Chapter 17.42
STORMWATER QUALITY AND UTILITY

Sections:

17.42.010 Purpose.

17.42.020 Urban Runoff Water Quality and Discharge Management.

17.42.010 Purpose.

The provisions of this chapter are intended to ensure the health, safety, and general welfare of citizens, and protect and enhance the water quality of watercourses and water bodies in compliance with the Federal Clean Water Act (33 USC 1251 et seq.) by reducing pollutants in stormwater discharges to the maximum extent practicable, by prohibiting nonstormwater discharges to the storm drain system, and by managing the City's storm and surface water drainage system. Requirements of this chapter shall be implemented and enforced in accordance with the schedule adopted as part of the National Pollution Discharge Elimination System Phase II permit (NPDES). (Ord. 2014-01 § 1 (Exh. A), 2014; Ord. 2013-04 (Exh. A), 2013; Ord. 2004-02 § 1, 2004; Ord. 2004-01 § 1, 2004).

17.42.020 Urban Runoff Water Quality and Discharge Management.

A. Applicability. This section shall apply to all water entering the storm drain system generated on any developed and undeveloped lands within the City.

B. Administration.

1. Responsibility for Administration. The Public Works Director shall administer, implement, and enforce the provisions of this section. Any powers granted to or duties of the Public Works Director may be delegated in writing by the Public Works Director to persons or entities acting in the beneficial interest of or in the employ of the City.

2. Regulatory Consistency. This section shall be construed to ensure consistency with the requirements of the Clean Water Act and Porter-Cologne Act, and statutes and regulations that amend or supplement those Acts.

3. Ultimate Responsibility of Discharger. The requirements of this section are minimum standards; therefore this section does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants into waters of the U.S. caused by that person. This section shall not create liability on the part of the City, or any agent or employee of the City, for any damages that result from any discharger's reliance on this section or any administrative decision in compliance with this section.

C. Discharge Prohibitions.

1. General Prohibition. No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including pollutants or waters containing any pollutants, that cause or contribute to a violation of applicable water quality standards, other than stormwater. The commencement, conduct or continuance of any other discharge to the storm drain system is prohibited, except for the following.

a. Certain types of discharges will not be considered a source of pollutants to the storm drain system and to waters of the U.S. when properly managed in a manner approved by the Director of Public Works to ensure that no potential pollutants are present, and therefore are not considered illegal discharges unless determined to cause a violation of the provisions of the Porter-Cologne Act, Clean Water Act, or other provisions of this section. These types of discharges are listed in Section 1.6 of the City's LID Guidance Manual in Appendix I to Chapter 17.43 CMC.

b. This prohibition shall not apply to any nonstormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered by the State of California under the authority of the Federal Environmental Protection Agency; provided, that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations; and provided, that written approval has been granted by the City for any discharge to the storm drain system.

c. With the written concurrence of the Regional Board, the City may grant a written exemption for other specific nonstormwater discharges which are not a source of pollutants to the storm drain system nor the waters of the U.S. Notwithstanding the requirements of subsection (E)(1) of this section, Authority to Inspect, the Public Works Director may require by written notice that a person responsible for an illegal discharge immediately, or by a specified date, discontinue the discharge and, if necessary, take measures to eliminate the source of the discharge to prevent the occurrence of future illegal discharges.

2. Illicit Connections. The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

a. The Public Works Director may require by written notice that a person responsible for an illicit connection to the storm drain system comply with the requirements of this section to eliminate or secure approval for the connection by a specified date.

b. If, subsequent to eliminating a connection found to be in violation of this section, the responsible person can demonstrate that an illegal discharge will no longer occur, the person may request City approval to reconnect. The reconnection or reinstallation of the connection shall be at the expense of the responsible person.

3. Waste Disposal. No person shall throw, deposit, leave, maintain, keep, or permit to be thrown, deposited, left, or maintained, in or upon any public or private property, driveway, parking area, street, alley, sidewalk, component of the storm drain system, or water of the U.S., any liquids, powders, refuse, rubbish, garbage, litter, or other discarded or abandoned objects, articles, and accumulations, so that they may cause or contribute to water pollution. Wastes deposited in proper waste receptacles for the purposes of collection are exempted from this prohibition.

4. Discharges in Violation of Industrial or Construction Activity NPDES Stormwater Discharge Permit. Any person subject to an industrial or construction activity NPDES stormwater discharge permit shall comply with all provisions of the permit. Proof of compliance with the permit may be required in a form acceptable to the Public Works Director prior to or as a condition of a subdivision map, site plan, building permit, or development or improvement plan; upon inspection of the facility; during any enforcement proceeding or action; or for any other reasonable cause.

D. Regulations and Requirements.

1. Prevention, Control, and Reduction of Stormwater Pollutants.

a. Authorization to Adopt and Impose Best Management Practices. The City will adopt requirements identifying best management practices (BMP) for activities, operations, or facilities which may cause or contribute to pollution or contamination of stormwater, the storm drain system, or waters of the U.S. These are contained in the BMP Guidance Series in Appendix J to Chapter 17.43 CMC. Where best management practices requirements are promulgated by the City or any Federal, State of California, or regional agency for any activity, operation, or facility which would otherwise cause the discharge of pollutants to the storm drain system or water of the U.S., every person undertaking such activity or operation, or owning or operating such facility shall comply with such requirements. The Public Works Director will periodically report to the City Council on the status of implementation of BMPs and any new BMPs that are expected to be developed for inclusion in the BMP Guidance Series. In the event more restrictive requirements pertaining to new development and redevelopment are contained in the City's Low Impact Development Guidance Manual than are contained in the BMP Guidance Series, the more restrictive requirements contained in the Low Impact Development Guidance Manual will govern.

b. New Development and Redevelopment. The City shall adopt Low Impact Development (LID) requirements identifying appropriate best management practices to control the volume, rate, and potential pollutant load of stormwater runoff from new development and redevelopment projects as may be appropriate to minimize the generation, transport and discharge of pollutants as defined by Chapter 17.43 CMC. The LID requirements of this chapter are general in nature. More detailed requirements, some of which are in addition to those contained in this Chapter, are contained in the City's Low Impact Development Guidance Manual (LID Guidance Manual) in Appendix I to Chapter 17.43 CMC. Persons or entities undertaking or owning new development and/or redevelopment projects shall comply with the requirements in the CMC and in the LID Guidance Manual. The Public Works Director will

periodically report to the City Council on the status of implementation of LID requirements and new LID requirements that are expected to be developed for inclusion in the LID Guidance Manual.

The City shall incorporate these requirements in any land use entitlement and construction or building-related permit to be issued for the development or redevelopment and the Director shall administer, implement and enforce the provisions of Chapter 17.43 CMC.

c. Responsibility to Implement Best Management Practices. Notwithstanding the presence or absence of requirements promulgated in compliance with subsections (D)(1)(a) and (D)(1)(b) of this section, any person engaged in activities or operations, or owning facilities or property which will or may result in pollutants entering stormwater, the storm drain system, or waters of the U.S. shall implement best management practices to the maximum extent practicable as determined by the Director of Public Works to prevent and reduce the pollutants.

i. The owner or operator of a commercial or industrial establishment shall provide to the maximum extent practicable protection, as determined by the Director, from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses.

ii. Facilities to prevent accidental discharge of prohibited materials or other wastes shall be provided and maintained at the owner or operator's expense.

iii. Best management practices required by the City can be obtained from the Public Works Department or the Community Planning and Building Department.

2. Watercourse Protection. Every person owning property through which a watercourse passes, or the person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, stagnant pools of water and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse to the extent required by the Director of Public Works. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse. The owner or lessee shall not remove healthy bank vegetation beyond that actually necessary for maintenance, nor remove said vegetation in such a manner as to increase the vulnerability of the watercourse to erosion. The property owner shall be responsible for maintaining and stabilizing that portion of the watercourse that is within their property lines to protect against erosion and degradation of the watercourse on site and downstream. Property owners shall select "soft engineered" techniques when possible for maintaining and stabilizing stream banks.

3. Remediation. Whenever the Public Works Director finds that a discharge of pollutants is taking place or has occurred which will result in or has resulted in pollution of stormwater, the storm drain system, or water of the U.S., the Public Works Director may require by written notice to the owner of the property and/or the

responsible person that the pollution be remediated and the affected property restored within a specified time in compliance with subsection (F) of this section, Enforcement.

E. Inspection and Monitoring.

1. Authority to Inspect. Whenever necessary to make an inspection to enforce any provision of this section, or whenever the Public Works Director has cause to believe that there exists, or potentially exists, in or upon any premises any condition which constitutes a violation of this section, the Director may enter such premises at all reasonable times to inspect the same and to inspect and copy records related to stormwater compliance. In the event the owner or occupant refuses entry after a request to enter and inspect has been made, the City is hereby empowered to seek assistance from any court of competent jurisdiction in obtaining such entry.

2. Authority to Sample, Establish Sampling Devices, and Test. During any inspection in compliance with this section, the Public Works Director may take any samples and perform any testing deemed necessary to aid in the pursuit of the inquiry or to record site activities.

F. Enforcement.

1. Violations. It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this section. A violation of or failure to comply with any of the requirements of this section shall constitute a misdemeanor. Such persons may also be in violation of the Clean Water Act and/or the Porter-Cologne Act and may be subject to the sanctions of those acts including civil and criminal penalties. Any enforcement action authorized under this section may also include written notice to the violator of this potential liability.

2. Notice of Violation. Whenever the Public Works Director finds that a person has violated a prohibition or failed to meet a requirement of this section, the Public Works Director may order compliance by written notice of violation to the responsible person. The notice may require without limitation:

a. The performance of monitoring, analyses, and reporting;

b. The elimination of illicit connections or discharges;

c. That violating discharges, practices, or operations shall cease and desist;

d. The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;

e. Payment of compensation to cover administrative and remediation costs;

f. The implementation or maintenance of source control or treatment BMPs;

g. Payment of a fine as determined by action of the City Council.

If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which remediation or restoration must be completed. The notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by the City or a contractor designated by the Public Works Director, with the cost of the work charged to the violator in compliance with subsection (F)(4) of this section, Emergency Abatement by City.

3. Appeal. Notwithstanding the provisions of subsection (F)(4) of this section, Emergency Abatement by City, any person receiving a notice of violation in compliance with subsection (F)(2) of this section, Notice of Violation, may appeal the determination of the Public Works Director to the City Administrator. The notice of appeal must be received by the City Administrator within five days from the date of the notice of violation. Hearing on the appeal before the City Administrator or his/her designee shall take place within 15 days from the date of City's receipt of the notice of appeal. The decision of the City Administrator or designee shall be final.

4. Emergency Abatement by City. If the violation has not been corrected in compliance with the requirements in the notice of violation, or, in the event of an appeal in compliance with subsection (F)(3) of this section, within 10 days of the decision of the City Administrator upholding the decision of the Public Works Director, then the City or a contractor designated by the Public Works Director may enter upon the subject private property and is authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the City or designated contractor to enter upon the premises for the purposes set forth above.

5. Charging Cost of Abatement/Liens. Within 30 days after abatement of the nuisance by the City, the Public Works Director shall notify the property owner of the property of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the amount of the assessment with the City Clerk within 15 days. The City Clerk shall set the matter for public hearing by the City Council. The decision of the Council shall be set forth by resolution and shall be final.

If the amount due is not paid within 10 days of the decision of the Council or the expiration of the time in which to file an appeal under this section, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. A copy of the resolution shall be turned over to the County Auditor so that the Auditor may enter the amounts of the assessment against the parcel as it appears on the current assessment roll, and the tax collector shall include the amount of the assessment on the bill. (Ord. 2014-01 § 1 (Exh. A), 2014; Ord. 2013-04 (Exh. A), 2013; Ord. 2004-02 § 1, 2004; Ord. 2004-01 § 1, 2004).

Disclaimer: The city clerk's office has the official version of the Carmel-by-the-Sea Municipal Code. Users should contact the city clerk's office for ordinances passed subsequent to the ordinance cited above.

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Chapter 17.43
WATER QUALITY PROTECTION ORDINANCE

Sections:

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17.43.080 Single-Family Residential.

Appendix I Low Impact Development Guidance Manual.

Appendix J BMP Guidance Series.

17.43.010 Purpose and Intent.

A. The purpose of this chapter is to protect and enhance coastal waters within the City of Carmel in accordance with the policies of the City's Local Coastal Plan (Sections O5-45 and O5-46), Sections 30230, 30231, 30232 and 30240 of the California Coastal Act, and the City's Phase II NPDES permit requirements. To implement the certified land use plan, application submittal requirements, development standards, and other measures are provided to ensure that permitted development shall be sited and designed to conserve natural drainage features and vegetation, minimize the introduction of pollutants into coastal waters to the maximum extent practicable, limit the discharge of stormwater runoff, and protect the overall quality of coastal waters and resources. All new development and redevelopment within the City shall comply with the requirements in this Chapter and in the City's Low Impact Development Guidance Manual (LID Guidance Manual) in Appendix I to this chapter. (See Chapter 17.42 CMC and CMC 17.42.020(D)(1)(b).)

B. The intent of this chapter is to address the following principles:

1. All development shall be evaluated by the Planning Director or his/her designee for potential adverse impacts to water quality and applicants should consider site design, source control and treatment control BMPs in order to minimize polluted runoff and water quality impacts resulting from the development. Site design BMPs reduce the need for source and/or treatment control BMPs, and source control BMPs may reduce the amount of treatment control BMPs needed for a development. Therefore, BMPs should be incorporated into the project design in the following progression:

a. Site design BMPs;

b. Source control BMPs;

c. Treatment control BMPs.

2. All development shall be designed to minimize the introduction of pollutants that may result in water quality impacts. Projects should be designed to control post-development peak runoff rates and average volumes to

maintain or reduce pre-development downstream erosion rates. These objectives can be accomplished through the creation of a hydrologically functional project design that strives to mimic the existing natural hydrologic regime and by achieving the following goals:

a. Maintain and use existing natural drainage courses and vegetation;

b. Conserve natural resources and areas by clustering development on the least environmentally sensitive portions of a site while leaving the remaining land in a natural, undisturbed condition;

c. Minimize the amount of directly connected impervious surface and total area of impervious surface;

d. Incorporate or connect to existing on-site retention and infiltration measures;

e. Direct rooftop runoff to permeable areas rather than driveways or impervious surfaces to reduce the amount of stormwater leaving the site;

f. Minimize clearing and grading.

3. Incorporating these goals and principles into the project design will help to minimize the introduction of pollutants to the site and decrease the amount of polluted runoff leaving the site, resulting in the overall objective of water quality protection. Appendix I to this chapter describes the requirements and processes for implementing BMPs into development and provides examples of types of BMPs to incorporate.

