfiltration
PP6	0.08	0.15	0.263	57	0.006	INF-6 Permeable Pavement
PP7	0.10	0.15	0.263	71	0.007	INF-6 Permeable Pavement
BR11	0.08	0.10	0.225	49	0.005	INF-4 Bioinfiltration
PP8	0.12	0.15	0.263	86	0.008	INF-6 Permeable Pavement
BR12	1.06	0.90	0.825	2,381	0.234	INF-4 Bioinfiltration
BR13	0.07	0.10	0.225	43	0.004	INF-4 Bioinfiltration
BR14	0.18	0.10	0.225	110	0.011	INF-4 Bioinfiltration
PP9	0.83	0.72	0.690	1,559	0.153	INF-6 Permeable Pavement
BR15	1.91	0.76	0.720	3,744	0.367	INF-4 Bioinfiltration
BR16	1.10	0.84	0.780	2,336	0.229	INF-4 Bioinfiltration
PP10	0.99	0.77	0.728	1,961	0.192	INF-6 Permeable Pavement
BR17	0.19	0.10	0.225	116	0.011	INF-4 Bioinfiltration
BR18	0.40	0.10	0.225	245	0.024	INF-4 Bioinfiltration
BR19	0.80	0.35	0.413	898	0.088	INF-4 Bioinfiltration
PP11	0.89	0.82	0.765	1,854	0.182	INF-6 Permeable Pavement
BR20	0.58	0.88	0.810	1,279	0.126	INF-4 Bioinfiltration
BR21	0.69	0.87	0.803	1,508	0.148	INF-4 Bioinfiltration
IB1	7.22	0.77	0.728	14,300	1.404	INF-7 Underground Infiltration
LS1	0.76	0.10	0.225	466	0.046	None
Entire Site	**24.78**	**0.70**	**0.673**	**45,377**	**4.454**	

V_{LID} = Design Capture Volume (DCV) = 'C' * d * A * 43,560 sf/ac * 1/12 in/ft
'C' = runoff coefficient = 0.75 * 'i' + 0.15
'i' = % impervious per table
d = storm depth (inches) = 0.75
A = tributary area (acres)
Tc = 5-min (assumed)
I = 0.265 inches/hour = design intensity from Figure III.4
Q_{LID} = BMP Design Flowrate = 'C' * I * A * 43,560 sf/ac * 1/12 in/ft * 1/60 hr/min * 1/60 min/sec

UPTOWN NEWPORT - PA2011-134

Preliminary Water Quality Management Plan (WQMP)

Volume Based BMP Sizing Calculations

Table 'B-2'

INF-7 Underground Infiltration Basin Sizing Calculations

BMP Area Designation	Storage Chamber Diameter and Material (D)	Storage Chamber Length (L)	Storage Chamber Capacity (V) *	Gravel Depth below Storage Chamber (D_G)	Ponding Depth (D_P)	Gravel Media Storage (V_G)	CMP Infiltration Basin Storage (V_{CMP})	BMP Volume Provided (V_P)	BMP Volume Required (V_{LID})
	(in)	(ft)	(sq-ft/ft)	(ft)	(ft)	(cu-ft)	(cu-ft)	(cu-ft)	(cu-ft)
IB1	12 CMP	11,121	0.78	0.50	1.18	5,672	8,674	14,346	14,300

* per Contech Engineered Solutions Metal Detention and Infiltration Products Brochure

Objective:

BMP Volume Provide (V_P) > BMP Volume Required (V_{LID})

Ponding Depth (D_P) < Maximum Depth (D_{max})

Assumptions:

$K_{measured}$ = 1.0 in/hr

K_{design} = 0.30 in/hr (= 1.0 in/hr with 3.375 factor of safety applied per Worksheet 'H')

n_{gravel} = 0.35

A_{gravel} = 0.51 square-feet per linear foot of Storage Chamber Length (see Site Plan / BMP Exhibit for calculation summary)

48-Hour Draw Down

Calculations / Formulas:

V_{LID} from Table 'B-1' - BMP Sizing (Volume and Flow) Calculations

$V_{provided}$ = $V_G + V_{CMP}$

V_G = $L*A_G$

V_{CMP} = $L*V$

D_p = $D_G*n_{gravel}+D$

D_{max} = K_{design} * 48 hrs * (1/12) = 1.2 feet

UPTOWN NEWPORT - PA2011-134
Preliminary Water Quality Management Plan (WQMP)
Volume Based BMP Sizing Calculations

Table 'B-3'

INF-4 Bioinfiltration Basin Sizing Calculations							
BMP Area Designation	Gravel Layer Depth (D_G)	Planting Media Depth (D_{soil})	Ponding Depth (D_P)	Total Effective Depth ($D_{effective}$)	BMP Volume Required (V_{LID})	BMP Area Required (A_{LID})	BMP Area Provided (A_{BMP})
	(ft)	(ft)	(ft)	(ft)	(cu-ft)	(sq-ft)	(sq-ft)
BR1	0.00	1.00	0.25	0.50	55	110	120
BR2	0.90	1.50	0.50	1.19	794	667	672
BR3	0.90	1.50	0.50	1.19	674	566	576
BR4	0.90	1.50	0.50	1.19	699	588	600
BR5	0.90	1.50	0.50	1.19	772	649	672
BR6	0.90	1.50	0.50	1.19	1,078	906	913
BR7	0.90	1.50	0.50	1.19	1,136	955	960
BR8	0.90	1.50	0.50	1.19	1,325	1,114	1,125
BR9	0.90	1.50	0.50	1.19	1,529	1,285	1,296
BR10	0.90	1.50	0.50	1.19	1,092	918	1,098
BR11	0.00	1.00	0.25	0.50	49	98	120
BR12	0.90	1.50	0.50	1.19	2,381	2,001	2,026
BR13	0.00	1.00	0.25	0.50	43	86	90
BR14	0.00	1.00	0.25	0.50	110	221	240
BR15	0.90	1.50	0.50	1.19	3,744	3,146	3,160
BR16	0.90	1.50	0.50	1.19	2,336	1,963	2,000
BR17	0.00	1.00	0.25	0.50	116	233	240
BR18	0.90	1.50	0.25	0.94	245	261	270
BR19	0.90	1.50	0.25	0.94	898	956	1,020
BR20	0.90	1.50	0.50	1.19	1,279	1,075	1,088
BR21	0.90	1.50	0.50	1.19	1,508	1,267	1,280

Objective:

BMP Area Provide (A_P) > BMP Area Required (A_{LID})

Total Effective Depth ($D_{effective}$) < Maximum Depth (D_{max})

Assumptions:

$K_{measured}$ = 1.0 in/hr

K_{design} = 0.30 in/hr (= 1.0 in/hr with 3.375 factor of safety applied per Worksheet 'H')

n_{gravel} = 0.35

n_{soil} = 0.25

D_{max} = (K_{design} /12) * 48 = 1.2 ft (maximum depth that can be drawn down in 48-hour period)

48-Hour Draw Down

Calculations / Formulas:

V_{LID} from Table 'B-1' - BMP Sizing (Volume and Flow) Calculations

$D_{effective}$ = (D_G*n_{gravel}) + (D_{soil}*n_{soil}) + D_p

A_{LID} = V_{LID} / $D_{effective}$

UPTOWN NEWPORT - PA2011-134
Preliminary Water Quality Management Plan (WQMP)
Volume Based BMP Sizing Calculations

Table 'B-4'

INF-6 Permeable Pavement Sizing Calculations					
BMP Area Designation	Gravel Layer Depth (D_G)	Total Effective Depth ($D_{effective}$)	BMP Volume Required (V_{LID})	BMP Area Required (A_{LID})	BMP Area Provided (A_{BMP})
	(ft)	(ft)	(cu-ft)	(sq-ft)	(sq-ft)
PP1	0.50	0.18	200	1,143	1,630
PP2	0.50	0.18	57	327	430
PP3	1.75	0.61	1,294	2,112	2,240
PP4	1.75	0.61	1,372	2,240	2,300
PP5	0.50	0.18	236	1,348	1,900
PP6	0.50	0.18	57	327	480
PP7	0.50	0.18	71	408	550
PP8	0.50	0.18	86	490	690
PP9	1.75	0.61	1,559	2,546	2,560
PP10	1.75	0.61	1,961	3,201	3,280
PP11	1.75	0.61	1,854	3,026	3,120

Objective:
BMP Area Provide (A_P) > BMP Area Required (A_{LID})
Total Effective Depth ($D_{effective}$) > Maximum Depth (D_{max})

Assumptions:
$K_{measured}$ = 1.0 in/hr
K_{design} = 0.30 in/hr (= 1.0 in/hr with 3.375 factor of safety applied per Worksheet 'H')
n_{gravel} = 0.35
D_{max} = (K_{design} /12) * 48 = 1.2 ft (maximum depth that can be drawn down in 48-hour period)
48-Hour Draw Down

Calculations / Formulas:
V_{LID} from Table 'B-1' - BMP Sizing (Volume and Flow) Calculations
$D_{effective}$ = $D_G * n_{gravel}$
A_{LID} = V_{LID} / $D_{effective}$

Worksheet H: Factor of Safety and Design Infiltration Rate and Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	3	0.75
		Predominant soil texture	0.25	2	0.50
		Site soil variability	0.25	2	0.50
		Depth to groundwater / impervious layer	0.25	2	0.50
		Suitability Assessment Safety Factor, $S_A = \Sigma p$		9	2.25
B	Design	Tributary area size	0.25	1	0.25
		Level of pretreatment/ expected sediment loads	0.25	1	0.25
		Redundancy	0.25	2	0.50
		Compaction during construction	0.25	2	0.50
		Design Safety Factor, $S_B = \Sigma p$		6	1.50
Combined Safety Factor, $S_{TOT} = S_A \times S_B$					3.375
Measured Infiltration Rate, inch/hr, K_M (corrected for test-specific bias)					1.0
Design Infiltration Rate, in/hr, $K_{DESIGN} = S_{TOT} \times K_M$					0.30

Supporting Data

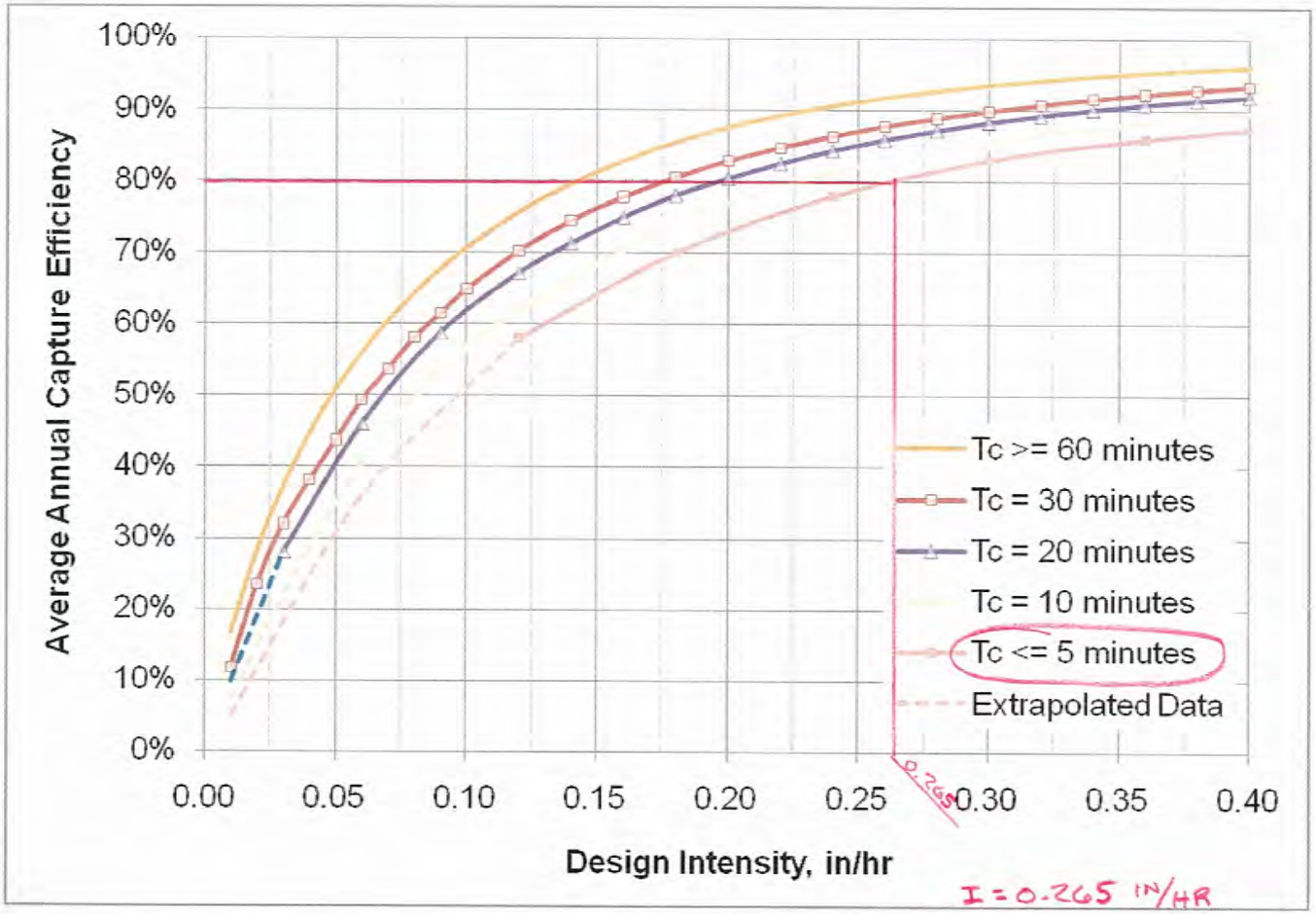
Briefly describe infiltration test and provide reference to test forms:

The Infiltration Rate used as a basis for determining the "Design Infiltration Rate" is 1.0 inches per hour. This is an assumed infiltration rate and is based on available Geotechnical Data, and on input received from the projects Geotechnical Engineer (see Appendix for letter of opinion from the projects Geotechnical Engineer) that infiltration capacity in excess of 1.0 inches per hour can be reasonably anticipated throughout the project site.

Site specific infiltration testing is required to be performed prior to completion of the projects Final WQMP.

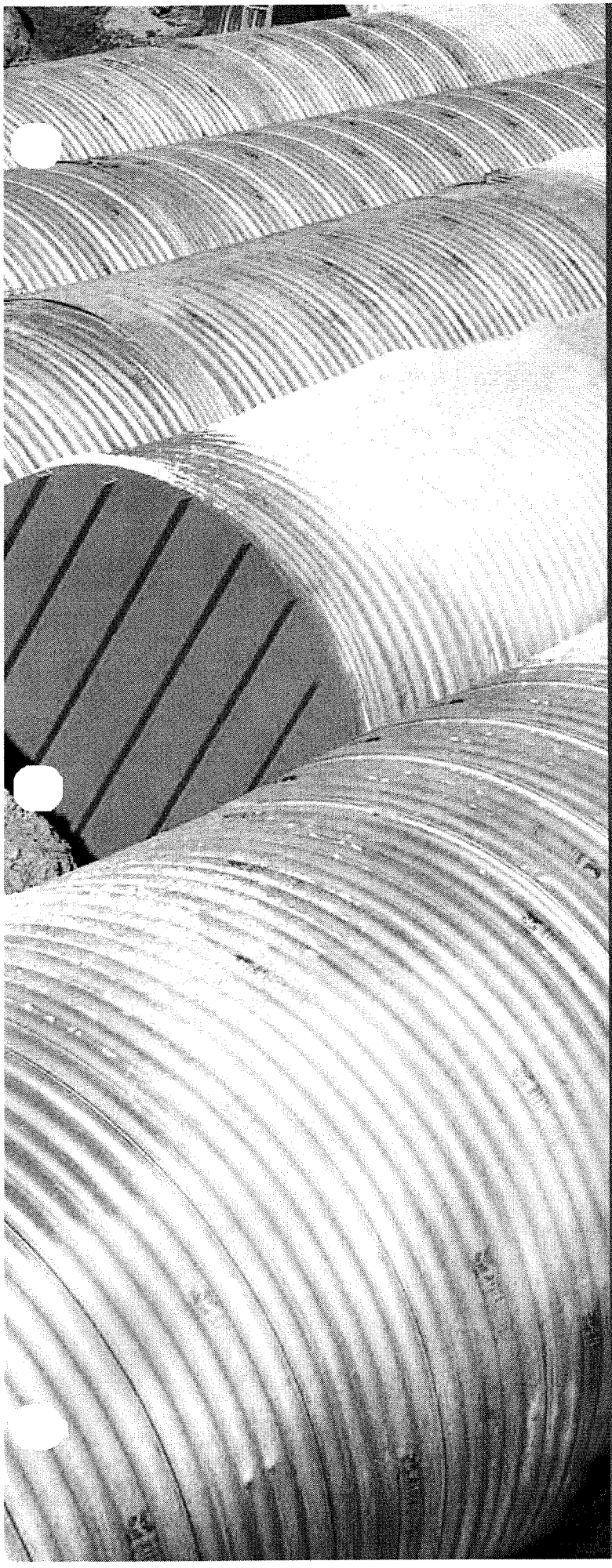
Note: The minimum combined adjustment factor shall not be less than 2.0 and the maximum combined adjustment factor shall not exceed 9.0.

Figure III.4. Capture Efficiency Nomograph for Off-line Flow-based Systems in Orange County



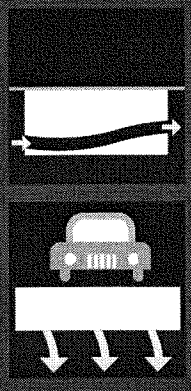
Appendix C - Proprietary Product Data Sheets

- **Contech - UrbanGreen Metal Detention and Infiltration Products**
- **Contech - UrbanGreen Hydrodynamic Separation Products**



URBANGREEN™

Metal Detention and Infiltration Products

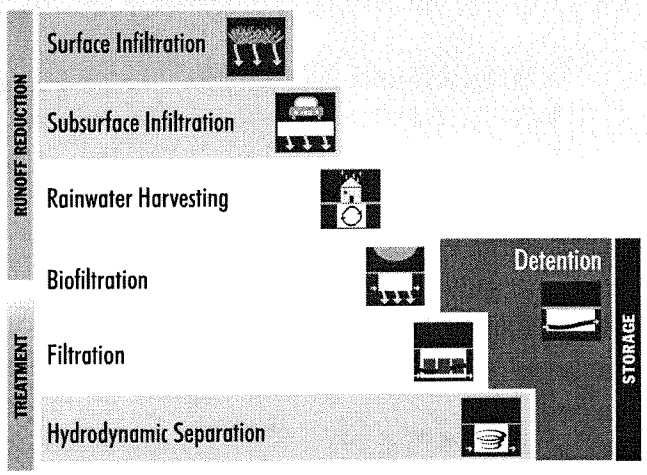


CONTECH®
CONSTRUCTION PRODUCTS INC.

Corrugated Metal Pipe for Stormwater Detention and Infiltration

Selecting the right stormwater solution just got easier...

It's simple to choose the right low impact development (LID) solution to achieve your runoff reduction goals with the CONTECH UrbanGreen Staircase. First, select the runoff reduction practices that are most appropriate for your site, paying particular attention to pretreatment needs. If the entire design storm cannot be retained, select a treatment best management practice (BMP) for the balance. Finally, select a detention system to address any outstanding downstream erosion.



Learn more about our low impact development at www.contech-cpi.com/lid

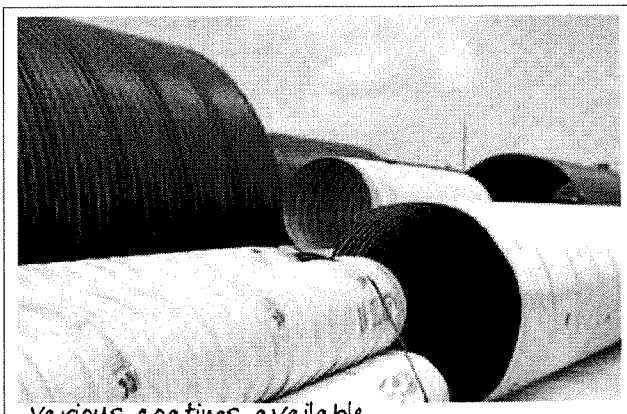
Meet your stormwater quantity and runoff reduction requirements with ease.

CONTECH's corrugated metal pipe (CMP) underground detention/infiltration systems can be sized and shaped to meet your site-specific needs. The versatile material provides almost limitless opportunities to match individual site requirements while lowering site development costs.

Durable

- Proven service life — Exceeds 100-years with proper specification that meets all AASHTO and ASTM pipe specifications
- Handles fill heights in excess of 100 feet – steel gains strength from soil
- 100% traceable material — maintains performance even when recycled
- Homogenous material — eliminates failures due to stress cracks, shrinkage cracks and air voids
- Various coatings available with predictable service life
  - Aluminized Steel™ Type 2
  - Galvanized
  - CORLIX®
  - TRENCHCOAT®

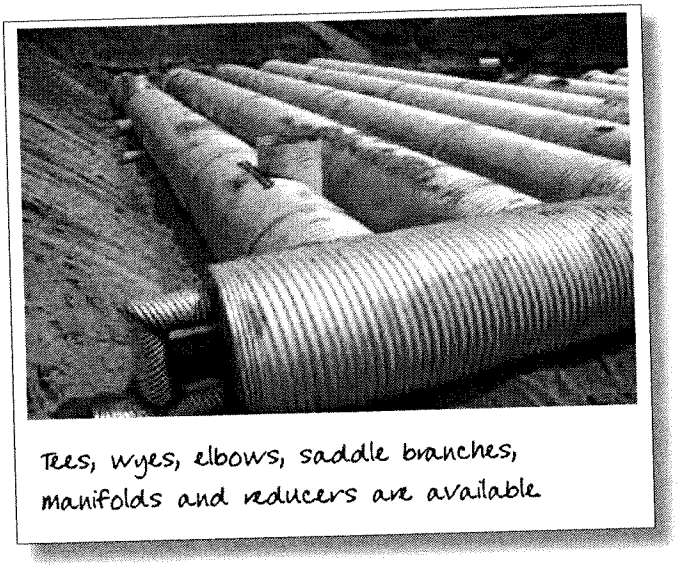
Learn more about our available coatings at www.contech-cpi/cmp



Various coatings available

Versatile

- Wide range of shapes and sizes – round and pipe-arch in diameters from 6 to 144 inches
- Variety of layouts – rectangular, L-shape and staggered cells are frequently used
- Array of fittings – tees, wyes, elbow, saddle branches, manifolds, reducers and custom fabrication available

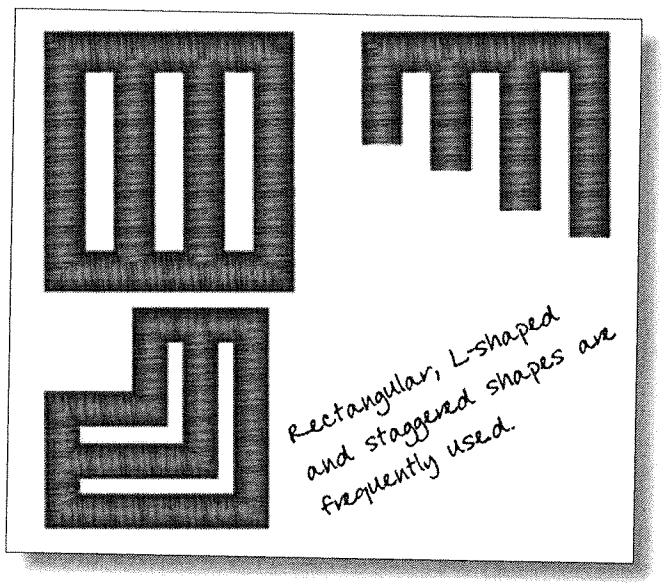


Tees, wyes, elbows, saddle branches, manifolds and reducers are available

Sustainable

- World's most recycled content – can count towards LEED® credits
- Requires less energy and materials to produce – lowers carbon footprint

Learn how CONTECH products can help contribute to LEED credits at www.contech-cpi.com/LEED

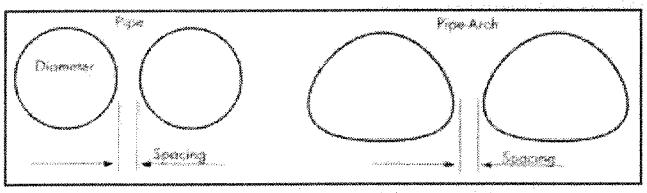


Rectangular, L-shaped and staggered shapes are frequently used.

Easy to Install and Maintain

- Flexible and forgiving during installation
- Lightweight for easy handling
- Quick assembly shortens site development time
- Integrated outlet control structure eliminates need for downstream control structure
- Manhole riser sections, complete with ladders facilitate any access and scheduled maintenance

Typical Spacing for Multiple Barrels



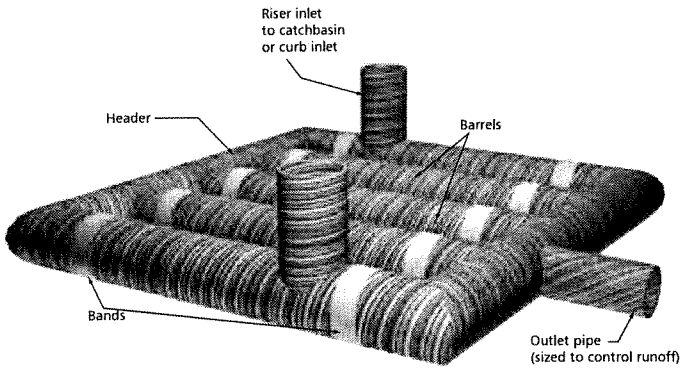
Diameter	Spacing*	Pipe-Arch Span	Spacing*
Up to 24"	12"	Up to 36"	12"
24" to 72"	1/2 Diameter of Pipe	36" to 108"	1/3 Span of Pipe-Arch
72" +	36"	108" to 189"	36"

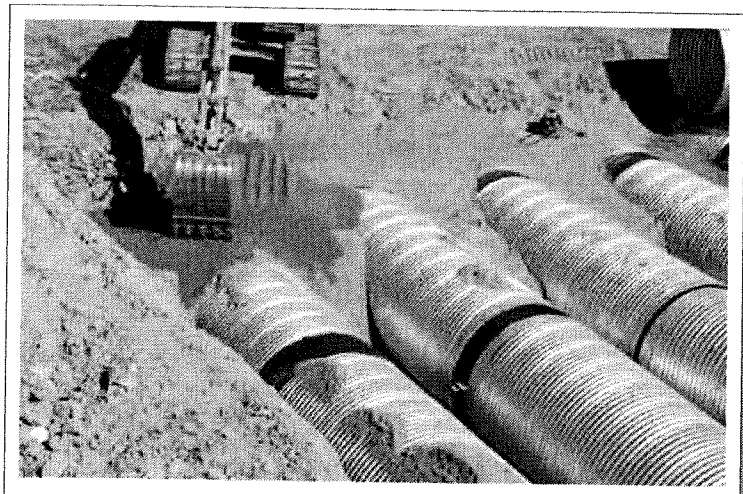
* Spacing shown provides room for proper backfill to enable the structure to develop adequate side support. Spacing with AASHTO M-145, A-1, A-2, A-3 granular fill. Closer spacing is possible depending on quality of backfill and placing and compaction methods.

Applications

Detention

CONTECH CMP detention systems store stormwater runoff exceeding a site's allowable discharge rate and release it slowly over time. Installed belowgrade, the systems maximize property usage and meet your specific water quantity requirements. CMP detention systems are available in all AASHTO M-36 Types. For larger systems, the Optimizer™ flow control device can reduce required storage volume.





CMP detention system

High Volume Storage

CONTECH plate systems allow for high volume stormwater storage in small footprint areas. The systems are offered in a wide variety of shapes and sizes in both aluminum and galvanized steel. Full-pipe systems and three-sided structures with open bottoms can be used for infiltration.

Typically, CONTECH plate systems are used on high vertical rise applications or in areas where the smallest possible footprint is of the greatest concern. The systems are bolted together in the field, which reduces the number of freight loads. Remote sites or projects with challenging accessibility often utilize plate systems.

