

CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN,	AXLE LOADS (kips)							
INCHES	18-50	75-110	110-150					
	MINIMUM COVER (FT)							
12-42	2.0	2.5	3.0	3.0				
48-72	3.0	3.0	3.5	4.0				
78-120	3.0	3.5	4.0	4.0				
126-144	3.5	4.0	4.5	4.5				

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

SCALE: N.T.S.

SPECIFICATION FOR DESIGNED DETENTION SYSTEM:

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

MATERIA

THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW

ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-274 OR ASTM A-92.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-218 OR ASTM A-929.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-246 OR ASTM A-742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE OF AASHTO M-197 OR ASTM B-744.

CONSTRUCTION LOADS

CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

NOTE: THESE DRAWINGS ARE FOR CONCEPT PURPOSES AND DO NOT REFLECT AN PREFERENCES OR REGULATIONS. PLE CONTACT YOUR LOCAL CONTECH REF MODIFICATIONS.	UAL 7 LOCAL EASE 9 FOR
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THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2: AASHTO M-36 OR ASTM A-760

GALVANIZED: AASHTO M-36 OR ASTM A-760

AFFOLIZATELE COATED: AASHTO M-245 OR ASTM A-762

ALUMINUM: AASHTO M-196 OR ASTM B-745

APPLICABLE HANDLING AND ASSEMBLY

ΒY

SHALL BE IN ACCORDANCE WITH NCSP'S (NATIONAL CORRUGATED STEEL AFPRECABSECIATION) FOR ALUMINIZED TYPE 2. GALVANIZED OR POLYMER COATED STEEL. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALUMINUM PIPE.

REQUIREMENTS

INSTALLATION SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II DIVISION II OR ASTM A-798 (FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL) OR ASTM B-788 (FOR ALUMINUM PIPE) AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.







SECTION VIEW



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	REINFORCING TABLE							
Ø CMP RISER	A	ØB	REINFORCING	**BEARING PRESSURE (PSF)				
24"	⊗ 4' 4'X4'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780				
30"	∞ 4'-6" 4'-6" X 4'-6"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,530				
36"	∞ 5' 5' X 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,890 1,350				
42"	∅ 5'-6" 5'-6" X 5'-6"	44"	#5 @ 10" OCEW #5 @ 9" OCEW	1,720 1,210				
48"	∞ 6' 6' X 6'	50"	#5 @ 9" OCEW #5 @ 8" OCEW	1,600 1,100				

** ASSUMED SOIL BEARING CAPACITY

CMP DETENTION INSTALLATION GUIDE

PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG-TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL FLEXIBLE PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PRE-CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES, NOT COVERED IN THIS GUIDE, ARE APPROPRIATE FOR YOUR SITE.

FOUNDATION

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BACKFILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED, REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPETENT BACKELL MATERIAL THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES, WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR IN SOME CASES, USING A STIFE REINFORCING GEOGRIF REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.



GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON-POROUS AND THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME. IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUICKLY, PREVENTING SATURATION OF THE SUBGRADE

GEOMEMBRANE BARRIER

OF VARIOUS SALTING, DE-ICING, AND AGRICULTURAL AGENTS APPLIED ON OR NEAR THE AREA. TO MITIGATE THE POTENTIAL IMPACT OF THESE AGENTS, AN HDPE MEMBRANE LINER WILL BE INSTALLED ON THE CROWN OF EACH PIPE, CREATING AN IMPERMEABLE BARRIER. THIS MEASURE IS DESIGNED TO PROTECT THE SYSTEM FROM ENVIRONMENTAL CHANGES THAT COULD LEAD TO PREMATURE CORROSION AND REDUCE THE OVERALL SERVICE LIFE.

IN-SITU TRENCH WALL

IF EXCAVATION IS REQUIRED, THE TRENCH WALL NEEDS TO BE CAPABLE OF SUPPORTING THE LOAD THAT THE PIPE SHEDS AS THE SYSTEM IS LOADED. IF SOILS ARE NOT CAPABLE OF SUPPORTING THESE LOADS, THE PIPE CAN DEFLECT PERFORM A SIMPLE SOIL PRESSURE CHECK USING THE APPLIED LOADS TO DETERMINE THE LIMITS OF EXCAVATION BEYOND THE SPRING LINE OF THE OUTER MOST PIPES

IN MOST CASES THE REQUIREMENTS FOR A SAFE WORK ENVIRONMENT AND PROPER BACKFILL PLACEMENT AND COMPACTION TAKE CARE OF THIS CONCERN.



BACKFILL PLACEMENT

MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS



IF AASHTO T99 PROCEDURES ARE DETERMINED INFEASIBLE BY THE GEOTECHNICAL ENGINEER OF RECORD. COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED. UNDER THE COMPACTOR, OR UNDER FOOT, AND THE GEOTECHNICAL ENGINEER OF RECORD (OR REPRESENTATIVE THEREOF) IS SATISFIED WITH THE LEVEL OF COMPACTION.

THE RESISTIVITY OF A PROJECT SITE MAY CHANGE OVER TIME DUE TO THE USE FOR LARGE SYSTEMS, CONVEYOR SYSTEMS, BACKHOES WITH LONG REACHES OR DRAGLINES WITH STONE BUCKETS MAY BE USED TO PLACE BACKFILL, ONCE MINIMUM COVER FOR CONSTRUCTION LOADING ACROSS THE ENTIRE WIDTH OF THE SYSTEM IS REACHED. ADVANCE THE EQUIPMENT TO THE END OF THE RECENTLY PLACED FILL, AND BEGIN THE SEQUENCE AGAIN UNTIL THE SYSTEM IS COMPLETELY BACKFILLED. THIS TYPE OF CONSTRUCTION SEQUENCE PROVIDES ROOM FOR STOCKPILED BACKFILL DIRECTLY BEHIND THE BACKHOE AS WELL AS THE MOVEMENT OF CONSTRUCTION TRAFFIC, MATERIAL STOCKPILES ON TOP OF THE BACKFILLED DETENTION SYSTEM SHOULD BE LIMITED TO 8- TO 10-FEET HIGH AND MUST PROVIDE BALANCED LOADING ACROSS ALL BARRELS. TO DETERMINE THE PROPER COVER OVER THE PIPES TO ALLOW THE MOVEMENT OF CONSTRUCTION EQUIPMENT SEE TABLE 1, OR CONTACT YOUR LOCAL CONTECH SALES ENGINEER.