4. Nonstructural BMPs are preventative actions that involve management and source controls such as protecting and restoring sensitive areas such as wetlands and riparian corridors, maintaining and/or increasing open space, providing buffers along sensitive water bodies, minimizing impervious surfaces and directly connected impervious areas, and minimizing disturbance of soils and vegetation. Structural BMPs include: storage practices such as wet ponds and extended-detention outlet structures; filtration practices such as grassed swales, sand filters and filter strips; and infiltration practices such as infiltration basins and infiltration trenches. In many cases combinations of nonstructural and structural measures will be required to reduce water quality impacts.

5. Nonstructural and structural BMPs most applicable to the development projects are included in “A Planner’s Guide to Conditions of Approval and Standard Mitigation Measures.” Additional guidance on best management practices is available from the State, the EPA and from other sources such as BASMAA “Starting at the Source.” Stormwater technologies are constantly being improved, and staff and developers must be responsive to any changes, developments or improvements in control technologies. (Ord. 2014-01 § 1 (Exh. A), 2014; Ord. 2013-04 (Exh. A), 2013; Ord. 2004-02 § 1, 2004; Ord. 2004-01 § 1, 2004).

17.43.020 Applicability.

All properties within the City of Carmel are located within the coastal zone as defined in the California Coastal Act and are subject to the policies, standards and provisions contained in the certified LCP that may apply. Where any standard provided in this chapter conflicts with any other policy or standard contained in the City’s General Plan, Zoning Code or other City-adopted plan, resolution or ordinance not included in the certified Carmel LCP, and it is not possible for the development to comply with both the Carmel LCP and other plans, resolutions or ordinances, the

policies, standards or provisions of the LCP shall take precedence consistent with the hierarchy established in CMC 17.02.090. (Ord. 2014-01 § 1 (Exh. A), 2014; Ord. 2013-04 (Exh. A), 2013; Ord. 2004-02 § 1, 2004; Ord. 2004-01 § 1, 2004).

17.43.030 Application Submittal Requirements.

A. For all projects requiring implementation of an erosion and drainage control plan (subsection (A)(1) of this section), water quality mitigation plan (subsection (D) of this section), or stormwater management plan, the following information shall be submitted with an application for a coastal development permit according to the requirements listed below.

1. Construction Phase Requirements – Erosion and Drainage Control Plan. All development permit applications involving alterations to existing buildings or site design, or construction of new buildings that meet the criteria below shall include a site-specific erosion and drainage control plan. Plans shall be required for new development that (a) increases site coverage by more than five percent of the site area, or (b) involves grading that will affect drainage patterns on or off the site, or (c) involves either a rebuild or construction of a new building. The erosion and drainage control plan shall include a site specific erosion control plan that includes controls on grading (i.e., timing and amounts), best management practice for staging, storage, and disposal of construction materials, design specification of sedimentation basins and landscaping/revegetation of graded or disturbed areas. The plans shall also include as site specific polluted runoff control plan that demonstrates how runoff will be diverted from impermeable surfaces into permeable areas of the property in a nonerosive manner and filter and infiltrate stormwater prior to conveyance off-site.

2. Post-Construction Phase Requirements – Site Design and Source Control Measures. Post-construction plans detailing how stormwater and polluted runoff will be managed or mitigated should be included in the design of all projects that require an erosion and drainage control plan (subsection (A)(1) of this section). Project submittals shall include details regarding how the project will use appropriate site design and source control BMPs to minimize adverse effects of the project on water quality.

3. Water Quality Mitigation Plan. For development which does not mitigate impacts to water quality using site design and source control measures and for certain special categories of development (see subsection (E) of this section) a water quality mitigation plan will be required showing how treatment control (or structural) BMPs will be used (in addition to site design and source control BMPs) to minimize the discharge of polluted runoff from the project.

B. All development that requires an erosion and drainage control plan shall require the implementation of appropriate site design and source control BMPs from subsection (D) of this section and Section 3.0 of the City's LID Guidance Manual in Appendix I to this chapter to minimize post-construction polluted runoff. The project plans submitted with the permit application should also specify any treatment control or structural BMPs that the applicant elects to include in the development to minimize post-construction polluted runoff, and include the operation and maintenance plans for these BMPs.

C. Less Than Significant Impacts. The following land uses and projects are generally presumed to have a less than significant project-specific water quality impact. These include redevelopment projects that reduce the amount of

impervious surfaces on the site, do not change the land use or potential pollutants and are not one of the categories of development requiring a WQMP; and new development and redevelopment projects that incorporate into the project design construction BMPs for erosion, sediment and construction waste control and incorporate post-construction BMPs to protect sensitive riparian or wetland resources, reduce the quantity of runoff, and treat runoff generated by the project to pre-project levels.

D. Post-Construction Phase Requirements – Water Quality Mitigation Plan. Plans detailing how stormwater and polluted runoff will be managed or mitigated will be required for all projects that require an erosion and drainage control plan. The basic design elements for all projects (see subsection (B) of this section) will demonstrate how the project will use appropriate site design and source control BMPs to minimize adverse effects of the project on water quality. For certain categories of development a water quality mitigation plan will be required showing how treatment control (or structural) BMPs will be used (in addition to site design and source control BMPs) to minimize the discharge of polluted runoff from the project.

A water quality mitigation plan (WQMP) shall be required for all development that requires an erosion and drainage control plan and either fails to address water quality impact using site design and source control measures or is in a category of development identified below. In addition to the site design and source control BMPs required for a stormwater management plan, the WQMP shall include treatment control (or structural) BMPs identified in Section 4.0 of the City's LID Guidance Manual in Appendix I to this chapter to minimize post-construction polluted runoff. The WQMP shall also include the operation and maintenance plans for these BMPs.

E. Special Categories of Development. A WQMP shall be required for projects that fall into one or more of the following categories of development and are not able to meet the appropriate treatment controls for the specific pollutants associated with those development types as set forth in the City's LID Guidance Manual in Appendix I to this chapter as part of the design:

1. Industrial/commercial development;

2. Restaurants;

3. Retail gasoline outlets/automotive service facilities;

4. Parking lots (5,000 square feet or more of impervious surface area or with 25 or more parking spaces)/outdoor storage areas;

5. Projects that discharge to an environmentally sensitive area (ESA) or coastal water. Such projects are defined as being all development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area). "Directly adjacent" means situated within 200 feet of the environmentally sensitive area. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.

F. CEQA. Provisions of this section shall be complementary to, and shall not replace, any applicable requirements for stormwater mitigation required under the California Environmental Quality Act or Chapter 17.42 CMC. (Ord. 2014-01 § 1 (Exh. A), 2014; Ord. 2013-04 (Exh. A), 2013; Ord. 2004-02 § 1, 2004; Ord. 2004-01 § 1, 2004).

17.43.040 BMP Maintenance and Conditions of Transfer.

All applicants shall provide verification of maintenance provisions for structural and treatment control BMPs, including but not limited to legal agreements, covenants, CEQA mitigation requirements, and conditional use permits. Verification at a minimum shall include:

A. The developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and either

B. A signed statement from the public entity assuming responsibility for structural and treatment control BMP maintenance and that it meets all local agency design standards; or

C. Written conditions in the sales or lease agreement, which require the recipient to assume responsibility for maintenance and conduct a maintenance inspection at least once a year; or

D. Written text in project conditions, covenants, and restrictions (CCRs) for residential properties assigning maintenance responsibilities to the homeowners association for maintenance of the structural and treatment control BMPs; or

E. Any other legally enforceable agreement that assigns responsibility for the maintenance of post-construction structural and treatment control BMPs. (Ord. 2014-01 § 1 (Exh. A), 2014; Ord. 2013-04 (Exh. A), 2013; Ord. 2004-02 § 1, 2004; Ord. 2004-01 § 1, 2004).

17.43.050 Water Quality Checklist.

A water quality checklist will be developed by the City and used to supplement the CEQA checklist in the permit review process to assess potential water quality impacts and appropriate mitigation measures. (Ord. 2014-01 § 1 (Exh. A), 2014; Ord. 2013-04 (Exh. A), 2013; Ord. 2004-02 § 1, 2004; Ord. 2004-01 § 1, 2004).

17.43.060 Development Standards.

A. BMP Requirements and Implementation. All development shall be evaluated for potential adverse impacts to water quality and the applicant shall consider site design, source control and treatment control BMPs in order to minimize polluted runoff and water quality impacts resulting from the development. A SWMP requires the implementation of site design and source control BMPs, as specified in CMC 17.43.030(B), and a WQMP requires the implementation of site design, source control and treatment control BMPs, as specified in CMC 17.43.030(C). In order to maximize the reduction of water quality impacts, BMPs should be incorporated into the project design in the following progression: (1) site design BMPs, (2) source control BMPs, and (3) treatment control BMPs. Examples of these BMPs can be found in the City's LID Guidance Manual in Appendix I to this chapter.

B. BMP Selection Process. In selecting BMPs to incorporate into the project design, the applicant should first identify the pollutants of concern that are anticipated to be generated as a result of the development. The City's LID Guidance Manual in Appendix I to this chapter should be used as a guide in identifying these pollutants of concern. Pollutants

generated by the development that exhibit one or more of the following characteristics shall be considered primary pollutants of concern:

1. Current loadings or historical deposits of the pollutant are impairing the beneficial uses of a receiving water.

2. Elevated levels of the pollutant are found in water or sediments of a receiving water and/or have the potential to be toxic to or bioaccumulate in organisms therein.

3. Inputs of the pollutant are at a level high enough to be considered potentially toxic.

Site design and source control BMPs are required based on pollutants commonly associated with the project type, as identified in Tables 1 and 2 of Attachment 3 of the City's LID Guidance Manual in Appendix I to this chapter. BMPs that minimize the identified pollutants of concern may be selected from the examples in Table 3 of Attachment 3 of the City's LID Guidance Manual in Appendix I to this chapter and CMC 17.43.070, targeting primary pollutants of concern first. In the event that the implementation of a BMP listed in the City's LID Guidance Manual in Appendix I to this chapter or CMC 17.43.070 is determined to be infeasible at any site, the implementation of other BMPs that will achieve the equivalent reduction of pollutants shall be required.

Treatment control BMPs should be selected using the matrix in Table 3 of Attachment 3 of the City's LID Guidance Manual in Appendix I to this chapter as guidance to determine the removal efficiency of the BMP for the pollutants of concern for that project. Treatment control BMPs that maximize pollutant removal for the identified primary pollutants of concern should receive priority for BMP selection, followed by BMPs that maximize pollutant removal for all other pollutants of concern identified for the project. The most effective combination of BMPs for polluted runoff control that results in the most efficient reduction of pollutants shall be implemented. The applicant may select from the list of BMPs in the City's LID Guidance Manual in Appendix I to this chapter. In the event that the implementation of a BMP listed in the City's LID Guidance Manual in Appendix I to this chapter is determined to be infeasible at any site, the implementation of other BMPs that will achieve the equivalent reduction of pollutants shall be required.

C. Sizing of Treatment Control BMPs. Where post-construction treatment controls are required, the BMPs (or suites of BMPs) shall be designed in accordance with the requirements contained in the City's LID Guidance Manual in Appendix I to this chapter to infiltrate and/or treat the amount of stormwater runoff that will come from the project site, with an appropriate safety factor (i.e., two or greater), for flow-based BMPs.

The term "treatment" includes physical, biological and chemical processes such as filtration, the use of bioswales, detention and retention ponds and adsorption media. The actual type of treatment should be suited to the pollutants generated by the development as indicated in the City's LID Guidance Manual in Appendix I to this chapter.

D. Development on Steep Slopes. Specific requirements for development on steep slopes are contained in Section 2.5.2 of the LID Guidance Manual in Appendix I to this chapter.

E. Cumulative Impacts. Because of the City's designation under the Phase II NPDES regulations, all discretionary projects (except those that do not result in a physical change to the environment) within the urbanized area whose contributions are cumulatively considerable must implement one or more best management practices to reduce their

contribution to the cumulative impact. (Ord. 2014-01 § 1 (Exh. A), 2014; Ord. 2013-04 (Exh. A), 2013; Ord. 2004-02 § 1, 2004; Ord. 2004-01 § 1, 2004).

17.43.070 Development-Specific Design Standards.

A. Commercial Development. Commercial development shall be designed to control the runoff of pollutants from structures, parking and loading areas. The following general measures shall be implemented to minimize the impacts of commercial development on water quality. Specific requirements for commercial development are contained in the City's LID Guidance Manual in Appendix I to this chapter.

1. Properly Design Loading/Unloading Dock Areas. Loading/unloading dock areas have the potential for material spills to be quickly transported to the stormwater conveyance system.

2. Properly Design Repair/Maintenance Bays. Oil and grease, solvents, car battery acid, coolant, and gasoline from repair and maintenance bays can negatively impact stormwater if allowed to come into contact with stormwater runoff.

3. Properly Design Vehicle/Equipment Wash Areas. The activity of vehicle/equipment washing/steam cleaning has the potential to contribute metals, oil and grease, solvents, phosphates, and suspended solids to the stormwater conveyance system.

4. Properly Design Parking Areas and Parking Lots. Parking areas and parking lots contain pollutants such as heavy metals, oil and grease, and polycyclic aromatic hydrocarbons that are deposited on parking lot surfaces by motor vehicles. These pollutants are directly transported to surface waters. Parking lots may also accumulate oil, grease, and water insoluble hydrocarbons from vehicle drippings and engine system leaks.

B. Restaurants. Restaurants shall be designed to minimize runoff of oil and grease, solvents, phosphates, and suspended solids to the storm drain system.

C. Gasoline Stations and Automotive Repair Facilities. Gasoline stations and automotive repair facilities shall be designed to minimize runoff of oil and grease, solvents, car battery acid, coolant and gasoline to stormwater system.

D. Outdoor Material Storage Areas. Outdoor material storage areas refer to storage areas or storage facilities used solely for the storage of materials. Improper storage of materials outdoors may provide an opportunity for toxic compounds, oil and grease, heavy metals, nutrients, suspended solids, and other pollutants to enter the stormwater conveyance system.

E. Trash Storage Areas. A trash storage area refers to an area where a trash receptacle or receptacles are located for use as a repository for solid wastes. Loose trash and debris can be easily transported by the forces of water or wind into nearby storm drain inlets, channels, and/or creeks. (Ord. 2014-01 § 1 (Exh. A), 2014; Ord. 2013-04 (Exh. A), 2013; Ord. 2004-02 § 1, 2004; Ord. 2004-01 § 1, 2004).