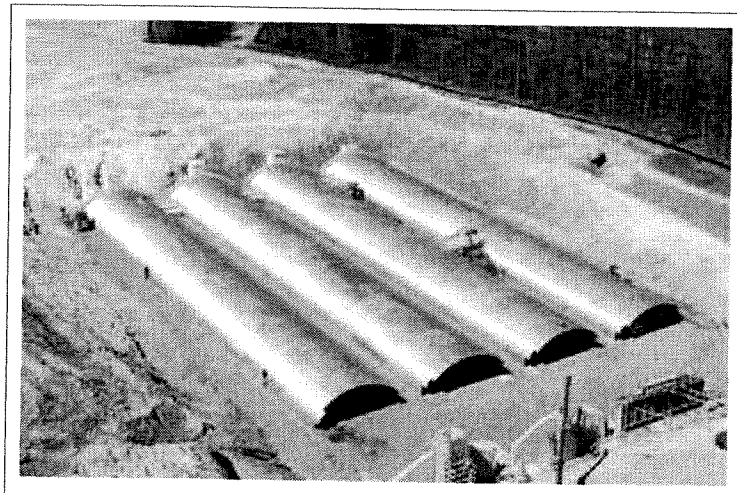
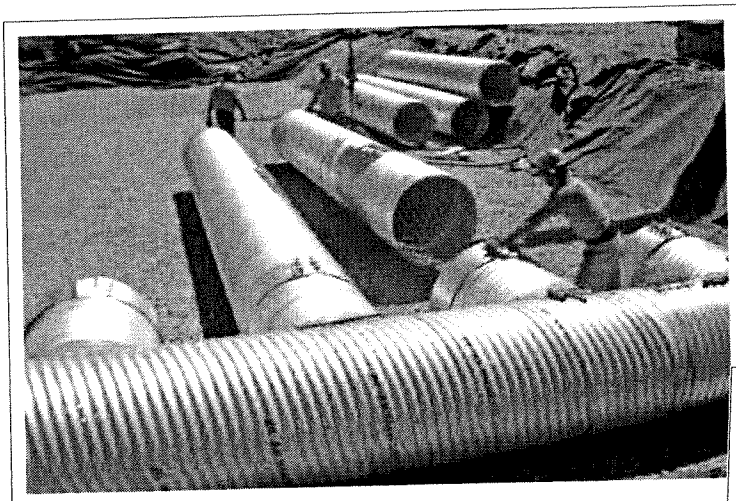


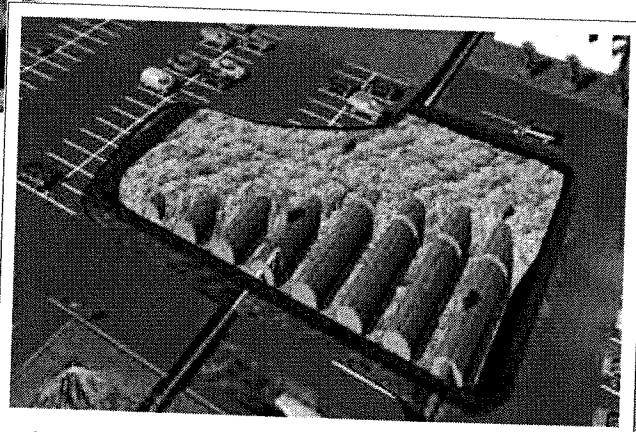
Plate system for high volume storage



CMP infiltration system

Infiltration

CMP pipe and pipe-arch is available fully or partially perforated to meet your Low Impact Development (LID) requirements. Standard pipe-wall perforations (3/8" diameter holes meeting AASHTO M-36, Class 2) provide approximately 2.5% open area. Subsurface perforated CMP infiltration systems store stormwater runoff in the pipe and surrounding stone during a storm until it can be slowly released into the surrounding native soil.



Stormwater runoff is stored in the pipe and surrounding stone

Meet Your Low Impact Development Requirements

Pipe-arch for low profile application.

Low Profile

When vertical space must be maximized, the CMP can be utilized in a pipe-arch shape. The low, wide pipe-arch design allows for greater storage in a shallow profile than typical round pipe without losing any structural integrity. Like our round pipe, pipe arch is produced in six wall thicknesses including 18, 16, 14, 12, 10 and 8 gage, which are available with either helical or annular corrugations.

Applications

On-Site Manufacturing

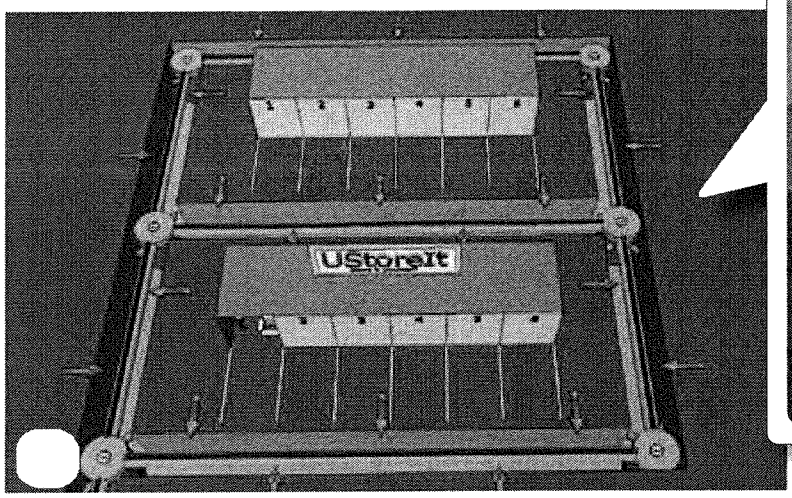
If your job site is remote or you have limited storage space or restricted traffic patterns, take advantage of our Mobile Production Vehicle (MPV) for fast and cost effective on-site steel pipe manufacturing. The PIPE MPV® is designed to be a self-supporting factory that can be quickly deployed and put into production. Once on site, pipe manufacturing progresses quickly enough to allow pipe installation within four hours.

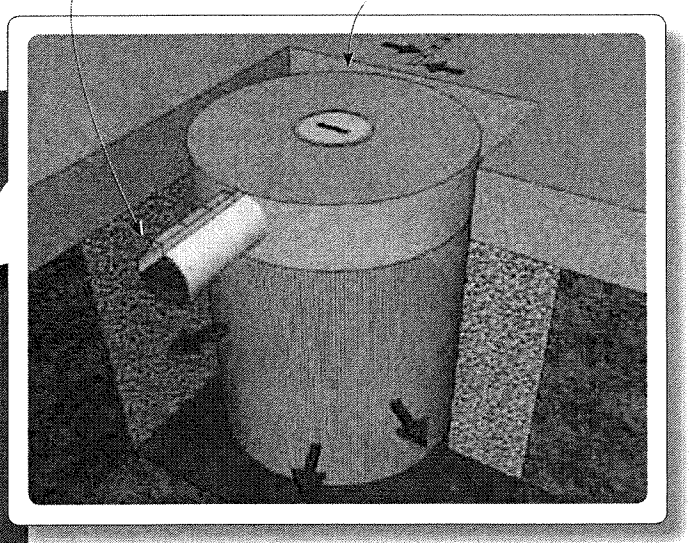
The PIPE MPV can produce corrugated metal pipe in a variety of sizes. Diameters from 36" — 192" and lengths up to 35' can be accommodated. This pipe meets the same levels of quality construction as does all CONTECH manufactured pipe, with high coil feedrate speeds and the same lock-seem edge process used in conventional pipe manufacturing.

Mobile Production vehicle

Innovative Solutions for Challenging Sites

The flexibility of CMP allows you to create innovative solutions when dealing with challenging sites. For example, when trying to meet runoff reduction requirements, your site may be mostly impervious or you may have a thin, shallow clay layer just below the surface, limiting the infiltration capacity of surface BMPs. One solution is to utilize CMP infiltration wells. First, collect the site runoff using our Slotted Drain™ around the perimeter of each drive isle. The Slotted Drain then directs water into vertical lengths of perforated CMP. The vertical perforated CMP is long enough to penetrate the clay layer and infiltrate the stormwater into a highly permeable alluvial layer about 12'-14' belowground. This allows the developer to meet the LID requirements and eliminate the need for the extended detention basin.





Sizing

Round Pipe - CMP and Plate (CMP → 12-in to 144-in; Plate → 60-in to 240-in)

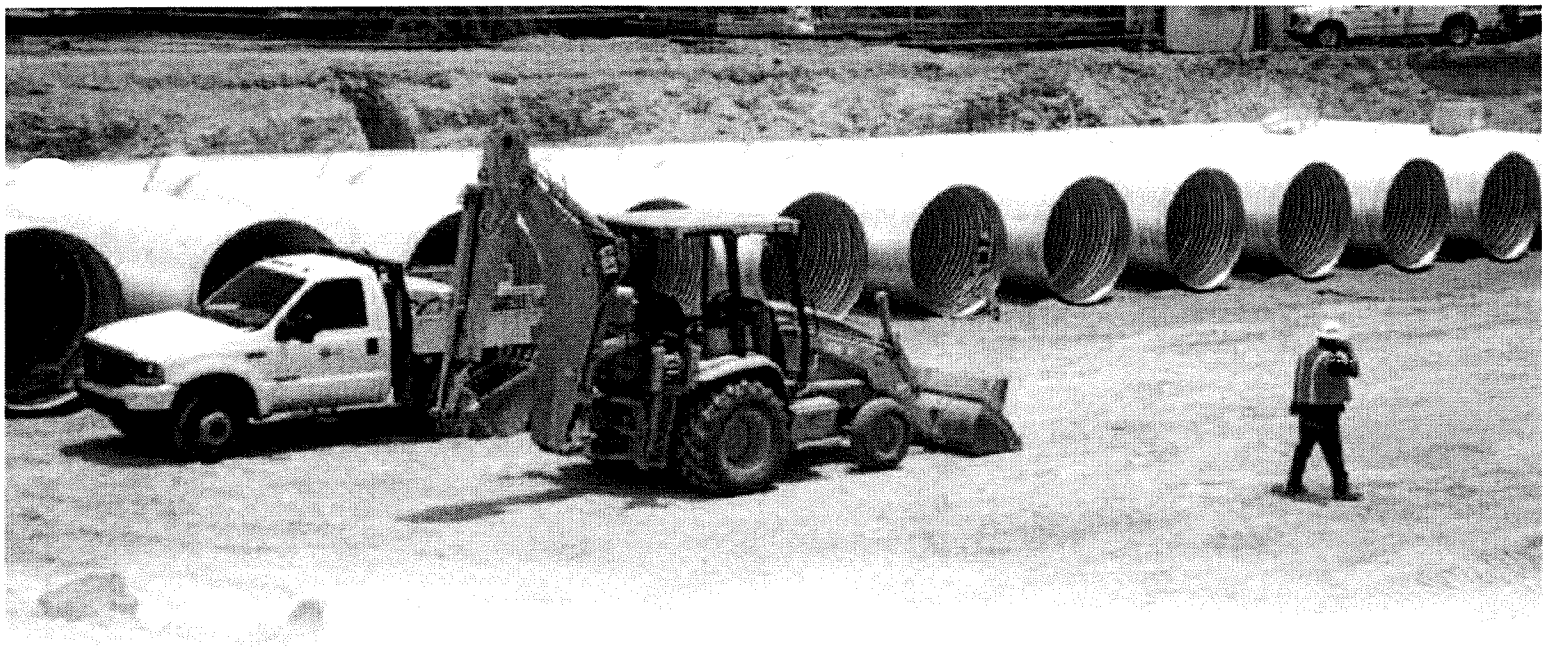
Diameter (inches)	Volume (ft^3/ft)	Min. Cover Height	Diameter (inches)	Volume (ft^3/ft)	Min. Cover Height	Diameter (inches)	Volume (ft^3/ft)	Min. Cover Height	Diameter (inches)	Volume (ft^3/ft)	Min. Cover Height
12	.78	12"	60	19.6	12"	120	78.5	18"	180	176	24"
15	1.22	12"	66	23.7	12"	126	86.5	18"	186	188	24"
18	1.76	12"	72	28.2	12"	132	95.0	18"	192	201	24"
21	2.40	12"	78	33.1	12"	138	103.8	18"	198	213	30"
24	3.14	12"	84	38.4	12"	144	113.1	18"	204	227	30"
30	4.9	12"	90	44.1	12"	150	122	24"	210	240	30"
36	7.0	12"	96	50.2	12"	156	132	24"	216	254	30"
42	9.6	12"	102	56.7	18"	162	143	24"	222	268	30"
48	12.5	12"	108	63.6	18"	168	153	24"	228	283	30"
54	15.9	12"	114	70.8	18"	174	165	24"	234	298	30"

Pipe-Arch - CMP

1/2" Deep Corrugations											
Shape (inches)	Volume (ft^3/ft)	Min. Cover Height	Shape (inches)	Volume (ft^3/ft)	Min. Cover Height	Shape (inches)	Volume (ft^3/ft)	Min. Cover Height	Shape (inches)	Volume (ft^3/ft)	Min. Cover Height
17 x 13	1.1	12"	28 x 20	2.9	12"	49 x 33	8.9	12"	71 x 47	18.1	12"
21 x 15	1.6	12"	35 x 24	4.5	12"	57 x 38	11.6	12"	77 x 52	21.9	12"
24 x 18	2.2	12"	42 x 29	6.5	12"	64 x 43	14.7	12"	83 x 57	26.0	12"
1" Deep Corrugations											
60 x 46	15.6	15"	81 x 59	27.4	18"	103 x 71	42.4	18"	128 x 83	60.5	24"
66 x 51	19.3	15"	87 x 63	32.1	18"	112 x 75	48.0	21"	137 x 87	67.4	24"
73 x 55	23.2	18"	95 x 67	37.0	18"	117 x 79	54.2	21"	142 x 91	74.5	24"

Pipe-Arch - Multi Plate

	2" Deep Corrugations											
	Shape (ft-in.)	Volume (ft^3/ft)	Min. Cover Height	Shape (Inches)	Volume (ft^3/ft)	Min. Cover Height	Shape (Inches)	Volume (ft^3/ft)	Min. Cover Height	Shape (Inches)	Volume (ft^3/ft)	Min. Cover Height
18-in Corner Radius (Rc)	6-1 x 4-7	22	12"	8-7 x 5-11	41	18"	8-7 x 5-11	41	18"	14-1 x 8-9	97	24"
	6-4 x 4-9	24	12"	8-10 x 6-1	43	18"	8-10 x 6-1	43	18"	14-3 x 8-11	101	24"
	6-9 x 4-11	26	12"	9-4 x 6-3	46	18"	9-4 x 6-3	46	18"	14-10 x 9-1	105	24"
	7-0 x 5-1	29	12"	9-6 x 6-5	49	18"	9-6 x 6-5	49	18"	15-4 x 9-3	109	24"
	7-3 x 5-3	31	12"	9-9 x 6-7	52	18"	9-9 x 6-7	52	18"	15-6 x 9-5	114	24"
	7-8 x 5-5	33	12"	10-3 x 6-9	55	18"	10-3 x 6-9	55	18"	15-8 x 9-7	118	24"
	7-11 x 5-7	36	12"	10-8 x 6-11	58	18"	10-8 x 6-11	58	18"	15-10 x 9-10	122	24"
	8-2 x 5-9	38	18"	10-11 x 7-1	61	18"	10-11 x 7-1	61	18"	16-5 x 9-11	126	30"
							13-11 x 8-7	93	24"	16-7 x 10-1	131	30"
31-in Corner Radius (Rc)	13-3 x 9-4	98	24"	15-4 x 10-4	124	24"	17-2 x 11-4	153	30"	19-3 x 12-4	185	30"
	13-6 x 9-6	102	24"	15-7 x 10-6	129	24"	17-5 x 11-6	158	30"	19-6 x 12-6	191	30"
	14-0 x 9-8	106	24"	15-10 x 10-8	134	24"	17-11 x 11-8	163	30"	19-8 x 12-8	196	30"
	14-2 x 9-10	111	24"	16-3 x 10-10	138	30"	18-1 x 11-10	168	30"	19-11 x 12-10	202	30"
	14-5 x 10-0	115	24"	16-6 x 11-0	143	30"	18-7 x 12-0	174	30"	20-5 x 13-0	208	36"
	14-11 x 10-2	120	24"	17-0 x 11-2	148	30"	18-9 x 12-2	179	30"	20-7 x 13-2	214	36"



Next Steps

Learn more

Read our white paper, *Economic Optimization of Infiltration Systems*, to learn more. You'll receive free PDH credits for completing a quick quiz.
Available at **www.contech-cpi.com/cmp**

Connect with us

We're always available to make your job easier. Search for your local rep at **www.contech-cpi.com.** While you're there, be sure to check out our upcoming seminar schedule or request an in-house technical presentation.

Start a Project

If you are ready to begin a project, check out our DYODS calculator available for adjustable and rectangular CMP systems. Download at **www.contech-cpi.com/cmp.**

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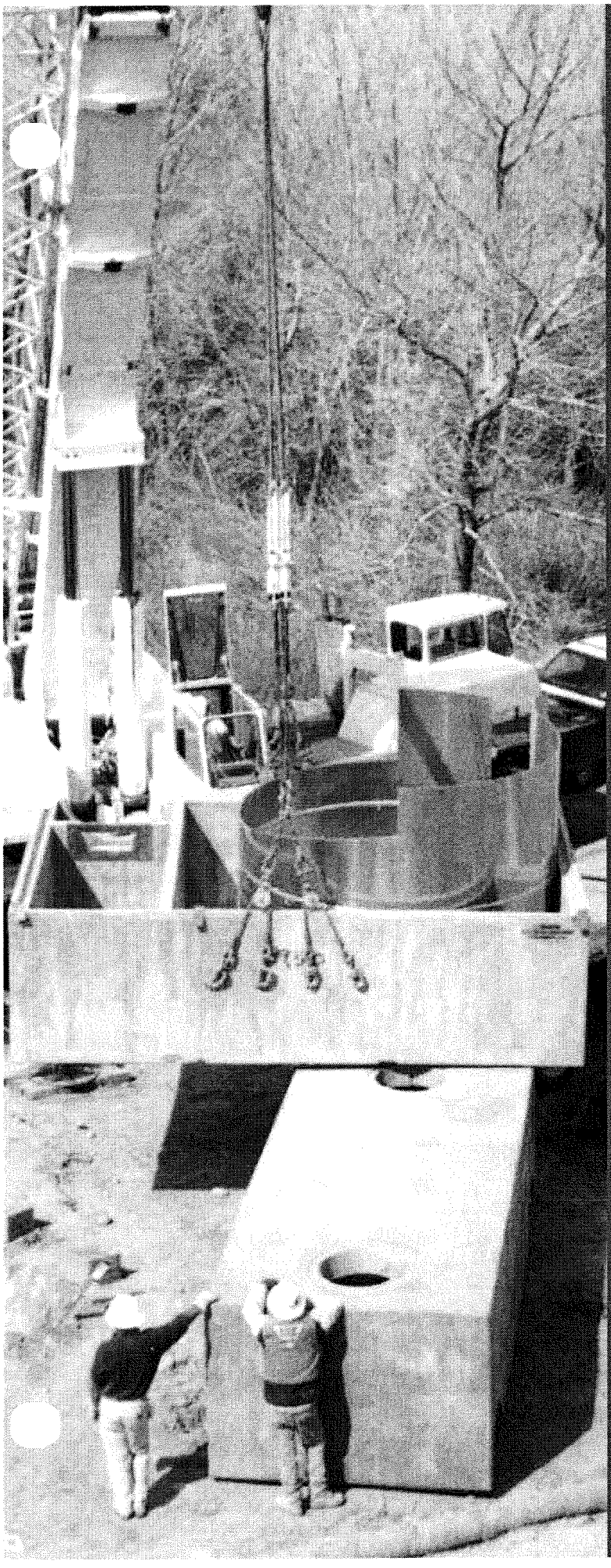
We print our brochures entirely on Forest Stewardship Council certified paper. FSC certification ensures that the paper in our brochures contain fiber from well-managed and responsibly harvested forests that meet strict environmental and socioeconomic standards.

FSC

CMP Detention-Infiltration SM. 01.11 MC



URBANGREEN™

Hydrodynamic Separation Products

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Hydrodynamic Separation

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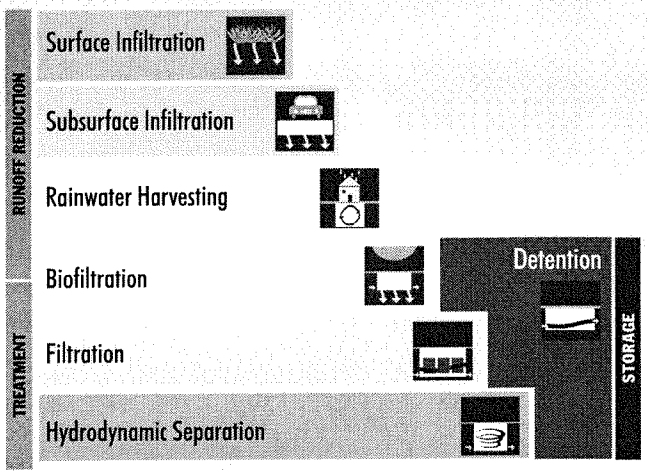


Removing Pollutants with Hydrodynamic Separation

Hydrodynamic separators are some of the first technologies to be developed for treating stormwater. Our hydrodynamic separation (HDS) products have been providing reliable stormwater treatment solutions for more than 20 years. With performance proven in the lab and in the field at sites across the country, these systems are widely accepted for effective solids removal. They are an optimal choice for pretreatment systems, especially efficient on gross solids, trash and debris, while also removing total suspended solids (TSS).

Fundamentals of HDS

- Create a low velocity vortex action to:
  - Increase efficiency by increasing length of flow path and eliminating short circuiting
  - Concentrate solids in staple, low velocity flow field
- Incorporate flow controls to:
  - Minimize turbulence and velocity
  - Prevent flow surges and resuspension
  - Retain floating pollutants
- Provide easy access to captured pollutants to make maintenance easy

Learn more about hydrodynamic separation at www.contech-cpi/stormwater

> Our hydrodynamic separation products have been providing reliable stormwater treatment solutions for more than 20 years ❖❖❖

Applications

HDS products work well as standalone or end-of-pipe treatment systems and can easily be implemented in a retrofit scenario. They are particularly effective at removal of solids, trash and debris – and can help you meet TMDL requirements for these pollutants. HDS systems are also optimal pretreatment systems – and an important building block in a low impact development (LID) design. By removing solids, trash and debris prior to detention, infiltration or re-use systems, you can significantly increase their service life.

Water Quality

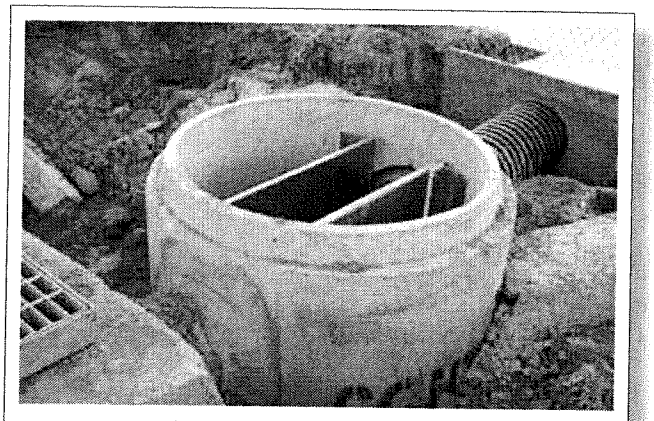
HDS products provide high-performance stormwater pollutant removal. These systems are effective in removing solids to meet water quality goals and can be designed to achieve site treatment goals for TSS or oil.

Pretreatment for Low Impact Development (LID) Designs

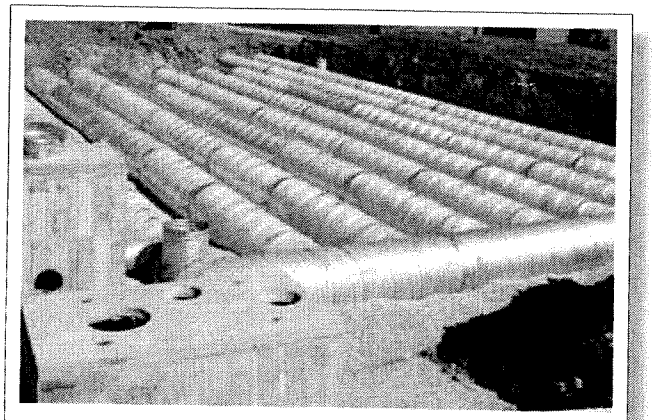
Hydrodynamic separation systems installed as pretreatment reduce downstream loading to reduce maintenance

Inlet and Outlet Pollution Control

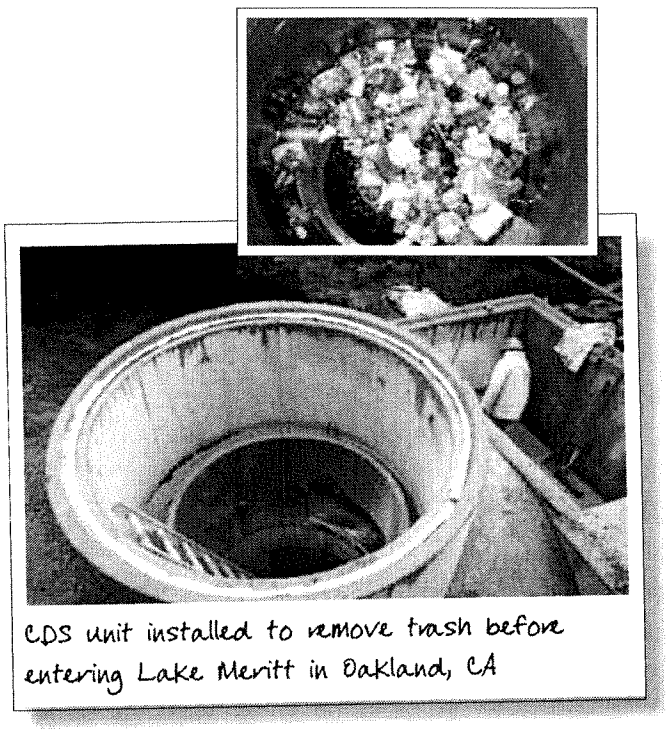
Our HDS products are especially effective for solids and trash and debris. They can be installed at either the inlet or outlet of a drainage system to prevent pollutants from being discharged into lakes, streams or the ocean.



VortSentry HS is an effective option where space is limited



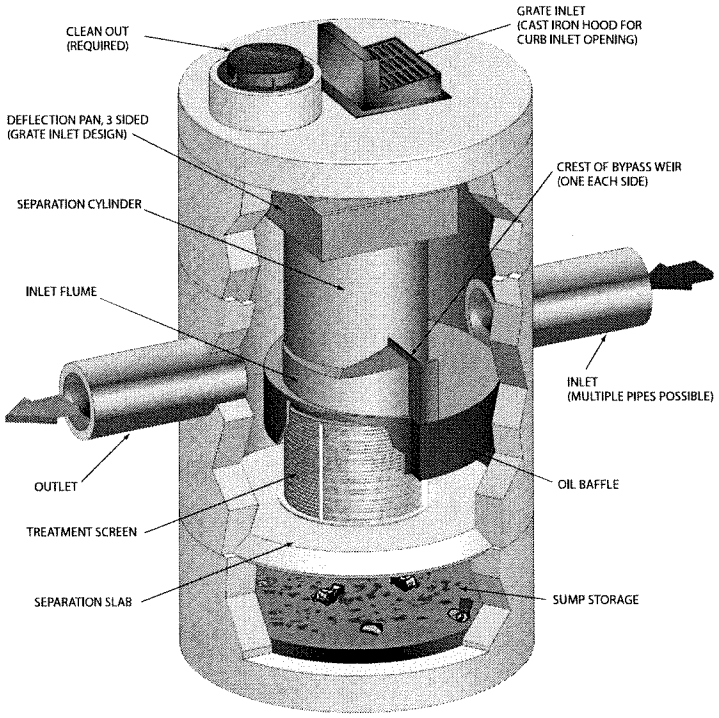
A Vortechs protects detention system from sediment build-up and reduces maintenance



CDS unit installed to remove trash before entering Lake Merritt in Oakland, CA

CDS®

The CDS is a swirl concentrator hybrid technology that provides continuous deflective separation – a combination of swirl concentration and patented indirect screening – into a uniquely capable product. It effectively screens, separates and traps debris, sediment and oil from stormwater runoff and is an ideal system to meet trash Total Maximum Daily Load (TMDL) requirements.