TYPICAL BACKFILL SEQUENCE

WHEN FLOWABLE FILL IS USED, YOU MUST PREVENT PIPE FLOATATION TYPICALLY, SMALL LIFTS ARE PLACED BETWEEN THE PIPES AND THEN ALLOWED TO SET-UP PRIOR TO THE PLACEMENT OF THE NEXT LIFT. THE ALLOWABLE THICKNESS OF THE CLSM LIFT IS A FUNCTION OF A PROPER BALANCE BETWEEN THE UPLIFT FORCE OF THE CLSM, THE OPPOSING WEIGHT OF THE PIPE, AND THE EFFECT OF OTHER RESTRAINING MEASURES. THE PIPE CAN CARRY LIMITED FLUID PRESSURE WITHOUT PIPE DISTORTION OR DISPLACEMENT, WHICH ALSO AFFECTS THE CLSM LIFT THICKNESS. YOUR LOCAL CONTECH SALES ENGINEER CAN HELP DETERMINE THE PROPER LIFT THICKNESS.



CONSTRUCTION LOADING

ACCUMULATED SEDIMENT AND TRASH CAN TYPICALLY BE EVACUATED TYPICALLY, THE MINIMUM COVER SPECIFIED FOR A PROJECT ASSUMES H-20 THROUGH THE MANHOLE OVER THE OUTLET ORIFICE. IF MAINTENANCE IS NOT LIVE LOAD. BECAUSE CONSTRUCTION LOADS OFTEN EXCEED DESIGN LIVE PERFORMED AS RECOMMENDED, SEDIMENT AND TRASH MAY ACCUMULATE IN FRONT OF THE OUTLET ORIFICE. MANHOLE COVERS SHOULD BE SECURELY LOADS, INCREASED TEMPORARY MINIMUM COVER REQUIREMENTS ARE SEATED FOLLOWING CLEANING ACTIVITIES. CONTECH SUGGESTS THAT ALL NECESSARY. SINCE CONSTRUCTION EQUIPMENT VARIES FROM JOB TO JOB, SYSTEMS BE DESIGNED WITH AN ACCESS/INSPECTION MANHOLE SITUATED AT IT IS BEST TO ADDRESS EQUIPMENT SPECIFIC MINIMUM COVER OR NEAR THE INLET AND THE OUTLET ORIFICE. SHOULD IT BE NECESSARY TO REQUIREMENTS WITH YOUR LOCAL CONTECH SALES ENGINEER DURING GET INSIDE THE SYSTEM TO PERFORM MAINTENANCE ACTIVITIES, ALL APPROPRIATE PRECAUTIONS REGARDING CONFINED SPACE ENTRY AND OSHA YOUR PRE-CONSTRUCTION MEETING. REGULATIONS SHOULD BE FOLLOWED.

ADDITIONAL CONSIDERATIONS

BECAUSE MOST SYSTEMS ARE CONSTRUCTED BELOW-GRADE, RAINFALL AS PART OF THE MAINTENANCE PROGRAM FOR THE SYSTEM CAN RAPIDLY FILL THE EXCAVATION; POTENTIALLY CAUSING FLOATATION MAINTAINING AN UNDERGROUND DETENTION OR INFILTRATION SYSTEM IS AND MOVEMENT OF THE PREVIOUSLY PLACED PIPES. TO HELP MITIGATE EASIEST WHEN THERE IS NO FLOW ENTERING THE SYSTEM. FOR THIS POTENTIAL PROBLEMS, IT IS BEST TO START THE INSTALLATION AT THE REASON. IT IS A GOOD IDEA TO SCHEDULE THE CLEANOUT DURING DRY DOWNSTREAM END WITH THE OUTLET ALREADY CONSTRUCTED TO ALLOW WEATHER A ROUTE FOR THE WATER TO ESCAPE. TEMPORARY DIVERSION MEASURES MAY BE REQUIRED FOR HIGH FLOWS DUE TO THE RESTRICTED NATURE OF THE OUTLET PIPE.





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discrepancies between the supplied information upon which			
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EMBANKMEN

DYO55739 Riverside Community H BMP 1 Riverside, CA DETENTION SYS

CMP DETENTION SYSTEM INSPECTION AND MAINTENANCE

UNDERGROUND STORMWATER DETENTION AND INFILTRATION SYSTEMS MUST BE INSPECTED AND MAINTAINED AT REGULAR INTERVALS FOR PURPOSES OF PERFORMANCE AND LONGEVITY.

INSPECTION

INSPECTION IS THE KEY TO EFFECTIVE MAINTENANCE OF CMP DETENTION SYSTEMS AND IS EASILY PERFORMED. CONTECH RECOMMENDS ONGOING. ANNUAL INSPECTIONS. SITES WITH HIGH TRASH LOAD OR SMALL OUTLET CONTROL ORIFICES MAY NEED MORE FREQUENT INSPECTIONS. THE RATE AT WHICH THE SYSTEM COLLECTS POLLUTANTS WILL DEPEND MORE ON SITE SPECIFIC ACTIVITIES RATHER THAN THE SIZE OR CONFIGURATION OF THE SYSTEM.

INSPECTIONS SHOULD BE PERFORMED MORE OFTEN IN EQUIPMENT WASHDOWN AREAS. IN CLIMATES WHERE SANDING AND/OR SALTING OPERATIONS TAKE PLACE AND IN OTHER VARIOUS INSTANCES IN WHICH ONE WOULD EXPECT HIGHER ACCUMULATIONS OF SEDIMENT OR ABRASIVE/ CORROSIVE CONDITIONS. A RECORD OF EACH INSPECTION IS TO BE MAINTAINED FOR THE LIFE OF THE SYSTEM

MAINTENANCE

CMP DETENTION SYSTEMS SHOULD BE CLEANED WHEN AN INSPECTION REVEALS ACCUMULATED SEDIMENT OR TRASH IS CLOGGING THE DISCHARGE ORIFICE.