17.43.080 Single-Family Residential.

To mitigate the increased runoff rates from single-family residences due to new impervious surfaces, new and remodel projects which need an erosion and drainage control plan shall include design elements which accommodate on-site

percolation, retention or collection of stormwater runoff such that the peak runoff rate after development either meets the eighty-fifth percentile storm event criterion or does not exceed predevelopment runoff levels to the maximum extent practicable, and that runoff that will come from the project site meets the applicable requirements contained in the City's LID Guidance Manual in Appendix I to this chapter. BMPs (including those outlined in the California Stormwater Best Management Practice Handbooks) which may achieve this objective fit into these categories:

A. Minimizing impervious areas;

B. Increase rainfall infiltration;

C. Minimize directly connected impervious areas (DCIAs). (Ord. 2014-01 § 1 (Exh. A), 2014; Ord. 2013-04 (Exh. A), 2013; Ord. 2004-02 § 1, 2004; Ord. 2004-01 § 1, 2004).

Appendix I Low Impact Development Guidance Manual.

1.0 INTRODUCTION

1.1 Purpose

This Low Impact Development Guidance Manual (Manual) is intended for use by project developers such as architects, engineers, and building contractors, in designing and constructing projects within the City of Carmel-by-the-Sea (City) to comply with the City's Low Impact Development (LID) requirements. City staff involved in reviewing plans and issuing permits for a project will use this Manual to determine whether or not the project has been designed to meet these requirements.

1.2 Background

Discharges from the City's storm drainage system are regulated under a National Pollutant Discharge Elimination System (NPDES) permit issued by the Central Coast Regional Water Quality Control Board (RWQCB) of the State of California. The initial NPDES permit was called the "General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems, Order No. 2003-0005-DWQ." The City became subject to this permit on May 1, 2008. The RWQCB periodically revises its overall storm drainage requirements and imposes them on dischargers by reissuing its General Permit under a new Order number, or by issuing specific requirements to dischargers.

This Low Impact Development Guidance Manual reflects the "Post-Construction Stormwater Management Requirements for Development Projects in the Central Coast Region" adopted by the RWQCB on September 6, 2012. These are referred to herein as the "RWQCB Post-Construction Requirements."

A condition of compliance under the NPDES permit is that the City implements its Storm Water Management Program. One of the State-required components of that Program is to develop and implement a set of Best Management Practices (BMPs) to reduce storm water runoff and storm water pollution emanating from new development and redevelopment projects located within the City. This is accomplished by using the LID concepts described in this Manual during the design and construction of those projects.

LID is a development approach that (1) reduces the amount of storm water runoff by retaining a portion of the storm water on the project site where it can infiltrate into the ground or be released in a controlled manner, and (2) in some instances reduces the amount of pollutants in storm water through natural or manmade treatment processes, so that these discharges do not cause or contribute to a violation of receiving water quality standards established by the RWQCB.

1.3 Authority

Chapters 17.10, 17.34, 17.42, 17.43, and 17.70 of the Carmel-by-the-Sea Municipal Code (CMC) establish certain of the BMP requirements described in this Manual. For ease of reference, citations from sections of these Chapters are designated herein as (§xx.xx.xxx). In addition, on November 3, 2009 the City Council adopted a document titled "BMP Guidance Series" contained in Appendix J to Chapter 17.43 CMC as official City policies pertaining to storm water pollution prevention from new development and redevelopment

projects. Requirements taken from that document are designated herein as (BGS). The City may from time to time update the BMP Guidance Series by revising or adding to the requirements contained in that document.

The City has adopted the requirements described in this Manual to control the volume, rate, and potential pollutant load of stormwater runoff from new development and redevelopment projects as may be appropriate to minimize the generation, transport and discharge of pollutants as defined by Chapter 17.43 of the CMC. The City will incorporate these requirements into any construction or building-related permit to be issued for the development or redevelopment. (§17.42.020)

The purpose of the requirements in Chapter 17.43 is to protect and enhance coastal waters within the City in accordance with the policies of the City's Local Coastal Plan, the California Coastal Act, and the City's NPDES permit requirements, and to ensure that permitted development shall be sited and designed to conserve natural drainage features and vegetation, minimize the introduction of pollutants into coastal waters to the maximum extent practicable, limit the discharge of stormwater runoff, and protect the overall quality of coastal waters and resources. (§17.43.010)

1.4 LID BMP Implementation Tracking

In order to facilitate the design review and permitting process, when the plans for a project are submitted to the City they should include a completed copy of the "BMP Implementation Tracking Form" contained in Attachment 1. The plans should also show the locations of the BMPs that have been incorporated into the design of the project.

1.5 Definitions

The terms in this Section are defined as they apply in this LID Guidance Manual.

Hillside: Hillside means property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater.

Impermeable or Impervious Surface: These terms are used interchangeably in this LID Guidance Manual. Impermeable surface is defined in Chapter 17.70 of the City's Municipal Code to mean a surface artificially constructed so as to prevent or largely inhibit the infiltration of rainwater or runoff into the natural soils or underlying geologic materials. Impervious surface is defined in the RWQCB's Post-Construction Requirements to mean a hard, non-vegetated surface area that prevents or significantly limits the entry of water into the soil mantle, as would occur under natural conditions prior to development. Common impervious/impermeable surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater.

Net Impervious Area: The sum of new and replaced post-project impervious areas, minus any reduction in total imperviousness from the pre-project to post-project condition: Net Impervious Area = (New and Replaced Impervious Area) – (Reduced Impervious Area Credit), where Reduced Impervious Area Credit is the total pre-project to post-project reduction in impervious area, if any.

New Development: Land disturbing activities that include the construction or installation of buildings, roads, driveways and other impervious surfaces. Development projects with pre-existing impervious surfaces are not considered New Development.

Permeable or Pervious Surface: A surface that allows varying amounts of stormwater to infiltrate into the ground. Examples include pasture, native vegetation areas, landscape areas, and permeable pavements designed to infiltrate. Permeable pavements include pavers which are set in sand so that water can percolate between the pavers, such as those commonly used for patios, walkways, and driveways.

Redevelopment: On a site that has already been developed, construction or installation of a building or other structure subject to the City's planning and building authority including: 1) the creation or addition of impervious surfaces; 2) the expansion of a building footprint or addition or replacement of a structure; or 3) structural development including construction, installation or expansion of a building or other structure. It does not include routine road maintenance, nor does it include emergency construction activities required to immediately protect public health and safety.

Regulated Projects: Regulated Projects include all New Development or Redevelopment projects that create and/or replace >2,500 square feet of impervious surface (collectively over the entire project site).

Steep Slopes: Has the same meaning as "Hillside".

1.6 Exception Discharges

Discharges of other than storm water to waters shall be effectively prohibited, except for the following non-storm water discharges which are not prohibited, provided any pollutant discharges are identified and appropriate control measures to minimize the impacts of such discharges are developed and implemented. This provision does not obviate the need to obtain any other appropriate permits for such discharges:

a. Water line flushing;

b. Individual residential car washing;

c. Diverted stream flows;

d. Rising ground waters;

e. Uncontaminated ground water infiltration (as defined at 40 C.F.R. §35.2005(20)) to separate storm sewers;

f. Uncontaminated pumped ground water;

g. Discharges from potable water sources;

h. Foundation drains;

i. Air conditioning condensation;

j. Springs;

k. Water from crawl space pumps;

l. Footing drains;

m. Flows from riparian habitats and wetlands;

n. Dechlorinated swimming pool discharges; and

o. Incidental runoff of potable or recycled water from landscaped areas (as defined and in accordance with section B.4 of this Order).

Discharges or flows from fire-fighting activities are excluded from the effective prohibition against non-storm water and need only be addressed where they are identified as significant sources of pollutants to waters of the U.S. If the City determines that any individual or class of non-storm water discharge(s) listed above may be a significant source of pollutants to waters of the U.S., or poses a threat to water quality standards (beneficial uses), the City may require the discharger to monitor and submit a report and to implement BMPs on the discharge.

2.0 DESIGN

2.1 Selection of BMPs

In selecting BMPs to incorporate into the project design, the applicant should first identify the pollutants of concern that are anticipated to be generated as a result of the development. Table 1 in Attachment 3 should be used as a guide in identifying these pollutants of concern. Pollutants generated by the development that exhibit one or more of the following characteristics will be considered the primary pollutants of concern:

1. Current loadings or historical deposits of the pollutant are impairing the beneficial uses of a receiving water.

2. Elevated levels of the pollutant are found in water or sediments of a receiving water and/or have the potential to be toxic to or bioaccumulate in organisms therein.

3. Inputs of the pollutant are at a level high enough to be considered potentially toxic.

2.1.1 Site Design and Source Control BMPs. Site design and source control BMPs should be selected based on pollutants commonly associated with the project type, as identified in Table 1 of Attachment 3. BMPs that minimize the identified pollutants of concern should

be selected from the matrix in Table 2 of Attachment 3. In the event that the implementation of a BMP listed in Table 2 of Attachment 3 is determined to be infeasible at any site, the implementation of other BMPs that will achieve the equivalent reduction of pollutants will be required.

2.1.2 Treatment Control BMPs. In many cases proper application of appropriate site design and source control BMPs will meet the City's LID requirements, and treatment control BMPs will not be necessary. However, when site design and source control BMPs are not adequate, treatment control BMP(s) will be necessary. Treatment control BMPs should be selected from the matrix in Table 3 of Attachment 3 as guidance to determine the removal efficiency of the BMP for the pollutants of concern for that project. Treatment control BMPs that maximize pollutant removal for the identified primary pollutants of concern should receive priority for BMP selection, followed by BMPs that maximize pollutant removal for all other pollutants of concern identified for the project. The most effective combination of BMPs for polluted runoff control that results in the most efficient reduction of pollutants should be implemented. In the event that the implementation of a BMP listed in the matrix in Table 3 of Attachment 3 is determined to be infeasible on the project site, the implementation of other treatment control BMP(s) that will achieve the equivalent reduction of pollutants will be required.

Where treatment controls are required, the BMPs (or suites of BMPs) shall be designed to infiltrate and/or treat the amount of stormwater runoff as follows:

1. For volume-based BMPs, the amount of storm water runoff produced by the eighty-fifth percentile, 24-hour storm event, based on local rainfall data.

2. For flow-based BMPs, two times the amount of storm water runoff produced by the eighty-fifth percentile, one-hour storm event, based on local rainfall data.

3. Limited Exclusion: Restaurants and retail gasoline outlets where the land area for development or redevelopment is less than 5,000 square feet are excluded from these volume- and flow-based numerical treatment control BMP design standards.

The term "treatment" includes physical, biological and chemical processes such as filtration, the use of bioswales, detention and retention ponds and adsorption media. The actual type of treatment should be suited to the pollutants generated by the development as indicated in Table 1 of Attachment 3.

Descriptions of commonly used treatment control BMPs are contained in Attachment 2. Detailed design information for treatment control BMPs, and examples, can be found in Sections 2 through 5 of the CASQA Handbook, and in Appendices C through E of the Santa Barbara Manual, both of which are described in Section 6.0 of this Manual.

At its discretion and for good cause, the City may waive one or more of the requirements pertaining to treatment control BMPs if impracticability for a specific property can be established. A waiver of impracticability will be granted only when all other treatment control BMPs have been considered and rejected as infeasible. Recognized Potential situations of impracticability may include, (i) extreme limitations of space for treatment on a project site, (ii) unfavorable or unstable soil conditions making a site unsuitable for infiltration, and (iii) risk of ground water contamination because a known unconfined aquifer lies beneath the land surface or an existing or potential underground source of drinking water is less than 10 feet from the soil surface. A waiver may be revoked for cause and with proper notice. A waiver of requirements may be subject to prior approval by the RWQCB, depending on the type of requirement being waived.

2.2 Watercourse Protection

Watercourses located on private property are required to be kept free of trash, debris, excessive vegetation, stagnant pools of water and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse to the extent required by the City. Healthy bank vegetation should not be removed beyond that actually necessary for maintenance, nor should such vegetation be removed in a manner which increases the vulnerability of the watercourse to erosion. The property owner is responsible for maintaining and stabilizing that portion of the watercourse that is within their property lines to protect against erosion and degradation of the watercourse on-site and downstream. Property owners shall select "Soft Engineered" techniques when possible for maintaining and stabilizing stream banks. (§17.42.020).

2.3 Landscaping Requirements

In order to protect and enhance the City's urbanized forest and landscaped amenities, to protect environmentally sensitive habitat areas from degradation, to provide for the restoration of native vegetation, and to promote water conservation the following landscaping requirements will be imposed on new development and redevelopment projects. (§17.34.010)

These requirements apply to all new development or substantial alteration of existing development proposed on private property anywhere in the City. (§17.34.020)

2.3.1 Plantings:

2.3.1.1 All Sites (§17.34.060):

1. In order to reduce the potential for irrigation run-off that could contribute to storm water pollution, a minimum of 75 percent of new plant materials on the project site shall be native plants and/or noninvasive drought-tolerant plants as determined by the City Forester.

2. All plants within landscaped areas on any public right-of-way adjacent to private property shall be drought-tolerant and low water use predominantly native species as determined by the City Forester.

3. A minimum of 75 percent of new plant materials in all open space areas on project sites in the commercial, R-4, and R-1 districts shall be planted with drought-tolerant and low water use species as determined by the City Forester.

2.3.1.2 Residential Sites (§17.34.070):

1. All properties located in the R-1 or R-4 district shall contribute to the urbanized forest or other vegetation characteristic of the neighborhood by harboring an appropriate mix of upper and lower canopy trees and/or shrubs consistent with the neighborhood context and the neighborhood streetscape.

2. Landscaping in public rights-of-way in the R-1 district shall be limited to native, drought-tolerant plants.

2.3.1.3 Commercial Sites (§17.34.080):

1. In all commercial districts a minimum of 50 percent of the required open space on the project site shall be landscaped. The combined total area of nonliving materials such as garden benches, water features and patterned paving treatments shall not comprise more than 25 percent of the required landscaping on the site. All landscaping improvements shall include upper canopy trees on-site and/or in the sidewalk in front of the property whenever possible.

2. Building sites incorporating surface parking lots shall include at least 15 percent of the site area in landscaping. To help reduce runoff into the City's storm drainage system, landscaping shall be distributed along all street frontages and pedestrian walkways that are adjacent to parking areas. Landscaping shall also be provided within the interior of surface lots to break up large expanses of paving. Parking lots with four or more vehicles shall provide interior landscaping of at least 10 square feet per vehicle.

2.3.2 Materials of Construction (§17.34.060):

1. Use of materials that allow for percolation of rain into the soil and reduce water run-off is encouraged.

2. Paved areas shall be designed to be small, and large continuous areas of paving shall be avoided. Paved areas shall include design features such as sand-set paving and/or drainage collection and distribution systems that enhance surface water percolation.