Features & Benefits

One-of-a-Kind Screening Technology

- Captures and retains 100% of floatables and neutrally buoyant debris 2.4mm or larger
- Effectively removes solids down to 100µm
- Self-cleaning screen – the only non-blocking screening technology available
- Water velocities within the swirl chamber continually shear debris off the screen to keep it clean
- Various screening apertures available

Proven Performance

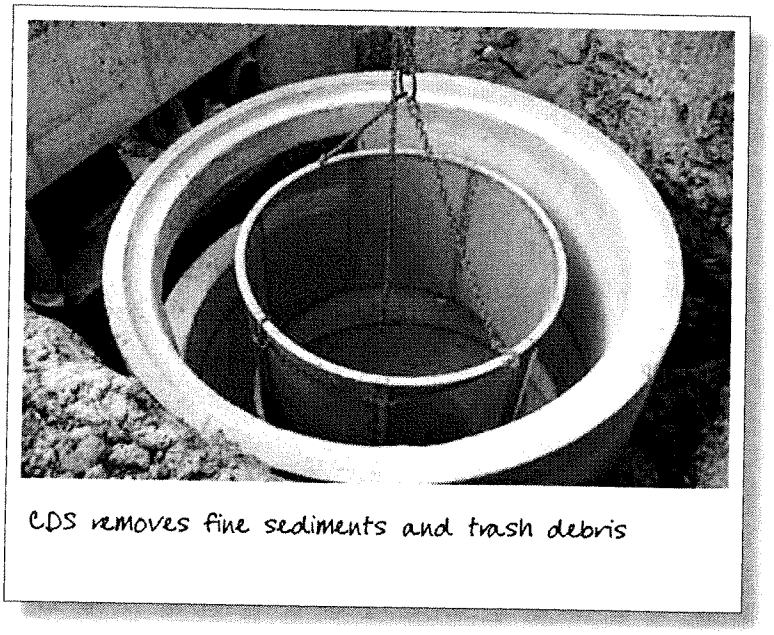
- Performance verified by NJ CAT and WA Ecology

Excellent Pollutant Retention

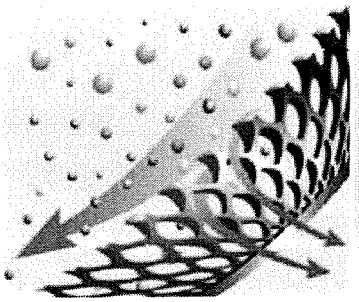
- Isolated Storage Sump eliminates scour potential
- Oil Baffle improves hydrocarbon removal

Multiple Options to Meet Site-Specific Needs

- Inline, offline, grate inlet and drop inlet configuration
- Accepts multiple pipe inlets and 90-180º angles – eliminate the need for junction manholes
- Internal and external peak bypass options available
- High treatment flow capacity – up to 300 cfs



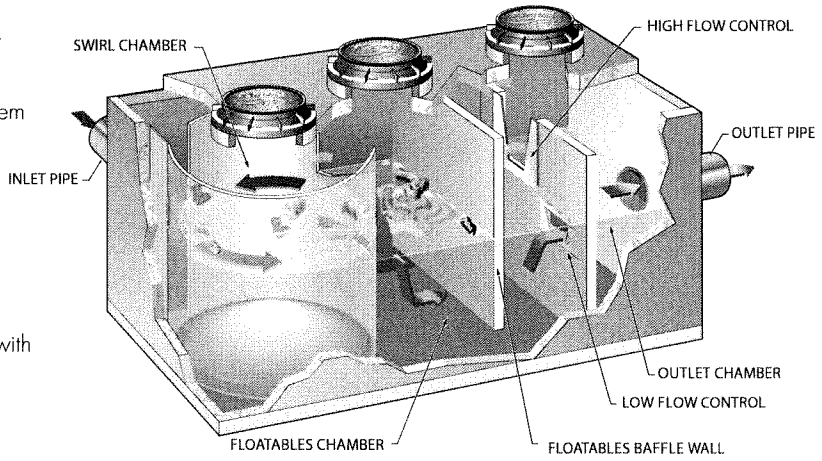
CDS removes fine sediments and trash debris



Continuous deflective separation — water velocities within the swirl chamber continually shear debris off the screen to keep it clean

Vortechs®

The Vortechs system's swirl concentrator and flow controls work together to create a low energy environment, ideal for capturing and storing fine particles and other pollutants of concern. With comprehensive lab and field testing, the system delivers proven results and site-specific solutions.



Features & Benefits

Shallow Profile

- Easy and cost-effective installation, especially on sites with high groundwater or bedrock
- Typical invert only 3 feet below pipe

Effective Fine Solids Removal

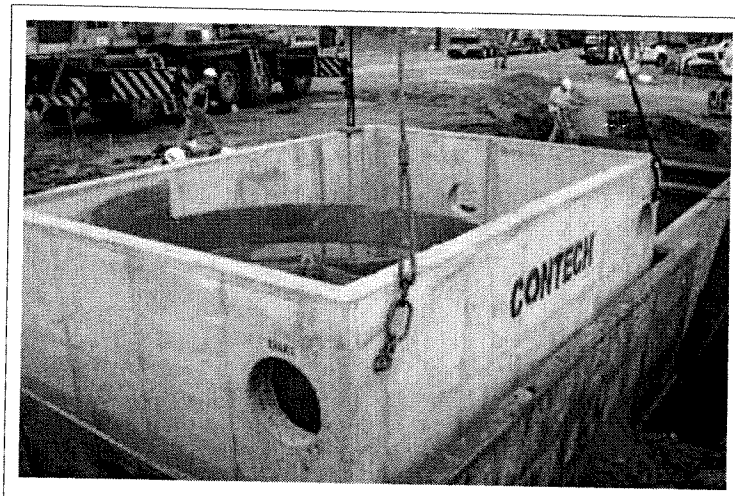
- Large swirl chamber – Enhances very fine particle removal (down to 50 microns)
- Flow controls reduce inflow velocity and increase residence time
- Largest treatment zone surface area of any swirl concentrator system available

Easy Maintenance

- Unobstructed access to stored pollutants
- Sealed swirl chamber decreases clean-out volume

Proven Performance

- Performance verified by NJ CAT and WA Ecology



Large diameter swirl chamber for enhancement of sediment removal in a low profile unit

Our systems are widely accepted for effective solids removal ❖ ❖ ❖

VortSentry® HS

The VortSentry HS hydrodynamic separator has a small footprint making it an effective pretreatment or treatment option for projects where space is at a premium.

Helical Flow Pattern

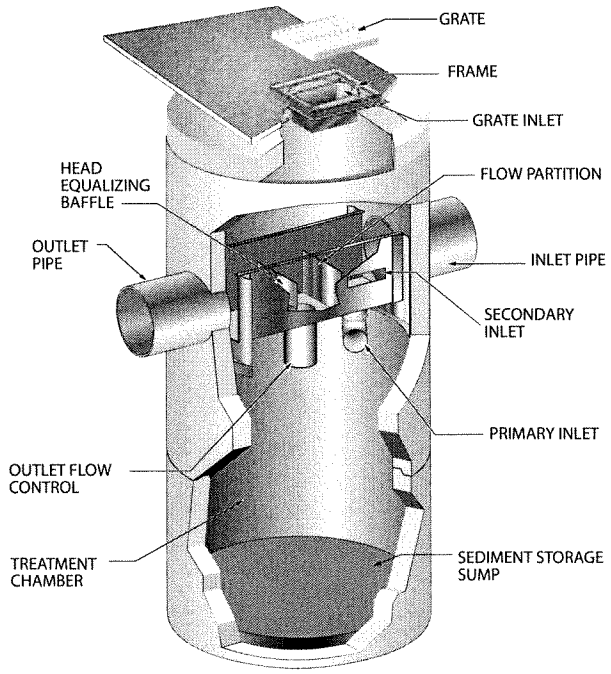
- Enhances trapping and containment of pollutants
- Provides effective removal of settleable solids and floating contaminants

Unique Internal Bypass

- Accepts a wide range of pipe sizes to treat and convey a wide range of flows
- Higher flows can be diverted without the use of external bypass structures
- Secondary inlet enhances floatable debris capture

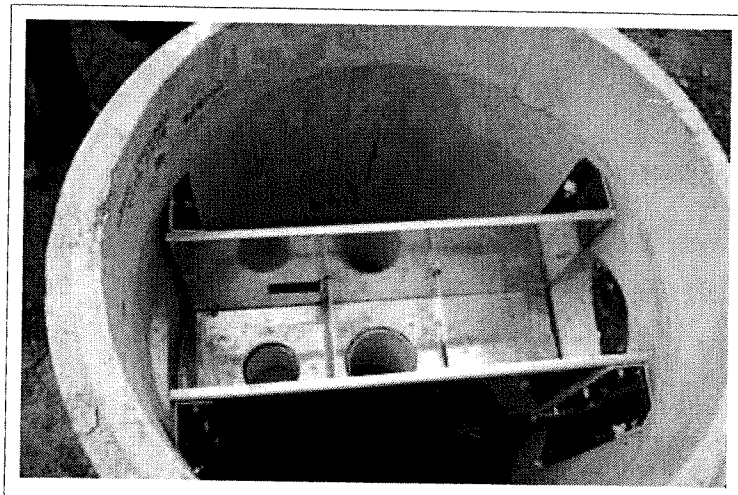
Flexible, Compact Design

- Small manhole footprint
- Inlet and grated inlet configuration available



VortSentry®

Similar to the VortSentry HS, the VortSentry is a compact manhole hydrodynamic separator; however it does not have the same treatment flow routing components/controls as the VortSentry HS does. This limits the flow rate and pipe sizes the system can accept. The VortSentry has received approval and is accepted by many municipalities, and is currently available in only those areas. Please see www.contech-cpi.com/vortsentry for more information.



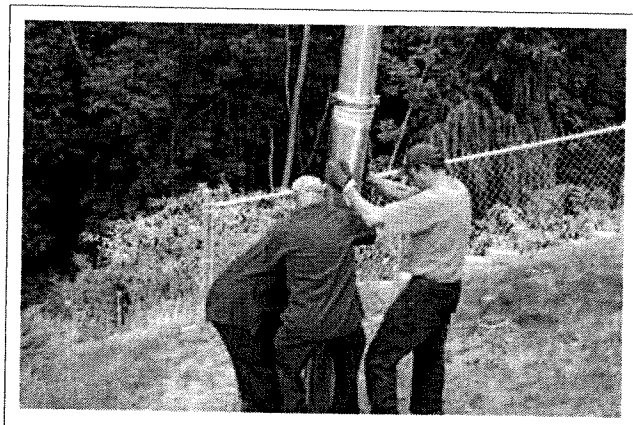
VSHS unique internal bypass design treats high flows and bypasses peak flow, eliminating washout

Maintenance

All stormwater treatment systems – whether natural or manufactured –should be maintained regularly. Despite the widespread implementation of BMPs, water quality goals will not be met if the treatment structures are not properly cleaned and maintained.

Systems vary in their maintenance needs, and the selection of a cost-effective and easy-to-access treatment system can mean a huge difference in maintenance expenses for years to come.

We design our products to minimize maintenance and make it as easy and inexpensive as possible to keep our systems working properly.



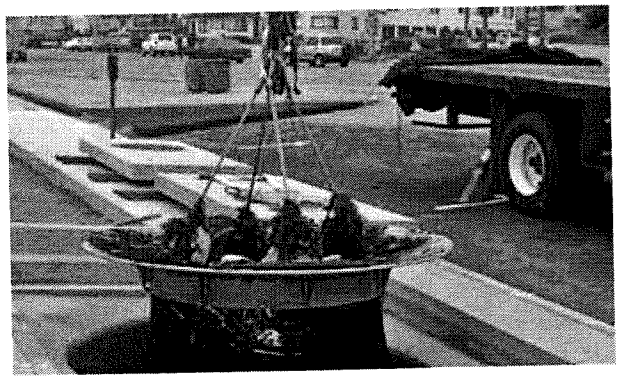
A vacuum truck excavates pollutants from the systems

Inspection

Inspection is the key to effective maintenance. Pollutant deposition and transport may vary from year to year and site to site. Semi-annual inspections will help ensure that the system is cleaned out at the appropriate time. Inspections should be performed more frequently where site conditions may cause rapid accumulation of pollutants.

Vortechs, VortSentry and VortSentry HS

These systems should be cleaned out when sediment has accumulated to a specific depth (refer to the respective maintenance guidelines for details). Maintaining these systems is easiest when there is no flow entering the system. A vacuum truck is generally the most effective and convenient method of excavating pollutants from the systems.



A CDS unit can be easily cleaned out in less than 30 minutes

CDS

The recommended cleanout of solids within the CDS unit's sump should occur at 75% of the sump capacity. Access to the CDS unit is typically achieved through two manhole access covers – one allows inspection and cleanout of the separation chamber and sump, and another allows inspection and cleanout of sediment captured and retained behind the screen. A vacuum truck is recommended for cleanout of the CDS unit and can be easily accomplished in less than 30 minutes for most installations.

All stormwater systems should be maintained regularly ❖ ❖ ❖

Next Steps

Learn more

See our HDS systems in action. Flash animations available at **www.contech-cpi.com/hds**

Connect with us

We're always available to make your job easier. Contact your local project consultant for design assistance. Search online at **www.contech-cpi.com**. While you're there, be sure to check out our upcoming seminar schedule or request an in-house technical presentation.

Start a Project

If you are ready to begin a project, visit us at **www.contech-cpi.com/designtoolbox**

CONTECH CONSTRUCTION PRODUCTS INC.

800.338.1122
www.contech-cpi.com

CONTECH Construction Products Inc. provides site solutions for the civil engineering industry. CONTECH's portfolio includes bridges, drainage, sanitary sewer, stormwater and earth stabilization products. For information on other CONTECH division offerings, visit contech-cpi.com or call 800.338.1122

We print our brochures entirely on Forest Stewardship Council certified paper. FSC certification ensures that the paper in our brochures contain fiber from well-managed and responsibly harvested forests that meet strict environmental and socioeconomic standards.

FSC

Get Social With Us!

UGHDS products 03/11 7M

Appendix D - Inspection and Maintenance Guidelines

- **Contech - Underground Detention and Infiltration Maintenance Guide**
- **Contech - CDS Inspection and Maintenance Guide**

CONTECH®
STORMWATER SOLUTIONS

Maintenance

Underground storm water detention and retention systems should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size or configuration of the system.

Inspection

Inspection is the key to effective maintenance and is easily performed. CONTECH recommends ongoing quarterly inspections of the accumulated sediment. Sediment deposition and transport may vary from year to year and quarterly inspections will help insure that systems are cleaned out at the appropriate time. Inspections should be performed more often in the winter months in climates where sanding operations may lead to rapid accumulations, or in equipment washdown areas. It is very useful to keep a record of each inspection. A sample inspection log is included for your use.

Systems should be cleaned when inspection reveals that accumulated sediment or trash is clogging the discharge orifice. CONTECH suggests that all systems be designed with an access/inspection manhole situated at or near the inlet and the outlet orifice. Should it be necessary to get inside the system to perform maintenance activities, all appropriate precautions regarding confined space entry and OSHA regulations should be followed.

Cleaning

Maintaining an underground detention or retention system is easiest when there is no flow entering the system. For this reason, it is a good idea to schedule the cleanout during dry weather.

Accumulated sediment and trash can typically be evacuated through the manhole over the outlet orifice. If maintenance is not performed as recommended, sediment and trash may accumulate in front of the outlet orifice. Manhole covers should be securely seated following cleaning activities.

CONTECH STORMWATER SOLUTIONS

Inspection & Maintenance Log

__" Diameter System			Location: Anywhere, USA		
Date	**Depth of Sediment**	**Accumulated Trash**	**Maintenance Performed**	**Maintenance Personnel**	**Comments**
12/01/99	2"	None	Removed Sediment	B. Johnson	Installed
03/01/00	1"	Some	Removed Sediment and Trash	B. Johnson	Swept parking lot
06/01/00	0"	None	None		
09/01/00	0"	Heavy	Removed Trash	S. Riley	
12/01/00	1"	None	Removed Sediment	S. Riley	
4/01/01	0"	None	None	S. Riley	
04/15/01	2"	Some	Removed Sediment and Trash	ACE Environmental Services	

CONTECH®
CONSTRUCTION PRODUCTS INC.

CDS® Inspection and Maintenance Guide

CDS
TECHNOLOGIES

Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allows both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine weather the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

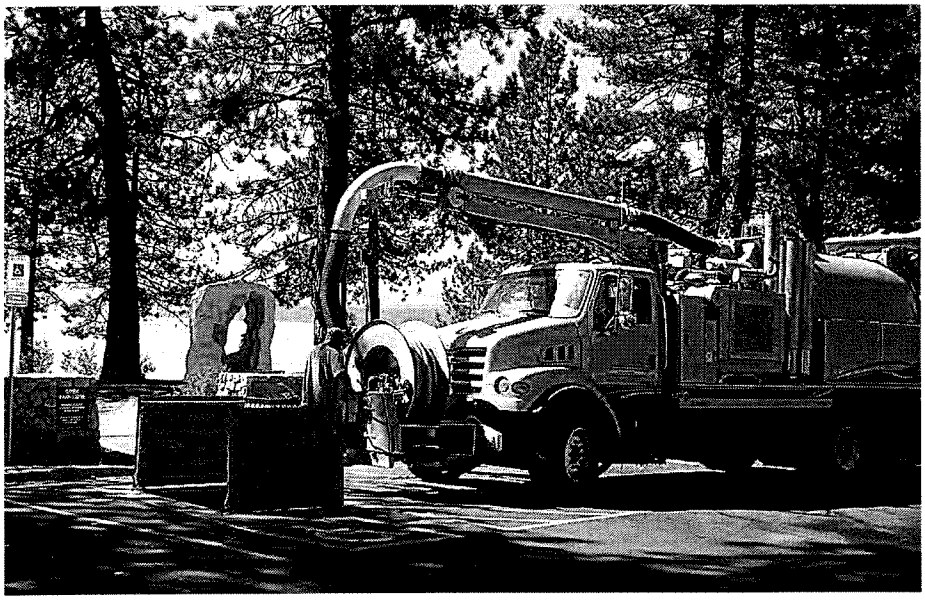
Cleaning of a CDS systems should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes.

CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	yd3	m3
CDS2015-4	4	1.2	3.0	0.9	0.5	0.4
CDS2015	5	1.5	3.0	0.9	1.3	1.0
CDS2020	5	1.5	3.5	1.1	1.3	1.0
CDS2025	5	1.5	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities



Support

- Drawings and specifications are available at www.contechstormwater.com.
- Site-specific design support is available from our engineers.

CONTECH Construction Products Inc. provides site solutions for the civil engineering industry. CONTECH's portfolio includes bridges, drainage, sanitary sewer, stormwater and earth stabilization products. For information on other CONTECH division offerings, visit contech-cpi.com or call 800.338.1122

CONTECH CONSTRUCTION PRODUCTS INC.
800.925.5240
contechstormwater.com

CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

Date	Water depth to sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

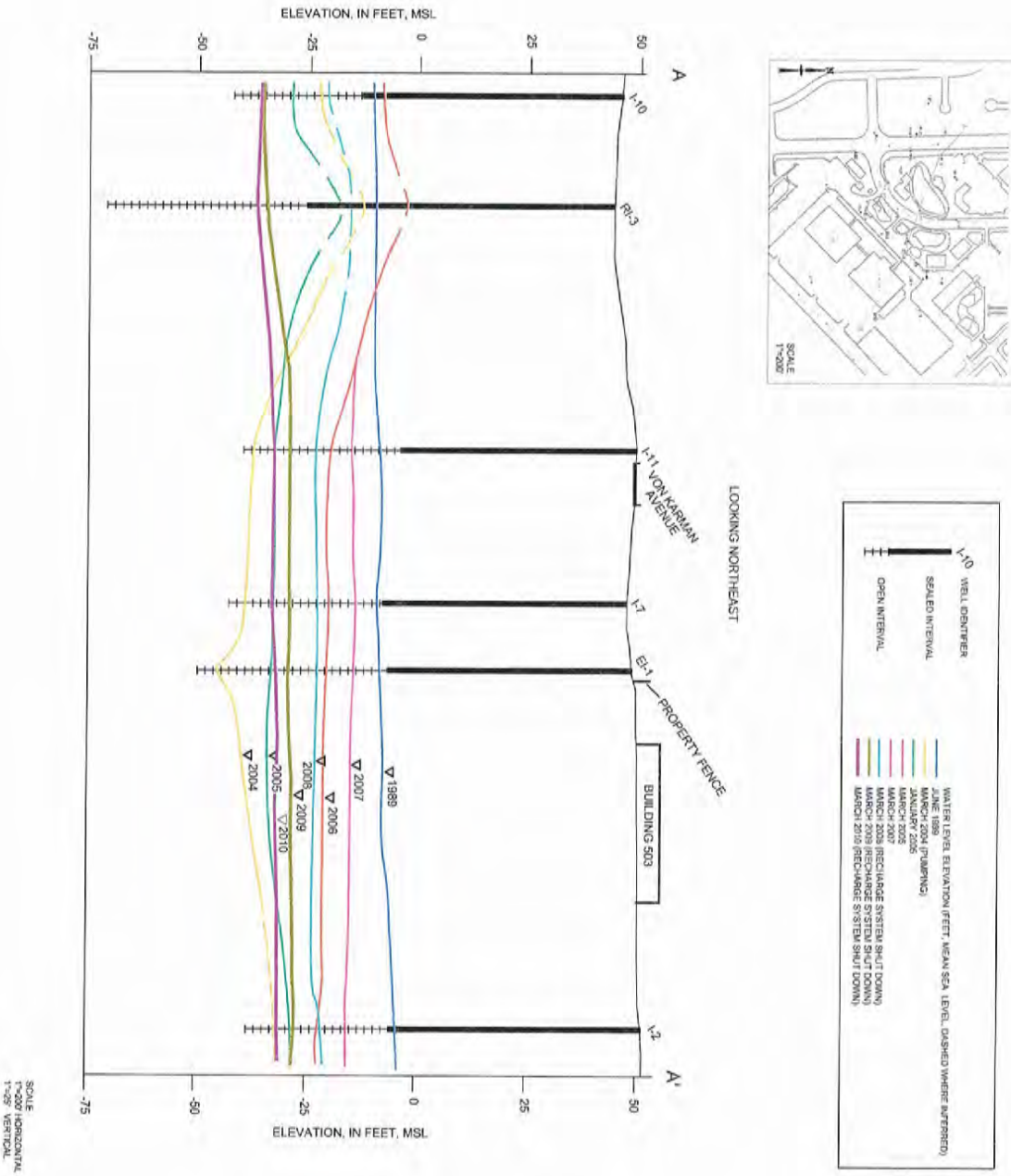
1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than eighteen inches the system should be cleaned out. **Note: To avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.**

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

Appendix E - Geotechnical Reference Data

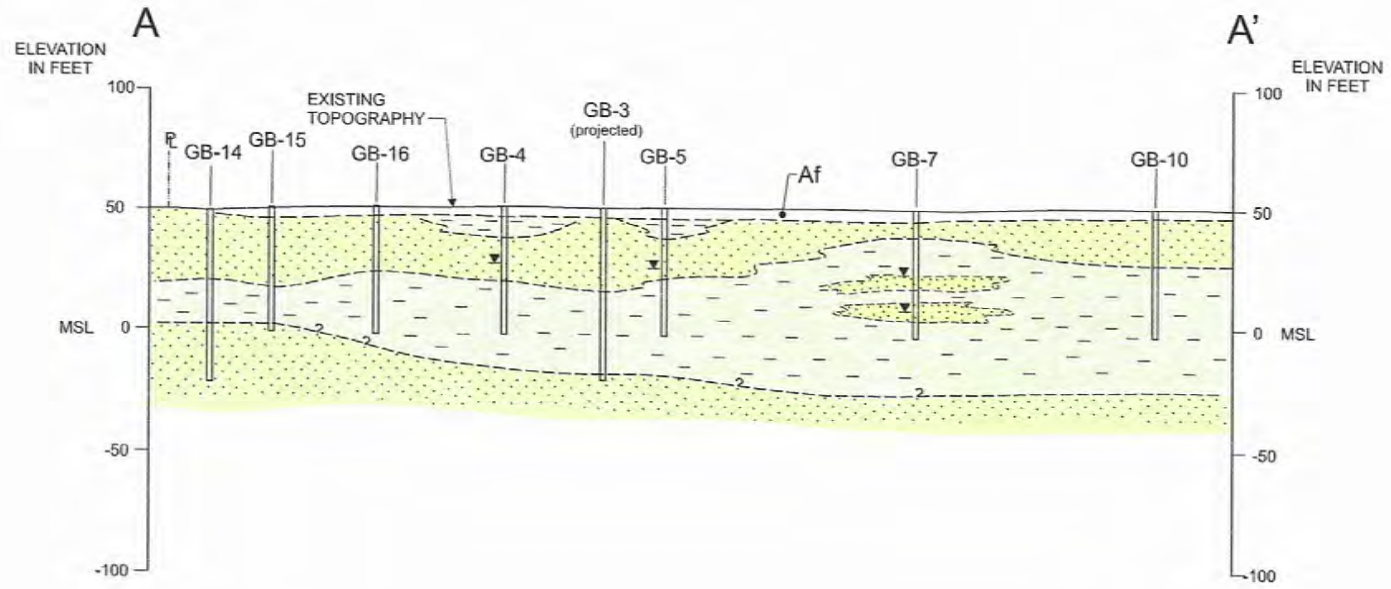
- **Shallow Zone Groundwater Elevation - March 2010, Reference from Jacob and Hefner Associates, Inc.**
- **Intermediate Zone Historic Groundwater Elevation, Reference from Jacob and Hefner Associates, Inc.**
- **Cross-Section A-A, Reference Ginter & Associates**
- **Letter of Opinion of Infiltration Rate / Uptown Newport Infiltration Potential**

JACOB & HEFNER ASSOCIATES, INC.
ENVIRONMENTAL REMEDIATION SERVICES
1575 BARRANCA PARKWAY, SUITE #J-101
IRVINE, CALIFORNIA 92618
PHONE: (949) 453-1045 FAX: (949) 453-1047
FIGURE 5
SHALLOW ZONE GROUNDWATER ELEVATION - MARCH 2010
CONEXANT FACILITY
4311 JAMBOREE ROAD
NEWPORT BEACH, CA
EXPLANATION
M-33 SHALLOW ZONE MONITOR WELL
ES-4B SHALLOW ZONE EXTRACTION WELL (NOT IN OPERATION)
SZO-2 DPE TEST WELL
25.03 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (msl)
CONTOUR OF EQUAL GROUNDWATER ELEVATION IN FEET ABOVE MSL
NA NOT APPLICABLE - WELL CASING ELEVATIONS NOT SURVEYED
N
GRAPHIC SCALE 1"=200
0 100 200 400
BIRCH STREET
JAMBOREE ROAD
MACARTHUR BLVD
VON KARMAN AVE
FORMER SITE OF BUILDING 502
BUILDING 503
BUILDING 501
M-25 25.03
M-23 22.13
M-48 24.57
M-30 21.65
ES-1 21.48
M-29 21.59
M-38 21.16
ES-2 20.61
SZT-1 NA
SZO-1 NA
ES-3A 20.69
M-36 20.44
M-33 19.96
ES-6 19.66
ES-4B 19.96
SZO-2 NA
M-39 27.99
ES-5A 19.45
KSKO-1 27.76
KSKO-2 26.49
M-40 27.33
M-24 26.01
M-45 27.76
M-37 27.05
BASE MAP DERIVED FROM HALEY & ALDRICH, 2007 ANNUAL GROUNDWATER MONITORING REPORT, JUNE 2007



JACOB & HEFNER ASSOCIATES, INC.
ENVIRONMENTAL REMEDIATION SERVICES
15375 BARRANCA PARKWAY, SUITE J-101
IRVINE, CALIFORNIA 92618
PHONE: (949) 453-1045 FAX: (949) 453-1047

FIGURE 11
INTERMEDIATE ZONE HISTORIC GROUNDWATER ELEVATION
CONEXANT FACILITY
4311 JAMBOREE ROAD
NEWPORT BEACH, CA



CROSS-SECTION A-A'

HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"= 50'

Legend

- OLIVE GREEN CLAY AND SILTY CLAY
- FINE TO COARSE GRAINED SANDS WITH SOME SILTS AND GRAVELS
- PERCHED GROUNDWATER
- APPROXIMATE GEOLOGIC CONTACT

PROJECT NO. :	116-02
DATE :	Nov., 2011

GINTER & ASSOCIATES, INC.