ANNUAL INSPECTIONS ARE BEST PRACTICE FOR ALL UNDERGROUND SYSTEMS. DURING THIS INSPECTION, IF EVIDENCE OF SALTING/DE-ICING AGENTS IS OBSERVED WITHIN THE SYSTEM, IT IS BEST PRACTICE FOR THE SYSTEM TO BE RINSED, INCLUDING ABOVE THE SPRING LINE SOON AFTER THE SPRING THAW

THE FOREGOING INSPECTION AND MAINTENANCE EFFORTS HELP ENSURE UNDERGROUND PIPE SYSTEMS USED FOR STORMWATER STORAGE CONTINUE TO FUNCTION AS INTENDED BY IDENTIFYING RECOMMENDED REGULAR INSPECTION AND MAINTENANCE PRACTICES. INSPECTION AND MAINTENANCE RELATED TO THE STRUCTURAL INTEGRITY OF THE PIPE OR THE SOUNDNESS OF PIPE JOINT CONNECTIONS IS BEYOND THE SCOPE OF THIS GUIDE.

	PROJECT No.:	SEQ. I	No.:	DATE:	
ospital Parking Garage	39082	557	739	10/7/202	24
	DESIGNED:		DRAW	'N:	
	DYO			DYO	
	CHECKED:		APPR	OVED:	
1	DYO			DYO	
STEM	SHEET NO .:				
					1

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern





Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

	Chec	k One	
BMP Name	Included	Not Applicable	If not applicable, state brief reason
Non-Structural Source Control BMPs			
Education for Property Owners, Operators, Tenants,			
Occupants, or Employees	X		
Activity Restrictions	Х		
Irrigation System and Landscape Maintenance	Х		
Common Area Litter Control	Х		
Street Sweeping Private Streets and Parking Lots	Х		
Drainage Facility Inspection and Maintenance	Х		
Structural Source Control BMPs			
MS4 Stenciling and Signage	Х		
Landscape and Irrigation System Design	Х		
			No significant slopes or
			channels in development
Protect Slopes and Channels		X	area
Provide Community Car Wash Racks		Х	Not present on-site
Properly Design:			
Fueling Areas		Х	Not present on-site
Air/Water Supply Area Drainage		Х	Not present on-site
Trash Storage Areas	Х		
Loading Docks		Х	Not present on-site
Maintenance Bays		Х	Not present on-site
Vehicle and Equipment Wash Areas		Х	Not present on-site
Outdoor Material Storage Areas		Х	Not present on-site
Outdoor Work Areas or Processing Areas		Х	Not present on-site
Provide Wash Water Controls for Food Preparation Areas		Х	Not present on-site

MS4 stenciling and signage will be performed during construction and maintained annually by the owner. The landscape and irrigation system is efficient and drought tolerant. The owner will inspect the sprinkler system quarterly to verify that the sprinkler heads remain directed at landscape areas to limit runoff.

How to use this worksheet (also see instructions in Section G of the 2014 SMR WQMP Template):

- 1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
- 2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
- 3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1on page 31 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE S ON THE PR	SOURCES WILL BE	THEN YOUR WOMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE					
1 Potential Sources of Runoff Pollutants		2 Permanent Controls—Show on WQMP Drawings		3 Permanent Controls—List in WQMP Table and Narrative		4 Operational BMPs—Include in WQMP Table and Narrative	
i X A	A. On-site storm drain nlets	Locations of inlets.	X	Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	X X X	Maintain and periodically repaint or replace inlet markings. Provide stormwater pollution prevention information to new site owners, lessees, or operators. See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."	
E E a	3 . Interior floor drains and elevator shaft sump pumps			State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.		Inspect and maintain drains to prevent blockages and overflow.	
c کلا و	C. Interior parking garages		X	State that parking garage floor drains will be plumbed to the sanitary sewer.	X	Inspect and maintain drains to prevent blockages and overflow.	

IF THES	E SOURCES WILL BE	THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICAB					
1 Potential Sources of Runoff Pollutants		2 Permanent Controls—Show on WQMP Drawings		3 Permanent Controls—List in WQMP Table and Narrative		4 Operational BMPs—Include in WQMP Table and Narrative	
	D1. Need for future indoor & structural pest control			Note building design features that discourage entry of pests.		Provide Integrated Pest Management information to owners, lessees, and operators.	
X	D2. Landscape/ Outdoor Pesticide Use	 Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. Show self-retaining landscape areas, if any. Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.) 	X X X	 State that final landscape plans will accomplish all of the following. Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions. 	X X X	Maintain landscaping using minimum or no pesticides. See applicable operational BMPs in "What you should know forLandscape and Gardening" at http://www.rcflood.org/stormwater/Downlo ads/LandscapeGardenBrochure.pdf Provide IPM information to new owners, lessees and operators.	

IF THESE SOURCES WILL BE ON THE PROJECT SITE	THEN YOUR WOMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE						
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative				
 E. Pools, spas, ponds, decorative fountains, and other water features. 	 Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.) 	If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	 See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://www.rcflood.org/stormwater/Downl oads/poolsandspas.pdf 				
F . Food service	 For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer. 	 Describe the location and features of the designated cleaning area. Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated. 	 See the brochure, "The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://www.rcflood.org/stormwater/downloa ds/FoodServ.pdf Provide this brochure to new site owners, lessees, and operators. 				
G. Refuse areas	 Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent runon and show locations of berms to prevent runoff from the area. Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer. 	 State how site refuse will be handled and provide supporting detail to what is shown on plans. State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar. 	 State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com 				

IF THESE SOURCES WILL BE ON THE PROJECT SITE			THEN YOUR WOMP SHOULD INCLUDE THESE SOURCE CONTROL BMPS, AS APPLICABLE					
1 Potential Sources of Runoff Pollutants		2 Permanent Controls—Show on WQMP Drawings		Pe	3 Permanent Controls—List in WQMP Table and Narrative		4 Operational BMPs—Include in WQMP Table and Narrative	
	H. Industrial processes.		Show process area.		If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."		See Fact Sheet SC-10, "Non- Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at_ http://www.rcflood.org/stormwater/Downloa ds/IndustrialCommercialFacilities.pdf	
	I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)		Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run- on or run-off from area. Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.		Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for: • Hazardous Waste Generation • Hazardous Materials Release Response and Inventory • California Accidental Release (CalARP) • Aboveground Storage Tank • Uniform Fire Code Article 80 Section 103(b) & (c) 1991 • Underground Storage Tank		See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com	

IF THESE SOURCES WILL BE ON THE PROJECT SITE	THEN YOUR WOMP SHOULD INCLUDE THESE SOURCE CONTROL BMPS, AS APPLICABLE							
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative					
J. Vehicle and Equipment Cleaning	 Show on drawings as appropriate: Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses. Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shutoff to discourage such use). Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer. Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed. 	□ If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.	 Describe operational measures to implement the following (if applicable): Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://www.rcflood.org/stormwater/downloads/OutdoorCleaningActivities.pdf Car dealerships and similar may rinse cars with water only. 					