3. Landscaping plans for projects in any zoning district shall, where feasible, include the use of water retention storage devices such as cisterns or underground bladders to capture precipitation or surface runoff for landscape maintenance purposes or detention basins or berms to retain water on-site for natural percolation into the soil.

2.4 Impermeable Site Coverage (§17.10.030)

These requirements apply to all new development, or substantial alteration of existing development, proposed on private property anywhere in the City.

1. Impermeable site coverage, which is defined in Chapter 17.70 of the City's Municipal Code to mean a surface artificially constructed so as to prevent or largely inhibit the infiltration of rainwater or runoff into the natural soils or underlying geologic materials as defined in Section 1.5, shall be limited to a maximum of 22% of the base floor area allowed for the site. Allowable base floor areas for typical lot sizes are contained in Table 17.10-D of the CMC. For a typical 4,000 square-foot site the maximum allowable impermeable site coverage equals 396 square feet or approximately 10% of the site.

2. If at least 50 percent of all site coverage on the property is made of permeable or semi-permeable materials, an additional amount of site coverage of up to 4% of the site area may be allowed for use in a single driveway of up to nine feet in width.

2.5 Site Design

All projects shall be designed with the objectives of minimizing the introduction of pollutants that may result in water quality impacts, and controlling post-development peak runoff rates and average volumes to maintain or reduce pre-development downstream erosion rates. (§17.43.010)

All development shall be evaluated for potential adverse impacts to water quality, and the applicant is to consider site design, source control, and treatment control BMPs in order to minimize polluted runoff and water quality impacts resulting from the development. In order to maximize the reduction of water quality impacts, BMPs should be incorporated into the project design in the following progression: (1) Site design BMPs, (2) Source control BMPs, and (3) Treatment control BMPs. (§17.43.060).

2.5.1 Performance Requirements (RWQCB Post-Construction Requirements)

The RWQCB's Post-Construction Requirements pertain to both residential and commercial types of Regulated Projects (as defined in Section 1.5). Note that some of the requirements in this Section 2.5.1 overlap with requirements in Sections 2.5.2, 2.5.3 and/or 2.5.4.

Because of the relatively small lot sizes in the City, it is expected that the majority of projects will not be subject to the RWQCB's Post-Construction Requirements, and that only a small number of projects will be subject to Performance Requirement No. 1, which is described below.

Any project other than a detached single family home having a Net Impervious Area (as defined in Section 1.5) ≥ 5,000 square feet, or a detached single family home project having a Net Impervious Area ≥ 15,000 square feet, will be subject to the more complex requirements of Performance Requirement No. 2: Water Quality Treatment. Performance Requirement No. 2 is described in Attachment 5.

Projects having a Net Impervious Area ≥ 15,000 square feet, and which are not detached single family home projects, as well as single family residences ≥ 15,000 square feet in WMZs 1, 2, 5, 6, 8, and 9, and those portions of WMZs 4, 7, and 10 that overlie designated Groundwater Basins; and all Regulated Projects over 22,500 square feet of impervious surface area in WMZs 1, 2, 3, 6, and 9 will be subject to additional requirements as described in Attachment 5.

Performance Requirement No. 1: Site Design and Runoff Reduction:

All Regulated Projects that create and/or replace ≥ 2,500 square feet of impervious surface (collectively over the entire project site), including detached single-family home projects, are required to implement at least the following design strategies:

1. Limit disturbance of creeks and natural drainage features

2. Minimize compaction of highly permeable soils

3. Limit clearing and grading of native vegetation at the site to the minimum area needed to build the project, allow access, and provide fire protection

4. Minimize impervious surfaces by concentrating improvements on the least-sensitive portions of the site, while leaving the remaining land in a natural undisturbed state

5. Minimize stormwater runoff by implementing one or more of the following site design measures:

6. Direct roof runoff into cisterns or rain barrels for reuse

7. Direct roof runoff onto vegetated areas safely away from building foundations and footings, consistent with California building code

8. Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas safely away from building foundations and footings, consistent with California building code

9. Direct runoff from driveways and/or uncovered parking lots onto vegetated areas safely away from building foundations and footings, consistent with California building code

10. Construct bike lanes, driveways, uncovered parking lots, sidewalks, walkways, and patios with permeable surfaces

11. The Permittee shall confirm that projects comply with Site Design and Runoff Reduction Performance Requirements by means of appropriate documentation (e.g., check lists) accompanying applications for project approval.

2.5.2 Development on Steep Slopes (§17.43.060)

In addition to the requirements in Section 2.5, project designs shall incorporate soil stabilization and infiltration practices during the construction of roads, bridges, culverts and outfalls to prevent stream bank or hillside erosion. Project plans must include the following BMPs to decrease the potential of slopes and/or channels from eroding and impacting stormwater runoff:

1. Convey runoff safely from the tops of slopes and stabilize disturbed slopes.

2. Utilize existing natural drainage systems to the maximum extent feasible.

3. Control and minimize excess flow to natural drainage systems to the maximum extent feasible.

4. Stabilize permanent channel crossings using “soft engineering” practices when possible.

5. Vegetate slopes with native or drought-tolerant vegetation.

6. Additional measures to prevent downstream erosion, such as cisterns, infiltration pits and/or contour drainage outlets that disperse water back to sheet flow, should be implemented for projects discharging onto slopes greater than 10%.

2.5.3 Residential Projects

For residential projects, in addition to the applicable requirements in Section 2.5, 17.43.080, and described elsewhere within this Manual, the following additional LID principles are to be incorporated into the design of all residential projects, as appropriate:

2.5.3.1 Small Residential Projects

For small residential projects that must only go through a ministerial review process and conform to the site zoning requirements, such as either a new single-family unit or minor modifications to an existing single family unit or a single structure, LID objectives are to be accomplished by applying the following principles to the design (§17.43.080 and BGS):

1. Use low-maintenance drought-tolerant landscaping that does not require frequent fertilizer, pesticide and herbicide application.

2. Label all storm drain inlets and catch basins within the project area with prohibitive language (such as: “NO DUMPING – DRAINS TO OCEAN”) and/or graphical icons to discourage illegal dumping.

3. Minimize areas that are directly connected to the City’s storm drainage system by directing roof gutters and other impervious areas to landscaped areas where possible. Roof drains may be eliminated only in one to two-story buildings in residential and some commercial areas. Where these cannot be eliminated, direct the downspout of the gutter to landscaped areas or into an infiltration trench. Install several gutters to distribute the flow.

4. Minimize impervious areas and increase rainfall infiltration by using alternate paving materials (pavers), landscaping, mulch, gravel and cobbles where appropriate to provide ground cover, and reduce the use of asphalt or other impervious pavement. Pavers are recommended for driveways, walkways, and patios in single-family residences if Americans with Disabilities Act (ADA) requirements do not have to be met.

2.5.3.2 Large Residential Projects

For large residential projects that must go through a discretionary design review process and which typically require a use permit or a subdivision map, LID objectives are to be accomplished by applying the following principles to the design (§17.43.010 and BGS):

1. Maintain and use existing natural drainage courses and vegetation by not filling in the natural drainage features at the site, preserving riparian areas and wetlands, maintaining invert/streambeds to maximize capacity, and providing vegetated setbacks or buffer strips outside of the maximum water surface level.

2. Conserve natural resources and areas by clustering development on the least environmentally sensitive portions of a site while leaving the remaining land in a natural, undisturbed condition.

3. Protect slopes and channels from eroding and impacting storm water runoff by:

i. Conveying runoff safely from the tops of slopes and stabilizing disturbed slopes.

ii. Utilizing natural drainage systems to the maximum extent practicable.

iii. Stabilizing permanent channel crossings.

iv. Vegetating slopes with native or drought tolerant vegetation, as appropriate.

v. Installing energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels

4. Minimize the amount of directly connected impervious surface and total area of impervious surface.

5. Minimize the length of driveways and avoid installing curb and gutter along driveways and streets where appropriate, so that runoff from these areas can flow into adjacent landscaped or other permeable areas.

6. In low-traffic areas, reduce sidewalk widths as much as possible while still being in compliance with ADA requirements.

7. Incorporate or connect to existing on-site retention and infiltration measures.

8. Direct rooftop runoff to permeable areas rather than driveways or impervious surfaces to reduce the amount of stormwater leaving the site.

9. Minimize clearing and grading, and set aside open space to the extent feasible.

10. Use alternate paving materials (e.g., porous asphalt, pervious concrete, and pavers), landscaping, mulch, gravel and cobbles where appropriate to provide ground cover, and reduce the use of asphalt or other impervious pavement. Pavers are recommended for driveways, walkways, and patios in single-family residences if ADA requirements do not have to be met. In non-residential areas, pavers are recommended for emergency access roads, overflow parking areas, and non-handicapped parking stalls, keeping in mind that some types of alternate paving materials may not be suitable where heavy loads such as trucks.

11. In new residential areas reduce street width by eliminating on-street parking (where such actions do not pose a safety hazard). In addition to reducing the impervious area, this control has the added benefit of removing cars from streets and making street sweeping easier and more effective. If on-street parking in residential areas is eliminated, the developer must provide adequate off-street visitor parking.

12. If alleys are included in a proposed development, width should be minimized or alternate paving materials should be used.

13. Provide green areas in new residential developments where people can walk their pets and keep pet excrement away from sidewalks and streets where it may contribute to storm water pollution.

14. Install landscaping or other cover materials to minimize erosion from graded surfaces. Promote the use of natural vegetation by using parking lot islands and other landscaped areas. Use of native plant materials is recommended because native plants require less maintenance and irrigation. Since native plants take longer to cover slopes, during the first few years supplemental protection (erosion blanket, mulch, etc.) may be necessary.

15. Use low-maintenance landscaping that does not require frequent fertilizer, pesticide and herbicide application.

16. Label all storm drain inlets and catch basins within the project area with prohibitive language (such as: “NO DUMPING – DRAINS TO OCEAN”) and/or graphical icons to discourage illegal dumping. Legibility of stencils and signs must be maintained.

17. Where possible, eliminate gutters/roof drains or direct runoff to landscaped areas. Roof drains can be eliminated only in one to two-story buildings. Where these cannot be eliminated, direct the downspout of the gutter to landscaped areas or into an infiltration trench. Install several gutters to distribute the flow.

18. In new residential developments involving more than 50 units, construct a designated vehicle wash area so that the runoff from vehicle washing can be property treated and/or disposed. Contact the local wastewater authority to determine if the discharge can be plumbed to the sanitary sewer. If not, provide appropriate treatment and disposal of this runoff.

19. Grade and pave outdoor waste receptacle areas to prevent run-on of storm water, and install a low containment berm around it. Alternately, construct a covered enclosure with wash-down capabilities plumbed into the sanitary sewer, after first contacting the local wastewater authority to verify that this practice will be acceptable.

2.5.4 Commercial Projects

For commercial projects, in addition to the applicable requirements in Section 2.5 and described elsewhere within this Manual, the following LID principles are to be incorporated into the design of all commercial projects, as appropriate (§17.43.070 and BGS):

2.5.4.1 Commercial Developments – General Requirements

2.5.4.1.1 Loading/Unloading Dock Areas

1. Shall be covered or designed to minimize run-on and runoff of stormwater.

2. Shall have no direct connections to storm drains from depressed loading docks (truck wells).

3. Should have valve(s) on storm drain inlets receiving runoff from non-depressed loading docks to control runoff in the event of spills.

2.5.4.1.2 Vehicle/Equipment Washing/Steam Cleaning Areas

1. Shall be self-contained and/or covered.

2. Shall be equipped with a clarifier or other pretreatment facility.

3. Shall be properly connected to a sanitary sewer.

2.5.4.1.3 Parking Areas and Parking Lots

1. Shall be designed to minimize impervious surface land coverage.

2. Shall be designed to infiltrate runoff as much as feasible before it reaches the storm drain system.

3. Parking lots that are heavily used, e.g. lots with 25 or more parking spaces, performing arts parking lots, shopping malls, or grocery stores shall have treatment controls installed to treat any remaining runoff before it reaches the storm drain system. The treatment controls shall be designed to remove oil and petroleum hydrocarbons, and shall be operated and maintained to ensure that sludge and oil is removed at a frequency that will prevent the treatment controls from fouling or plugging.

4. If feasible, build underground or multi-story parking structures so that not only is impervious surface minimized but the parking surfaces are under a roof and not exposed to storm water.

5. Where possible use cooperative or shared parking. This may be a cooperative effort between commercial entities or between commercial entities and the City.

2.5.4.1.4 Outdoor Material Storage Areas (areas or facilities used solely for the storage of materials)

1. Shall be designed to prevent stormwater contamination from stored materials.

2. Where outdoor areas for storage of materials are included that may contribute pollutants to the stormwater conveyance system, those materials shall be placed in an enclosure such as a cabinet, shed or similar structure that prevents contact with runoff or spillage to the stormwater conveyance system, or shall be protected by secondary containment structures such as berms, dikes or curbs.

3. Shall be paved and sufficiently impervious to contain leaks and spills.

4. Shall have a roof or awning to minimize collection of stormwater within the secondary containment area.

2.5.4.1.5 Trash Storage Areas (areas where a trash receptacle or receptacles are located for use as a repository for solid wastes):

1. Shall be designed to prevent stormwater contamination by loose trash and debris.

2. Shall have drainage from adjoining roofs and pavement diverted around the area(s).

3. Shall be screened or walled to prevent off-site transport of trash.

2.5.4.2 Restaurants – Additional Specific Requirements

1. Shall be designed to minimize runoff of oil and grease, solvents, phosphates, and suspended solids to the storm drain system.

2. Shall include an area for the washing/steam cleaning of equipment and accessories and which is self-contained, equipped with a grease trap, and properly connected to a sanitary sewer. If the wash area is to be located outdoors, it must be covered, paved, and have secondary containment which is connected to the sanitary sewer.

2.5.4.3 Retail Gasoline Outlets and Automotive Repair Facilities – Additional Specific Requirements

2.5.4.3.1 Fuel Dispensing Area

1. Shall be covered with an overhanging roof structure or canopy. The canopy's minimum dimensions must be equal to or greater than the area within the grade break. The canopy must not drain onto the fuel dispensing area, and the canopy downspouts must be routed to prevent drainage across the fueling area. As an alternative, the site must be served by an oil/water separator or other source or treatment control BMPs that will achieve equivalent mitigation.

2. Shall be paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete is not allowable.

3. Shall have a 2% to 4% slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of stormwater to the extent practicable.

4. Shall at a minimum extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus one foot (0.3 meter), whichever is less.