27631 DURAZNO
MISSION VIEJO, CA 92692
OFC (949) 581-2363 CELL (714) 478-1167

TO: BRIAN RUPP
CC: GAVIN POWELL

SUBJECT: UPTOWN NEWPORT INFILTRATION POTENTIAL

DATE: 10/31/12

Based on our review of available geotechnical data, as well as our own geotechnical evaluation, it is our opinion that infiltration capacity in excess of 1.0 inches per hour can be reasonably anticipated throughout the project site.

DAVID GINTER
PRESIDENT/PRINCIPAL ENGINEERING GEOLOGIST
GINTER & ASSOCIATES, INC.

Appendix F - Educational Materials

- The Ocean Begins at your Front Door
- Homeowners Guide for Sustainable Water Use
- Household Tips
- Proper Disposal of Household Hazardous Waste
- Recycle at Your Local Used Oil Collection Center (North Orange County)
- Responsible Pest Control
- Sewer Spill
- Tips for the Home Improvement Projects
- Tips for Landscaping and Gardening
- Tips for Pet Care
- Tips for Using Concrete and Mortar
- Tips for the Food Service Industry
- Proper Maintenance Practices for your Business
- Orange County Watersheds Brochure
- Stormwater General Information
- How to Protect Your Bay and Ocean
- Pollution Reporting
- Hazardous Waste and Oil Recycling
- Commercial Trash Enclosure
- Food and Restaurant Pollution Prevention
- Managing Fats, Oils, and Greases
- Tips for Projects Using Paint

The Ocean Begins at Your Front Door

Even if you live miles from the Pacific Ocean, you may be unknowingly polluting it.

Dumping one quart of motor oil into a storm drain can contaminate 250,000 gallons of water.

For More Information

Orange County Stormwater Program

Aliso Viejo	(949)	425-2535
Anaheim Public Works Operations	(714)	765-6860
Brea Engineering	(714)	990-7666
Buena Park Public Works	(714)	562-3655
Costa Mesa Public Services	(714)	754-5323
Cypress Public Works	(714)	229-6740
Dana Point Public Works	(949)	248-3584
Fountain Valley Public Works	(714)	593-4441
Fullerton Engineering Dept.	(714)	738-6853
Garden Grove Public Works	(714)	741-5956
Huntington Beach Public Works	(714)	536-5431
Irvine Public Works	(949)	724-6315
La Habra Public Services	(562)	905-9792
La Palma Public Works	(714)	690-3310
Laguna Beach Water Quality	(949)	497-0378
Laguna Hills Public Services	(949)	707-2650
Laguna Niguel Public Works	(949)	362-4337
Laguna Woods Public Works	(949)	639-0500
Lake Forest Public Works	(949)	461-3480
Los Alamitos Community Dev.	(562)	431-3538
Mission Viejo Public Works	(949)	470-3056
Newport Beach, Code & Water Quality Enforcement	(949)	644-3215
Orange Public Works	(714)	532-6480
Placentia Public Works	(714)	993-8245
Rancho Santa Margarita	(949)	635-1800
San Clemente Environmental Programs	(949)	361-6143
San Juan Capistrano Engineering	(949)	234-4413
Santa Ana Public Works	(714)	647-3380
Seal Beach Engineering	(562)	431-2527 x317
Stanton Public Works	(714)	379-9222 x204
Tustin Public Works/Engineering	(714)	573-3150
Villa Park Engineering	(714)	998-1500
Westminster Public Works/Engineering	(714)	898-3311 x446
Yorba Linda Engineering	(714)	961-7138
Orange County Stormwater Program	(877)	897-7455

Orange County 24-Hour
Water Pollution Problem Reporting Hotline
1-877-89-SPILL (1-877-897-7455)

On-line Water Pollution Problem Reporting Form
www.ocwatersheds.com

California Environmental Protection Agency
www.calepa.ca.gov

- **Air Resources Board**
  www.arb.ca.gov
- **Department of Pesticide Regulation**
  www.cdpr.ca.gov
- **Department of Toxic Substances Control**
  www.dtsc.ca.gov
- **Integrated Waste Management Board**
  www.ciwmb.ca.gov
- **Office of Environmental Health Hazard Assessment**
  www.oehha.ca.gov
- **State Water Resources Control Board**
  www.waterboards.ca.gov

Earth 911 - Community-Specific Environmental Information 1-800-cleanup or visit www.1800cleanup.org

Health Care Agency's Ocean and Bay Water Closure and Posting Hotline
(714) 433-6400 or visit www.ocbeachinfo.com

Integrated Waste Management Dept. of Orange County (714) 834-6752 or visit www.oclandfills.com for information on household hazardous waste collection centers, recycling centers and solid waste collection

O.C. Agriculture Commissioner
(714) 447-7100 or visit www.ocagcomm.com

Stormwater Best Management Practice Handbook
Visit www.cabmphandbooks.com

UC Master Gardener Hotline
(714) 708-1646 or visit www.ucccmg.com

The Orange County Stormwater Program has created and moderates an electronic mailing list to facilitate communications, take questions and exchange ideas among its users about issues and topics related to stormwater and urban runoff and the implementation of program elements. To join the list, please send an email to ocstormwaterinfo-join@list.ocwatersheds.com

Did You Know?

- Most people believe that the largest source of water pollution in urban areas comes from specific sources such as factories and sewage treatment plants. In fact, the largest source of water pollution comes from city streets, neighborhoods, construction sites and parking lots. This type of pollution is sometimes called "non-point source" pollution.
- There are two types of non-point source pollution: stormwater and urban runoff pollution.
- Stormwater runoff results from rainfall. When rainstorms cause large volumes of water to rinse the urban landscape, picking up pollutants along the way.
- Urban runoff can happen any time of the year when excessive water use from irrigation, vehicle washing and other sources carries trash, lawn clippings and other urban pollutants into storm drains.

Where Does It Go?

- Anything we use outside homes, vehicles and businesses – like motor oil, paint, pesticides, fertilizers and cleaners – can be blown or washed into storm drains.
- A little water from a garden hose or rain can also send materials into storm drains.
- Storm drains are separate from our sanitary sewer systems; unlike water in sanitary sewers (from sinks or toilets), water in storm drains is not treated before entering our waterways.

Sources of Non-Point Source Pollution

- Automotive leaks and spills.
- Improper disposal of used oil and other engine fluids.
- Metals found in vehicle exhaust, weathered paint, rust, metal plating and tires.
- Pesticides and fertilizers from lawns, gardens and farms.
- Improper disposal of cleaners, paint and paint removers.
- Soil erosion and dust debris from landscape and construction activities.
- Litter, lawn clippings, animal waste, and other organic matter.
- Oil stains on parking lots and paved surfaces.

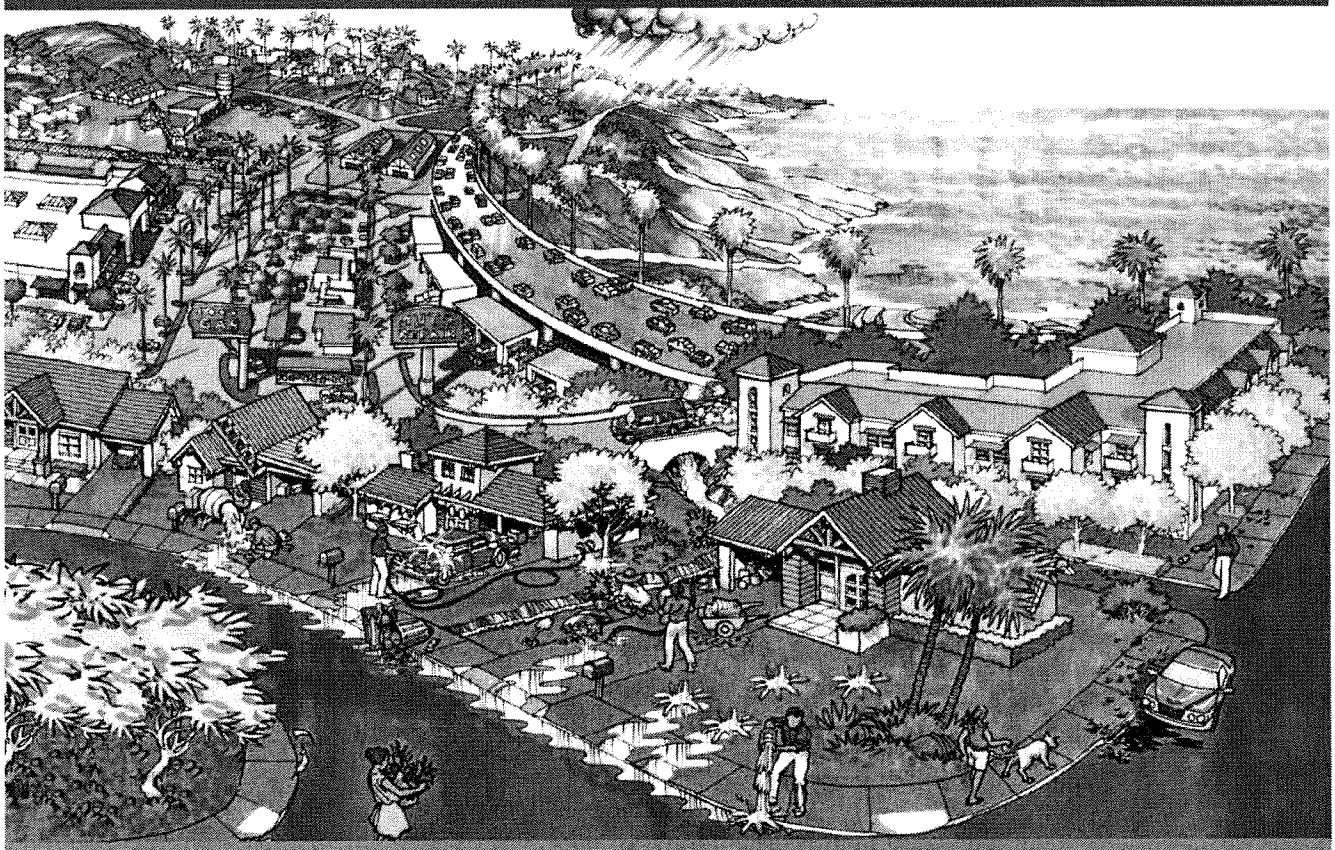
The Effect on the Ocean

Non-point source pollution can have a serious impact on water quality in Orange County. Pollutants from the storm drain system can harm marine life as well as coastal and wetland habitats. They can also degrade recreation areas such as beaches, harbors and bays.

Stormwater quality management programs have been developed throughout Orange County to educate and encourage the public to protect water quality, monitor runoff in the storm drain system, investigate illegal dumping and maintain storm drains.

Support from Orange County residents and businesses is needed to improve water quality and reduce urban runoff pollution. Proper use and disposal of materials will help stop pollution before it reaches the storm drain and the ocean.

The Ocean Begins at Your Front Door



Never allow pollutants to enter the street, gutter or storm drain!

Follow these simple steps to help reduce water pollution:

Household Activities

- Do not rinse spills with water. Use dry cleanup methods such as applying cat litter or another absorbent material, sweep and dispose of in the trash. Take items such as used or excess batteries, oven cleaners, automotive fluids, painting products and cathode ray tubes, like TVs and computer monitors, to a Household Hazardous Waste Collection Center (HHWCC).
- For a HHWCC near you call (714) 834-6752 or visit www.oclandfills.com.
- Do not hose down your driveway, sidewalk or patio to the street, gutter or storm drain. Sweep up debris and dispose of it in the trash.

Automotive

- Take your vehicle to a commercial car wash whenever possible. If you wash your vehicle at home, choose soaps, cleaners, or detergents labeled non-toxic, phosphate-free or biodegradable. Vegetable and citrus-based products are typically safest for the environment.
- Do not allow washwater from vehicle washing to drain into the street, gutter or storm drain. Excess washwater should be disposed of in the sanitary sewer (through a sink or toilet) or onto an absorbent surface like your lawn.
- Monitor your vehicles for leaks and place a pan under leaks. Keep your vehicles well maintained to stop and prevent leaks.
- Never pour oil or antifreeze in the street, gutter or storm drain. Recycle these substances at a service station, a waste oil collection center or used oil recycling center. For the nearest Used Oil Collection Center call 1-800-CLEANUP or visit www.1800cleanup.org.

Pool Maintenance

- Pool and spa water must be dechlorinated and free of excess acid, alkali or color to be allowed in the street, gutter or storm drain.
- When it is not raining, drain dechlorinated pool and spa water directly into the sanitary sewer.
- Some cities may have ordinances that do not allow pool water to be disposed of in the storm drain. Check with your city.

Landscape and Gardening

- Do not over-water. Water your lawn and garden by hand to control the amount of water you use or set irrigation systems to reflect seasonal water needs. If water flows off your yard onto your driveway or sidewalk, your system is over-watering. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of waste by composting, hauling it to a permitted landfill, or as green waste through your city's recycling program.
- Follow directions on pesticides and fertilizer, (measure, do not estimate amounts) and do not use if rain is predicted within 48 hours.
- Take unwanted pesticides to a HHWCC to be recycled. For locations and hours of HHWCC, call (714) 834-6752 or visit www.oclandfills.com.

Trash

- Place trash and litter that cannot be recycled in securely covered trash cans.
- Whenever possible, buy recycled products.
- Remember: Reduce, Reuse, Recycle.

Pet Care

- Always pick up after your pet. Flush waste down the toilet or dispose of it in the trash. Pet waste, if left outdoors, can wash into the street, gutter or storm drain.
- If possible, bathe your pets indoors. If you must bathe your pet outside, wash it on your lawn or another absorbent/permeable surface to keep the washwater from entering the street, gutter or storm drain.
- Follow directions for use of pet care products and dispose of any unused products at a HHWCC.

Common Pollutants

Home Maintenance
- Detergents, cleaners and solvents
- Oil and latex paint
- Swimming pool chemicals
- Outdoor trash and litter

Lawn and Garden
- Pet and animal waste
- Pesticides
- Clippings, leaves and soil
- Fertilizer

Automobile
- Oil and grease
- Radiator fluids and antifreeze
- Cleaning chemicals
- Brake pad dust

The Pollution Solution

[illegible]

1 Pesticides and Fertilizer

- **Pollution:** [illegible]
- **Solution:** [illegible]

2 Dirt and Sediment

- **Pollution:** [illegible]
- **Solution:** [illegible]

3 Metals

- **Pollution:** [illegible]
- **Solution:** [illegible]

DID YOU KNOW?

[illegible]

4 Pet Waste

- **Pollution:** [illegible]
- **Solution:** [illegible]

5 Trash and Debris

- **Pollution:** [illegible]
- **Solution:** [illegible]

6 Motor Oil / Vehicle Fluids

- **Pollution:** [illegible]
- **Solution:** [illegible]

A TEAM EFFORT

The Orange County Stormwater Program has teamed with the Municipal Water District of Orange County (MWDOC) and the University of California Cooperative Extension Program (UCCE) to develop this pamphlet.

Low Impact Development (LID) and sustainable water use prevents water pollution and conserves water for drinking and reuse. Reducing your water use and the amount of water flowing from your home protects the environment and saves you money.

Thank you for making water protection a priority!

For more information, please visit
www.ocwatersheds.com/publiced/

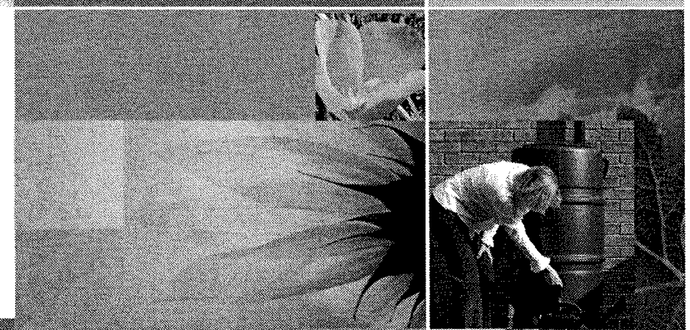
www.mwdoc.com

www.uccemg.com

To report a spill, call the Orange County 24-Hour Water Pollution Prevention Reporting Hotline
at 1-877-89-SPILL \ (1-877-897-7455)

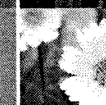
Special Thanks to
The City of Los Angeles Stormwater Program for the use of its artwork

The Metropolitan Water District of Southern California for the use of the California-Friendly Plant and Native Habitat photos

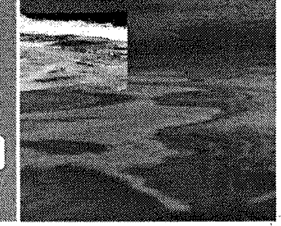


Homeowners Guide for Sustainable Water Use

Low Impact Development, Water Conservation & Pollution Prevention



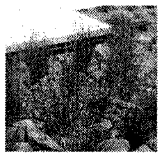
The Ocean Begins at Your Front Door



RUNOFF, RAINWATER AND REUSE

Where Does Water Runoff Go?

Stormwater, or water from rainfall events, and runoff from outdoor water use such as sprinklers and hoses flows from homes directly into catch basins and the storm drain system. After entering the storm drain, the water flows untreated into streams, rivers, bays and ultimately the Pacific Ocean. Runoff can come from lawns, gardens, driveways, sidewalks and roofs. As it flows over hard, impervious surfaces, it picks up pollutants. Some pollutants carried by the water runoff include trash, pet waste, pesticides, fertilizer, motor oil and more.



Water Conservation

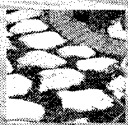
Pollution not only impairs the water quality for habitat and recreation, it can also reduce the water available for reuse. Runoff allowed to soak into the ground is cleaned as it percolates through the soil, replenishing depleted groundwater supplies. Groundwater provides at least 50% of the total water for drinking and other indoor household activities in north and central Orange County. When land is covered with roads, parking lots, homes, etc., there is less land to take in the water and more hard surfaces over which the water can flow.

In Orange County, 60-70% of water used by residents and businesses goes to irrigation and other outdoor uses. Reusing rainwater to irrigate our lawn not only reduces the impact of water pollution from runoff, but it also is a great way to conserve our precious water resources and replenish our groundwater basin.

What is Low Impact Development (LID)?

Low Impact Development (LID) is a method of development that seeks to maintain the natural hydrologic character of an area. LID provides a more sustainable and pollution-preventative approach to water management.

New water quality regulations require implementation of LID in larger new developments and encourage implementation of LID and other sustainable practices in existing residential areas. Implementing modifications to your lawn or garden can reduce pollution in our environment, conserve water and reduce your water bill.



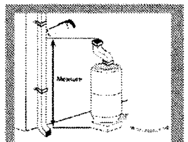
Permeable pavement allows water runoff to infiltrate through the soil and prevents most pollutants from reaching the storm drain system.

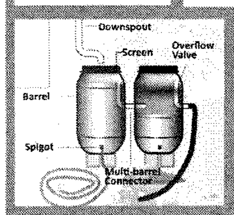
OPTIONS FOR RAINWATER HARVESTING AND REUSE

Rainwater harvesting is a great way to save money, prevent pollution and reduce potable water use. To harvest your rainwater, simply redirect the runoff from roofs and downspouts to rain barrels. Rain gardens are another option; these reduce runoff as well as encourage infiltration.

Downspout Disconnection/Redirection

Disconnecting downspouts from pipes running to the gutter prevents runoff from transporting pollutants to the storm drain. Once disconnected, downspouts can be redirected to rain gardens or other vegetated areas, or be connected to a rain barrel.





Rain Barrels

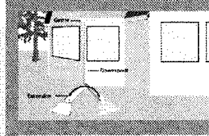
Rain barrels capture rainwater flow from roofs for reuse in landscape irrigation. Capacity of rain barrels needed for your home will depend on the amount of roof area and rainfall received. When purchasing your rain barrel make sure it includes a screen, a spigot to siphon water for use, an overflow tube to allow for excess water to run out and a connector if you wish to connect multiple barrels to add capacity of water storage.

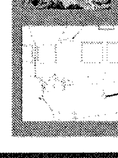
Mosquito growth prevention is very important when installing a rain barrel. The best way to prevent mosquito breeding is to eliminate entry points by ensuring all openings are sealed tightly. If these methods are unsuccessful, products are available to kill mosquito larvae, but that are harmless to animals and humans. Regular application of these products is essential. Please visit the Orange County Vector Control website for more information at www.ocvcd.org/mosquitoes3.php

Rain Gardens

Rain gardens allow runoff to be directed from your roof downspout into a landscaped area. Vegetation and rocks in the garden will slow the flow of water to allow for infiltration into the soil. Plants and soil particles will absorb pollutants from the roof runoff. By utilizing a native plant palette, rain gardens can be maintained all year with minimal additional irrigation. These plants are adapted to the semi-arid climate of Southern California, require less water and can reduce your water bill.

Before modifying your yard to install a rain garden, please consult your local building and/or planning departments to ensure your garden plan follows pertinent building codes and ordinances. Besides codes and ordinances, some home owner associations also have guidelines for yard modifications. If your property is in hill areas or includes engineered slopes, please seek professional advice before proceeding with changes.





For information on how to disconnect a downspout or to install and maintain a rain barrel or rain garden at your home, please see the Los Angeles Rainwater Harvesting Program, A Homeowner's "How-To" Guide, November 2009 at www.larainwaterharvesting.org/

OTHER WATER CONSERVATION AND POLLUTION PREVENTION TECHNIQUES

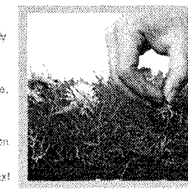
Native Vegetation and Maintenance

"California Friendly" plants or native vegetation can significantly reduce water use. These plants often require far less fertilizers and pesticides, which are two significant pollutants found in Orange County waterways. Replacing water "thirsty" plants and grass types with water efficient natives is a great way to save water and reduce the need for potentially harmful pesticides and fertilizer.

Please see the California Friendly Garden Guide produced by the Metropolitan Water District of Southern California and associated Southern California Water Agencies for a catalog of California friendly plants and other garden resources at www.bewaterwise.com/Gardensoft.

Weed Free Yards

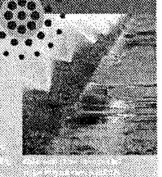
Weeds are water thieves. They often reproduce quickly and rob your yard of both water and nutrients. Weed your yard by hand if possible. If you use herbicides to control the weeds, use only the amount recommended on the label and never use it if rain is forecast within the next 48 hours.



Soil Amendments

Soil amendments such as green waste (e.g. grass clippings compost, etc.) can be a significant source of nutrients and can help keep the soil near the roots of plants moist. However, they can cause algal blooms if they get into our waterways, which reduces the amount of oxygen in the water and impacts most aquatic organisms. It is important to apply soil amendments more than 48 hours prior to predicted rainfall.

IRRIGATE EFFICIENTLY



Set a timer for your sprinklers

Water at Sunrise

Water by hand

Fix leaks

Do your part to prevent water pollution in our creeks, rivers, bays and ocean.

Clean beaches and healthy creeks, rivers, bays, and ocean are important to Orange County. However, many common household activities can lead to water pollution if you're not careful.

Remember the Water in Your Storm Drain is Not Treated BEFORE It Enters Our Waterways

Litter, oil, chemicals and other substances that are left on your yard or driveway can be blown or washed into storm drains that flow to the ocean. Over-watering your lawn and washing your car can also flush materials into the storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated.

You would never pour soap, fertilizers or oil into the ocean, so don't let them enter streets, gutters or storm drains. Follow the easy tips in this brochure to help prevent water pollution.

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline 1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

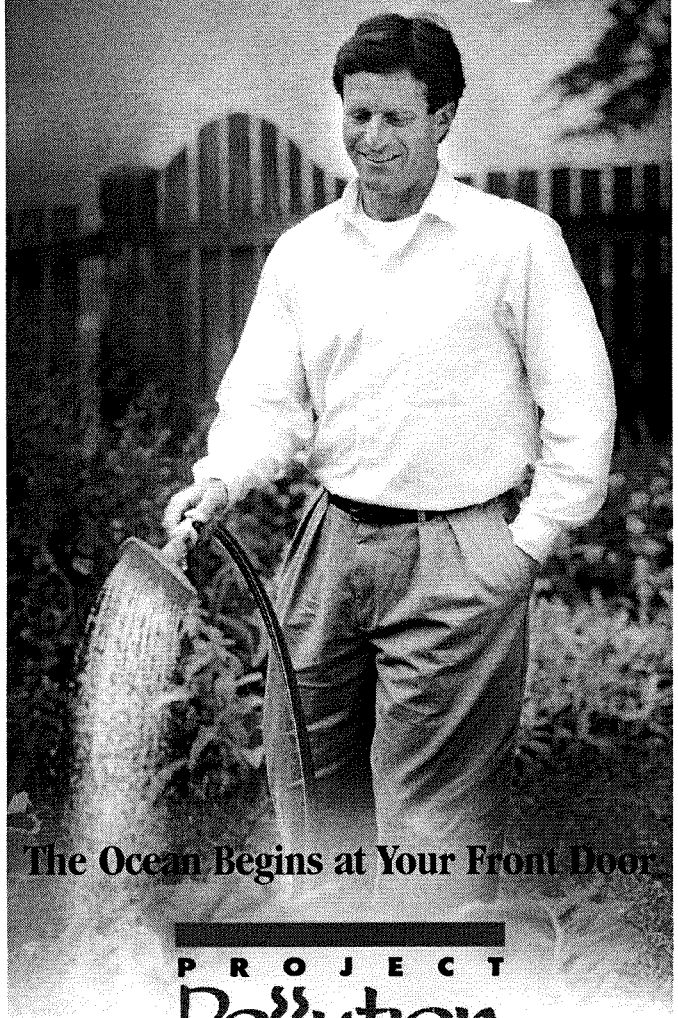
The tips contained in this brochure provide useful information to help prevent water pollution while performing everyday household activities. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

GENUINE RECYCLED PAPER
50% PRE-CONSUMER AND 15% POST-CONSUMER

RECYCLE USED OIL

Help Prevent Ocean Pollution:

Household Tips



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Pollution Prevention

Household Activities

- **Do not rinse spills with water!** Sweep outdoor spills and dispose of in the trash. For wet spills like oil, apply cat litter or another absorbent material, then sweep and bring to a household hazardous waste collection center (HHWCC).
- Securely cover trash cans.
- Take household hazardous waste to a household hazardous waste collection center.
- Store household hazardous waste in closed, labeled containers inside or under a cover.
- Do not hose down your driveway, sidewalk or patio. Sweep up debris and dispose of in trash.
- Always pick up after your pet. Flush waste down the toilet or dispose of in the trash.
- Bathe pets indoors or have them professionally groomed.

Household Hazardous Wastes include:

- ▲ **Batteries**
- ▲ **Paint thinners, paint strippers and removers**
- ▲ **Adhesives**
- ▲ **Drain openers**
- ▲ **Oven cleaners**
- ▲ **Wood and metal cleaners and polishes**
- ▲ **Herbicides and pesticides**
- ▲ **Fungicides/wood preservatives**
- ▲ **Automotive fluids and products**
- ▲ **Grease and rust solvents**
- ▲ **Thermometers and other products containing mercury**
- ▲ **Fluorescent lamps**
- ▲ **Cathode ray tubes, e.g. TVs, computer monitors**
- ▲ **Pool and spa chemicals**

Gardening Activities

- Follow directions on pesticides and fertilizers, (measure, do not estimate amounts) and do not use if rain is predicted within 48 hours.
- Water your lawn and garden by hand to control the amount of water you use. Set irrigation systems to reflect seasonal water needs. If water flows off your yard and onto your driveway or sidewalk, your system is over-watering.
- Mulch clippings or leave them on the lawn. If necessary, dispose in a green waste container.
- Cultivate your garden often to control weeds.