IF THESE SOURCES WILL BE ON THE PROJECT SITE	THEN YOUR WOMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
K. Vehicle/Equipment Repair and Maintenance	 Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater. Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas. Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained. 	 State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. 	 In the Stormwater Control Plan, note that all of the following restrictions apply to use the site: No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains. No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately. No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment. Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/

IF THESE SOURCES WILL BE ON THE PROJECT SITE	THEN YOUR WOMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
L. Fuel Dispensing Areas	 Fueling areas⁶ shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area¹.] The canopy [or cover] shall not drain onto the fueling area. 		 The property owner shall dry sweep the fueling area routinely. See the Fact Sheet SD-30, "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

⁶ The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

IF THESE SOURCES WILL BE ON THE PROJECT SITE	THEN YOUR WOMP SHOULD INCLUDE THESE SOURCE CONTROL BMPS, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
M. Loading Docks	 Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer. Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation. Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer. 		 Move loaded and unloaded items indoors as soon as possible. See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

IF THES	SE SOURCES WILL BE E PROJECT SITE	THEN YOUR WOMP SHOULD INCLUDE THESE SOURCE CONTROL BMPS, AS APPLICABLE		
Po	1 otential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
	N. Fire Sprinkler Test Water		Provide a means to drain fire sprinkler test water to the sanitary sewer.	 See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
	O. Miscellaneous Drain or Wash Water or Other Sources Boiler drain lines Condensate drain lines Rooftop equipment Drainage sumps Roofing, gutters, and trim. Other sources		 Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. 	
			Include controls for other sources as specified by local reviewer.	

IF THESE SOU ON THE PROJ	IRCES WILL BE ECT SITE	THEN YOUR WOMP SH	OULD INCLUDE THESE SOURCE CONT	ROL BMPS, AS APPLICABLE
Potentia Runoff	1 I Sources of Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
P. Pl and	azas, sidewalks, parking lots.			Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

The start-up date for maintenance activities will be at the close-out of construction. HCA shall be responsible for maintenance: 4445 Magnolia Avenue Riverside, CA 925001 Telephone: 951-788-3151

BMP	Frequency	Maintenance Activities
Catch Basin Stenciling	Annually	Inspect.
Drainage System	Monthly	Inspect catch basins for debris and clogging. Remove and dispose of contents as yard waste as necessary.
Litter Control	Daily	Empty trash receptacles and clean trash in plaza area.
Underground Infiltration Pipes	Quarterly	Inspect the top of the gravel layer. Remove lingering sediments at the top of the gravel layer. Dispose contents as trash.
	After Large Storms (1" or greater)	Inspect for stagnant ponding. If ponding is stagnant for more than 72 hours after the end of a storm event, test the unit infiltration rates once stagnant water is removed and replace the clogged portion of the underlying gravel. Replace areas with less than 0.5 inches per hour of hydraulic conductivity.

WQMP

Operation & Maintenance (O&M) Plan

Project Name:

Riverside Community Hospital Garage

(Phase 1 Ultimate Buildout) Southwest corner of Brockton Avenue and 14th Street Riverside, CA 92501

Prepared for:

Zach Weidman HCA/Riverside Community Hospital 4445 Magnolia Avenue Riverside, CA 92501 (951) 788-3151

Prepared by:

Kimley-Horn and Associates 1100 W Town and Country Rd, Suite 700 Orange, CA 92868 (714) 939-1030

> Prepared on: 01/14/2025

This O&M Plan describes the designated responsible party for implementation of this WQMP, including: operation and maintenance of all the structural BMP(s), conducting the training/educational program and duties, and any other necessary activities. The O&M Plan includes detailed inspection and maintenance requirements for all structural BMPs, including copies of any maintenance contract agreements, manufacturer's maintenance requirements, permits, etc.

January 2025

PR-2024-001701 (GPA, SPA, RZ, DR) Exhibit 13 - EIR Addendum and appedices

9.1.1 Project Information

APN: 217-060-009, 217-060-020, 217-060-028, 217-060-027, 217-060-026, 217-060-024, 218-251-016
Address: Southwest corner of Brockton Avenue and 14th Street, Riverside, CA, 92501
Site Size: 3.28 ac
Proposed Structural BMPs: Infiltration CMP System (1), Pretreatment Unit (1), Storm Drain Inlets (19), Valley Gutter
Land use: Parking Garage
% Impervious of proposed site: 83%

Surface flow within each area drains towards inlets and is routed towards their respective BMPs. Overflows within the proposed systems connect into existing storm drain systems that lead to an existing 24" lateral along Tesquesquite Ave. Flow eventually drains into the Santa Ana River, Reach 3, continuing into Reach 2, Reach 1, and ultimately discharging into the Prado Basin Management Zone.

9.1.2 Responsible Party

The responsible party for implementation of this WQMP is:

HCA/Riverside Community Hospital 4445 Magnolia Avenue Riverside, CA 92501

9.1.3 Record Keeping

Parties responsible for the O&M plan shall retain records for at least 5 years.

All training and educational activities and BMP operation and maintenance shall be documented to verify compliance with this O&M Plan. A sample Training Log and Inspection and Maintenance Log are included in Appendix 9.3 of this document.

The **WQMP** Verification Form (Appendix 9.4) shall be completed accurately and submitted, with associated documentation, to the City of Dana Point by September 30 of each year, or as requested by the City. Failure to complete and submit the verification form will result in a noncompliance and enforcement actions may be taken.

9.1.4 Electronic Data Submittal

This document along with the Site Plan and Attachments shall be provided in PDF format. Autocad files and/or GIS coordinates of BMPs shall also be submitted to the City.