2.5.4.3.2 Repair/Maintenance Bays

1. Shall be indoors or designed in such a way that does not allow stormwater runoff or contact with stormwater runoff.

2. Shall have drainage systems designed to capture all wash water, leaks, and spills.

3. Shall have drains connected to a sump for collection and disposal.

4. Shall have no direct connections to the storm drain system.

5. Shall be covered by a State-issued Industrial Waste Discharge Permit, if so-required by the RWQCB.

3.0 EROSION AND DRAINAGE CONTROL PLANS (§17.43.030)

An Erosion and Drainage Control Plan (EDCP) to minimize during- and post-construction polluted runoff containing the following information shall be included in the submitted design plans for new development that (a) increases site coverage by more than five percent of the site area, or (b) involves grading that will affect drainage patterns on or off the site, or (c) involves either a rebuild or construction of a new building:

1. Site design and source control BMPs that will be implemented to minimize post-construction polluted runoff, including details regarding how the project will use these BMPs to minimize adverse effects of the project on water quality.

2. Drainage improvements (e.g., locations of infiltration basins).

3. Potential flow paths where erosion may occur after construction.

4. Methods to accommodate on-site percolation, revegetation of disturbed portions of the site, address on-site and/or off-site impacts and construction of any necessary improvements.

5. Storm drain pollution prevention measures including all construction elements and BMPs to address the following goals in connection with both construction and long-term operation of the site:

1) Maximize on-site retention and infiltration measures including directing rooftop runoff to permeable areas rather than driveways.

2) Maximize, to the extent practicable, the percentage of permeable surfaces and limit impervious areas that are directly connected to the City's storm drainage system in order to allow more percolation of runoff into the ground.

4.0 WATER QUALITY MITIGATION PLANS (§17.43.030 AND BGS)

A Water Quality Mitigation Plan (WQMP) is required for any project which requires an EDCP and which either:

(1) Fails to adequately address water quality impacts using appropriate site design and source control measures, or

(2) Is in one of the following categories of development:

1. Single-Family Hillside Residences. Hillside means property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is twenty-five percent or greater.

2. Industrial/Commercial Developments.

3. Automotive Repair Shops.

4. Retail Gasoline Outlets.

5. Restaurants.

6. Home Subdivisions with 10 or more housing units

7. Parking lots 5,000 square feet or more of impervious surface area or with 25 or more parking spaces and potentially exposed to storm water runoff

8. Projects that discharge to an Environmentally Sensitive Area (ESA) or coastal water. Such projects are defined as being all development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area). "Directly adjacent" means situated within 200 feet of the environmentally sensitive area. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.

In addition to the site design and source control BMPs being provided in the project, the WQMP shall include treatment control BMPs identified in Table 3 of Attachment 3 to minimize post-construction runoff of the types of pollutants listed in Table 1 of Attachment 3, which are characteristic of this type of project. The WQMP shall also include an operation and maintenance plan for these treatment control BMPs.

The WQMP shall be certified by a California Registered Civil Engineer or Licensed Architect approved by the City, and shall include the following information:

1. Site design, source control and treatment control BMPs that will be implemented to minimize post-construction polluted runoff.

2. Pre-development peak runoff rate and average volume.

3. Drainage improvements (e.g., locations of diversions/conveyances for upstream runoff).

4. Potential flow paths where erosion may occur after construction.

5. Methods to accommodate on-site percolation, revegetation of disturbed portions of the site, address on-site and/or off-site impacts, and construction of any necessary improvements.

6. Measures to treat, infiltrate, and/or filter runoff from impervious surfaces (e.g., roads, driveways, parking structures, building pads, roofs, patios, etc.) on the subject parcel(s) and to discharge the runoff in a manner that avoids erosion on or downslope of the subject parcel, the need for upgrades to the City's storm drainage system, discharge of pollutants (e.g., oil, heavy metals, toxics) to coastal waters, or other potentially adverse impacts. Such measures may include, but are not limited to, the use of structures (alone or in combination) such as biofilters and grasses waterways, on-site desilting basins, detention ponds, dry wells, etc.

7. Where treatment controls are required, information describing how the BMPs (or suites of BMPs) have been designed to infiltrate and/or treat the amount of stormwater runoff produced by all storms as described in Section 2.1.2 of this Manual. The actual type of treatment should be linked to the pollutants generated by the development as indicated in Table 1 of Attachment 3.

8. A long-term plan and schedule for the monitoring and maintenance of all drainage-control devices. All treatment control BMPs shall be inspected, cleaned, and repaired when necessary prior to September 30th of each year. Owners of these devices will be responsible for insuring that they continue to function properly, and additional inspections should occur after storms as needed throughout the rainy season. Repairs, modifications, or installation of additional BMPs, as needed, should be carried out prior to the next rainy season. The City will determine if the treatment control BMPs require monitoring, and if so, the City must approve the monitoring program.

5.0 ONGOING MAINTENANCE OF TREATMENT CONTROL BMPS (§17.43.040 AND BGS)

If a project is required to include treatment control BMPs, the applicant will be required to provide verification of maintenance provisions for these BMPs through such means as may be appropriate, including, but not limited to legal agreements, covenants, CEQA mitigation requirements and/or Conditional Use Permits. Verification at a minimum shall include the developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred and either:

1. A signed statement from the public entity assuming responsibility for structural and treatment control BMP maintenance and that it meets all local agency design standards; or

2. Written conditions in the sales or lease agreement, which require the recipient to assume responsibility for maintenance and conduct a maintenance inspection at least once a year; or

3. Written text in project conditions, covenants, and restrictions (CCRs) for residential properties assigning maintenance responsibilities to the home owners association for maintenance of the structural and treatment control BMPs; or

4. Any other legally enforceable agreement acceptable to the City that assigns responsibility for the maintenance of post-construction structural and treatment control BMPs.

A sample form of Agreement to accomplish these objectives is contained in Attachment 4.

Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information will also be required with any subsequent sale of the property.

6.0 SOURCES OF ADDITIONAL INFORMATION

Two excellent sources of additional information on many of the site design, source control, and treatment control topics and concepts discussed in this Manual are the California Stormwater Quality Association (CASQA) "New Development and Redevelopment Handbook," dated 2003, and the "City of Santa Barbara Storm Water BMP Guidance Manual (Technical Guidance Manual for Post-Construction Storm Water Management)," dated June 2008.

The CASQA document may be viewed and downloaded at the following website:

http://www.cabmphandbooks.com

The Santa Barbara document may be viewed and downloaded at the following website:

http://www.santabarbaraca.gov/Resident/Community/Creeks/Low_Impact_Development.htm

The BGS also contains a listing of reference documents on many of these same topics, but those may or may not be accessible via the internet.

The Monterey Stormwater Education Alliance website at http://www.montereysea.org also contains links to numerous sites with information on these topics.

ATTACHMENT 1

BMP Implementation Tracking Form

BMP IMPLEMENTATION TRACKING FORM

The following are a list of BMPs that may be used to minimize or prevent the introduction of pollutants of concern that may result in significant impacts to receiving waters. Other BMPs that are equally or more effective in pollutant reduction than the comparable BMPs listed below may also be acceptable, if approved by the City. All BMPs must comply with local zoning and building codes and other applicable regulations.

In order to facilitate the design review and permitting process, when the application for the project is submitted to the City it should include a copy of this form with the Project Information filled-in and the applicable check boxes marked to indicate which of these BMPs have been incorporated into the design of the project. The locations of these BMPs should also be shown on the site plan for the project.

Project Information

Owners Name: _____

Blk/Lot/APN: _____

Address: _____

Project Type (see Sections 2.5.2.3 and 2.5.3.4 of this Manual for Project Type descriptions):

□□Small Residential	□□Large Residential

If either of the above boxes is checked, the project will be subject to the Residential Project requirements described in Section 2.5.3.

☐ Commercial (describe type of business):_____

If this box is checked, the project will be subject to the Commercial Project requirements described in Section 2.5.4.

1.5 The project will create and/or replace ≥ 2,500 square feet of impervious surface (collectively over the entire project site), including detached single-family home projects. If this box is checked the project will be subject to Performance Requirement No. 1 as described in Section 2.5.1.

☐ The project is not a detached single family home but has a Net Impervious Area (as defined in Section 1.5) ≥ 5,000 square feet, or is a detached single family home project and has a Net Impervious Area ≥ 15,000 square feet. If this box is checked it will be subject to the more complex requirements of Performance Requirement No. 2: Water Quality Treatment described in Attachment 5.

1.6 The project has a Net Impervious Area ≥ 15,000 square feet, and is not a detached single family home. If this box is checked the project will be subject to additional requirements, and the applicant should meet with City staff to discuss and determine what those requirements will be.

1.7 Some part of the project site has a natural slope that is 25% or greater. If this box is checked the project will be subject to additional requirements for development on steep slopes as described in Section 2.5.2.

Site Design BMPs

Minimize Impervious Areas

☐ Reduce sidewalk widths where it is practicable
☐ Incorporate landscaped buffer areas between sidewalks and streets
☐ Design residential streets for the minimum required pavement widths

☐ Minimize the number of residential street cul-de-sacs and incorporate landscaped areas to reduce their impervious cover.

☐ Use open space development that incorporates smaller lot sizes

☐ Increase building density while decreasing the building footprint

☐ Reduce overall lot imperviousness by promoting alternative driveway surfaces and shared driveways that connect two or more homes together

☐ Reduce overall imperviousness associated with parking lots by providing compact car spaces, minimizing stall dimensions, incorporating efficient parking lanes, and using pervious materials in spillover parking areas

Increase Rainfall Infiltration

☐ Use permeable materials for private sidewalks, driveways, parking lots, and interior roadway surfaces (examples: hybrid lots, parking groves, permeable overflow parking, etc.)

☐ Direct rooftop runoff to pervious areas such as yards, open channels, or vegetated areas, and avoid routing rooftop runoff to the roadway or the urban runoff conveyance system

Maximize Rainfall Interception

☐ Maximize canopy interception and water conservation by preserving existing native trees and shrubs and planting additional native or drought-tolerant trees and large shrubs

Minimize Directly Connected Impervious Areas (DCIAs)

☐ Draining rooftops into adjacent landscaping prior to discharging to the storm drain

☐ Draining parking lots into landscape areas co-designed as biofiltration areas

☐ Draining roads, sidewalks, and impervious trails into adjacent landscaping

Slope and Channel Protection

☐ Use of existing natural drainage systems to the maximum extent feasible

☐ Stabilizing permanent channel crossings

☐ Planting native or drought-tolerant vegetation on slopes

☐ Using energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels

Maximize Rainfall Interception

☐ Cisterns	☐ Foundation planting

Increase Rainfall Infiltration

☐ Dry wells

Source Control BMPs

☐ Storm drain system stenciling and signage

☐ Regular street and parking lot sweeping

☐ Outdoor material and trash storage area designed to reduce or control rainfall runoff

☐ Efficient irrigation system

Treatment Control BMPs

Biofilters

☐ Grassy swale	☐ Grass strip

☐ Wetland vegetation swale	☐ Bioretention

Detention Basins

☐ Extended/dry detention basin with grass lining
☐ Extended/dry detention basin with impervious lining

Infiltration Basins

☐ Infiltration basin	☐ Infiltration trench	☐ Porous asphalt
☐ Porous concrete	☐ Porous modular concrete block	

Wet Ponds and Wetlands

☐ Wet pond (permanent pool)	☐ Constructed wetland

Drainage Inserts

☐ Oil/Water separator	☐ Catch basin insert
☐ Storm drain inserts	☐ Catch basin screens

Filtration Systems

☐ Media filtration	☐ Sand filtration

Hydrodynamic Separation Systems

☐ Swirl Concentrator	☐ Cyclone Separator

ATTACHMENT 2

Descriptions of Treatment Control BMPs

Source: Best Management Practices Guidance Series (BGS)

The BMPs described below are treatment control BMPs that can be built at new development and redevelopment sites to capture and treat the polluted runoff before it enters the City’s storm drain system or other receiving waters. Many of these are included in Table 3 of

Attachment 3. When site design and source control BMPs alone are inadequate to fulfill the City's storm water pollution prevention requirements for a proposed project, treatment control BMPs which are feasible for the proposed development should be incorporated into its design.

Treatment controls must be designed such that volumes and flows in excess of the design rainfall event bypass the unit, otherwise there is the possibility of aggravating flooding and also causing resuspension of previously captured sediments or other constituents. Also, all of the treatment BMPs described below require some inspection, maintenance, and disposal of solids to ensure optimum performance and often to avoid flooding.

1. Rooftop Catchment Systems – These are rooftops which can sometimes be designed into large commercial and industrial sites to pool stormwater which, following the storm, evaporates. This effectively eliminates rooftop runoff from the storm drain system, and thereby reduces the hydraulically-connected impervious area. Another function of these systems is to slow down the runoff to reduce peaks. Problems with rooftop catchment systems are mainly related to leakage.

2. Vegetated Filter Strips – Vegetated filter strips, buffer strips, or riparian buffer zones are strips of vegetation placed between receiving waters (e.g., along streams) and pollutant sources. The effectiveness of the strips depends primarily on the width of the strip, and the vegetation type and condition. Strips of 100-300 feet in width are often considered. Such strips have been successfully applied to urban, agricultural, and forestry situations. Vegetation type selection must take into account the climate and usually should be drought-resistant. Maintenance is primarily annual cutting. Such strips are recommended for developments located along receiving waters such as streams, rivers and lakes, but outside the flood control boundary.

3. Vegetated Swales – Swales are shallow low gradient channels that are vegetated. They are commonly applied in rural residential areas in lieu of traditional curb/gutters and underground stormwater drainage pipes. Water quality improvement is achieved primarily through filtration, and performance is dependent on the swale hydraulic capacity and vegetation type and condition. Influent water should be relatively free of coarse sediment to avoid burying the vegetation. Where sediment loads are of concern, sediment settling basins can be provided upstream of the swales. Maintenance consists primarily of vegetation management and settling basin cleanouts. Swales are generally recommended for low-density residential developments located in relatively flat terrain.

4. Infiltration Basins – Infiltration basins store and infiltrate stormwater into the surficial groundwater aquifer. Performance is critically dependent on soil porosity and adequate depth to groundwater. Such conditions are typical of inland valleys, in contrast to low lying coastal areas. In order to maintain recharge rates, influent water may require pretreatment to remove sediments. Infiltration basins are effective at reducing runoff rates and volumes and can provide water supply benefits through aquifer recharge. Maintenance primarily consists of periodic removal of accumulated trash, debris and sediments to maintain recharge rates. Infiltration basins are generally recommended in areas where the depth to groundwater is relatively high and the soils are highly pervious. Where such conditions exist, this technology is generally applicable to the entire range of urban development, although the potential for groundwater contamination is often of concern in industrial areas.