Washing and Maintaining Your Car

- Take your car to a commercial car wash whenever possible.
- Choose soaps, cleaners, or detergents labeled "non-toxic," "phosphate free" or "biodegradable." Vegetable and citrus-based products are typically safest for the environment, **but even these should not be allowed into the storm drain.**
- Shake floor mats into a trash can or vacuum to clean.
- Do not use acid-based wheel cleaners and "hose off" engine degreasers at home. They can be used at a commercial facility, which can properly process the washwater.
- **Do not dump washwater onto your driveway, sidewalk, street, gutter or storm drain.** Excess washwater should be disposed of in the sanitary sewers (through a sink, or toilet) or onto an absorbent surface like your lawn.
- Use a nozzle to turn off water when not actively washing down automobile.
- Monitor vehicles for leaks and place pans under leaks. Keep your car well maintained to stop and prevent leaks.
- Use cat litter or other absorbents and sweep to remove any materials deposited by vehicles. Contain sweepings and dispose of at a HHWCC.
- Perform automobile repair and maintenance under a covered area and use drip pans or plastic sheeting to keep spills and waste material from reaching storm drains.
- **Never pour oil or antifreeze in the street, gutter or storm drains.** Recycle these substances at a service station, HHWCC, or used oil recycling center. For the nearest Used Oil Collection Center call 1-800-CLEANUP or visit www.ciwmb.ca.gov/UsedOil.

For locations and hours of Household Hazardous Waste Collection Centers in Anaheim, Huntington Beach, Irvine and San Juan Capistrano, call (714)834-6752 or visit www.oclandfills.com.

Do your part to prevent water pollution in our creeks, rivers, bays and ocean.

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, not properly disposing of household hazardous waste can lead to water pollution. Batteries, electronics, paint, oil, gardening chemicals, cleaners and other hazardous materials cannot be thrown in the trash. They also must never be poured or thrown into yards, sidewalks, driveways, gutters or streets. Rain or other water could wash the materials into the storm drain and eventually into our waterways and the ocean. In addition, hazardous waste must not be poured in the sanitary sewers (sinks and toilets).

NEVER DISPOSE OF HOUSEHOLD HAZARDOUS WASTE IN THE TRASH, STREET, GUTTER, STORM DRAIN OR SEWER.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

To Report Illegal Dumping of Household Hazardous Waste call 1-800-69-TOXIC

To report a spill,
call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline
1-877-89-SPILL (1-877-897-7455).

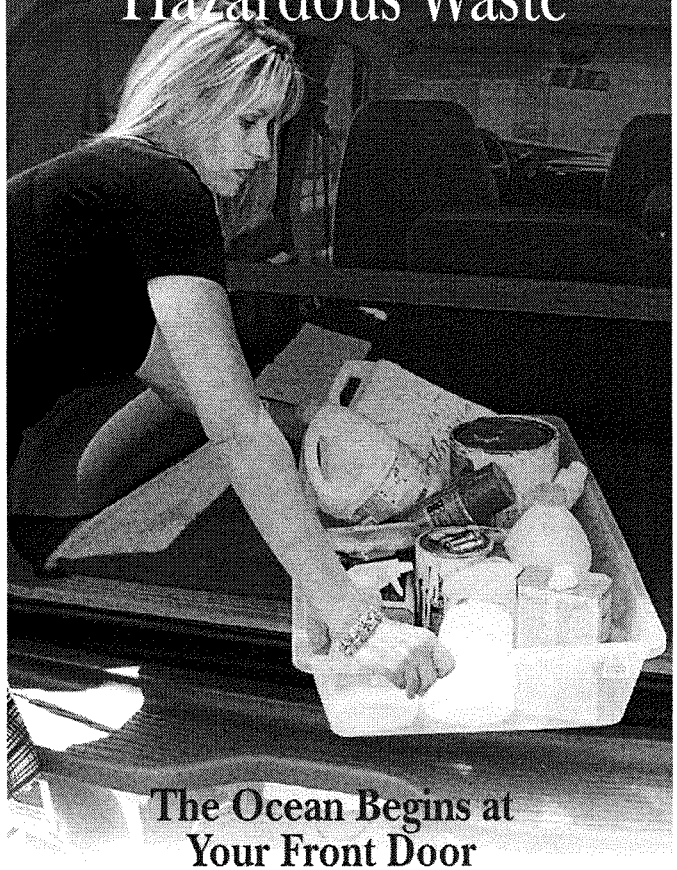
For emergencies, dial 911.

RECYCLE USED OIL

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Proper Disposal of Household Hazardous Waste



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

ORANGE COUNTY

Pollution Prevention

Leftover household products that contain corrosive, toxic, ignitable, or reactive ingredients are considered to be "household hazardous waste" or "HHW." HHW can be found throughout your home, including the bathroom, kitchen, laundry room and garage.

WHEN POSSIBLE, USE NON-HAZARDOUS OR LESS-HAZARDOUS PRODUCTS.

Disposal of HHW down the drain, on the ground, into storm drains, or in the trash is illegal and unsafe.

Proper disposal of HHW is actually easy. Simply drop them off at a Household Hazardous Waste Collection Center (HHWCC) for free disposal and recycling. Many materials including anti-freeze, latex-based paint, motor oil and batteries can be recycled. Some centers have a "Stop & Swap" program that lets you take partially used home, garden, and automobile products free of charge. There are four HHWCCs in Orange County:

Anaheim:.....1071 N. Blue Gum St
Huntington Beach:.....17121 Nichols St
Irvine:.....6411 Oak Canyon
San Juan Capistrano:... 32250 La Pata Ave

Centers are open Tuesday-Saturday, 9 a.m.-3 p.m. Centers are closed on rainy days and major holidays. For more information, call **(714) 834-6752** or visit **www.oclandfills.com.**

Common household hazardous wastes

- Batteries
- Paint and paint products
- Adhesives
- Drain openers
- Household cleaning products
- Wood and metal cleaners and polishes
- Pesticides
- Fungicides/wood preservatives
- Automotive products (antifreeze, motor oil, fluids)
- Grease and rust solvents
- Fluorescent lamps
- Mercury (thermometers & thermostats)
- All forms of electronic waste including computers and microwaves
- Pool & spa chemicals
- Cleaners
- Medications
- Propane (camping & BBQ)
- Mercury-containing lamps
- Television & monitors (CRTs, flatscreens)

Tips for household hazardous waste

- Never dispose of HHW in the trash, street, gutter, storm drain or sewer.
- Keep these materials in closed, labeled containers and store materials indoors or under a cover.
- When possible, use non-hazardous products.
- Reuse products whenever possible or share with family and friends.
- Purchase only as much of a product as you'll need. Empty containers may be disposed of in the trash.
- HHW can be harmful to humans, pets and the environment. Report emergencies to 911.

Did you know that just one quart of oil can pollute 250,000 gallons of water?

A clean ocean and healthy creeks, rivers, bays and beaches are important to Orange County. However, not properly disposing of used oil can lead to water pollution. If you pour or drain oil onto driveways, sidewalks or streets, it can be washed into the storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering the ocean. Help prevent water pollution by taking your used oil to a used oil collection center.

Included in this brochure is a list of locations that will accept up to five gallons of used motor oil at no cost. Many also accept used oil filters. Please contact the facility before delivering your used oil. This listing of companies is for your reference and does not constitute a recommendation or endorsement of the company.

Please note that used oil filters may not be disposed of with regular household trash. They must be taken to a household hazardous waste collection or recycling center in Anaheim, Huntington Beach, Irvine or San Juan Capistrano. For information about these centers, visit www.oclandfills.com.

Please do not mix your oil with other substances!

For more information, please call the Orange County Stormwater Program at 1-877-89-SPILL (1-877-897-7455) **or visit www.watersheds.com.**

For information about the proper disposal of household hazardous waste, call the Household Waste Hotline at (714) 834-6752 or visit www.oclandfills.com.

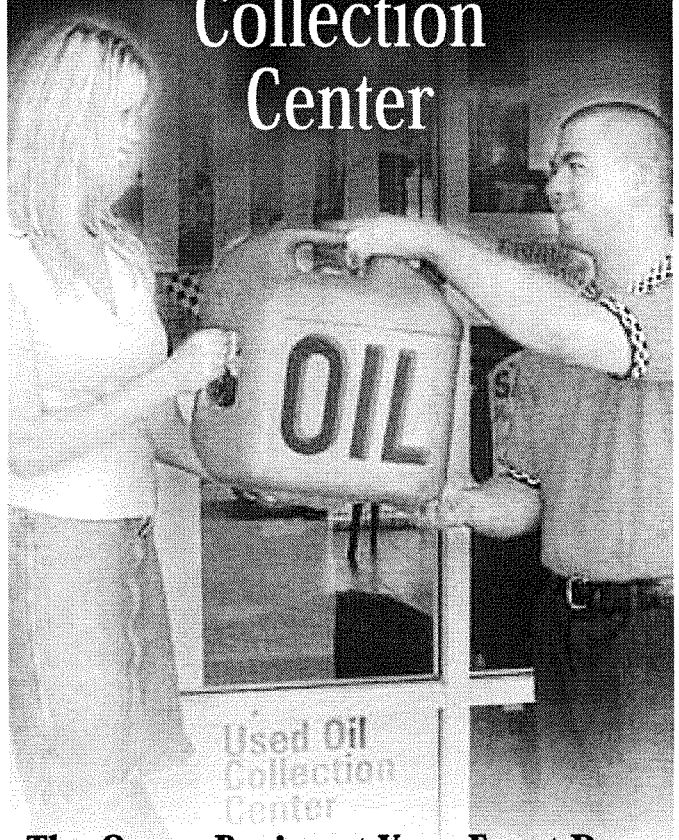
RECYCLE USED OIL

For additional information about the nearest oil recycling center, call the Used Oil Program at 1-800-CLEANUP or visit www.cleanup.org.

DTP113 Rev 8/03
printed on recycled paper

Help Prevent Ocean Pollution:

Recycle at Your Local Used Oil Collection Center



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

NORTH COUNTY

Used Oil Collection Centers

Anaheim

All Seasons Tire and Auto Center, Inc.
817 S Brookhurst St., Anaheim, CA 92804
(714)772-6090( )
CIWMB#: 30-C-03177

AutoZone #3317
423 N Anaheim Blvd., Anaheim, CA 92805
(714)776-0787( )
CIWMB#: 30-C-05263

AutoZone #5226
2145 W Lincoln Ave., Anaheim, CA 92801
(714)533-6599( )
CIWMB#: 30-C-04604

Bedard Automotive
3601 E Miraloma Ave., Anaheim, CA 92806
(714)528-1380( )
CIWMB#: 30-C-02205

Classic Chevrolet
1001 Weir Canyon Rd., Anaheim, CA 92807
(714)283-5400( )
CIWMB#: 30-C-05223

Econo Lube N' Tune #4
3201 W Lincoln Ave., Anaheim, CA 92801
(714)821-0128( )
CIWMB#: 30-C-01485

EZ Lube Inc - Savi Ranch #43
985 N Weir Canyon Rd., Anaheim, CA 92807
(714)556-1312( )
CIWMB#: 30-C-06011

Firestone Store #71C7
1200 S Magnolia Ave., Anaheim, CA 92804
(949)598-5520( )
CIWMB#: 30-C-05743

Great Western Lube Express
125 N Brookhurst St., Anaheim, CA 92801
(714)254-1300( )
CIWMB#: 30-C-05542

HR Pro Auto Service Center
3180 W Lincoln Ave., Anaheim, CA 92801
(714)761-4343( )
CIWMB#: 30-C-05927

Ira Newman Automotive Services
1507 N State College Blvd., Anaheim, CA 92806
(714)635-2392( )
CIWMB#: 30-C-01482

Jiffy Lube #1028
2400 W Ball Rd., Anaheim, CA 92804
(714)761-5211( )
CIWMB#: 30-C-00870

Jiffy Lube #1903
2505 E Lincoln Ave., Anaheim, CA 92806
(714)772-4000( )
CIWMB#: 30-C-05511

Jiffy Lube #2340
2181 W Lincoln Ave., Anaheim, CA 92801
(714)533-1000( )
CIWMB#: 30-C-04647

Kragen Auto Parts #1303
1088 N State College Blvd., Anaheim, CA 92806
(714)956-7351( )
CIWMB#: 30-C-03438

Kragen Auto Parts #1399
2245 W Ball Rd., Anaheim, CA 92804
(714)490-1274( )
CIWMB#: 30-C-04094

Kragen Auto Parts #1565
2072 Lincoln Ave., Anaheim, CA 92806
(714)502-6992( )
CIWMB#: 30-C-04078

Kragen Auto Parts #1582
3420 W Lincoln Ave., Anaheim, CA 92801
(714)828-7977( )
CIWMB#: 30-C-04103

Pep Boys #613
10912 Katella Ave., Anaheim, CA 92804
(714)638-0863( )
CIWMB#: 30-C-01756

Pep Boys #663
3030 W Lincoln Anaheim, CA 92801
(714)826-4810( )
CIWMB#: 30-C-03417

Pep Boys #809
8205 E Santa Ana Cyn Rd., Anaheim, CA 92808
(714)974-0105( )
CIWMB#: 30-C-03443

Pick Your Part
1235 S Beach Blvd., Anaheim, CA 92804
(714)527-1645( )
CIWMB#: 30-C-03744

PK Auto Performance
3106 W. Lincoln Ave., Anaheim, CA 92801
(714)826-2141( )
CIWMB#: 30-C-05628

Quick Change Lube and Oil
2731 W Lincoln Ave., Anaheim, CA 92801
(714)821-4464( )
CIWMB#: 30-C-04363

Saturn of Anaheim
1380 S Auto Center Dr., Anaheim, CA 92806
(714)648-2444( )
CIWMB#: 30-C-06332

Sun Tech Auto Service
105 S State College Blvd., Anaheim, CA 92806
(714)956-1389( )
CIWMB#: 30-C-06455

Vonic Truck Services
515 S Rose St., Anaheim, CA 92805
(714)533-3333( )
CIWMB#: 30-C-01142

Anaheim Hills

Anaheim Hills Car Wash & Lube
5810 E La Palma Ave., Anaheim Hills, CA 92807
(714)777-6605( )
CIWMB#: 30-C-01387

Brea

Firestone Store #27A9
891 E Imperial Hwy., Brea, CA 92821
(714)529-8404( )
CIWMB#: 30-C-01221

Oil Can Henry's
230 N Brea Blvd., Brea, CA 92821
(714)990-1900( )
CIWMB#: 30-C-04273

Buena Park

Firestone Store #71F7
6011 Orangethorpe Buena Park, CA 90620
(714)670-7912( )
CIWMB#: 30-C-01218

Firestone Store #71T8
8600 Beach Blvd., Buena Park, CA 90620
(714)827-5300( )
CIWMB#: 30-C-02121

Kragen Auto Parts #1204
5303 Beach Blvd., Buena Park, CA 90621
(714)994-1320( )
CIWMB#: 30-C-02623

Cypress

AutoZone #5521
5471 Lincoln Ave., Cypress, CA 90630
(714)995-4644( )
CIWMB#: 30-C-00836

Big O Tires
6052 Cerritos Ave., Cypress, CA 90630
(714)826-6334( )
CIWMB#: 30-C-04245

Econo Lube N' Tune #213
5497 Cerritos Ave., Cypress, CA 90630
(714)761-0456( )
CIWMB#: 30-C-06240

Jiffy Lube #851
4942 Lincoln Ave., Cypress, CA 90630
(626)965-9689( )
CIWMB#: 30-C-06182

M & N Coastline Auto & Tire Service
4005 Ball Rd., Cypress, CA 90630
(714)826-1001( )
CIWMB#: 30-C-04387

Masterlube #103
5904 Lincoln Cypress, CA 90630
(714)826-2323( )
CIWMB#: 30-C-01071

Masterlube #104
5971 Ball Rd., Cypress, CA 90630
(714)220-1555( )
CIWMB#: 30-C-04682

Metric Motors of Cypress
6042 Cerritos Ave., Cypress, CA 90630
(714)821-4702( )
CIWMB#: 30-C-05157

Fullerton

AutoZone #2898
146 N. Raymond Ave., Fullerton, CA 92831
(714)870-9772( )
CIWMB#: 30-C-04488

AutoZone #5522
1801 Orangethorpe W. Fullerton, CA 92833
(714)870-8286( )
CIWMB#: 30-C-06062

AutoZone #5523
102 N Euclid Fullerton, CA 92832
(714)870-8286( )
CIWMB#: 30-C-04755

EZ Lube #17
4002 N Harbor Blvd., Fullerton, CA 92835
(714)871-9980( )
CIWMB#: 30-C-03741

Firestone Store #27EH
1933 N Placentia Ave., Fullerton, CA 92831
(714)993-7100( )
CIWMB#: 30-C-02122

Fox Service Center
1018 W Orangethorpe Fullerton, CA 92833
(714)879-1430( )
CIWMB#: 30-C-02318

Fullerton College Automotive Technology
321 E Chapman Ave., Fullerton, CA 92832
(714)992-7275( )
CIWMB#: 30-C-03165

Kragen Auto Parts #0731
2978 Yorba Linda Fullerton, CA 92831
(714)996-4780( )
CIWMB#: 30-C-02628

Kragen Auto Parts #4133
904 W Orangethorpe Ave., Fullerton, CA 92832
(714)526-3570( )
CIWMB#: 30-C-06256

Pep Boys #642
1530 S Harbor Blvd., Fullerton, CA 92832
(714)870-0700( )
CIWMB#: 30-C-01755

Sunnyside 76 Car Care Center
2701 N Brea Blvd., Fullerton, CA 92835
(714)256-0773( )
CIWMB#: 30-C-01381

Garden Grove

76 Pro Lube Plus
9001 Trask Ave., Garden Grove, CA 92844
(714)393-0590( )
CIWMB#: 30-C-05276

AutoZone #5527
13190 Harbor Blvd., Garden Grove, CA 92843
(714)636-5665( )
CIWMB#: 30-C-04760

David Murray Shell
12571 Vly View St., Garden Grove, CA 92845
(714)898-0170( )
CIWMB#: 30-C-00547

Express Lube & Wash
8100 Lampson Ave., Garden Grove, CA 92841
(909)316-8261( )
CIWMB#: 30-C-06544

Firestone Store #7180
10081 Chapman Ave., Garden Grove, CA 92840
(714)530-4630( )
CIWMB#: 30-C-01224

Firestone Store #71W3
13961 Brookhurst St., Garden Grove, CA 92843
(714)590-2741( )
CIWMB#: 30-C-03690

Jiffy Lube #1991
13970 Harbor Blvd., Garden Grove, CA 92843
(714)554-0610( )
CIWMB#: 30-C-05400

Kragen Auto Parts #1251
13933 N Harbor Blvd., Garden Grove, CA 92843
(714)554-3780( )
CIWMB#: 30-C-02663

Kragen Auto Parts #1555
9851 Chapman Ave., Garden Grove, CA 92841
(714)741-8030( )
CIWMB#: 30-C-04079

Nissan of Grarden Grove
9670 Trask Ave., Garden Grove, CA 92884
(714)537-0900( )
CIWMB#: 30-C-06553

Toyota of Garden Grove
9444 Trask Ave., Garden Grove, CA 92844
(714)895-5595( )
CIWMB#: 30-C-06555

La Habra

AutoZone #5532
1200 W Imperial Hwy., La Habra, CA 90631
(562)694-5337( )
CIWMB#: 30-C-04784

Burch Ford
201 N Harbor Blvd., La Habra, CA 90631
(562)691-3225( )
CIWMB#: 30-C-05179

Firestone Store #2736
1071 S Beach Blvd., La Habra, CA 90631
(562)691-1731( )
CIWMB#: 30-C-01169

Kragen Auto Parts #1569
1621 W Whittier Blvd., La Habra, CA 90631
(562)905-2538( )
CIWMB#: 30-C-04076

Pep Boys #997
125 W Imperial Hwy., La Habra, CA 90631
(714)447-0601( )
CIWMB#: 30-C-04026

SpeeDee Oil Change & Tune-Up
1580 W Imperial Hwy., La Habra, CA 90631
(562)697-3513( )

Los Alamitos

Jiffy Lube #1740
3311 Katella Ave., Los Alamitos, CA 90720
(562)596-1827( )
CIWMB#: 30-C-03529

Midway City

Bolsa Transmission
8331 Bolsa Ave., Midway City, CA 92655
(714)799-6158( )
CIWMB#: 30-C-05768

Placentia

Advanced Auto & Diesel
144 S Bradford Placentia, CA 92870
(714)996-8222( )
CIWMB#: 30-C-06242

Castner's Auto Service
214 S. Bradford Ave., Placentia, CA 92870
(714)528-1311( )
CIWMB#: 30-C-06452

Econo Lube N' Tune
100 W Chapman Ave., Placentia, CA 92870
(714)524-0424( )
CIWMB#: 30-C-06454

Fairway Ford
1350 E Yorba Linda Blvd., Placentia, CA 92870
(714)524-1200( )
CIWMB#: 30-C-01863

Seal Beach

M & N Coastline Auto & Tire Service
12239 Seal Beach Blvd., Seal Beach, CA 90740
(714)826-1001( )
CIWMB#: 30-C-04433

Seal Beach Chevron
12541 Seal Beach Blvd., Seal Beach, CA 90740
(949)495-0774(14)
CIWMB#: 30-C-06425

Stanton

AutoZone #2806
11320 Beach Blvd., Stanton, CA 90680
(714)895-7665( )
CIWMB#: 30-C-04563

Joe's Auto Clinic
11763 Beach Blvd., Stanton, CA 90680
(714)891-7715( )
CIWMB#: 30-C-03253

Kragen Auto Parts #1742
11951 Beach Blvd., Stanton, CA 90680
(714)799-7574( )
CIWMB#: 30-C-05231

Scher Tire #20
7000 Katella Ave., Stanton, CA 90680
(714)892-9924( )
CIWMB#: 30-C-05907

USA 10 Minute Oil Change
8100 Lampson Ave., Stanton, CA 92841
(714)373-4432( )
CIWMB#: 30-C-05909

Westminster

AutoZone #5543
6611 Westminster Blvd., Westminster, CA 92683
(714)898-2898( )
CIWMB#: 30-C-04964

AutoZone #5544
8481 Westminster Blvd., Westminster, CA 92683
(714)891-3511( )
CIWMB#: 30-C-04966

City of Westminster Corporate Yard
14381 Olive St., Westminster, CA 92683
(714)895-2876(292)
CIWMB#: 30-C-02008

Honda World
13600 Beach Blvd., Westminster, CA 92683
(714)890-8900( )
CIWMB#: 30-C-03639

Jiffy Lube #1579
6011 Westminster Blvd., Westminster, CA 92683
(714)899-2727( )
CIWMB#: 30-C-02745

John's Brake & Auto Repair
13050 Hoover St., Westminster, CA 92683
(714)379-2088( )
CIWMB#: 30-C-05617

Kragen Auto Parts #0752
6562 Westminster Blvd., Westminster, CA 92683
(714)898-0810( )
CIWMB#: 30-C-02590

Midway City Sanitary District
14451 Cedarwood St., Westminster, CA 92683
(714)893-3553( )
CIWMB#: 30-C-01626

Pep Boys #653
15221 Beach Blvd., Westminster, CA 92683
(714)893-8544( )
CIWMB#: 30-C-03415

Yorba Linda

AutoZone #5545
18528 Yorba Linda Blvd., Yorba Linda, CA 92886
(714)970-8933( )
CIWMB#: 30-C-04971

Econo Lube N' Tune
22270 La Palma Ave., Yorba Linda, CA 92887
(714)692-8394( )
CIWMB#: 30-C-06513

EZ Lube Inc. #41
17511 Yorba Linda Blvd., Yorba Linda, CA 92886
(714)556-1312( )
CIWMB#: 30-C-05739

Firestone Store #27T3
18500 Yorba Linda Blvd., Yorba Linda, CA 92886
(714)779-1966( )
CIWMB#: 30-C-01222

Jiffy Lube #1532
16751 Yorba Linda Blvd., Yorba Linda, CA 92886
(714)528-2800( )
CIWMB#: 30-C-03777

Mike Schultz Import Service
4832 Eureka Ave., Yorba Linda, CA 92886
(714)528-4411( )
CIWMB#: 30-C-04313

This information was provided by the County of Orange Integrated Waste Management Department and the California Integrated Waste Management Board (CIWMB).

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities such as pest control can lead to water pollution if you're not careful. Pesticide treatments must be planned and applied properly to ensure that pesticides do not enter the street, gutter or storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never dump pesticides into the ocean, so don't let it enter the storm drains. Pesticides can cause significant damage to our environment if used improperly. If you are thinking of using a pesticide to control a pest, there are some important things to consider.

For more information, please call University of California Cooperative Extension Master Gardeners at (714) 708-1646 or visit these Web sites:
www.uccemg.org
www.ipm.ucdavis.edu

For instructions on collecting a specimen sample visit the Orange County Agriculture Commissioner's website at: http://www.ocagcomm.com/ser_lab.asp

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline at 1-877-89-SPILL (1-877-897-7455).**

For emergencies, dial 911.

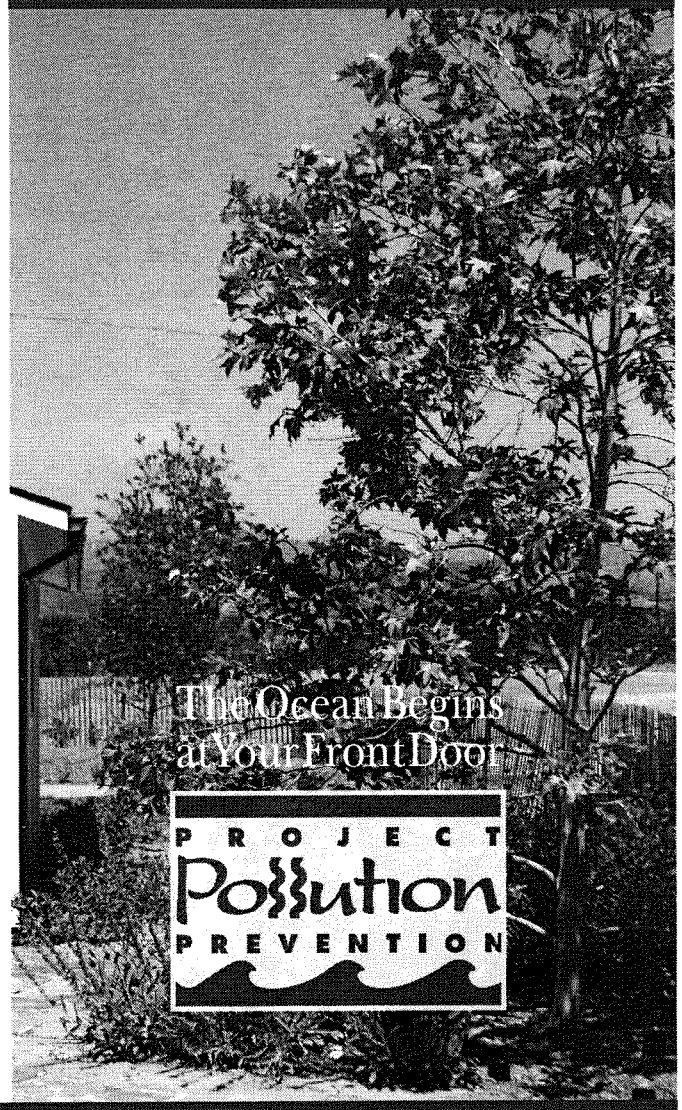
Information From:
Cheryl Wilen, Area IPM Advisor; Darren Haver, Watershed Management Advisor; Mary Louise Flint, IPM Education and Publication Director; Pamela M. Geisel, Environmental Horticulture Advisor; Carolyn L. Unruh, University of California Cooperative Extension staff writer. Photos courtesy of the UC Statewide IPM Program and Darren Haver.

Funding for this brochure has been provided in full or in part through an agreement with the State Water Resources Control Board (SWRCB) pursuant to the Costa-Machado Water Act of 2000 (Prop. 13).

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Responsible Pest Control



Tips for Pest Control

Key Steps to Follow:

Step 1: **Correctly identify the pest (insect, weed, rodent, or disease) and verify that it is actually causing the problem.**

Three life stages of the common lady beetle, a beneficial insect.

This is important because beneficial insects are often mistaken for pests and sprayed with pesticides needlessly.

Consult with a Certified Nursery Professional at a local nursery or garden center or send a sample of the pest to the Orange County Agricultural Commissioner's Office.

Determine if the pest is still present – even though you see damage, the pest may have left.

Step 2: **Determine how many pests are present and causing damage.**

Small pest populations may be controlled more safely using non-pesticide techniques. These include removing food sources, washing off leaves with a strong stream of water, blocking entry into the home using caulking and replacing problem plants with ones less susceptible to pests.

Integrated Pest Management (IPM) usually combines several least toxic pest control methods for long-term prevention and management of pest problems without harming you, your family, or the environment.