9.1.5 Vector Control

Standing water which exists for longer than 72 hours may contribute to mosquito breeding areas. Best Management Practices (BMPs) shall be inspected for standing water on a regular basis. Standing water may indicate that the BMP is not functioning properly and proper action to remedy the situation shall be taken in a timely manner.

Elimination of standing water and managing garbage, lawn clippings, and pet droppings, can help decrease the presence of mosquitoes and flies in the area.

The Riverside County Flood Control District may be contacted for more information and support at 951-955-1200.

Required Permits

Permits are not required for the implementation, operation, and maintenance of the BMPs.

9.1.6 Inspections

The City may conduct a site inspection to evaluate compliance with the Project WQMP, at any time, in accordance with Dana Point Municipal Code Chapter 15.10, Storm Water/Surface Runoff Water Quality.

9.1.7 Monitoring Plan

The City or other agencies may require a monitoring plan. Details regarding monitoring plan, such as parameters to be tested, frequency, testing locations, laboratory, etc. shall be included as appropriate.

A monitoring plan is not required for the project.

9.1.8 Operation and Maintenance Requirements

The Table below addresses each BMP included in this project that requires regular implementation and/or operation & maintenance.

BMP	Implementation, Inspection and Maintenance Requirements	Frequency
N1. Education for Property Owners, Tenants and Occupants	RP will insure that all owners & tenants will be given a copy of the recorded CC&R's which will contain a section outlining the environmental awareness education materials at the close of escrow. RP shall distribute appropriate materials to owners, tenants and/or occupants via contract language, mailings, website or meeting. Brochures can be requested or downloaded from www.ocwatersheds.com. Brochures and educational articles for RP distribution can also be requested from City Water Quality Engineer.	Information to be initially provided to owners & tenants upon sale or lease agreement. Educational materials will be provided to owners and/or tenants annually, thereafter.
N2. Activity Restriction	Within the CC&R's or lease agreement, the following activity restrictions shall be enforced:	Continuous
N3. Common Area Landscape Management & Efficient Landscape Design	 Landscape Management Includes: Mitigation of the potential dangers of fertilizer and pesticide usagethrough the incorporation of an Integrated Pest Management Program (IPM). Monitor for runoff and efficiency regularly. Implementation of a waterbudget. Irrigation systems shall be automatically controlled and designed, installed, and maintained so as to minimize overspray and runoff onto streets, sidewalks, driveways, structures, windows, walls, and fences. Use of native and drought tolerant species when replanting 	Inspected once a week
N11. Common Area Litter Control	Weekly sweeping and trash pickup as necessary within all project areas and common landscape areas. Daily inspection of trash receptacles to ensure that lids are closed and pick up any excess trash on the ground, noting trash disposal violations by homeowners and reporting the violations to the HOA/RP for investigation.	Daily inspection and weekly sweeping and clean-up or as needed
N12. Contractor/Employee Training	All contractors shall be trained and made aware of this WQMP and operation and maintenance requirements of BMPs.	At first hire and annually thereafter for HOA personnel and employees, to include the educational materials contained in the approved Water Quality Management Plan.

BMP	Implementation, Inspection and Maintenance Requirements	Frequency
N14. Common Area Catch Basin Inspection	Catch basins will be owned, inspected and maintained by the HOA/RP. Catch basins will be inspected at a minimum on a yearly basis, and prior to the storm season, no later than October 1st of each year.	At a minimum, basins will be inspected and cleaned around October 1 ST of each year, prior to "first flush" storm, or as necessary after large storm events to clear inlets of trash, debris and silt.
N15. Street Sweeping Private Streets and Parking Lots	Vacuum street sweeping will occur on a weekly basis.	Streets will be vacuum swept on a weekly basis.
SD-13 Provide Storm Drain System Stenciling and Signage	All catch basins where applicable in paved areas, will be marked or stenciled with "No Dumping - Drains to Ocean, No Descargue Basura" language. This will be done in a location that can be clearly seen by all and will be routinely inspected and re- labeled, as necessary. Thereafter, the owner/operator shall routinely inspect and re-label the catch basins, as necessary.	Catch basin labels will be inspected once annually and relabeled as necessary to maintain legibility.
SD-32 Design and Construct Trash and Waste Storage Areas to Reduce Pollutant Introduction	Trash will be removed by the local private solid waste management contractor on a weekly basis for proper disposal of the trash to landfill; with recyclable materials and greenwastes to be processed offsite.	Trash dumpster shall be kept in a non-leaking condition.

ВМР	Implementation, Inspection and Maintenance Requirements	Frequency
LID BMP # 1: Contech CMP Infiltration System	Per manufacturer's recommendations, inspections should be performed annually at a minimum, where more frequent inspections may be required due to instances in which one would expect higher sediment accumulation. Record of inspection is to be maintained for the life of the system. Maintenance of CMP system shall be performed when inspections reveal accumulated sediment or trash clogging the discharge orifice. It is recommended that systems are designed with an access/inspection manhole situated at or near the inlet and outlet orifice. For more details, see the refer to the CDS Inspection and Maintenance Guide attached in Appendix 9.3.	As recommended.
LID BMP # 2: Pretreatment Unit	Per manufacturer's recommendations, inspections should be performed twice per year at a minimum, where more frequent inspections may be required due to occurrences such as sanding operations or equipment washdown. Visual inspection shall ascertain that system is in working order and that there are no blockages or obstructions within the inlet and separation screen. Maintenance of system shall be performed during dry weather conditions when no flow is entering the system. It is recommended to use a vacuum truck as the most effective and convenient approach. Remove the associated manhole cover and and drain the sediment using the vacuum hose. For more details, see the refer to the Inspection and Maintenance Guide attached in Appendix 9.3.	As recommended.

Appendix 9.1

BMP SITE PLAN

TO BE PROVIDED IN FINAL SUBMITTAL

Appendix 9.2

EDUCATIONAL MATERIALS

The following is a selection of Educational Materials for Homeowners, Contractors and employees that address BMPS and water quality issues. Many are available in English and Spanish.