5. Infiltration Trenches – Infiltration trenches are shallow drains filled with high porosity materials (e.g. gravel). Stormwater discharged to these trenches is stored during the runoff event and infiltrates into the groundwater during dry weather periods. As with infiltration basins, performance requires porous subsoils and adequate depth to the groundwater table. The acceptability and designs of infiltration trenches must take into consideration the potential for infiltrating water to adversely affect soil strength around foundations. Infiltration trenches are generally not recommended for roof runoff near buildings because of building code requirements; but can be effective as part of the overall open channel drainage system.

6. Dry Detention Ponds/Basins – These are basins designed to temporarily store and treat storm water prior to gradually releasing it downstream. Such basins can provide flood control and storm water treatment benefits. Treatment performance depends on storage volume (12-24 hours of residence time is considered a good rule of thumb), and good circulation (avoidance of short circuiting). A major factor limiting good performance is that, during larger storm runoff events, water entering a dry basin may resuspend previously settled material in which case the ponds may act as a source of sediment and associated chemicals. In general dry basins are not as effective as wet basins (discussed below), however, in certain arid areas, wet basins are not feasible. Performance of dry basins can be improved by incorporating slow release outlet structures. Such basins are generally applicable to residential, commercial, and industrial development in areas where there is insufficient runoff to maintain wet basins.

7. Retention Ponds/Wet Basins – These are basins that contain a permanent pool of water. Such ponds can provide flood control, ecological, and water quality benefits. The performance of wet basins depends on the size of the basin, watershed characteristics, and

influent conditions. The primary treatment process in retention ponds is settling. Maintenance is required for removing debris, vegetation management, and maintaining the inlet and outlet structures. Accumulation rates in such basins typically require that accumulated sediment be removed about once every 10-20 years. Retention ponds are generally applicable to most urban situations, as long as there is adequate space for the facility and acceptable geological conditions.

8. Constructed/Restored Wetlands – In addition to providing flood control and water supply benefits through artificial recharge of groundwater, constructed wetlands designed for stormwater management provide water quality benefits through a number of processes including sedimentation, filtration, absorption, biological processes, and nutrient uptake. Pollutant removal performance depends on the size of the wetland relative to the watershed, the design of the wetland, and the type and composition of wetland vegetation. Wetlands also provide additional ecological and recreational benefits. If a significant amount of sedimentation is anticipated, a deep settling basin could be constructed (which the water would enter prior to reaching the wetland). The basin would require periodic maintenance to remove accumulated sediment. Constructed wetlands require maintenance, especially in the first 5-10 years during which vegetation is growing and natural seeding is occurring. Providing suitable hydrologic conditions for vegetation growth and water treatment is key to successful performance of constructed wetlands. Constructed wetlands are generally applicable to most urban situations, as long as there is adequate space for the facility, an adequate source of water, and appropriate soils. In California, such wetlands would likely be seasonal in nature. The cost of urban lands often precludes this type of treatment in the more densely developed portions of urban areas.

A variation of this control is the use of existing wetlands for urban runoff treatment. Existing wetlands at or downstream of a new development/redevelopment project can be enhanced to improve hydrology, and runoff from the development project can be directed to the wetlands. Note that the dry detention ponds/basins, retention ponds/wet basins, and the constructed wetlands need to be periodically monitored for accumulation of toxic materials, and provisions made for cleanout and disposal pretreatment may be added (to remove heavy sediment trash and debris) to reduce maintenance. If a significant amount of sediment is anticipated, a deep settling basin could be constructed. This would also need to be periodically cleaned out to maintain capacity.

9. Filtration Systems – Filtration systems convey stormwater through filter media (e.g., sand, compost, charcoal) to treat the storm water. The chemicals treated vary depending on the type of media and may include fine sediment, colloidal material, hydrocarbons, organics, nutrients and dissolved metals. Such systems come in many sizes and designs including: (1) inserts placed in individual storm drain inlets, (2) linear units that treat stormwater from small impervious areas such as parking lots, and (3) large 1-2 acre sand filters that treat runoff from urban catchments. Filters are effective as long as the capacity of the filter is not exceeded, and the filter is not allowed to clog. Filter inserts are particularly problematic in this regard, and recent testing and evaluation questions their applicability where material in runoff will clog or block the filter. In stormwater applications filter systems are required to remove blocking materials (leaves, trash, debris, sediments, oil and grease) and storage to better manage flowrates. Experience to date with filter type inserts for drain inlets suggest that the units are easily clogged with sediment and debris, with resultant bypassing of most of the flows. Therefore, inserts are not recommended unless require frequent inspection and cleaning is performed. Filtration systems will have limited application in small well-maintained parking lots.

10. Oil/Grit Separators – Oil/grit (gravity) separators are usually multi-chambered treatment units that are placed underground and treat stormwater from a drainage catchment. The individual chambers often are designed to trap grit and floatables, and adsorb hydrocarbons. Flows in excess of the design capacity should be diverted around the unit, otherwise there is the possibility that sediment previously trapped in the chambers will be resuspended and flushed downstream. Inspection and maintenance is required to ensure that the units are not filling up with sediment, as accumulation can affect performance. Traditional gravity oil/water separators that utilize skimming devices and coalescing plates (to increase droplet size and capture) are generally not applicable to stormwater conditions where total hydrocarbon concentrations are generally less than 10 mg/l. The performance of oil/grit separators varies depending on the chosen design. Research should be done before selecting any separators to verify that they will perform as desired. In general, oil/grit separators are useful only at sites where there are chances that oil spills could occur and to a limited degree at development sites that have high oil and grease loadings such as petroleum storage yards and vehicle storage facilities.

ATTACHMENT 3

BMP IMPLEMENTATION TABLES

Table 1. Anticipated and Potential Pollutants Generated by Land Use Type

	General Pollutant Categories								
Priority Project Categories	**Sediments**	**Nutrients**	**Heavy Metals**	**Organic Compounds**	**Trash and Debris**	**Oxygen Demanding Substances**	**Oil and Grease**	**Bacteria and Viruses**	**Pesticides**
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development	X	X			X	P(1)	P(2)	P	X
Commercial Development >100,000 ft.2	P(1)	P(1)		P(2)	X	P(5)	X	P(3)	P(5)
Automotive Service Facilities			X	X(4)(5)	X		X		
Retail Gasoline Outlets			X	X(4)(5)	X		X		
Restaurants					X	X	X	X	
Hillside Development	X	X			X	X	X		X
Parking Lots	P(1)	P(1)	X		X	P(1)	X		P(1)
Streets, Highways and Freeways	X	P(1)	X	X(4)	X	P(5)	X		

X = anticipated

P = potential

(1) A potential pollutant if landscaping exists on-site

(2) A potential pollutant if the project includes uncovered parking areas

(3) A potential pollutant if land use involves food or animal waste products

(4) Including petroleum hydrocarbons

(5) Including solvents

Table 2. Site Design and Source Control BMP Selection Matrix

Specific Areas for Implementation of Site Design and Source Control BMPs									
Priority Project Categories	**Driveways, Roads, and Guest Parking**	**Loading/Unloading Dock Areas**	**Repair/Maintenance Bays**	**Vehicle/Equipment Washing/Steam Cleaning Areas**	**Parking Areas**	**Fueling Areas**	**Outdoor Material Storage Areas**	**Trash Storage Areas**	**Pools and Spas**
Small Residential Development	R								R
Large Residential Development	R	R		R	R			R	R
General Commercial Development	R	R		R	R		R	R	
Automotive Service Facilities	R	R	R	R	R	R	R	R	
Retail Gasoline Outlets	R	R	R	R	R	R	R	R	
Restaurants	R	R		R	R		R	R	

R = Required – minimize pollutants of concern by selecting appropriate site design and source control BMPs

Table 3. Treatment Control BMP Selection Matrix

(1)

	Treatment Control BMP Categories						
Pollutant of Concern	**Biofilters**	**Detention Basins**	**Infiltration Basins(2)**	**Wet Ponds or Wetlands**	**Drainage Inserts**	**Filtration**	**Hydrodynamic Separator Systems(3)**
Sediment	M	H	H	H	L	H	M
Nutrients	L	M	M	M	L	M	L
Heavy Metals	M	M	M	H	L	H	L
Organic Compounds	U	U	U	U	L	M	L
Trash and Debris	L	H	U	U	M	H	M

	Treatment Control BMP Categories						
Pollutant of Concern	**Biofilters**	**Detention Basins**	**Infiltration Basins[(2)]**	**Wet Ponds or Wetlands**	**Drainage Inserts**	**Filtration**	**Hydrodynamic Separator Systems[(3)]**
Oxygen Demanding Substances	L	M	M	M	L	M	L
Bacteria	U	U	H	U	L	M	L
Oil and Grease	M	M	U	U	L	H	L
Pesticides	U	U	U	U	L	U	L

(1) The City is encouraged to periodically assess the performance characteristics of many of these BMPs to update this table.

(2) Including trenches and porous pavement

(3) Also known as hydrodynamic devices and baffle boxes

L: Low removal efficiency

M: Medium removal efficiency

H: High removal efficiency

U: Unknown removal efficiency

Sources: Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters (1993), National Stormwater Best Management Practices Database (2001), and Guide for BMP Selection in Urban Developed Areas (2001).

ATTACHMENT 4

Sample Form of Agreement for Ongoing Maintenance of Treatment Control BMPs

Source: Best Management Practices Guidance Series (BGS)

Agreement Regarding Maintenance of Treatment Control BMPs (Best Management Practices)

for APN No._____

_____, being the owner of the real property located at _____, California, consents and agrees to inspect and maintain annually, prior to September 30 of each year, the Treatment Control BMPs (such as silt and/or grease traps or detention systems) on the subject property as shown on the improvement plans dated _____, on file with the City of _____. I agree to forward a letter providing proof of inspection and maintenance to the City of _____ Public Works Department prior to October 15 of each year.

In order to transfer the property to a private or public owner, I shall require the recipient to assume responsibility for maintenance of any Treatment Control BMPs in the sales or lease agreement for that property. The condition of transfer shall include a provision that the new property owner agrees to forward a letter providing proof of BMP inspection and maintenance to the City of _____ Public Works Department prior to October 15 of each year.

Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

I have read the above agreement and understand it.

_____

Owner

_____

Date

ATTACHMENT 5

Additional RWQCB Post-Construction Performance Requirements

Source: “Post-Construction Stormwater Management Requirements for Development Projects in the Central Coast Region” adopted by the RWQCB on July 12, 2013.

1) Performance Requirement No. 2: Water Quality Treatment

a) The Permittee shall require Regulated Projects, except detached single-family homes, ≥ 5,000 square feet of Net Impervious Area, and detached single-family homes ≥ 15,000 square feet of Net Impervious Area, to treat stormwater runoff as required in the Water Quality Treatment Performance Requirements in Section B.3.b. to reduce pollutant loads and concentrations using physical, biological, and chemical removal.

i) Net Impervious Area is the total (including new and replaced) post-project impervious areas, minus any reduction in total imperviousness from the pre-project to post-project condition: Net Impervious Area = (New and Replaced Impervious Area) – (Reduced Impervious Area Credit), where Reduced Impervious Area Credit is the total pre-project to post-project reduction in impervious area, if any.

b) The Permittee shall require each Regulated Project subject to Water Quality Treatment Performance Requirements to treat runoff generated by the Regulated Project site using the onsite measures below, listed in the order of preference (highest to lowest). Water Quality Treatment Performance Requirements shall apply to the runoff from existing, new, and replaced impervious surfaces on sites where runoff from existing impervious surfaces cannot be separated from runoff from new and replaced impervious surfaces.

i) Low Impact Development (LID) Treatment Systems – Implement harvesting and use, infiltration, and evapotranspiration Stormwater Control Measures that collectively achieve the following hydraulic sizing criteria for LID systems:

(1) Hydraulic Sizing Criteria for LID Treatment Systems – LID systems shall be designed to retain stormwater runoff equal to the volume of runoff generated by the 85th percentile 24-hour storm event, based on local rainfall data.

ii) Biofiltration Treatment Systems – Implement biofiltration treatment systems using facilities that must be demonstrated to be at least as effective as[1] a biofiltration treatment system with the following design parameters:

(1) Maximum surface loading rate appropriate to prevent erosion, scour and channeling within the biofiltration treatment system itself and equal to 5 inches per hour, based on the flow of runoff produced from a rain event equal to or at least:

(a) 0.2 inches per hour intensity; or

(b) Two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depth

(2) Minimum surface reservoir volume equal to the biofiltration treatment system surface area times a depth of 6 inches

(3) Minimum planting medium depth of 24 inches. The planting medium must sustain a minimum infiltration rate of 5 inches per hour throughout the life of the project and must maximize runoff retention and pollutant removal. A mixture of sand (60%-70%) meeting the specifications of American Society for Testing and Materials (ASTM) C33 and compost (30%-40%) may be used. A Regulated Project may utilize an alternative planting medium if it demonstrates its planting medium is equal to or more effective at attenuating pollutants than the specified planting medium mixture.

(4) Proper plant selection[2]

(5) Subsurface drainage/storage (gravel) layer with an area equal to the biofiltration treatment system surface area and having a minimum depth of 12 inches

(6) Underdrain with discharge elevation at top of gravel layer

(7) No compaction of soils beneath the biofiltration facility (ripping/loosening of soils required if compacted)

(8) No liners or other barriers interfering with infiltration, except for situations where lateral infiltration is not technically feasible.

iii) Non-Retention Based Treatment Systems – Implement Stormwater Control Measures that collectively achieve at least one of the following hydraulic sizing criteria for non-retention based treatment systems:

(1) Hydraulic Sizing Criteria for Non-Retention Based Treatment Systems:

(a) Volume Hydraulic Design Basis – Treatment systems whose primary mode of action depends on volume capacity shall be designed to treat stormwater runoff equal to the volume of runoff generated by the 85th percentile 24-hour storm event, based on local rainfall data.