UC CE University of California Cooperative Extension

Step 3: **If a pesticide must be used, choose the least toxic chemical.**

Obtain information on the least toxic pesticides that are effective at controlling the target pest from the UC Statewide Integrated Pest Management (IPM) Program's Web site at www.ipm.ucdavis.edu.

Seek out the assistance of a Certified Nursery Professional at a local nursery or garden center when selecting a pesticide. Purchase the smallest amount of pesticide available.

Apply the pesticide to the pest during its most vulnerable life stage. This information can be found on the pesticide label.

Step 4: **Wear appropriate protective clothing.**

Follow pesticide labels regarding specific types of protective equipment you should wear. Protective clothing should always be washed separately from other clothing.

Step 5: **Continuously monitor external conditions when applying pesticides such as weather, irrigation, and the presence of children and animals.**

Never apply pesticides when rain is predicted within the next 48 hours. Also, do not water after applying pesticides unless the directions say it is necessary.

Apply pesticides when the air is still; breezy conditions may cause the spray or dust to drift away from your targeted area.

In case of an emergency call 911 and/or the regional poison control number at (714) 634-5988 or (800) 544-4404 (CA only).

For general questions you may also visit www.calpoison.org.

Step 6: **In the event of accidental spills, sweep up or use an absorbent agent to remove any excess pesticides. Avoid the use of water.**

Be prepared. Have a broom, dust pan, or dry absorbent material, such as cat litter, newspapers or paper towels, ready to assist in cleaning up spills.

Contain and clean up the spill right away. Place contaminated materials in a doubled plastic bag. All materials used to clean up the spill should be properly disposed of according to your local Household Hazardous Waste Disposal site.

Step 7: **Properly store and dispose of unused pesticides.**

Purchase Ready-To-Use (RTU) products to avoid storing large concentrated quantities of pesticides.

Store unused chemicals in a locked cabinet.

Unused pesticide chemicals may be disposed of at a Household Hazardous Waste Collection Center.

Empty pesticide containers should be triple rinsed prior to disposing of them in the trash.

Household Hazardous Waste Collection Center
(714) 834-6752
www.oclandfills.com

PROJECT Pollution PREVENTION

Sewage Spill Regulatory Requirements

Allowing sewage to discharge to a gutter or storm drain may subject you to penalties and/or out-of-pocket costs to reimburse cities or public agencies for clean-up efforts.

Here are the pertinent codes, fines, and agency contact information that apply.

Orange County Stormwater Program
24 Hour Water Pollution Reporting Hotline
1-877-89-SPILL (1-877-897-7455)

- County and city water quality ordinances prohibit discharges containing pollutants.

Orange County Health Care Agency Environmental Health
(714) 433-6419

California Health and Safety Code, Sections 5410-5416

- No person shall discharge raw or treated sewage or other waste in a manner that results in contamination, pollution or a nuisance.
- Any person who causes or permits a sewage discharge to any state waters:
  - must immediately notify the local health agency of the discharge.
  - shall reimburse the local health agency for services that protect the public's health and safety (water-contact receiving waters).
  - who fails to provide the required notice to the local health agency is guilty of a misdemeanor and shall be punished by a fine (between $500–$1,000) and/or imprisonment for less than one year.

Regional Water Quality Control Board

Santa Ana Region	San Diego Region
(951) 782-4130	(858) 467-2952

- Requires the prevention, mitigation, response to and reporting of sewage spills.

California Office of Emergency Services
(800) 852-7550

California Water Code, Article 4, Chapter 4, Sections 13268-13271
California Code of Regulations, Title 23, Division 3, Chapter 9.2, Article 2, Sections 2250-2260

- Any person who causes or permits sewage in excess of 1,000 gallons to be discharged to state waters **shall immediately notify the Office of Emergency Services.**
- Any person who fails to provide the notice required by this section is **guilty of a misdemeanor** and shall be punished by a fine (less than $20,000) and/or imprisonment for not more than one year.

Sewage Spill
Reference Guide

Your Responsibilities as a Private Property Owner

Residences
Businesses
Homeowner/Condominium Associations
Federal and State Complexes
Military Facilities

Orange County Sanitation District

PROJECT Pollution PREVENTION

Health Care Agency
Environmental Health

www.ocwatersheds.com

This brochure was designed courtesy of the Orange County Sanitation District (OCSD).
For additional information, call (714) 962-2411, or visit their website at www.ocsd.com

What is a Sewage Spill?

Sewage spills occur when the wastewater being transported via underground pipes overflows through a manhole, cleanout or broken pipe. Sewage spills can cause health hazards, damage to homes and businesses, and threaten the environment, local waterways and beaches.

Common Causes of Sewage Spills

Grease builds up inside and eventually blocks sewer pipes. Grease gets into the sewer from food establishments, household drains, as well as from poorly maintained commercial grease traps and interceptors.

Structure problems caused by tree roots in the lines, broken/cracked pipes, missing or broken cleanout caps or undersized sewers can cause blockages.

Infiltration and inflow (I/I) impacts pipe capacity and is caused when groundwater or rainwater enters the sewer system through pipe defects and illegal connections.

You Are Responsible for a Sewage Spill Caused by a Blockage or Break in Your Sewer Lines!

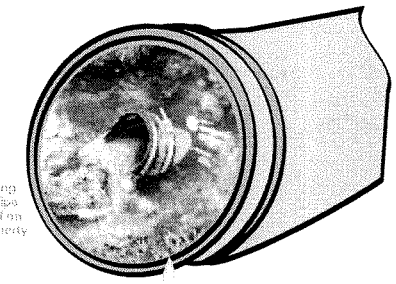
Time is of the essence in dealing with sewage spills. You are required to **immediately**:

Control and minimize the spill. Keep spills contained on private property and out of gutters, storm drains and public waterways by shutting off or not using the water.

Use sandbags, dirt and/or plastic sheeting to prevent sewage from entering the storm drain system.

Clear the sewer blockage. Always wear gloves and wash your hands. It is recommended that a plumbing professional be called for clearing blockages and making necessary repairs.

Always notify your city sewer/public works department or public sewer district of sewage spills. If the spill enters the storm drains also notify the Health Care Agency. In addition, if it exceeds 1,000 gallons notify the Office of Emergency Services. Refer to the numbers listed in this brochure.



Overflowing cleanout pipe located on private property

You Could Be Liable

Allowing sewage from your home, business or property to discharge to a gutter or storm drain may subject you to penalties and/or out-of-pocket costs to reimburse cities or public agencies for clean-up and enforcement efforts. See Regulatory Codes & Fines section for pertinent codes and fines that apply.

What to Look For

Sewage spills can be a very noticeable gushing of water from a manhole or a slow water leak that may take time to be noticed. Don't dismiss unaccounted-for wet areas.

Look for:

- Drain backups inside the building.
- Wet ground and water leaking around manhole lids onto your street.
- Leaking water from cleanouts or outside drains.
- Unusual odorous wet areas: sidewalks, external walls or ground/landscape around a building.

Caution

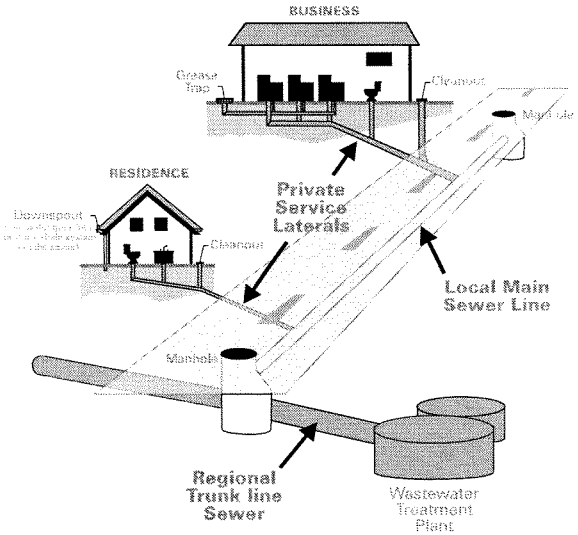
Keep people and pets away from the affected area. Untreated sewage has high levels of disease-causing viruses and bacteria. Call your local health care agency listed on the back for more information.

If You See a Sewage Spill Occurring, Notify Your City Sewer/Public Works Department or Public Sewer District IMMEDIATELY!

How a Sewer System Works

A property owner's sewer pipes are called service laterals and are connected to larger local main and regional trunk lines. Service laterals run from the connection at the home to the connection with the public sewer (including the area under the street). These laterals are the responsibility of the property owner and must be maintained by the property owner. Many city agencies have adopted ordinances requiring maintenance of service laterals. Check with your city sewer/local public works department for more information.

Operation and maintenance of **local and regional sewer lines** are the responsibility of the city sewer/public works departments and public sewer districts.



How You Can Prevent Sewage Spills

1. **Never put grease down garbage disposals, drains or toilets.**
2. **Perform periodic cleaning to eliminate grease, debris and roots in your service laterals.**
3. **Repair any structural problems in your sewer system and eliminate any rainwater infiltration/inflow leaks into your service laterals.**

Preventing Grease Blockages

The drain is not a dump! Recycle or dispose of grease properly and never pour grease down the drain.

Homeowners should mix fats, oils and grease with absorbent waste materials such as paper, coffee grounds, or kitty litter and place it in the trash. Wipe food scraps from plates and pans and dump them in the trash.

Restaurants and commercial food service establishments should always use "Kitchen Best Management Practices." These include:

- Collecting all cooking grease and liquid oil from pots, pans and fryers in covered grease containers for recycling.
- Scraping or dry-wiping excess food and grease from dishes, pots, pans and fryers into the trash.
- Installing drain screens on all kitchen drains.
- Having spill kits readily available for cleaning up spills.
- Properly maintaining grease traps or interceptors by having them serviced regularly. Check your local city codes.

Orange County Agency Responsibilites

- **City Sewer/Public Works Departments—** Responsible for protecting city property and streets, the local storm drain system, sewage collection system and other public areas.
- **Public Sewer/Sanitation District—** Responsible for collecting, treating and disposing of wastewater.
- **County of Orange Health Care Agency—** Responsible for protecting public health by closing ocean/bay waters and may close food-service businesses if a spill poses a threat to public health.
- **Regional Water Quality Control Boards—** Responsible for protecting State waters.
- **Orange County Stormwater Program—** Responsible for preventing harmful pollutants from being discharged or washed by stormwater runoff into the municipal storm drain system, creeks, bays and the ocean.

You Could Be Liable for Not Protecting the Environment

Local and state agencies have legal jurisdiction and enforcement authority to ensure that sewage spills are remedied.

They may respond and assist with containment, relieving pipe blockages, and/or clean-up of the sewage spill, especially if the spill is flowing into storm drains or onto public property.

A property owner may be charged for costs incurred by these agencies responding to spills from private properties.

Report Sewage Spills!

City Sewer/Public Works Departments

Aliso Viejo	(949) 425-2500
Anaheim	(714) 765-6860
Brea	(714) 990-7691
Buena Park	(714) 562-3655
Costa Mesa	(949) 645-8400
Cypress	(714) 229-6760
Dana Point	(949) 248-3562
Fountain Valley	(714) 593-4600
Fullerton	(714) 738-6897
Garden Grove	(714) 741-5375
Huntington Beach	(714) 536-5921
Irvine	(949) 453-5300
Laguna Beach	(949) 497-0765
Laguna Hills	(949) 707-2650
Laguna Niguel	(949) 362-4337
Laguna Woods	(949) 639-0500
La Habra	(562) 905-9792
Lake Forest	(949) 461-3480
La Palma	(714) 690-3310
Los Alamitos	(562) 431-3538
Mission Viejo	(949) 831-2500
Newport Beach	(949) 644-3011
Orange	(714) 532-6480
Orange County	(714) 567-6363
Placentia	(714) 993-8245
Rancho Santa Margarita	(949) 635-1800
San Clemente	(949) 366-1553
San Juan Capistrano	(949) 443-6363
Santa Ana	(714) 647-3380
Seal Beach	(562) 431-2527
Stanton	(714) 379-9222
Tustin	(714) 962-2411
Villa Park	(714) 998-1500
Westminster	(714) 893-3553
Yorba Linda	(714) 961-7170

Public Sewer/Water Districts

Costa Mesa Sanitary District	(714) 393-4433/ (949) 645-8400
El Toro Water District	(949) 837-0660
Emerald Bay Service District	(949) 494-8571
Garden Grove Sanitary District	(714) 741-5375
Irvine Ranch Water District	(949) 453-5300
Los Alamitos/Rossmoor Sewer District	(562) 431-2223
Midway City Sanitary District (Westminster)	(714) 893-3553
Moulton Niguel Water District	(949) 831-2500
Orange County Sanitation District	(714) 962-2411
Santa Margarita Water District	(949) 459-6420
South Coast Water District	(949) 499-4555
South Orange County Wastewater Authority	(949) 234-5400
Sunset Beach Sanitary District	(562) 493-9932
Trabuco Canyon Sanitary District	(949) 858-0277
Yorba Linda Water District	(714) 777-3018

Other Agencies

Orange County Health Care Agency	(714) 433-6419
Office of Emergency Services	(800) 852-7550

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Home improvement projects and work sites must be maintained to ensure that building materials do not enter the street, gutter or storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never dump building materials into the ocean, so don't let them enter the storm drains. Follow these tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

To report a spill,
call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline
at **1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while performing home improvement projects. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

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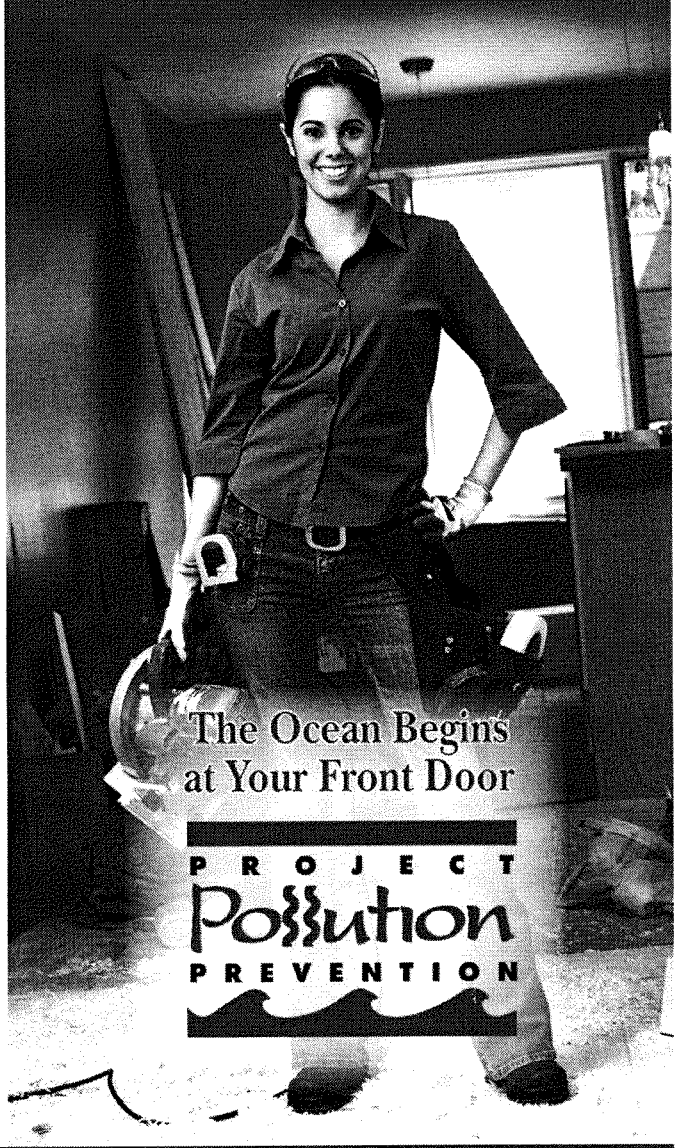
Help Prevent Ocean Pollution:

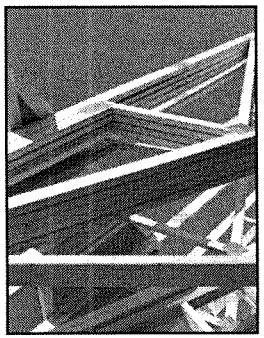
Tips for Home Improvement Projects



Tips for Home Improvement Projects

Home improvement projects can cause significant damage to the environment. Whether you hire a contractor or work on the house yourself, it is important to follow these simple tips while renovating, remodeling or improving your home:

General Construction



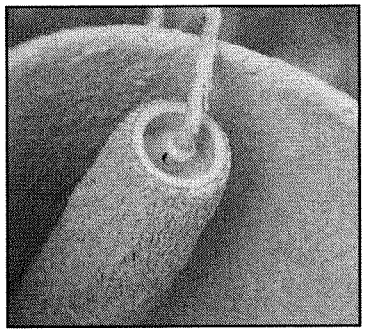
- Schedule projects for dry weather.
- Keep all construction debris away from the street, gutter and storm drain.
- Store materials under cover with temporary roofs or plastic sheets to eliminate or reduce the possibility that rainfall, runoff or wind will carry materials from the project site to the street, storm drain or adjacent properties.

Building Materials

- Never hose materials into a street, gutter or storm drain.
- Exposed piles of construction material should not be stored on the street or sidewalk.
- Minimize waste by ordering only the amount of materials needed to complete the job.
- Do not mix more fresh concrete than is needed for each project.
- Wash concrete mixers and equipment in a designated washout area where the water can flow into a containment area or onto dirt.
- Dispose of small amounts of dry excess materials in the trash. Powdery waste, such as dry concrete, must be properly contained within a box or bag prior to disposal. Call your local trash hauler for weight and size limits.

Paint

- Measure the room or object to be painted, then buy only the amount needed.
- Place the lid on firmly and store the paint can upside-down in a dry location away from the elements.
- Tools such as brushes, buckets and rags should never be washed where excess water can drain into the street, gutter or storm drain. All tools should be rinsed in a sink connected to the sanitary sewer.
- When disposing of paint, never put wet paint in the trash.
- Dispose of water-based paint by removing the lid and letting it dry in the can. Large amounts must be taken to a Household Hazardous Waste Collection Center (HHWCC).



- Oil-based paint is a household hazardous waste. All leftover paint should be taken to a HHWCC.
- For HHWCC locations and hours, call **(714) 834-6752** or visit **www.oclandfills.com.**

Erosion Control

- Schedule grading and excavation projects for dry weather.
- When temporarily removing soil, pile it in a contained, covered area where it cannot spill into the street, or obtain the required temporary encroachment or street closure permit and follow the conditions instructed by the permit.
- When permanently removing large quantities of soil, a disposal location must be found prior to excavation. Numerous businesses are available to handle disposal needs. For disposal options, visit **www.ciwmb.ca.gov/SWIS**.
- Prevent erosion by planting fast-growing annual and perennial grasses. They will shield and bind the soil.

Recycle

- Use a construction and demolition recycling company to recycle lumber, paper, cardboard, metals, masonry (bricks, concrete, etc.), carpet, plastic, pipes (plastic, metal and clay), drywall, rocks, dirt and green waste.

- For a listing of construction and demolition recycling locations in your area, visit **www.ciwmb.ca.gov/recycle.**

Spills

- Clean up spills immediately by using an absorbent material such as cat litter, then sweep it up and dispose of it in the trash.
- Immediately report spills that have entered the street, gutter or storm drain to the County's 24-Hour Water Pollution Problem Reporting Hotline at **(714) 567-6363** or visit **www.ocwatersheds.com** to fill out an incident reporting form.

PROJECT Pollution PREVENTION

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Fertilizers, pesticides and other chemicals that are left on yards or driveways can be blown or washed into storm drains that flow to the ocean. Overwatering lawns can also send materials into storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour gardening products into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

UCCE Master Gardener Hotline: (714) 708-1646

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline 1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while landscaping or gardening. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

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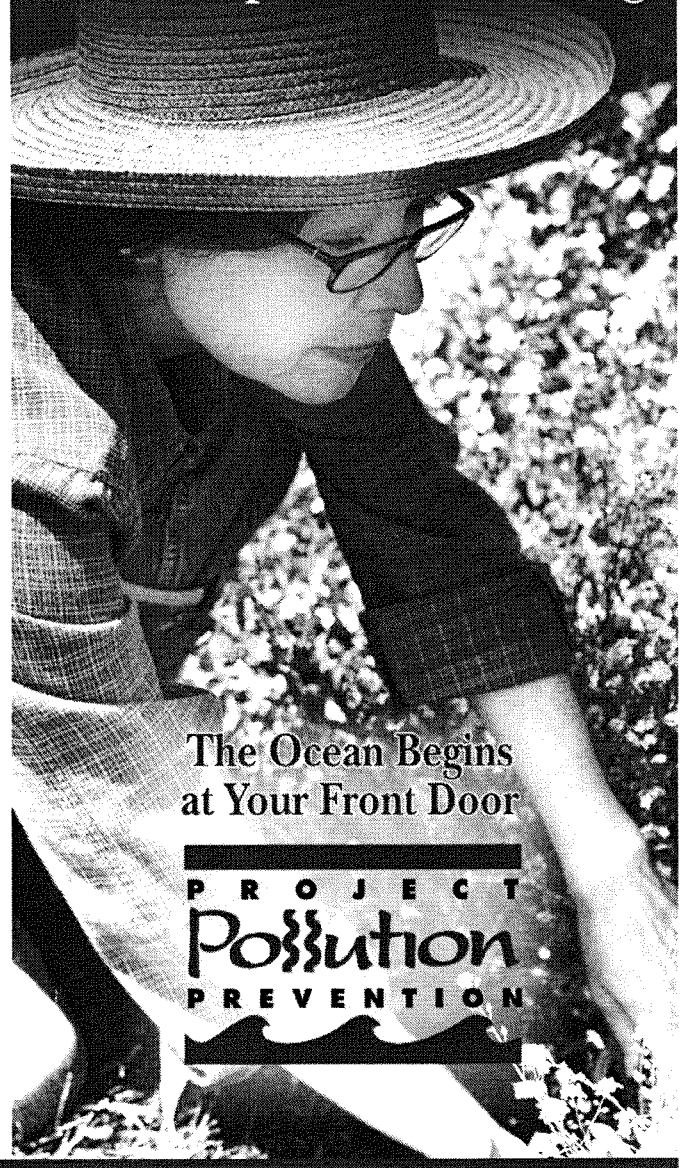
Help Prevent Ocean Pollution:

Tips for Landscape & Gardening



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Tips for Landscape & Gardening

Never allow gardening products or polluted water to enter the street, gutter or storm drain.

General Landscaping Tips

- Protect stockpiles and materials from wind and rain by storing them under tarps or secured plastic sheeting.
- Prevent erosion of slopes by planting fast-growing, dense ground covering plants. These will shield and bind the soil.
- Plant native vegetation to reduce the amount of water, fertilizers, and pesticide applied to the landscape.

- Never apply pesticides or fertilizers when rain is predicted within the next 48 hours.

Garden & Lawn Maintenance

- Do not overwater. Use irrigation practices such as drip irrigation, soaker hoses or micro spray systems. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of green waste by composting, hauling it to a permitted landfill, or recycling it through your city's program.

- Use slow-release fertilizers to minimize leaching, and use organic fertilizers.
- Read labels and use only as directed. Do not over-apply pesticides or fertilizers. Apply to spots as needed, rather than blanketing an entire area.
- Store pesticides, fertilizers and other chemicals in a dry covered area to prevent exposure that may result in the deterioration of containers and packaging.

- Rinse empty pesticide containers and re-use rinse water as you would use the product. Do not dump rinse water down storm drains. Dispose of empty containers in the trash.
- When available, use non-toxic alternatives to traditional pesticides, and use pesticides specifically designed to control the pest you are targeting. For more information, visit **www.ipm.ucdavis.edu**.
- If fertilizer is spilled, sweep up the spill before irrigating. If the spill is liquid, apply an absorbent material such as cat litter, and then sweep it up and dispose of it in the trash.
- Take unwanted pesticides to a Household Hazardous Waste Collection Center to be recycled. Locations are provided below.

Household Hazardous Waste Collection Centers

Anaheim:	1071 N. Blue Gum St.
Huntington Beach:	17121 Nichols St.
Irvine:	6411 Oak Canyon
San Juan Capistrano:	32250 La Pata Ave.

For more information, call (714) 834-6752 or visit www.oclandfills.com

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Pet waste and pet care products can be washed into the storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never put pet waste or pet care products into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

To report a spill,
call the
Orange County 24-Hour
Water Pollution Problem
Reporting Hotline
1-877-89-SPILL (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while caring for your pet. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

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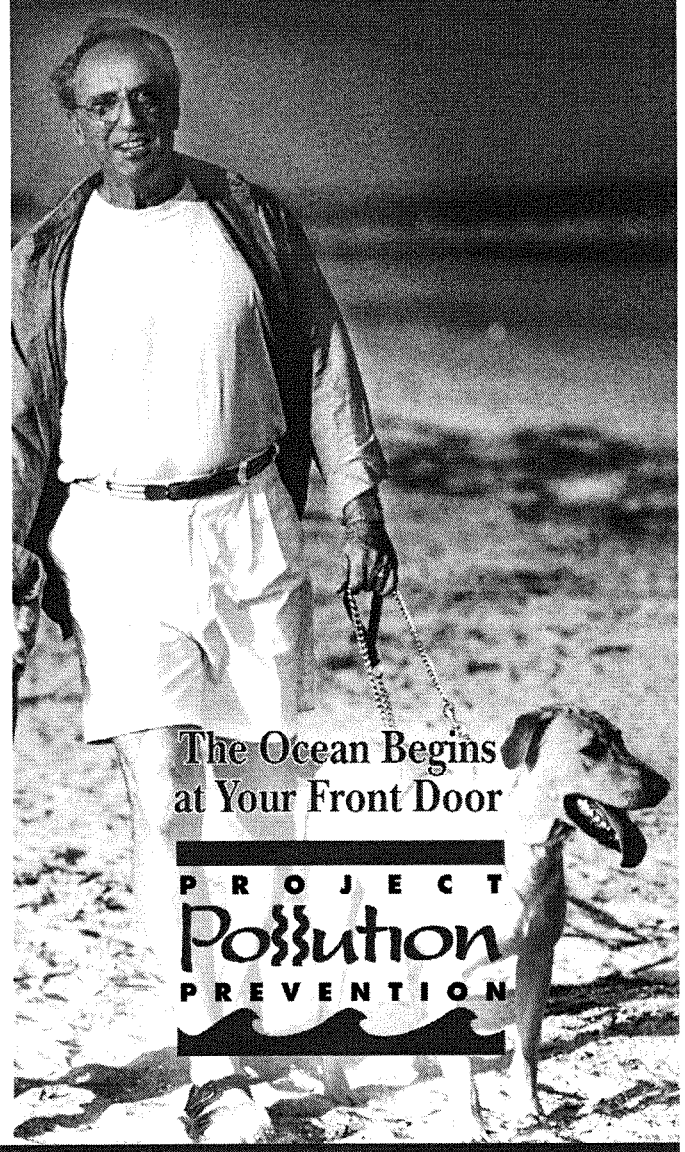
Help Prevent Ocean Pollution:

Tips for Pet Care



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Tips for Pet Care

Never let any pet care products or washwater run off your yard and into the street, gutter or storm drain.

Washing Your Pets

Even biodegradable soaps and shampoos can be harmful to marine life and the environment.

- If possible, bathe your pets indoors using less-toxic shampoos or have your pet professionally groomed. Follow instructions on the products and clean up spills.

- If you bathe your pet outside, wash it on your lawn or another absorbent/ permeable surface to keep the washwater from running into the street, gutter or storm drain.

Flea Control

- Consider using oral or topical flea control products.

- If you use flea control products such as shampoos, sprays or collars, make sure to dispose of any unused products at a Household Hazardous Waste Collection Center. For location information, call **(714) 834-6752**.

Why You Should Pick Up After Your Pet

It's the law! Every city has an ordinance requiring you to pick up after your pet. Besides being a nuisance, pet waste can lead to water pollution, even if you live inland. During rainfall, pet waste left outdoors can wash into storm drains. This waste flows directly into our waterways and the ocean where it can harm human health, marine life and the environment.

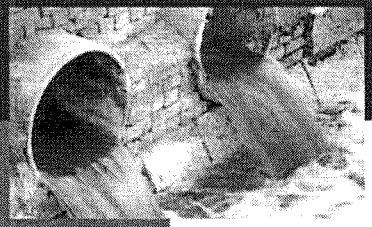
As it decomposes, pet waste demands a high level of oxygen from water. This decomposition can contribute to killing marine life by reducing the amount of dissolved oxygen available to them.