To meet the educational requirements of this O&M Plan, educational brochures can be downloaded or requested at no charge at <u>https://rcwatershed.org/about/links-and-resources/outreach-materials-library/</u> for inclusion on a website, in a newsletter or mailed to property owners, tenants and/or contractors. Property owners, tenants, staff and/or contractors must receive education/training at least once per year.

Brochure	Pollutant(s) Addressed	Activities Addressed
"The Ocean Begins At Your Front Door" – English, Spanish, Vietnamese Homeowners Guide for	Household hazardous waste, trash, motor oil, chlorine, overwatering, green waste, dirt, pesticides/fertilizer, pet waste Household hazardous	Household maintenance and activities (i.e. hosing driveway), automotive maintenance and washing, pool maintenance, landscape and gardening, trash disposal, pet care Preventing urban runoff through
Sustainable Water Use Pamphlet	waste, trash, motor oil, chlorine, overwatering, green waste, dirt, pesticides/fertilizer, pet waste	low impact development in residential properties, water conservation, use of IPM techniques and California-friendly landscaping, general water pollution prevention methods
"Help Prevent Ocean Pollution: Your Local Used Oil Collection Center" - South- English, Spanish, Vietnamese	Motor Oil	Automotive Maintenance, Disposal of Used Motor Oil
"Help Prevent Ocean Pollution: Tips for Pool Maintenance" – English, Spanish	Chlorine, runoff	Pool Drainage/Maintenance
"Help Prevent Ocean Pollution: Tips for Landscape and Gardening" – English, Spanish	Fertilizer, pesticide, dirt, overwatering, green waste	Landscape maintenance, pesticide/fertilizer application, proper disposal of household hazardous waste and green waste
"Help Prevent Ocean Pollution: Tips for Pet Care" – English, Spanish	Surfactants, chemicals, pet waste	Proper disposal of pet waste, proper pet bathing techniques
"Help Prevent Ocean Pollution: Household Tips" - English, Spanish	Household hazardous waste, pet waste, pesticides/fertilizers, overwatering, green waste, surfactants, motor oil, trash	Household maintenance and activities (i.e. hosing driveway), automotive maintenance and washing, pool maintenance, landscape and gardening, trash disposal, pet care
"Help Prevent Ocean Pollution: Proper Disposal of Household Hazardous Materials" – English, Spanish, Vietnamese	Household hazardous wastes	Proper identification and disposal of household hazardous wastes

January 2025

Brochure	Pollutant(s) Addressed	Activities Addressed
"Help Prevent Ocean Pollution: Maintenance Practices for Your Business" – English, Spanish	Fertilizer, pesticides, green waste, overwatering, trash, toxic substances	Landscape maintenance, proper application of pesticides and fertilizers, trash management, proper storage of materials
"Help Prevent Ocean Pollution: Tips for Using Concrete and Mortar" – English, Spanish	Concrete and mortar, slurry	Proper preparation, use, clean up and disposal of concrete and mortar
"Responsible Pest Control"	Pesticides	Proper identification of pests, selection of least toxic chemical, proper pesticide application, spill prevention and proper storage and disposal of pesticides (use of Integrated Pest Management (IPM) techniques)
"Help Prevent Ocean Pollution: Residential Pool, Landscape and Hardscape Drains" – English, Spanish	Chlorine, chemicals, pet waste, green waste, overwatering, motor oil and vehicle fluids	Pool maintenance, spill prevention, proper disposal of household hazardous waste, proper disposal of pet waste, proper use of pesticides and fertilizers, proper vehicle maintenance
"Help Prevent Ocean Pollution: Proper Use and Disposal of Paint" – English, Spanish	Paint, chemicals	Proper use, storage and disposal of paint
"Help Prevent Ocean Pollution: Tips for Home Improvement Projects" – English, Spanish	Construction debris, concrete, paint, household hazardous waste, sediment	Proper storage of construction materials, recycling of construction materials, proper disposal of household hazardous waste, proper erosion and spill control
"Help Prevent Ocean Pollution: Children's Coloring & Activity Book"	Trash, pet waste, motor oil, green waste	Litter control, proper disposal of pet waste, proper spill clean up (e.g. use of cat litter)
"Help Prevent Ocean Pollution: Tips for the Automotive Industry" – English, Spanish	Motor oil, metals, surfactants, toxic substances, dirt	Proper maintenance and washing practices for automobiles, proper storage and disposal of automotive liquids and materials
"Help Prevent Ocean Pollution: Tips for the Home Mechanic"	Motor oil, metals, surfactants, toxic substances	Proper maintenance and washing practices for automobiles and automotive detailing materials, proper storage and disposal of automotive liquids and materials, use of used oil collection centers
"Compliance Best Management Practices for Mobile Businesses"	Surfactants, toxic substances, dirt, metals	Mobile car washing and detailing, proper high pressure cleaning, proper storage and disposal of washwater from mobile automotive detailing, washing and carpet and fabric cleaning

Brochure	Pollutant(s) Addressed	Activities Addressed
"Help Prevent Ocean Pollution: A Guide for Food Service Facilities" - English, Spanish, Vietnamese	Grease, food waste, trash	Proper food waste disposal, proper grease and oil disposal, proper procedures for spill cleanup, proper maintenance of trash dumpsters, proper floor mat cleaning, proper wastewater disposal

Regulatory Information

- 1. City of Riverside Municipal Code: Storm Water/Surface Runoff Water Quality
- 2. City of Riverside Municipal Code: Landscaping Standards and Requirements

Both of the above Code Chapters are available on the City's website at: <u>https://library.municode.com/ca/riverside/codes/code_of_ordinances</u>

Appendix 9.3

BMP OPERATION & MAINTENANCE AND TRAINING LOGS

BMP OPERATION & MAINTENANCE LOG Riverside Community Hospital Garage

Today's Date: _____

Name of Person Performing Activity (Printed): _____

Signature: _____

BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed

TRAINING / EDUCATIONAL LOG

Signature: _____

Topic of Training/Educational Activity:

Name of Participant	Signature of Participant

Appendix 9.4

CITY OF RIVERSIDE WATER QUALITY MANAGEMENT PLAN (WQMP) VERIFICATION SURVEY

Pro	oject Name/Site /	Address:			
Re	sponsible Party:				
Со	ntact Phone:		Contact Email:		
1.	Have your contra applicable requir	nctors (la rements f	ndscape, maintenance, etc.) been educated regarding the to prevent pollution as outlined in the WQMP?		
	Yes	🗌 No	Name of Landscape/MaintenanceContractor:		
	Method of educati	on (contr	act language, Copy of O&M, educational brochures, etc.):		
2.	Have the storm d prior to Oct 1?	rains an	d inlets been inspected and maintained, at a minimum, annually		
	Yes	🗌 No	Date of Last Inspection/Maintenance:		
			Maintenance conducted by:		
3.	B. Have you observed any runoff from the irrigation system?				
	🗌 Yes	🗌 No	If yes, how was the problem resolved?:		
4.	What type of Int	egrated	Pest Management (IPM) practices are used on site?		
5.	Are native and/or drought tolerant plants established and considered for any new landscaping?				
		S			
6.	Have the storm o	lrain ste	ncils been inspected annually for legibility prior to Oct. 1?		
	Yes	🗌 No	Total number of stencils on site:		
	How many inlets r	equired re	estenciling / date of restenciling?/		
7.	Have education the past year?	material	s been distributed to the residents/tenants/contractors within		

lanuary 2025					
, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
01701 (GPA, SPA	λ, κΖ, DK) EXNIDIT	13 - EIR Addend	ium and appedic	es	

	Yes No	Topic / Date of Distribution:/			
	Method of Distribut	tion: newsletter, billing insert, etc.:			
8.	Is street sweeping conducted weekly?				
	Yes	No Contractor:			
9.	Are trash areas i	n common area inspected daily?			
	Ses Ses	□ No			
10.	Have any vector please contact O	concerns been observed (standing water, mosquito larvae, etc.). if yes, range County Vector Control District at www.ocvcd.org.			
	Yes	Νο			
11.	Have the LID BM instructions? (at	Ps been inspected and maintained per Manufacturer tach invoices and inspection/maintenance forms).			
	Ses Ses	□ No			
12.	Have there been units?	any issues with operation and maintenance of the LID BMPs			

I certify that the above information is correct and that the BMPs for this project have been implemented and operated and maintained in accordance with the Operation and Maintenance (O&M) Plan on site and on file at the City.

Print Name of Responsible Party

Signature (required)

Date

PR-202

Contech® CMP Detention Inspection and Maintenance Guide

Underground stormwater detention and infiltration systems must be inspected and maintained at regular intervals for purposes of performance and longevity.

Inspection

Inspection is the key to effective maintenance of CMP detention systems and is easily performed. Contech recommends ongoing, annual inspections. Sites with high trash load or small outlet control orifices may need more frequent inspections. The rate at which the system collects pollutants will depend more onsite specific activities rather than the size or configuration of the system.

Inspections should be performed more often in equipment washdown areas, in climates where sanding and/or salting operations take place, and in other various instances in which one would expect higher accumulations of sediment or abrasive/ corrosive conditions. A record of each inspection is to be maintained for the life of the system.

Maintenance

CMP detention systems should be cleaned when an inspection reveals accumulated sediment or trash is clogging the discharge orifice. 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 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.

Annual inspections are best practice for all underground systems. During this inspection if evidence of salting/de-icing agents is observed within the system, it is best practice for the system to be rinsed, including above the spring line soon after the spring thaw as part of the maintenance program for the system.

Maintaining an underground detention or infiltration 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.

The foregoing inspection and maintenance efforts help ensure underground pipe systems used for stormwater storage continue to function as intended by identifying recommended regular inspection and maintenance practices. Inspection and maintenance related to the structural integrity of the pipe or the soundness of pipe joint connections is beyond the scope of this guide.





CMP MAINTENANCE GUIDE 10/19 PDF





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Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines, and Other End-User BMP Information

Description

As a consequence of its function, the stormwater drainage facilities on site convey stormwater that may contain certain pollutants either to the offsite conveyance system that collects and transports urban runoff and stormwater, or directly to receiving waters. The protocols in this fact sheet are intended to reduce pollutants leaving the site to the offsite drainage infrastructure or to receiving waters through proper on-site conveyance system operation and maintenance. The targeted constituents will vary depending on site characteristics and operations.

Approach

Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

General Pollution Prevention Protocols

- Maintain catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis to remove pollutants, reduce high pollutant concentrations during the first flush of storms, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.
- Develop and follow a site specific drainage system maintenance plan that describes maintenance locations, methods, required equipment, water sources, sediment collection areas, disposal requirements, and any other pertinent information.



Good Housekeeping

Illicit Connections and Discharges

 Look for evidence of illegal discharges or illicit connections during routine maintenance of conveyance system and drainage structures:

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize

✓
\checkmark
~
\checkmark
\checkmark
\checkmark
\checkmark
✓
✓
✓

 Prevention and Response
 Material Handling & Waste Management
 Erosion and Sediment Controls
 Employee Training Program
 Quality Assurance Record Keeping



- ✓ Identify evidence of spills such as paints, discoloring, odors, etc.
- ✓ Record locations of apparent illegal discharges/illicit connections.
- ✓ Track flows back to potential discharges and conduct aboveground inspections. This can be done through visual inspection of upgradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
- ✓ Eliminate the discharge once the origin of flow is established.
- Stencil or demarcate storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" or similar stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- □ Refer to fact sheet SC-10 Non-Stormwater Discharges for additional information.

Illegal Dumping

- □ Inspect and clean up hot spots and other storm drainage areas regularly where illegal dumping and disposal occurs.
- □ Establish a system for tracking incidents. The system should be designed to identify the following:
 - ✓ Illegal dumping hot spots;
 - ✓ Types and quantities (in some cases) of wastes;
 - ✓ Patterns in time of occurrence (time of day/night, month, or year);
 - ✓ Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills); and
 - ✓ Responsible parties.
- Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- □ Refer to fact sheet SC-10 Non-Stormwater Discharges for additional information.



Preventative Maintenance

Catch Basins/Inlet Structures

- □ Staff should regularly inspect facilities to ensure compliance with the following:
 - ✓ Immediate repair of any deterioration threatening structural integrity.
 - $\checkmark~$ Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.

- □ Clean catch basins, storm drain inlets, and other conveyance structures before the wet season to remove sediments and debris accumulated during the summer.
- □ Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Prioritize storm drain inlets; clean and repair as needed.
- □ Keep accurate logs of the number of catch basins cleaned.
- □ Store wastes collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes if necessary with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not allowed, water should be pumped or vacuumed to a tank and properly disposed. Do not dewater near a storm drain or stream.