(b) Flow Hydraulic Design Basis – Treatment systems whose primary mode of action depends on flow capacity shall be sized to treat:

(i) The flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths; or

(ii) The flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity.

c) Stormwater Control Plan Requirements – For each Regulated Project subject to the Water Quality Treatment Performance Requirement, the Permittee shall require the Project Applicant to provide the below information in a Stormwater Control Plan. The Permittee shall not grant final project approval, until the Stormwater Control Plan for the Regulated Project sufficiently demonstrates the Regulated Project design meets the Water Quality Treatment Performance Requirements.

i) Project name, application number, location including address and assessor’s parcel number

ii) Name of Applicant

iii) Project Phase number (if project is being constructed in phases)

iv) Project Type (e.g., commercial, industrial, multi-unit residential, mixed-use, public), and description

v) Total project site area

vi) Total new impervious surface area, total replaced impervious surface area, total new pervious area, and calculation of Net Impervious Area

vii) Statement of Water Quality Treatment Performance Requirements that apply to the Project

viii) Summary of Site Design and Runoff Reduction (Performance Requirement No. 1) measures selected for the project

ix) Description of all post-construction structural Stormwater Control Measures

x) Supporting calculations used to comply with the applicable Water Quality Treatment Performance Requirements

xi) Documentation certifying that the selection, sizing, and design of the Stormwater Control Measures meet the full or partial Water Quality Treatment Performance Requirement

xii) Water quality treatment calculations used to comply with Water Quality Treatment Performance Requirement and any analysis to support infeasibility determination

xiii) Statement of Compliance:

(1) Statement that Water Quality Treatment Performance Requirement has been met on-site, or, if not achievable:

(a) Documentation of the volume of runoff for which compliance cannot be achieved on-site and the associated off-site compliance requirements.

(b) Statement of intent to comply with Water Quality Treatment Performance Requirement through Alternative Compliance

2) Performance Requirement No. 3: Runoff Retention

a) The Permittee shall require Regulated Projects, except detached single-family homes, that create and/or replace ≥ 15,000 square feet of impervious surface (collectively over the entire project site), and detached single-family homes ≥ 15,000 square feet of Net Impervious Area, in WMZs 1, 2, 5, 6, 8 and 9, and those portions of WMZs 4, 7, and 10 that overlie designated Groundwater Basins (Attachment B) to meet the Runoff Retention Performance Requirements in Sections B.4.b. and B.4.c. using the LID Development Standards in Section B.4.d. for optimal management of watershed processes.

b) Adjustments to the Runoff Retention Performance Requirements for Redevelopment – Where the Regulated Project includes replaced impervious surface, the below adjustments apply. These adjustments are accounted for in the Retention Tributary Area calculation in Attachment D.

i) Redevelopment Projects outside an approved Urban Sustainability Area, as described in Section C.3. – The total amount of replaced impervious surface shall be multiplied by 0.5 when calculating the volume of runoff subject to Runoff Retention Performance Requirements.

ii) Redevelopment Projects located within an approved Urban Sustainability Area (Section C.3.) – The total amount of runoff volume to be retained from replaced impervious surfaces shall be equivalent to the pre-project runoff volume retained.

c) The Permittee shall require Regulated Projects, subject to the Runoff Retention Performance Requirements, to meet the following Performance Requirements:

i) Watershed Management Zone 1 and portions of Watershed Management Zones 4, 7 and 10 which overlie designated Groundwater Basins:

(1) Retain 95th Percentile Rainfall Event – Prevent offsite discharge from events up to the 95th percentile 24-hour rainfall event as determined from local rainfall data.[3]

(2) Compliance must be achieved by optimizing infiltration. Compliance for retention of the remaining volume must be achieved via storage, rainwater harvesting and/or evapotranspiration.

ii) Watershed Management Zone 2:

(1) Retain 95th Percentile Rainfall Event – Prevent offsite discharge from events up to the 95th percentile 24-hour rainfall event as determined from local rainfall data.

(2) Compliance must be achieved via storage, rainwater harvesting, infiltration, and/or evapotranspiration.

iii) Watershed Management Zones 5 and 8:

(1) Retain 85th Percentile Rainfall Event – Prevent offsite discharge from events up to the 85th percentile 24-hour rainfall event as determined from local rainfall data.

(2) Compliance must be achieved by optimizing infiltration. Compliance for retention of the remaining volume must be achieved via storage, rainwater harvesting and/or evapotranspiration.

iv) Watershed Management Zones 6 and 9:

(1) Retain 85th Percentile Rainfall Event – Prevent offsite discharge from events up to the 85th percentile 24-hour rainfall event as determined from local rainfall data.

(2) Compliance must be achieved via storage, rainwater harvesting, infiltration, and/or evapotranspiration.

d) LID Development Standards – The Permittee shall require Regulated Projects, subject to Runoff Retention Performance Requirements, to meet Runoff Retention Performance Requirements (Sections B.4.b. and B.4.c.) using the following LID Development Standards:

i) Site Assessment Measures – Permittees shall require the applicant for each Regulated Project to identify opportunities and constraints to implement LID Stormwater Control Measures. Permittees shall require the applicant to document the following, as appropriate to the

development site:

• Site topography

• Hydrologic features including contiguous natural areas, wetlands, watercourses, seeps, or springs

• Depth to seasonal high groundwater

• Locations of groundwater wells used for drinking water

• Depth to an impervious layer such as bedrock

• Presence of unique geology (e.g., karst)

• Geotechnical hazards

• Documented soil and/or groundwater contamination

• Soil types and hydrologic soil groups

• Vegetative cover/trees

• Run-on characteristics (source and estimated runoff from offsite which discharges to the project area)

• Existing drainage infrastructure for the site and nearby areas including the location of municipal storm drains

• Structures including retaining walls

• Utilities

• Easements

• Covenants

• Zoning/Land Use

• Setbacks

• Open space requirements

• Other pertinent overlay(s)

ii) Site Design Measures – Permittees shall require the applicant for each Regulated Project to optimize the use of LID site design measures, as feasible and appropriate at the project site. Regulated Projects subject to Performance Requirement No. 3 must augment design strategies required by Performance Requirement No. 1 (Section B.2.a.i-v) with the following:

• Define the development envelope and protected areas, identifying areas that are most suitable for development and areas to be left undisturbed

• Conserve natural areas, including existing trees, other vegetation, and soils

• Limit the overall impervious footprint of the project

• Construct streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided that public safety or mobility uses are not compromised

• Set back development from creeks, wetlands, and riparian habitats

• Conform the site layout along natural landforms

• Avoid excessive grading and disturbance of vegetation and soils

iii) Delineation of discrete Drainage Management Areas (DMAs) – The Permittee shall require each Regulated Project to delineate DMAs to support a decentralized approach to stormwater management.

(1) The Permittee shall require the applicant for each Regulated Project to provide a map or diagram dividing the entire project site into discrete DMAs

(2) The Permittee shall require the applicant for each Regulated Project to account for the drainage from each DMA using measures identified in Sections B.4.d.iv. and B.4.d.v., below.

iv) Undisturbed and Natural Landscape Areas – Permittees shall require each Regulated Project to implement appropriate Site Design (Section B.4.d.ii.), and Runoff Reduction Measures in Performance Requirement No. 1, to reduce the amount of runoff for which retention and treatment is required. Runoff reduction measures that can be used to account for this reduction also include the below measures. The Retention Tributary Area calculation in Attachment D accounts for these reductions.

(1) Undisturbed or areas planted with native, drought-tolerant, or LID appropriate vegetation that do not receive runoff from other areas may be considered self-treating and no additional stormwater management is required.

(2) Runoff from impervious surfaces, generated by the rainfall events identified in Section B.4.c, may be directed to undisturbed or natural landscaped areas. When the applicant can demonstrate that this runoff will be infiltrated and will not produce runoff to the storm drain system, or a surface receiving waterbody, or create nuisance ponding that may affect vegetation health or contribute to vector problems, then no additional stormwater management is required for these impervious surfaces.

v) Structural Stormwater Control Measures – Where Regulated Project Applicants have demonstrated in their Stormwater Control Plans, and the Permittee has confirmed, that use of Site Design measures listed in Section B.4.d.ii., Runoff Reduction measures listed in Performance Requirement No. 1, and undisturbed and natural landscape areas discussed in Section B.4.d.iv., has been maximized to the extent feasible, Structural Stormwater Control Measures designed for water quality treatment and/or flow control shall be used to comply with Performance Requirement No. 3.

(1) The Permittee shall require the Regulated Project applicant to use structural Stormwater Control Measures that optimize retention and result in optimal protection and restoration of watershed processes, such as Structural Control Measures associated with small-scale, decentralized facilities designed to infiltrate, evapotranspirate, filter, or capture and use stormwater.

vi) Hydrologic Analysis and Structural Stormwater Control Measure Sizing – To determine Stormwater Control Measure sizing and design, Permittees shall require Regulated Project applicants to use one of the following: 1) hydrologic analysis and sizing methods as outlined in Attachment D; 2) locally/regionally calibrated continuous simulation model that results in equivalent optimization of on-site runoff volume retention; or 3) hydrologic analysis and sizing methods, equally effective in optimizing on-site retention of the runoff generated by the rainfall event specified in Section B.4.c, that have been approved by the Central Coast Water Board Executive Officer.

e) Ten Percent Adjustment for Sites with Technical Infeasibility – Where technical infeasibility, as described in Section C.1.c., prevents full on-site compliance with the Runoff Retention Performance Requirement, on-site retention of the full Retention Volume per Section B.4.d.vi. is not required and the Regulated Project is required to dedicate no less than ten percent of the Regulated Project's Equivalent Impervious Surface Area[4] to retention-based Stormwater Control Measures.

i) Use the Attachment E instructions to calculate the ten percent adjustment for applying the Runoff Retention Performance Requirement.

ii) The Water Quality Treatment Performance Requirement is not subject to this adjustment, i.e., mitigation to achieve full compliance with the Water Quality Treatment Performance Requirement is required on- or off-site.

f) Off-Site Mitigation – Off-site mitigation is required when Regulated Projects do not retain the full Retention Volume per Section B.4.b and B.4.c, and 1) fail to demonstrate technical infeasibility of full retention; or 2) demonstrate technical infeasibility of full retention AND fail to dedicate at least ten percent of the Regulated Project's Equivalent Impervious Surface Area to retention-based Stormwater Control Measures.

i) Use the Attachment F instructions to calculate the Off-Site retention requirements when a Regulated Project subject to the Runoff Retention Performance Requirement does not allocate the full ten percent of the project site's Equivalent Impervious Surface Area to retention-based Stormwater Control Measures.

g) Reporting Requirements – For each Regulated Project subject to the Runoff Retention Performance Requirement, the Permittee shall require the Project Applicant to provide the below information in a Stormwater Control Plan. The Permittee shall not grant final project approval, until the Stormwater Control Plan for the Regulated Project sufficiently demonstrates the Regulated Project design meets the Water Quality Treatment and Runoff Retention Performance Requirements.

i) Project Name, application number, and location including address and assessor's parcel number

ii) Name of Applicant

iii) Project Phase number (if project is being constructed in phases)

iv) Project Type (e.g., commercial, industrial, multiunit residential, mixed-use, public), and description

v) Total project site area

vi) Total new and/or replaced impervious surface area

vii) Statement of Water Quality Treatment and Runoff Retention Performance Requirements that apply to the Project

viii) Adjusted Requirements based on the local jurisdiction's approval, that the Project is allowed a Special Circumstance, Watershed or Regional Plan, or Urban Sustainability Area designation

ix) Site assessment summary

x) LID Measures used:

(1) Site design measures

(2) Runoff Reduction Measures

(3) Post-construction structural Stormwater Control Measures

xi) Summary of Runoff Reduction Measures and Structural Stormwater Control Measures, by Drainage Management Area, as well as for the entire site

xii) Supporting calculations used to comply with the applicable Water Quality Treatment and Runoff Retention Performance Requirements

xiii) Documentation demonstrating infeasibility where Site Design and Runoff Reduction measures cannot retain required runoff volume

xiv) Documentation demonstrating infeasibility where retention-based Stormwater Control Measures cannot retain and/or treat the required runoff volume

xv) Documentation demonstrating infeasibility where on-site compliance cannot be achieved

xvi) Documentation demonstrating percentage of the project's Equivalent Impervious Surface Area dedicated to retention-based Stormwater Control Measures

xvii) Documentation of certification that the selection, sizing, and design of the Stormwater Control Measures meets the applicable Water Quality Treatment and Runoff Retention Performance Requirement

xviii) O&M Plan for all structural Stormwater Control Measures to ensure long-term performance

xix) Owner of facilities

xx) Statement of Compliance:

(1) Statement that the Water Quality Treatment and Runoff Retention Performance Requirements have been met on-site, or, if not achievable:

(a) Documentation of the volume of runoff for which compliance cannot be achieved on-site and the associated off-site compliance volume.

(b) Statement of intent to comply with Water Quality Treatment and Runoff Retention Performance Requirements through an Alternative Compliance agreement.

5) Performance Requirement No. 4: Peak Management

The Permittee shall require all Regulated Projects that create and/or replace ≥22,500 square feet of impervious surface (collectively over the entire project site) in Watershed Management Zones 1, 2, 3, 6, and 9 to manage peak stormwater runoff as required below (Section B.5.a.i.), and to meet Water Quality Treatment and Runoff Retention Performance Requirements.

a) The Permittee shall apply the following Peak Management Performance Requirements:

i) Post-development peak flows, discharged from the site, shall not exceed pre-project peak flows for the 2- through 10-year storm events.

b) Reporting Requirements – For each Regulated Project subject to the Peak Management Performance Requirement, the Permittee shall require the Project Applicant to provide the below information in a Stormwater Control Plan. The Permittee shall not grant final project approval, until the Stormwater Control Plan for the Regulated Project sufficiently demonstrates the Regulated Project design meets the Water Quality Treatment, Runoff Retention, and Peak Management Requirements.

i) Project Name, application number, and location including address and assessor's parcel number

ii) Name of Applicant

iii) Project Phase number (if project is being constructed in phases)

iv) Project Type (e.g., commercial, industrial, multiunit residential, mixed-use, public), and description

v) Total project site area

vi) Total new and/or replaced impervious surface area

vii) Statement of Water Quality Treatment, Runoff Retention, and Peak Management Performance Requirements that apply to the Project

viii) Adjusted Requirements based on the local jurisdiction's approval, that the Project is allowed a Special Circumstance, Watershed or Regional Plan, or Urban Sustainability Area designation

ix) Site assessment summary

x) LID Measures used:

(1) Site design measures

(2) Runoff Reduction Measures

(3) Post-construction structural Stormwater Control Measures

xi) Summary of Runoff Reduction Measures and Structural Stormwater Control Measures, by Drainage Management Area, as well as for the entire site

xii) Supporting calculations used to comply with the applicable Water Quality Treatment, Runoff Retention, and Peak Management Performance Requirements

xiii) Documentation demonstrating infeasibility where on-site compliance cannot be achieved

xiv) Documentation of certification that the selection, sizing, and design of the Stormwater Control Measures meets the applicable Water Quality Treatment, Runoff Retention, and Peak Management Performance Requirements

xv) O&M Plan for all structural SCMs to ensure long-term performance

xvi) Owner of facilities

xvii) Statement of Compliance:

(1) Statement that the Water Quality Treatment, Runoff Retention, and Peak Management Performance Requirements have been met on-site, or, if not achievable:

(a) Documentation of the volume of runoff for which compliance cannot be achieved on-site and the associated off-site compliance requirements.