Have fun with your pets, but please be a responsible pet owner by taking care of them and the environment.

- Take a bag with you on walks to pick up after your pet.

- Dispose of the waste in the trash or in a toilet.

PROJECT Pollution PREVENTION



Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities such as painting can lead to water pollution if you're not careful. Paint must be used, stored and disposed of properly to ensure that it does not enter the street, gutter or storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never dump paint into the ocean, so don't let it enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline** at **1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while using, storing and disposing of paint. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

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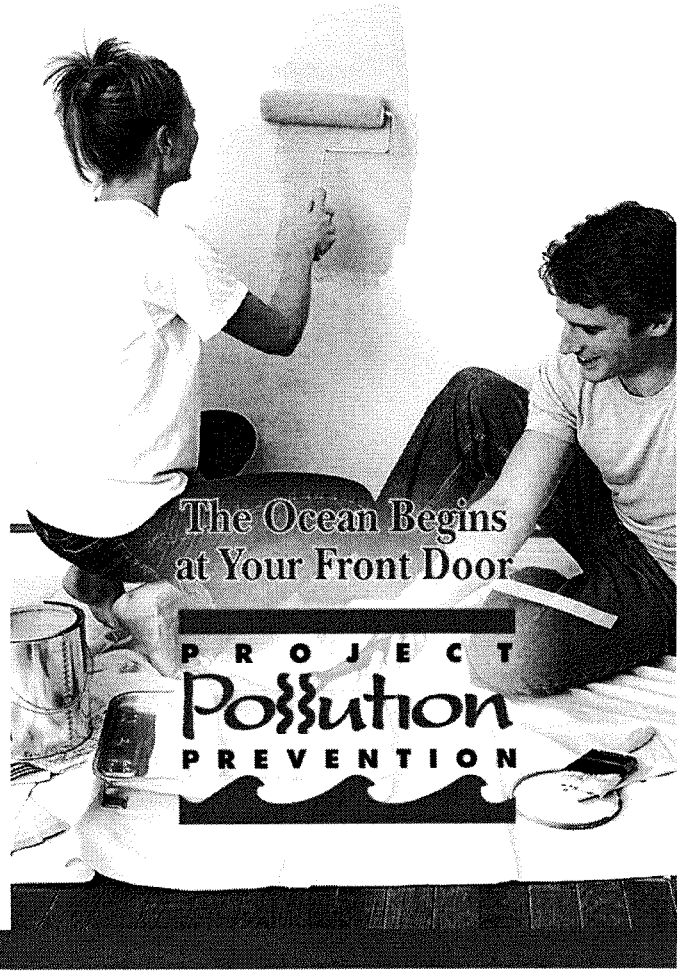
Help Prevent Ocean Pollution:

Tips for Projects Using Paint



Tips for Projects Using Paint

Paint can cause significant damage to our environment. Whether you hire a contractor or do it yourself, it is important to follow these simple tips when purchasing, using, cleaning, storing and disposing of paint.

Purchasing Paint

- Measure the room or object to be painted, then buy only the amount needed.
- Whenever possible, use water-based paint since it usually does not require hazardous solvents such as paint thinner for cleanup.

Painting

- Use only one brush or roller per color of paint to reduce the amount of water needed for cleaning.
- Place open paint containers or trays on a stable surface and in a position that is unlikely to spill.
- Always use a tarp under the area or object being painted to collect paint drips and contain spills.

Cleaning

- Never clean brushes or rinse paint containers in the street, gutter or storm drain.
- For oil-based products, use as much of the paint on the brushes as possible. Clean brushes with thinner. To reuse thinner, pour it through a fine filter (e.g. nylon, metal gauze or filter paper) to remove solids such as leftover traces of paint.
- For water-based products, use as much of the paint on the brushes as possible, then rinse in the sink.
- Collect all paint chips and dust. Chips and dust from marine paints or paints containing lead, mercury or tributyl tin are hazardous waste. Sweep up and dispose of at a Household Hazardous Waste Collection Center (HHWCC).

Storing Paint

- Store paint in a dry location away from the elements.
- Store leftover water-based paint, oil-based paint and solvents separately in original or clearly marked containers.
- Avoid storing paint cans directly on cement floors. The bottom of the can will rust much faster on cement.
- Place the lid on firmly and store the paint can upside-down to prevent air from entering. This will keep the paint usable longer. Oil-based paint is usable for up to 15 years. Water-based paint remains usable for up to 10 years.

Alternatives to Disposal

- Use excess paint to apply another coat, for touch-ups, or to paint a closet, garage, basement or attic.
- Give extra paint to friends or family. Extra paint can also be donated to a local theatre group, low-income housing program or school.
- Take extra paint to an exchange program such as the **"Stop & Swap"** that allows you to drop off or pick up partially used home care products free of charge. **"Stop & Swap"** programs are available at most HHWCCs.
- For HHWCC locations and hours, call **(714) 834-6752** or visit **www.oclandfills.com**.

Disposing of Paint

- Never put wet paint in the trash.

For water-based paint:

- If possible, brush the leftover paint on cardboard or newspaper. Otherwise, allow the paint to dry in the can with the lid off in a well-ventilated area protected from the elements, children and pets. Stirring the paint every few days will speed up the drying.
- Large quantities of extra paint should be taken to a HHWCC.
- Once dried, paint and painted surfaces may be disposed of in the trash. When setting a dried paint can out for trash collection, leave the lid off so the collector will see that the paint has dried.

For oil-based paint:

- Oil-based paint is a household hazardous waste. All leftover paint should be taken to a HHWCC.

Aerosol paint:

- Dispose of aerosol paint cans at a HHWCC.

Spills

- Never hose down pavement or other impermeable surfaces where paint has spilled.
- Clean up spills immediately by using an absorbent material such as cat litter. Cat litter used to clean water-based paint spills can be disposed of in the trash. When cleaning oil-based paint spills with cat litter, it must be taken to a HHWCC.
- Immediately report spills that have entered the street, gutter or storm drain to the County's 24-Hour Water Pollution Problem Reporting Hotline at **(714) 567-6363** or visit **www.ocwatersheds.com** to fill out an incident reporting form.

PROJECT Pollution PREVENTION

Clean beaches and healthy creeks, rivers, bays, and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Materials and excess concrete or mortar can be blown or washed into the storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never throw building materials into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

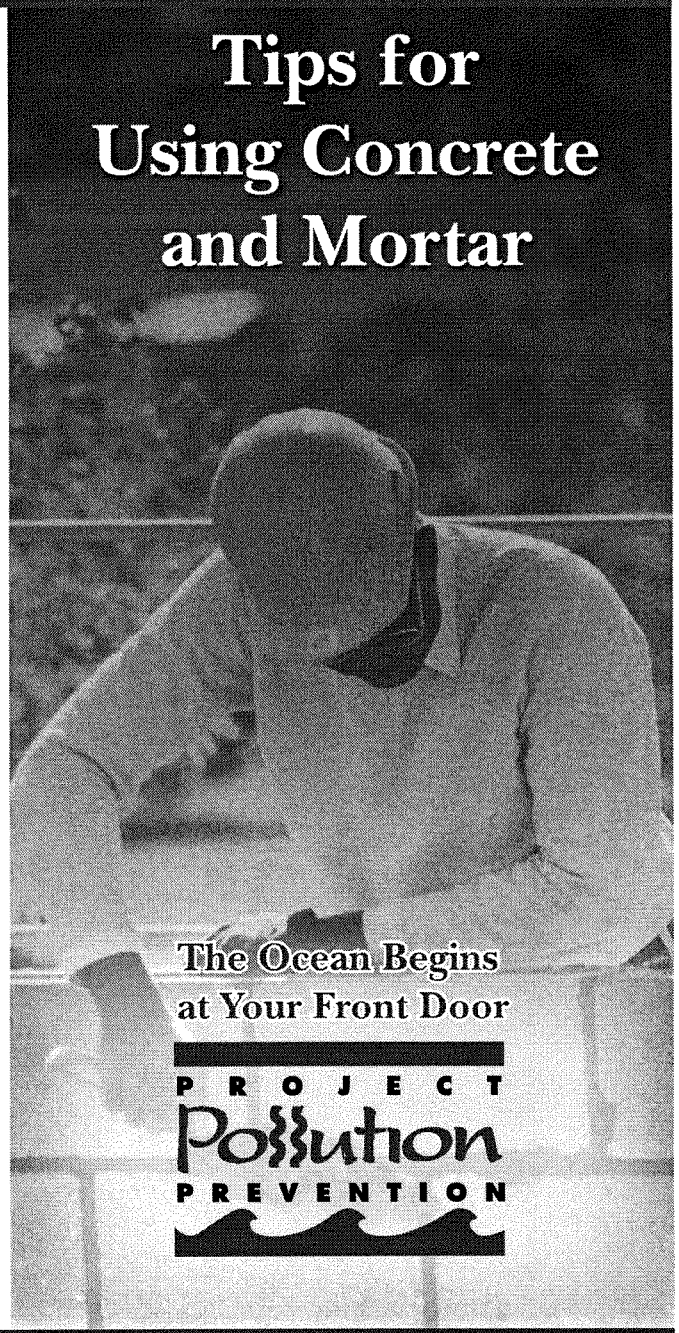
For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com.**

To report a spill, call the **Orange County 24-Hour Water Pollution Reporting Hotline** at **1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

The Tips contained in this brochure provide useful information about how you can keep materials and washwater from entering the storm drain system. If you have other suggestions for how water and materials may be contained, please contact your city's stormwater representative or call the Orange County Stormwater Program.

Tips for Using Concrete and Mortar



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Tips for Using Concrete and Mortar

Never allow materials or washwater to enter the street or storm drain.

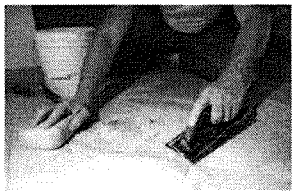
Before the Project

- Schedule projects for dry weather.
- Store materials under cover, with temporary roofs or plastic sheets, to eliminate or reduce the possibility that the materials can be carried from the project site to streets, storm drains or adjacent properties via rainfall, runoff or wind.
- Minimize waste by ordering only the amount of materials needed to complete the job.
- Take measures to block nearby storm drain inlets.

During the Project

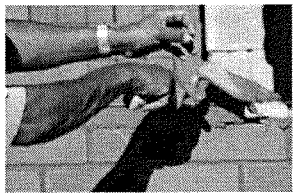
- Set up and operate small mixers on tarps or heavy drop cloths.
- Do not mix more fresh concrete or cement than is needed for the job.

- When breaking up pavement, pick up all chunks and pieces and recycle them at a local construction and demolition recycling company. (See information to the right)
- When making saw cuts in pavement, protect nearby storm drain inlets during the saw-cutting operation and contain the slurry. Collect the slurry residue from the pavement or gutter and remove from the site.



Clean-Up

- Dispose of small amounts of dry concrete, grout or mortar in the trash.
- Never hose materials from exposed aggregate concrete, asphalt or similar treatments into a street, gutter, parking lot, or storm drain.
- Wash concrete mixers and equipment in designated washout areas where the water can flow into a containment area or onto dirt. Small amounts of dried material can be disposed of in the trash. Large amounts should be recycled at a local construction and demolition recycling company. (See information below)



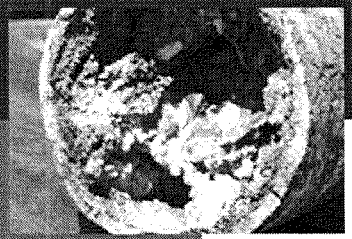
- Recycle cement wash water by pumping it back into cement mixers for reuse.

Spills

- Never hose down pavement or impermeable surfaces where fluids have spilled. Use an absorbent material such as cat litter to soak up a spill, then sweep and dispose in the trash.
- Clean spills on dirt areas by digging up and properly disposing of contaminated dry soil in trash.
- Immediately report significant spills to the County's 24-Hour Water Pollution Problem Reporting Hotline at 714-567-6363 or log onto the County's website at www.ocwatersheds.com and fill out an incident reporting form.

For a list of construction and demolition recycling locations in your area visit www.ciwmb.ca.gov/Recycle/.

For additional information on how to control, prevent, remove, and reduce pollution refer to the Stormwater Best Management Practice Handbook, available on-line at www.cabmphandbooks.com.



Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. Fats, oils and grease from restaurants and food service facilities can cause sewer line blockages that may result in sewage overflow into your facility and into storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways and should never contain washwater, trash, grease or other materials.

You would never dump oil and trash into the ocean, so don't let it enter the storm drains. Follow these tips to help prevent water pollution.

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

Report sewage spills and discharges that are not contained to your site to the **Orange County 24-Hour Water Pollution Problem Reporting Hotline** at **1-877-89-SPILL** (1-877-897-7455)

For emergencies, dial 911.

CALIFORNIA Restaurant ASSOCIATION SINCE 1906

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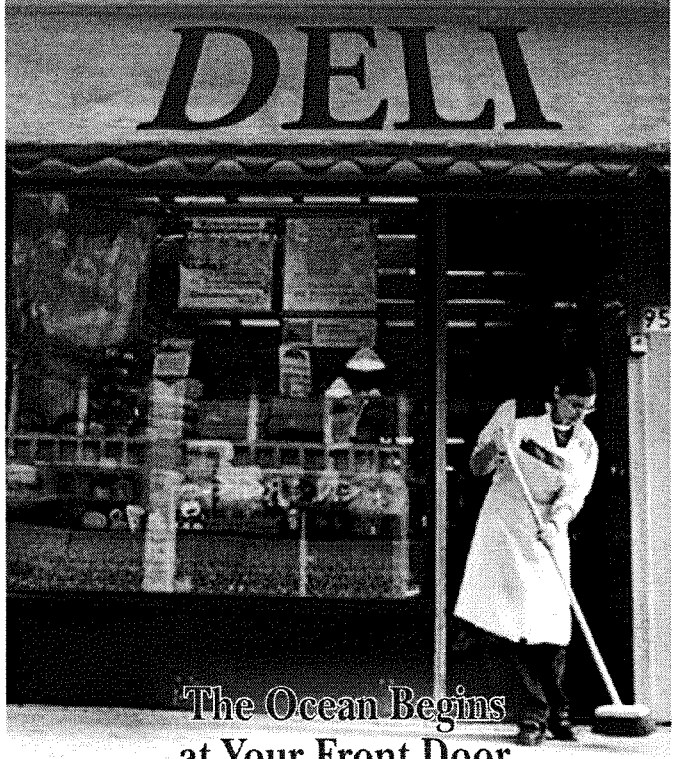
Help Prevent Ocean Pollution:

Tips for the Food Service Industry



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

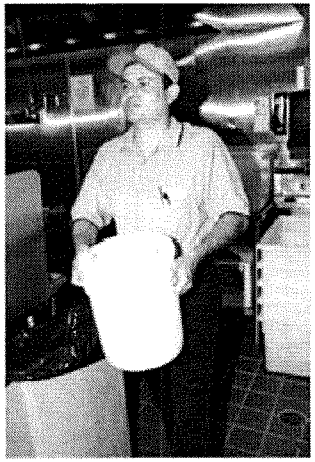
Best Kitchen Practices

Food Waste Disposal

- Scrape food waste off of plates, utensils, pots, food preparation and cooking areas and dispose of it in the trash.
- Never put food waste down the drain. Food scraps often contain grease, which can clog sewer pipes and result in sewage backups and overflows.

Grease & Oil Disposal

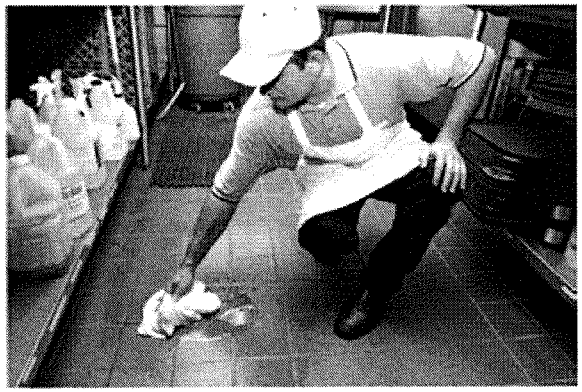
- Never put oil or grease down the drain. Contain grease and oil by using covered grease storage containers or installing a grease interceptor.
- Never overfill your grease storage container or transport it without a cover.
- Grease control devices must be emptied and cleaned by permitted companies.
- Keep maintenance records on site.



- For a list of oil/grease recycling companies, contact the CIWMB at **www.ciwmb.ca.gov/foodwaste/render.htm** or contact your local sanitation district.

Minor Spill Cleanup

- Always use dry cleanup methods, such as a rag, damp mop or broom.
- Never hose a spill into the street, gutter or storm drain.



Major Spill Cleanup

- Have spill containment and clean-up kits readily available, and train all employees on how to use them.
- Immediately contain and clean the spill using dry methods.
- If the spill leaves your site, call **(714) 567-6363**.

Dumpster Cleanup

- Pick up all debris around the dumpster.
- Always keep the lid on the dumpster closed.
- Never pour liquids into the dumpster or hose it out.

Floor Mat Cleaning

- Sweep the floor mats regularly, discarding the debris into the trash.
- Hose off the mats in a mop sink, at a floor drain, or in an outdoor area that can contain the water.
- Never hose the mats in an area where the wastewater can flow to the street, gutter or storm drain.

Washwater Disposal

- Dispose of washwater in a mop sink or an area with a floor drain.
- Never dispose of washwater in the street, gutter or storm drain.

PROJECT Pollution PREVENTION

Preventing water pollution at your commercial/industrial site

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many landscape and building maintenance activities can lead to water pollution if you're not careful. Paint, chemicals, plant clippings and other materials can be blown or washed into storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour soap or fertilizers into the ocean, so why would you let them enter the storm drains? Follow these easy tips to help prevent water pollution.

Some types of industrial facilities are required to obtain coverage under the State General Industrial Permit. For more information visit: **www.swrcb.ca.gov/stormwater/industrial.html**

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline** at **1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

RECYCLE USED OIL

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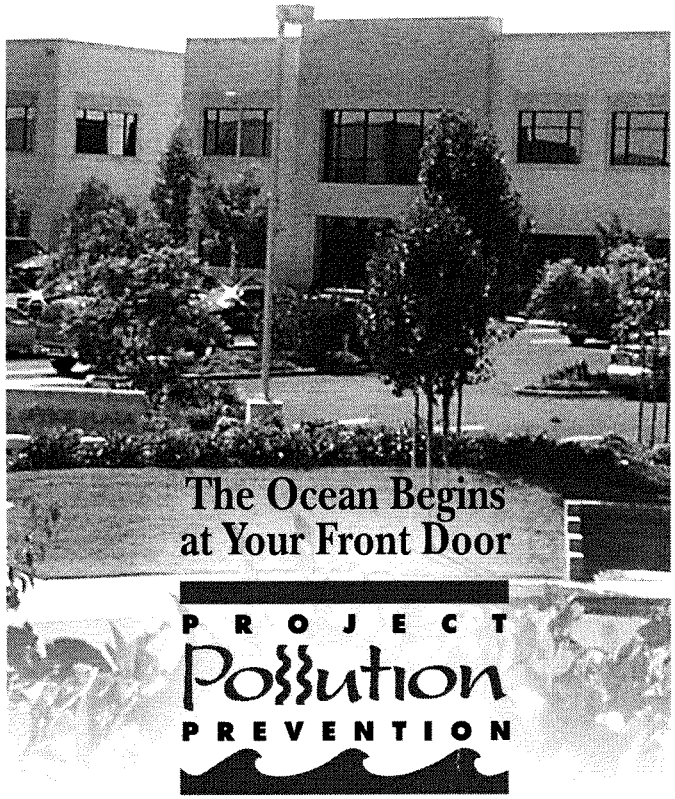
Help Prevent Ocean Pollution:

Proper Maintenance Practices for Your Business



Proper Maintenance Practices for your Business

Landscape Maintenance

- Compost grass clippings, leaves, sticks and other vegetation, or dispose of it at a permitted landfill or in green waste containers. Do not dispose of these materials in the street, gutter or storm drain.
- Irrigate slowly and inspect the system for leaks, overspraying and runoff. Adjust automatic timers to avoid overwatering.
- Follow label directions for the use and disposal of fertilizers and pesticides.
- Do not apply pesticides or fertilizers if rain is expected within 48 hours or if wind speeds are above 5 mph.
- Do not spray pesticides within 100 feet of waterways.
- Fertilizers should be worked into the soil rather than dumped onto the surface.
- If fertilizer is spilled on the pavement or sidewalk, sweep it up immediately and place it back in the container.

Building Maintenance

- Never allow washwater, sweepings or sediment to enter the storm drain.
- Sweep up dry spills and use cat litter, towels or similar materials to absorb wet spills. Dispose of it in the trash.
- If you wash your building, sidewalk or parking lot, you **must** contain the water. Use a shop vac to collect the water and contact your city or sanitation agency for proper disposal information. Do not let water enter the street, gutter or storm drain.
- Use drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of materials in the trash.
- Use a ground cloth or oversized tub for mixing paint and cleaning tools.
- Use a damp mop or broom to clean floors.
- Cover dumpsters to keep insects, animals, rainwater and sand from entering. Keep the area around the dumpster clear of trash and debris. Do not overfill the dumpster.
- Call your trash hauler to replace leaking dumpsters.
- Do not dump any toxic substance or liquid waste on the pavement, the ground, or near a storm drain. Even materials that seem harmless such as latex paint or biodegradable cleaners can damage the environment.

NEVER DISPOSE OF ANYTHING IN THE STORM DRAIN.

- Recycle paints, solvents and other materials. For more information about recycling and collection centers, visit **www.oclandfills.com**.
- Store materials indoors or under cover and away from storm drains.
- Use a construction and demolition recycling company to recycle lumber, paper, cardboard, metals, masonry, carpet, plastic, pipes, drywall, rocks, dirt, and green waste. For a listing of construction and demolition recycling locations in your area, visit **www.ciwmb.ca.gov/recycle.**
- Properly label materials. Familiarize employees with Material Safety Data Sheets.

PROJECT Pollution PREVENTION

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, if we are not careful, our daily activities can lead directly to water pollution problems. Water that drains through your watershed can pick up pollutants which are then transported to our waterways and beautiful ocean.

You can prevent water pollution by taking personal action and by working with members of your watershed community to prevent urban runoff from entering your waterway.

For more information,
please call the
Orange County Stormwater Program
at **1.877.89.SPILL**
or visit
www.ocwatersheds.com

To report a spill,
call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline
at **1.877.89.SPILL.**

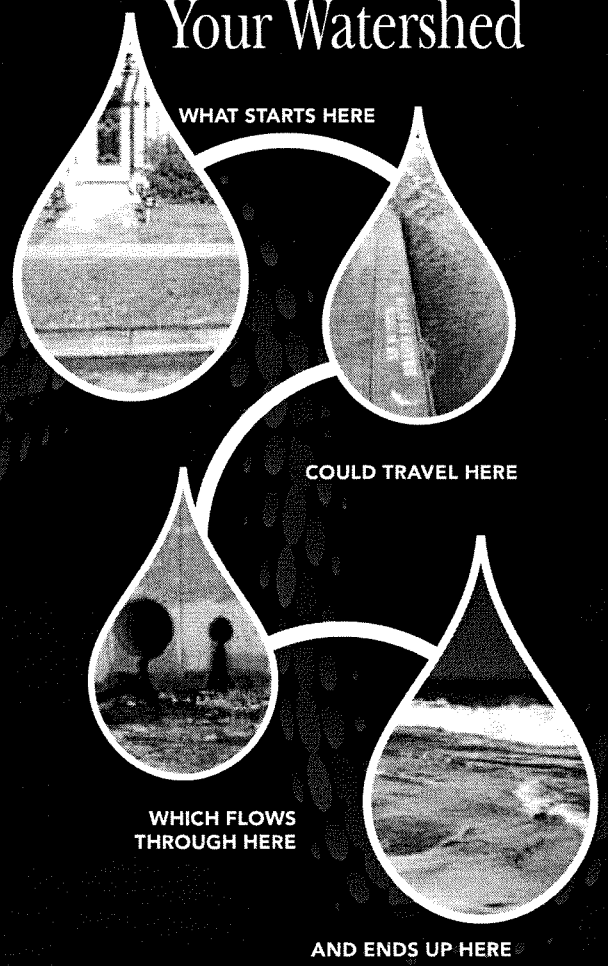
For emergencies, dial 911.

The tips contained in this brochure provide useful information to help protect your watershed. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Tips For Protecting Your Watershed



The Ocean Begins at Your Front Door

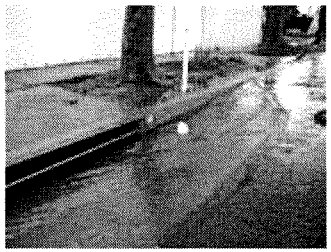
PROJECT Pollution PREVENTION

Tips for Protecting Your Watershed

My Watershed. Our Ocean.

Water + shed, *noun: A region of land within which water flows down into a specified water body, such as a river, lake, sea, or ocean; a drainage basin or catchment basin.*

Orange County is comprised of 11 major watersheds into which most of our water flows, connecting all of Orange County to the Pacific Ocean.



As water from rain (stormwater) or sprinklers and hoses (urban runoff) runs down your driveway and into your neighborhood streets, sidewalks and gutters, it flows into storm drains that lead to waterways within your watershed. The waterways from other cities merge as they make their way through our watersheds until all the runoff water in Orange County meets at the Pacific Ocean. The water that reaches our ocean is not pure. As it flows through the watershed, it picks up pollutants such as litter, cigarette butts, fertilizer, pesticides, pet waste, motor oil and lawn clippings. Unlike water that enters the sewer (from sinks and toilets), water that enters the storm drain is not treated before it flows, ultimately, to the ocean.

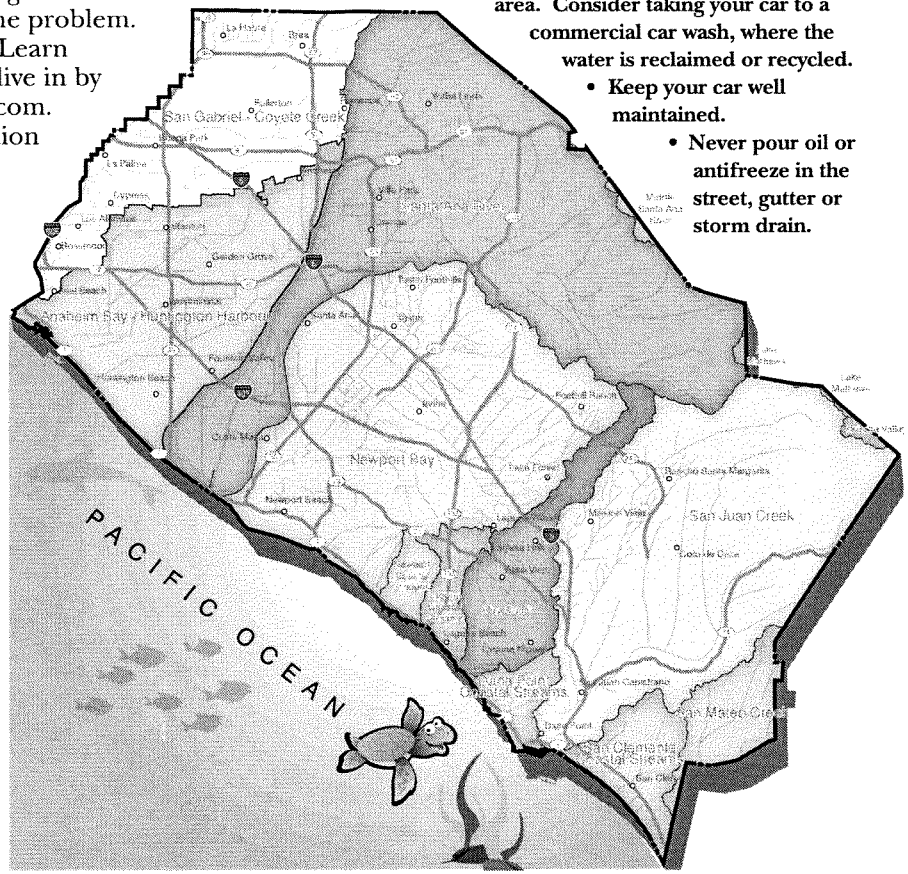
Water quality can be improved by "Adopting Your Watershed." Through this effort, we are challenging citizens and organizations to join the Orange County Stormwater Program and others who are working to protect and restore our creeks, rivers, bays and ocean.