Storm Drain Conveyance System

- □ Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- □ Collect and pump flushed effluent to the sanitary sewer for treatment whenever possible.

Pump Stations

- □ Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- □ Do not allow discharge to reach the storm drain system when cleaning a storm drain pump station or other facility.
- □ Conduct routine maintenance at each pump station.
- □ Inspect, clean, and repair as necessary all outlet structures prior to the wet season.

Open Channel

- □ Modify storm channel characteristics to improve channel hydraulics, increase pollutant removals, and enhance channel/creek aesthetic and habitat value.
- □ Conduct channel modification/improvement in accordance with existing laws. Any person, government agency, or public utility proposing an activity that will change the natural state of any river, stream, or lake in California, must enter into a Steam or Lake Alteration Agreement with the Department of Fish and Wildlife. The developer-applicant should also contact local governments (city, county, special districts), other state agencies (SWRCB, RWQCB, Department of Forestry, Department of Water Resources), and Army Corps of Engineers and USFWS.



Spill Response and Prevention Procedures

Keep your spill prevention control plan up-to-date.

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- □ Investigate all reports of spills, leaks, and/or illegal dumping promptly.
- □ Place a stockpile of spill cleanup materials where it will be readily accessible or at a central location.
- □ Clean up all spills and leaks using "dry" methods (with absorbent materials and/or rags) or dig up, remove, and properly dispose of contaminated soil.



Employee Training Program

- □ Educate employees about pollution prevention measures and goals.
- □ Train employees how to properly handle and dispose of waste using the source control BMPs described above.
- □ Train employees and subcontractors in proper hazardous waste management.
- □ Use a training log or similar method to document training.
- □ Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
- □ Have staff involved in detection and removal of illicit connections trained in the following:
 - ✓ OSHA-required Health and Safety Training (29 CFR 1910.120) plus annual refresher training (as needed).
 - ✓ OSHA Confined Space Entry training (Cal-OSHA Confined Space, Title 8 and Federal OSHA 29 CFR 1910.146).
 - ✓ Procedural training (field screening, sampling, smoke/dye testing, TV inspection).



Quality Assurance and Record Keeping

- Keep accurate maintenance logs that document minimum BMP activities performed for drainage system maintenance, types and quantities of waste disposed of, and any improvement actions.
- □ Keep accurate logs of spill response actions that document what was spilled, how it was cleaned up, and how the waste was disposed.
- □ Keep accurate logs of illicit connections, illicit discharges, and illegal dumping into the storm drain system including how wastes were cleaned up and disposed.
- □ Establish procedures to complete logs and file them in the central office.

Potential Limitations and Work-Arounds

Provided below are typical limitations and recommended "work-arounds" for drainage system maintenance:

- □ Clean-up activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.
 - ✓ Perform all maintenance onsite and do not flush accumulated material downstream to private property or riparian habitats.
- □ Storm drain flushing is most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity). Other considerations associated with storm drain flushing may include the availability of a water source, finding a downstream area to collect sediments, and liquid/sediment disposal.
 - ✓ Develop and follow a site specific drainage system maintenance plan that describes maintenance locations, methods, required equipment, water sources, sediment collection areas, disposal requirements, and any other pertinent information.
- □ Regulations may include adoption of substantial penalties for illegal dumping and disposal.
 - ✓ Do not dump illegal materials anywhere onsite.
 - ✓ Identify illicit connections, illicit discharge, and illegal dumping.
 - ✓ Cleanup spills immediately and properly dispose of wastes.
- □ Local municipal codes may include sections prohibiting discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the sanitary sewer system.
 - ✓ Collect all materials and pollutants accumulated in drainage system and dispose of according to local regulations.
 - ✓ Install debris excluders in areas with a trash TMDL.

Potential Capital Facility Costs and Operation & Maintenance Requirements

Facilities

- □ Capital costs will vary substantially depending on the size of the facility and characteristics of the drainage system. Significant capital costs may be associated with purchasing water trucks, vacuum trucks, and any other necessary cleaning equipment or improving the drainage infrastructure to reduce the potential .
- □ Developing and implementing a site specific drainage system maintenance plan will require additional capital if a similar program is not already in place.

Maintenance

- □ Two-person teams may be required to clean catch basins with vactor trucks.
- □ Teams of at least two people plus administrative personnel are required to identify illicit discharges, depending on the complexity of the storm sewer system.
- □ Arrangements must be made for proper disposal of collected wastes.
- □ Technical staff are required to detect and investigate illegal dumping violations.
- □ Methods used for illicit connection detection (smoke testing, dye testing, visual inspection, and flow monitoring) can be costly and time-consuming. Site-specific factors, such as the level of impervious area, the density and ages of buildings, and type of land use will determine the level of investigation necessary.

Supplemental Information

Storm Drain Flushing

Flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in storm drainage systems. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as an open channel, another point where flushing will be initiated, or the sanitary sewer and the treatment facilities, thus preventing re-suspension and overflow of a portion of the solids during storm events. Flushing prevents "plug flow" discharges of concentrated pollutant loadings and sediments. Deposits can hinder the designed conveyance capacity of the storm drain system and potentially cause backwater conditions in severe cases of clogging.

Storm drain flushing usually takes place along segments of pipe with grades that are too flat to maintain adequate velocity to keep particles in suspension. An upstream manhole is selected to place an inflatable device that temporarily plugs the pipe. Further upstream, water is pumped into the line to create a flushing wave. When the upstream reach of pipe is sufficiently full to cause a flushing wave, the inflated device is rapidly deflated with the assistance of a vacuum pump, thereby releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce impacts of stormwater pollution, a second inflatable device placed well downstream may be used to recollect the water after the force of the flushing wave has dissipated. A pump may then be used to transfer the water and accumulated material to the sanitary sewer for treatment. In some cases, an interceptor structure may be more practical or required to recollect the flushed waters.

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet. At this maximum recommended length, the percent removal efficiency ranges between 65-75% for organics and 55-65% for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used if allowed or that fire hydrant line flushing coincide with storm sewer flushing.

References and Resources

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