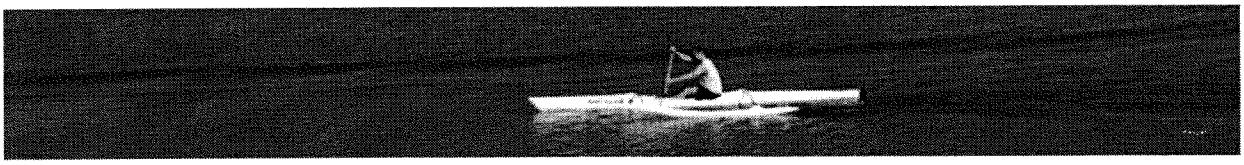
There are many opportunities to get involved:

- Appreciate your watershed - explore the creeks, trails and ocean and make observations about its conditions. If you see anything abnormal (such as dead fish, oil spills, leaking barrels, and other pollution) contact the Orange County 24-hour water pollution problem reporting hotline at 1.877.89.SPILL to report the problem.
- Research your watershed. Learn about what watershed you live in by visiting www.ocwatersheds.com.
- Find a watershed organization in your community and volunteer to help. If there are no active groups, consider starting your own.
- Visit EPA's Adopt Your Watershed's Catalog of Watershed Groups at www.epa.gov/adopt to locate groups in your community.
- Organize or join in a creek, river, bay or ocean cleanup event such as Coastal & Inner Coastal Cleanup Day that takes place the 3rd Saturday of every September. For more information visit www.coast4u.org.

Follow these simple tips to protect . vater quality of your watershed:

- **Sweep up debris and dispose of it in the trash. Do not hose down driveways or sidewalks into the street or gutter.**
- **Use dry cleanup methods such as cat litter to absorb spills and sweep up residue.**
- **Set your irrigation systems to reflect seasonal water needs or use weather-based controllers. Inspect for runoff regularly.**
- **Cover trashcans securely.**
- **Take hazardous waste to a household hazardous waste collection center. (For example, paint, batteries and petroleum products)**
- **Pick up after your pet.**
- **Follow application and disposal directions for pesticides and fertilizers.**
- **If you wash your car at home, wash it on your lawn or divert the runoff onto a landscaped area. Consider taking your car to a commercial car wash, where the water is reclaimed or recycled.**
- **Keep your car well maintained.**
- **Never pour oil or antifreeze in the street, gutter or storm drain.**





GENERAL INFORMATION

THE PROBLEM: WHAT IS STORMWATER POLLUTION?

Stormwater pollution is urban runoff water that has picked up pollutants as it flows through the storm drain system (a network of channels, gutters and pipes that collect runoff from city streets, neighborhoods, farms, construction sites and parking lots) and empties directly into local waterways.

Unlike sewage, which goes to treatment plants, urban runoff flows untreated through the storm drain system. Anything thrown, swept or poured into the street, gutter or a catch basin (the curbside openings that lead into the storm drain system) can flow directly into our channels, creeks, bays and ocean. This includes pollutants like trash, pet waste, cigarette butts, motor oil, anti-freeze, runoff from pesticides and fertilizers, paint from brushes and containers rinsed in the gutter and toxic household chemicals.

How Stormwater Pollution Affects Newport Beach Residents

Contaminated urban runoff is an uncontrolled nonpoint source of pollution into local waters, and often contributes to beach closures. Litter, leaves and other debris clog catch basins, causing flooding when it rains.

How Stormwater Pollution Affects Newport Beach Businesses

Stormwater pollution contributes to beach closures, which hurt local businesses, tourism and Newport Beach's image as a desirable place to live and work. It is illegal for businesses without a permit to discharge wastewater or other materials into the storm drain system.

The Answer: Preventing Stormwater Pollution

Everyone in Newport Beach can help prevent stormwater pollution. It is often caused by everyday behavior that you may not realize contributes to the problem. Simple behavior changes are all it takes to prevent stormwater pollution, if we all do our part. Find out how.

- How Residents Can Prevent Stormwater Pollution
- How Businesses Can Prevent Stormwater Pollution

REGULATORY INFORMATION

The Federal Water Pollution Control Act prohibits the discharge of any pollutant to navigable waters from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 passage of the Water Quality Act established NPDES permit requirements for discharges of stormwater. The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

Industrial facilities and construction sites are regulated by the State Water Resources Control Board, through general stormwater permits. Cities and counties are regulated through permits issued by the Regional Water Quality Control Boards. Since 1990, operators of large storm drain systems such as Newport Beach's have been required to:

- Develop a stormwater management program designed to prevent harmful pollutants from being dumped or washed by stormwater runoff, into the stormwater system, then discharged into local waterbodies; and
- Obtain a National Pollutant Discharge Elimination System (NPDES) permit.

The NPDES permit programs in California are administered by the State Water Resources Control Board and by nine regional boards that issue NPDES permits and enforce regulations within their respective region.

Newport Beach lies within the jurisdiction of the Santa Ana Region. This regional board issues permits to the Orange County Permittees, which includes the County of Orange, Orange County Flood Control District and incorporated cities of Orange County. Since the program's inception, the County of Orange has served as the principal permittee.

DOCUMENTS AND REPORTS

The following documents describe the regulations and programs for water quality in Orange County.

Basin Plans

The document for each region of the State Water Quality Board's jurisdiction, Santa Ana and San Diego, is the Water Quality Control Plan, commonly referred to as the Basin Plan. It is the foundation for the regulatory programs of each regional board. The Basin Plan documents the beneficial uses of the region's ground and surface waters, existing water quality conditions, problems, and goals, and actions by the regional board and others that are necessary to achieve and maintain water quality standards.

- Water Control Plan for the Santa Ana River Basin

WATER QUALITY MANAGEMENT PLANS (WQMPs)

Quick Downloads

2011 Model WQMP [PDF]
WQMP Template [MS Word]
Technical Guidance Document [PDF]
Non Priority Projects [MS Word]

In response to permit requirements from the SARWQCB, the County of Orange has prepared a 2011 Model WQMP to assist with project development in North and Central Orange County. Consistent with the 2011 Model WQMP, a Project WQMP may include:

Site design measures
Low Impact Development (LID) Best Management Practices (BMPs)
Participation in sub regional/regional BMPs
Hydromodification BMPs
Use of alternative programs or treatment control BMPs, and
Applicable source control BMPs

This updated 2011 Model WQMP was approved by the SARWQCB on May 19, 2011 and becomes effective on August 17, 2011. To assist with compliance with the SARWQCB permit requirements and to explain aspects of the Model WQMP, a Technical Guidance Document is available for project proponents.

The Orange County Stormwater Program has developed this Non-Priority Project Water Quality Plan (NPP) for new development / significant redevelopment projects that do not meet the criteria for Priority Projects as defined within the County's Model Water Quality Management Plan (see Model WQMP Sections 1.3 and 1.4) but that qualify as Non-Priority Projects as defined in the Drainage Area Management Plan (DAMP).

Municipal National Pollutant Discharge Elimination System (NPDES) Permits

The permits of each region outline additional steps for a storm water management program and specify requirements to help protect the beneficial uses of the receiving waters. They require permittees to develop and implement Best Management Practices (BMPs) to control/reduce the discharge of pollutants to waters of the United States to the maximum extent practicable (MEP).

- Santa Ana Regional Water Quality Control Board Municipal NPDES Permit Order No. R8-2009-0030

- San Diego Regional Water Quality Control Board Municipal NPDES Permit Order No. R9-2002-0001

Orange County Stormwater Program Annual Report

The Annual Report is a requirement of the National Pollution Discharge Elimination Systems (NPDES) permit for submittal to the Regional Boards and United States Environmental Protection Agency.

Annual Report

City of Newport Beach Local Implementation Plan

The City of Newport Beach has developed an LIP, which provides a written account of the activities that the City has undertaken and the City is undertaking to meet the requirements of Third Term Permit and make a meaningful improvement in urban water quality. In developing this LIP, the City has utilized the 2003 DAMP as the foundation for its program development and the LIP, as a result, contains numerous references to it and the two, in effect, act as companion parts of the City's compliance program. The LIP is intended to serve as the basis for city compliance during the five-year life of the Third Term Permit, but is subject to updating and modification as the City determines necessary, or as directed by the Regional Board.

Below is a copy of the City of Newport Beach's Local Implementation Plan (LIP). To make it easier to view and download, this document has been broken down into fourteen Adobe Acrobat Reader files (.pdf).

- Cover Page
- Table of Contents
- Section A-1.0: Introduction
- Section A-2.0: Program Management
- Section A-3.0: Plan Development
- Section A-4.0: Legal Authority
- Section A-5.0: Municipal Activities
- Section A-6.0: Public Education
- Section A-7.0: New Development/Significant Redevelopment
- Section A-8.0: Construction
- Section A-9.0: Existing Development
- Section A-10.0: Illegal Discharges/Illicit Connections
- Section A-11.0: Water Quality Monitoring
- Section A-12.0: Watersheds

Additional City of Newport Beach Water Quality Documents:

- City of Newport Beach's Water Quality Ordinance NBMC 14.36.030
- City of Newport Beach's Council Policies L-18 & L-22
- Planning Department Environmental Applications and Forms

Commercial & Industrialrunoff

All non-stormwater discharges are prohibited from entering a storm drain system.

The following list contains examples of prohibited discharges that are **not allowed** to enter a storm drain:

- Wash water from concrete, plaster, sand or any waste water from cleaning tools
- Jobsite sediment
- Trash and debris around dumpsters, leakage from dumpsters
- Cleaning and rinsing of mop water in a drain other than the sewer
- Wash water from the commercial washing of vehicles. Reclaim the contaminated water, don't let it enter the gutter
- Over-irrigation where sediment and pollutants enter the storm drain
- Washing out paint and paint equipment
- High pressure washing of buildings, driveways, and parking areas
- Swimming pool discharges (unless chlorine is reduced to non-detectable levels)
- Fluids leaking from equipment/vehicles
- Runoff from mobile animal grooming, carpet cleaning and pressure washing

Constructionrunoff

All construction projects regardless of size are required, at a minimum, to implement an effective combination of erosion and sediment controls and waste and materials management.

Dry Season Requirements *(May – September)*

- Dust Control
- Sediment control
- Off-site tracking

Constructionrunoff - *continued*

- Materials pollution control
- Waste management and pollutant control
- Install permanent sediment control devices on completed slopes
- Employ a "weather triggered" action plan within 48hrs of predicted storm

Wet Season Requirements *(October – April)*

- Sediment control should be in place along perimeter of job site
- Physical or vegetative (temporary or permanent) erosion control should be established
- Have sufficient materials needed to install and replace sediment controls

For a comprehensive understanding of sediment controls please visit www.ocwatersheds.com

Webresources

Newport Beach
www.cleanwaternewport.com
www.city.newport-beach.ca.us
Orange County
www.ocwatersheds.com
www.cabmphandbooks.com
www.erasethewaste.com
www.ocbeachinfo.com
www.ocpfrd.com
www.swrcb.ca.gov
www.bewaterwise.com
Environmental Groups
www.coastkeeper.org
www.surfrider.org
www.earthresource.org
www.trails4all.org

How to Protect Our Bay and Ocean

... at your home
...at your business
... around town

PROJECT Pollution PREVENTION

Office of the City Manager
Code and Water Quality
Enforcement Division
949.644.3215
www.cleanwaternewport.com
Recycling Center
714.834.6752

Residentialrunoff

A new Stormwater law, issued by the Regional Water Quality Control Board has gone into effect. This law mandates that the City of Newport Beach along with other Orange County region jurisdictions control the amount of pollutants flowing into our storm drains into creeks and ultimately to our bay and ocean.

Help us improve the quality of our water and quality of life.

There are ways to prevent storm water pollution:

- Do not use a hose to wash off yard debris and sand. It helps to conserve our water and reduces runoff.
- Don't dump waste in storm drains.
- Inspect and maintain your car regularly to prevent oil and antifreeze leaks.
- Take motor oil, antifreeze, pesticides, fertilizers, weed killers and paints to a recycling center.
- Use kitty litter to clean up leaks and spills.
- Never hose spills into the gutter. Sweep driveways clean.
- Dispose of household chemicals properly.
- Take unused oil-based paint, paint thinner, varnishes and solvents to a recycling center. (714.834.6752)
- Clean water-based paint brushes in the sink.
- Buy household and garden products that are environmentally safe (phosphate free). Buy only the amount you will use.
- Apply all household and garden products sparingly and follow instructions. Do not apply lawn or garden products when rain is imminent.
- Shovel and bag pet waste and it throw away in the garbage.

Quickfacts

A sewer system and a storm drain system are not the same.

These two systems are different. The water that goes down a sink or toilet flows to a wastewater treatment plant where it is treated and filtered. Water that flows down driveways into streets and the gutter flows directly to our bay or the ocean. This water may pick up pollutants along the way and is not treated.

There are many pollutants that enter storm drains.

Some common contaminants include: cigarette butts, yard debris, motor oil, pesticides, brake dust, pet waste, paint and household chemicals. Rain takes oil and grit left by cars and sprinklers wash pesticides, fertilizers and weed killers from our gardens and lawns into the stormdrain. Detergents, oils and grease from washing the car can make runoff dirty.

The effects of pollutants on our water can be harmful.

This polluted runoff can have harmful effects on drinking water supplies, recreational use and wildlife. Our beaches and bay have been closed occasionally because of contaminated storm water. It is important to keep runoff free from pollutants.

Urban runoff flows into storm drains located in the streets. In most cases, it goes directly to our bay and ocean.

Urbanrunoff**Myths**

- **Storm drains lead to the sewer.** *They don't.* Storm drains lead straight to bodies of water. Keep gutters clean by sweeping rather than using the hose.
- **Biodegradable soap is safe.** *It's not.* Some have phosphates allowing the algae population to explode, leading to the death of aquatic plants and starving fish of oxygen. Degreasers strip fish of oils causing scales to break apart.
- **Pet waste is natural to the environment.** *It's not.* Pet waste contains nitrates and bacteria, if leached into surface water it reduces oxygen and changes nutrient levels endangering aquatic life.
- **Yard clippings are natural and degrade in water.** *Not true.* Contamination from pesticides and nitrates on the clippings can contaminate rivers, and beaches. Pipes become clogged and can cause local flooding.
- **Cigarette butts biodegrade.** *They don't.* Cigarette butts are not biodegradable. They harm our ecosystem and contain over 165 chemicals. On November 15, 2003 in a two hour period an estimated 10,000 cigarette butts were collected on the beaches of Newport.

Citationissuance

Any discharge into the storm drain (curb, gutter, catch basins and pipes) is illegal, with a few exceptions. The City of Newport Beach will issue citations if it is warranted at the time of the illegal discharge

POLLUTION REPORTING

HOW TO REPORT STORMWATER POLLUTION OR STREET DRAIN PROBLEMS

Thank you for being a part of the solution to stormwater pollution. Reporting incidents of water pollution problems such as illegal dumping or discharges helps keep our channels, creeks, bays and the ocean clean. You can also report street drain problems, including clogged catch basins and faded or missing storm drain stencils.

To Report

Chemical Spill Emergencies

call **911.**

Durring Business Hours
City of Newport Beach
Code & Water Quality Enforcement Division
(949) 644-3215

After Hours

877-897-7455 or
Email Your Complaint

HAZARDOUS WASTE & OIL RECYCLING

Toxic household materials like motor oil and oil filters, anti-freeze, paints, solvents, cleaners and old batteries are too hazardous to throw in the trash. Once in a landfill, they can contaminate ground water and pollute our creeks, channels, bays and the ocean.

Take your unwanted household hazardous waste to one of Orange County's four convenient collection centers. You can also recycle used motor oil and oil filters at one of the many certified collection centers throughout the City, including most auto parts stores and gas stations.

DISPOSAL OF HOUSEHOLD HAZARDOUS WASTE

Orange County has one of the most extensive and efficient household hazardous waste collection programs in Southern California. With four permanent collection facilities open five days a week, including Saturdays, and offering fast drive-up and drop-off service, a quick and convenient way to safely dispose of your household hazardous waste is right around the corner. Just follow these directions:

- A maximum of 15 gallons or 125 pounds may be transported per vehicle, per trip.
- Materials should be in original containers, except motor oil, fuels and antifreeze.
- Place your items in a sturdy box, preferably in their original, labeled containers. All containers should have lids, not leak and be protected from breakage.
- Do not combine types of waste, or mix oil-based paint with latex paint.
- If you want a container returned, like oil containers and boxes or crates used to transport materials, please notify the collection attendant in advance. Some containers may not be returnable.

Accepted Materials:

- Automotive fluids (antifreeze, motor oil)
- Paint products
- Batteries (home and car)
- Personal care products
  Computer monitors and televisions
- Consumer electronic devices

- Cosmetics
  Fluorescent lamps
- Pesticides
- Herbicides
- Hobby supplies
  mercury thermometers & thermostats
- Pool and spa chemicals
- Household cleaners
- Propane barbecues tanks
- Fuels
- Unused road flares
- Medicines
- Wood preservatives

Unacceptable Materials:

- Ammunition
- Explosives
- Asbestos
- Radioactive materials
- Biological materials
- Compressed gas cylinders
- Business-generated materials

COLLECTION LOCATIONS

The following locations are open Tuesday through Saturday, 9:00 a.m. to 3:00 p.m., except for rainy days and major holidays, including 4th of July, Thanksgiving, Christmas and New Years Day. For more information, call (714) 834-6752.

Anaheim:

Stop and Swap Location
1071 N. Blue Gum Street
Between the 91 and 57 Freeways on the corner of La Palma and Blue Gum.
Additional Information and Map

The Stop and Swap is a unique and free program that allows you to drop off household, yard, and car care products you no longer need and pick up others you can use.

Huntington Beach:

Rainbow Recycling and Disposal
17121 Nichols Street
Between Beach Boulevard and Gothard Street, off Warner Avenue at Rainbow Recycling and Disposal. Use Gate 6.
Additional Information and Map

Irvine:

Stop and Swap Location
6411 Oak Canyon
Between the 5 and 405 freeways, next to the City Corporate Yard and Animal Shelter.
Additional Information and Map

San Juan Capistrano:

Prima Descha Landfill
32250 La Pata Avenue, San Juan Capistrano, CA 92675
From the 55 Freeway, Exit Ortega highway,go east to La Pata and turn right.
Additional Information and Map

For more information about Orange County's landfills and household hazardous waste collection programs, see O.C. Integrated Waste Management Department.

USED OIL RECYCLING

You can recycle used motor oil and oil filters at one of the many certified collection centers throughout the City, including most auto parts stores and gas stations.

At the California Integrated Waste Management Board's web site , you can get a list of used oil collection centers in your city just by entering your zip code.

For more information, call the City of Newport Beach's Water Quality Division at (949) 644-3215.

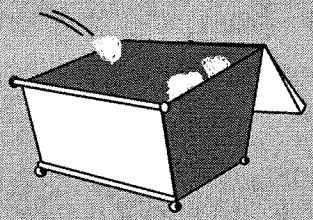
COMMERCIAL TRASH ENCLOSURES

FOLLOW THESE **REQUIREMENTS** TO **KEEP OUR WATERWAYS CLEAN**

Trash enclosures, such as those found in commercial and apartment complexes, typically contain materials that are intended to find their way to a landfill or a recycling facility. **These materials are NOT meant to go into our local lakes and rivers.**

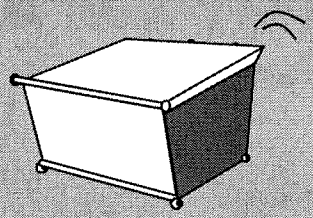
PROTECT WATER QUALITY BY FOLLOWING THESE SIMPLE STEPS

PUT TRASH INSIDE



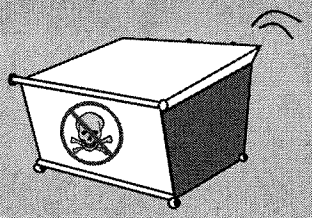
Place trash inside the bin (preferably in sealed bags)

CLOSE THE LID



Prevent rain from entering the bin in order to avoid leakage of polluted water runoff

KEEP TOXICS OUT



- Paint
- Grease, fats and used oils
- Batteries, electronics and fluorescent lights

SOME ADDITIONAL GUIDELINES, INCLUDE

✓ SWEEP FREQUENTLY
Sweep trash enclosure areas frequently, instead of hosing them down, to prevent polluted water from flowing into the streets and storm drains.

✓ FIX LEAKS
Address trash bin leaks immediately by using dry clean up methods and report to your waste hauler to receive a replacement.

✓ CONSTRUCT ROOF
Construct a solid cover roof over the existing trash enclosure structure to prevent rainwater from coming into contact with trash and garbage. Check with your local City/County for Building Codes.

In San Bernardino County, stormwater pollution is caused by food waste, landscape waste, chemicals and other debris that are washed into storm drains and end up in our waterways - untreated! You can be part of the solution by maintaining a water-friendly trash enclosure.

THANK YOU FOR HELPING TO KEEP SAN BERNARDINO COUNTY CLEAN AND HEALTHY!

San Bernardino County STORMWATER PROGRAM

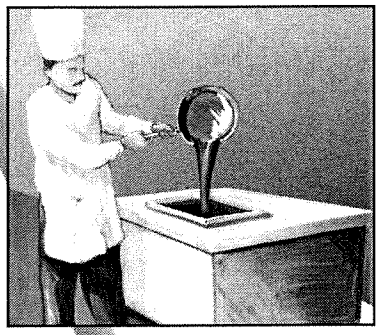
To report illegal dumping **(877-WASTE18)** or
to find a household hazardous waste facility (800-OILY CAT): **sbcountystormwater.org**
To dispose of hazardous waste call the San Bernardino County Fire Dept. - CUPA Program **(909) 386-8401**

Big Bear • Chino • Chino Hills • Colton • Fontana • Grand Terrace • Highland • Loma Linda • Montclair • Ontario • Rancho Cucamonga
Redlands • Rialto • San Bernardino • San Bernardino County • San Bernardino County Flood Control District • Upland • Yucaipa

STORMWATER Pollution Prevention

FOOD AND RESTAURANT

Food waste, grease, cleaning fluids, mop water and trash from restaurant operations often make their way into the San Bernardino County storm drain system, and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution and protect public health.



Recycle Oil & Grease

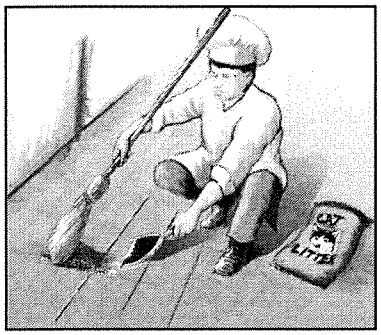
Oil and grease wastes can be recycled. Look in the yellow pages for rendering companies, or call (909) 386-8401 for disposal information. Don't pour oil or grease into sinks, floor drains or onto a parking lot or street. Keep grease bins covered and contained. Keep your grease interceptor maintained to prevent sewer overflows or backups and keep records of grease waste hauling.

Dumpster Areas

Keep dumpster lids closed and the areas around them clean. Do not fill with liquid waste or hose them out. Call your trash hauler to replace any dumpsters that are damaged or leak.

Cleaning & Maintenance

Clean equipment, floor mats, filters and garbage cans in a mop sink, wash rack or floor drain connected to the sewer through a grease trap. Don't wash them or pour wash water in a parking lot, alley, sidewalk or street. Sweep outside areas and put the debris in the garbage, instead of sweeping or hosing it into the parking lot or street.

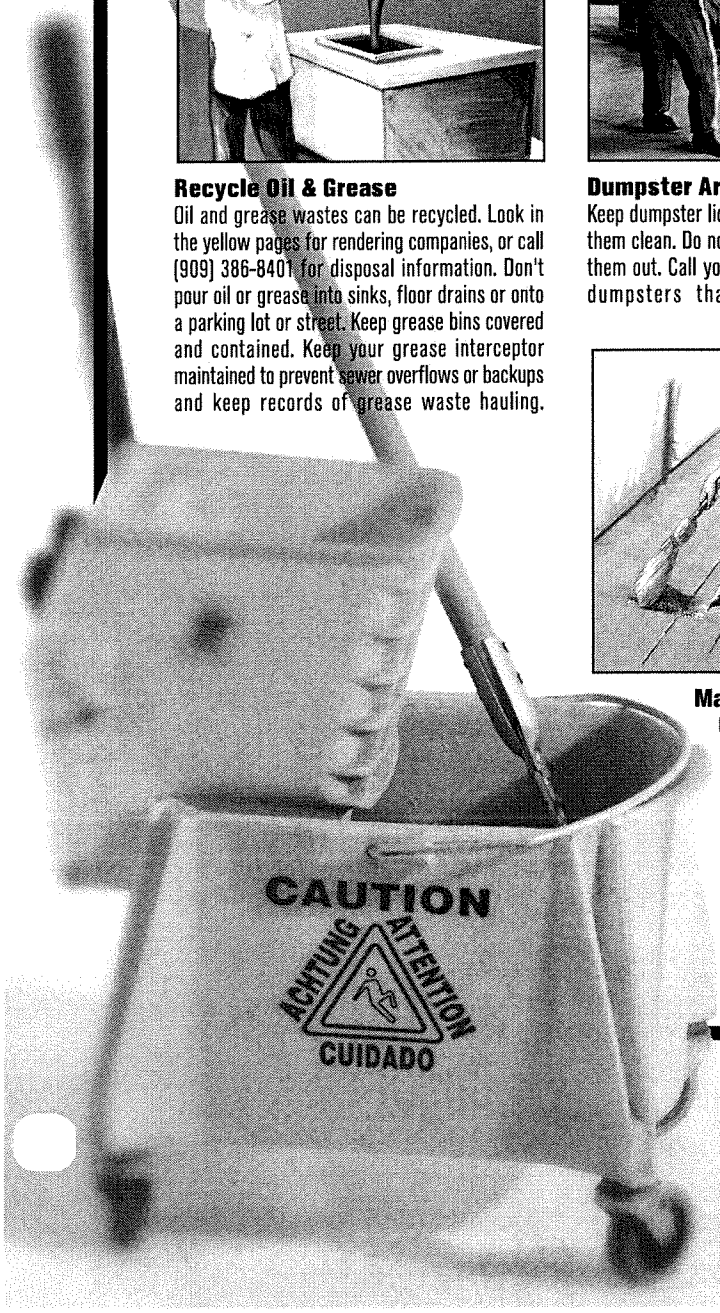


Managing Spills

Clean food spills in loading and trash areas by using absorbent materials and sweeping then mopping, and discharge mop water into the sewer through a grease interceptor. Have spill containment and cleanup kits available. To report serious toxic spills, call 911.

Handling Toxic Chemicals

Dispose of all unwanted toxics materials like cleaners, solvents and detergents through a hazardous waste hauler. These items are not trash. For information on hazardous waste pickup, call (909) 386-8401. Use non-toxic cleaning products whenever possible.



To report illegal dumping or for more information on stormwater pollution prevention, call:

1 (800) CLEANUP

www.1800cleanup.org

San Bernardino County STORMWATER PROGRAM

Managing , OIL and GREASE "It's Easier than YOU Think!"

THE WRONG WAY
La Forma Incorrecta

Do not pour cooking residue directly into the drain.

No vierta residuos de cocinar directamente en el desague.

Do not dispose of food waste into the garbage disposal.

No ponga desperdicios de comida en el triturador de comida.

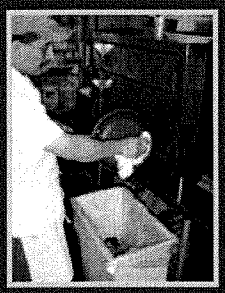
Do not pour waste oil directly into the drain.

No ponga desperdicio de aceite directamente en el desague.

Do not wash floor mats where water will run off directly into the storm drain.

No lave tapetes de piso en un lugar donde el agua corra hacia el desague.

THE RIGHT WAY
La Forma Correcta



1

Wipe pots, pans, and work areas prior to washing.

Limpie con una toallita las ollas, cazuelas, y areas de trabajo antes de lavarlos.

2

Dispose of food waste directly into the trash.

Deseche los desperdicios de comida en el bote de basura.

3

Collect waste oil and store for recycling.

Junte el desperdicio de aceite y guardelo para que sea reciclado.

4

Clean mats inside over a utility sink.

Limpie los tapetes de piso detro de un lavabo o fregador.