(b) Statement of intent to comply with Water Quality Treatment, Runoff Retention, and Peak Management Performance Requirements through an Alternative Compliance agreement.

4) Performance Requirement No. 5: Special Circumstances

The Permittee may designate Regulated Projects as subject to Special Circumstances based on certain site and/or receiving water conditions. The Special Circumstances designation exempts a Regulated Project from Runoff Retention and/or Peak Management Performance Requirements where those Performance Requirements would be ineffective to maintain or restore beneficial uses of receiving waters. The Regulated Project subject to Special Circumstances must still comply with the Water Quality Treatment Performance Requirements.

a) Special Circumstances include:

i) Highly Altered Channel Special Circumstance:

The Permittee may designate Regulated Projects as subject to Special Circumstances for Highly Altered Channels for the following conditions:

(1) Project runoff discharges into stream channels that are concrete-lined or otherwise continuously armored from the discharge point to the channel's confluence with a lake, large river (>200-square mile drainage area).

(2) Project runoff discharges to a continuous underground storm drain system that discharges directly to a lake, large river (>200-square mile drainage area), the San Lorenzo River in the City of Santa Cruz, or marine nearshore waters

(3) Project runoff discharges to other areas identified by the Central Coast Water Board

(4) Under no circumstance described in 6.a.i. can runoff from the Regulated Project result in adverse impacts to downstream receiving waters

ii) Intermediate Flow Control Facility Special Circumstance:

(1) The Permittee may designate Regulated Projects as subject to Special Circumstances for Intermediate Flow Control Facilities if the project runoff discharges to an existing (as of the date when the Central Coast Water Board approved Resolution R3-2012-0025) flow control facility that regulates flow volumes and durations to levels that have been demonstrated to be protective of beneficial uses of the receiving water downstream of the facility.

(2) The flow control facility must have the capacity to accept the Regulated Project's runoff.

(3) Demonstration of facility capacity to accept runoff and to regulate flow volumes and durations must include quantitative analysis based on numeric, hydraulic modeling of facility performance.

(4) Under no circumstance described in Section B.6.a.ii. can runoff from the Regulated Project result in adverse impacts to downstream receiving waters.

iii) Historic Lake and Wetland Special Circumstance:

(1) The Permittee may designate Regulated Projects as subject to Special Circumstances for Historic Lakes and Wetlands for the following conditions:

(a) Project is located where there was once a historic lake or wetland where pre-development hydrologic processes included filtration and storage but no significant infiltration to support downstream receiving water.

(b) The Special Circumstance has been established based on a delineation of the historic lake or wetland approved by the Central Coast Water Board Executive Officer

b) Performance Requirements for Highly Altered Channel and/or Intermediate Flow Control Facility Special Circumstances:

i) For Regulated Projects that: 1) create and/or replace ≥22,500 square feet of impervious surface; 2) are located in WMZs 1, 2, 5, and 8, and those portions of WMZs 4, 7, and 10 that overlie a designated Groundwater Basin:

(1) Water Quality Treatment (Performance Requirement No. 2)

(2) Runoff Retention (Performance Requirement No. 3)

ii) For Regulated Projects that: 1) create and/or replace ≥22,500 square feet of impervious surface; and 2) are located in WMZs 3, 6, and 9, and those portions of WMZs 4, 7, and 10 that do not overlie a designated Groundwater Basin:

(1) Water Quality Treatment (Performance Requirement No. 2)

c) Performance Requirements for Historic Lake and Wetland Special Circumstances

i) For Regulated Projects that create and/or replace ≥15,000 and < 22,500 square feet of impervious surface and meet the Historic Lake and Wetland Special Circumstance:

(1) Water Quality Treatment (Performance Requirement No. 2)

(2) Detention: Detain runoff such that the post-project peak discharge rate does not exceed the pre-project rate for all runoff up to the 95th percentile 24-hr rainfall event, or a more protective rate consistent with the Permittee's own development requirements

ii) For Regulated Projects that create and/or replace ≥22,500 square feet of impervious surface and meet the Historic Lake and Wetland Special Circumstance:

(1) Water Quality Treatment (Performance Requirement No. 2)

(2) Peak Management: Detain runoff such that the post-project peak discharge rate does not exceed the pre-project rate for the 95th percentile 24-hr rainfall event and the 2- through 10-yr storm events or a more protective rate consistent with the Permittee's own development requirements.

d) Documentation and Approval of Special Circumstances – The Permittee shall provide reasonable documentation to justify that a Regulated Project is more appropriately categorized under the Special Circumstances category.

i) Historic Lake and Wetland Special Circumstance – Prior to granting a Regulated Project Special Circumstances, the Permittee shall submit a proposal to the Central Coast Water Board Executive Officer for review and approval. The proposal shall include, at a minimum:

(1) Delineation of historic lakes and wetlands and any supporting technical information to substantiate the requested Special Circumstances designation; and

(2) Documentation that the proposal was completed by a registered professional engineer, geologist, architect, and/or landscape architect.

(Ord. 2014-01 § 1 (Exh. A), 2014).

Appendix J BMP Guidance Series.

Updated February 4, 2014

COMMERCIAL WASHING AND CLEANING

This guidance specifies Best Management Practices (BMPs) for commercial washing and cleaning that shall be employed to protect water quality. Additional best management practices, measures and controls shall be employed as applicable and to the maximum extent practicable to prevent pollutants from entering storm water runoff.

BMPS APPLICABLE TO MOBILE CAR WASHERS AND CAR DETAILERS

The Goal and Purpose of these BMPs is to minimize or prevent the discharge of pollutants into storm drains from vehicle and equipment cleaning operations by either (1) discharging wash waters to the sanitary sewer, (2) containing wash water for offsite disposal, or (3)

directing wash water (without cleaners) to landscaped areas.

Use These Best Management Practices:

BMP-1 Planning: Determine what collection method you will be using and where you are going to discharge wash water before starting a new job. Identify where all storm drains are located in the vicinity of the jobsite. Never discharge wastewater into a street, ditch, storm drain, or maintenance hole. Obtain all necessary permits and authorizations. If you are going to discharge into the sanitary sewer system at the job site, or on unpaved areas at the job site, always obtain the property owner's permission.

BMP-2 Pre-Clean the Work Area: Before starting work sweep or vacuum the work area to pick up litter, trash, debris, dirt, and other materials which could become mixed in with the wash water. Use absorbents (such as rags, absorbent mats or pads, rice hull ash, cat litter, vermiculite, or sand) to pick up greasy or oily materials and spills. Waste materials from pre-cleaning may often be disposed of in the trash. Check with the local solid waste authority to be sure. Rags may be sent to an industrial laundry. Know which pre-cleaning wastes may be hazardous wastes. If there is any question as to whether a wash water, or waste material, is considered to be a hazardous material, check with the Monterey County Division of Environmental Health to make this determination and properly dispose of these materials.

BMP-3 Washing and Detailing: Minimize the amount of water used during washing and detailing to reduce the amount of wash water that will need to be disposed. Avoid cleaning products that contain hazardous substances (e.g. hydrofluoric acid, muriatic acid, sodium hydroxide, bleach, etc.) that can create hazardous waste. When possible, avoid using soap and solvents – even biodegradable soap is harmful to the environment. If soap is used, use phosphate-free, non-toxic, biodegradable soap. Any soap, including those labeled "biodegradable" does not belong in creeks, ocean or ground-water. They are harmful to aquatic life and should never be misconstrued as safe for direct disposal to surface waters (i.e., storm drains).

BMP-4 Wash Water Containment and Collection: Contain and collect the wash water and dispose of it as described below. Decide what is the best method of collection (e.g., berms, storm drain cover mats, containment pools, vacuums/pumps, vacuum boom, inflatable pipe plug, etc). Locate property high and low spots to determine where wash water can be pooled for collection.

Wash water that contains visible debris or residue, soap, detergent or other cleaning agents, hazardous waste, or excessive amounts of any pollutant, may not be left on paved surfaces to evaporate because the residues will eventually be discharged to the storm drain system. However, small amounts of wash water that cannot reasonably be collected may be allowed to evaporate on a paved surface.

Wash water from the rinsing of new or used vehicles for dust removal only, using no soap may be discharged to the storm drain or and unpaved area, if the wash water does not flow through oil deposits or other surface contaminants.

Promptly clean up any spill of liquid or solid wastes. Do not hose down an area to clean up a spill, unless the liquid will be completely contained, cleaned up and disposed of to sanitary sewer or offsite as appropriate for the waste type.

If Possible, Either:

1) Use a designated wash area that is paved and protected by permanent or movable berms, dikes, and mats. Contain the wash-water and vacuum it up or otherwise collect it for disposal. Do not allow wash water to leave the property. If the driveway is an avenue for runoff it must be bermed to contain the wash-water.

OR

2) Conduct washing and detailing on a pervious unpaved area such as lawn, dirt, or gravel so that the wash water will be retained and percolate within these areas. Keep washing activities away from storm drains or water conveyances, so that the wash water will infiltrate into the ground and not flow to the storm drains or creeks. This option applies to sites where only one or two vehicles are cleaned every couple of weeks. Do not use this option just before or after a rainstorm.

If Neither of These Approaches is Feasible:

Collect and contain the wash water and prevent it from flowing into any storm drains by sealing or plugging them, or by protecting them with a berm or other means. For information about containing wash water, see the Section titled "Devices That May be Used to Contain and Collect Wash Water."

BMP-5 Wash Water Disposal:. Do not discharge wash water to storm drain. Once wash water has been collected, either (1) discharge it to the sanitary sewer, or septic system via the sanitary sewer clean-out or sanitary sewer inlet at the point of generation (job site), (2) discharge it to landscaping or other suitable unpaved areas, or (3) collect it in a container for later disposal at an appropriate off-site location. Such locations could include a liquid waste receiving facility at a municipal wastewater treatment plant, such as MRWPCA's Regional Treatment Plant located north of the City of Marina, or the sanitary sewer at the pressure washer's place of business using the sewer clean out. Use of disposal options (1) and (2) require the property owner's permission.

Discharges must be in compliance with the wastewater authority's Sewer Use Ordinance, or other applicable regulations of the authority. For the Monterey Regional Water Pollution Control Agency (MRWPCA), the applicable Ordinances are MRWPCA's Sewer Use Ordinance 2008-01, which can be accessed at http://www.mrwpca.org/ordinances. For the Carmel Area Wastewater District (CAWD), the applicable Ordinance is CAWD's Ordinance 91-03.

When cleaning surfaces such as buildings and decks without loose paint, sidewalks, or plazas without soap, thorough dry cleanup should normally be sufficient to allow the wash water to be discharged to the sanitary sewer without pretreatment. However, if any debris is present in the wash water it should first pass through a "20 mesh" or finer screen to remove the material before discharging it to the sanitary sewer. The material that is removed should be disposed of in the trash.

Discharges of wash water to a septic system must be approved by the Monterey County Division of Environmental Health. Discharges that contain hazardous waste, have the potential to harm septic systems, or are likely to contaminate groundwater, will not be approved.

With the property owner's permission wash water can sometimes be disposed of to landscaping or other unpaved areas. If this means of disposal is being considered, first check the slope of the intended disposal area to be sure there will be no runoff into a street, gutter, or waterway. Also, ensure that the wash water will not create a nuisance condition or contain food products or contaminants (i.e. solvents, cleaners, oils, metals, etc.) that may constitute a hazardous waste. If disposal to landscaped areas is being considered, avoid damage to plants and soil by minimizing or eliminating the use of soaps, detergents, and chemicals. In addition, minimize the use of water to avoid wash water overflowing from these areas. Repeated discharges to landscaped areas may result in an accumulation of contaminants, thus damaging vegetation and increasing contaminant levels in the soil. If the soil is very dry, wet it down thoroughly before discharging, so that wash water will soak into the soil instead of running off to the street, gutter, or storm drain. Wash water disposal to land must not create a nuisance condition. Wash water containing garbage, food wastes, or visible trash may not be discharged to land.

Be sure to read cleaning product labels before disposing of wash water. Follow use and disposal instructions carefully. If there is any question as to whether a wash water, or waste material, is considered to be a hazardous material, check with the Monterey County Division of Environmental Health to make this determination and properly dispose of these materials. Depending on the condition of the surface being cleaned, the wastewater generated could be classified as hazardous waste. Some examples include:

1. Wastewater generated from parking lots, storage areas, and gas stations may contain oil, gas, solvents, antifreeze, metals, and/or pesticides.

2. Washing building exteriors with paint made prior to 1978 may contain lead.

Generating hazardous waste may dramatically increase operating costs and limit disposal options. Contact the Monterey County Division of Environmental Health for more information on hazardous waste determination and disposal.

BMPS APPLICABLE TO THE WASHING AND/OR CLEANING OF EXTERIOR SURFACES (E.G. SIDEWALKS, PARKING LOTS, BUILDING EXTERIORS, ETC.)

The Goal and Purpose of these BMPs is to minimize or prevent the discharge of pollutants into storm drains from washing and/or cleaning operations by either (1) discharging wash waters to the sanitary sewer, (2) containing wash water for offsite disposal to a suitable discharge facility, or (3) directing wash water to landscaped or other unpaved areas.

These BMPs apply to cleaning and/or power washing of surfaces including, but not limited to, sidewalks and plazas; parking areas; driveways, drive-thrus; restaurant/food handling cleaning and storage areas; building exteriors, roofs and decks; painted surfaces being cleaned to remove paint or graffiti; and graffiti removal.

Use These Best Management Practices:

BMP-1 Planning: Determine what collection method you will be using and where you are going to discharge wastewater before starting a new job. Identify where all storm drains are located in the vicinity of the jobsite. Never discharge wastewater into a street, ditch, storm drain, or maintenance hole. Obtain all necessary permits and authorizations. If you are going to discharge into the sanitary sewer system at the job site, or on unpaved areas at the job site, always obtain the property owner's permission.

BMP-2 Surface Pre-Cleaning: Before washing use dry methods for surface pre-cleaning whenever possible. In many cases the amount of wash water that will need to be collected and disposed of can be reduced, if this process is followed:

1. Use absorbents (such as rags, absorbent mats or pads, rice hull ash, cat litter, vermiculite, or sand) to pick up greasy or oily materials and spills.

2. Sweep or vacuum to pick up litter, trash, debris, dirt, and used absorbents.

3. Waste materials from dry cleanup such as absorbents, paint chips, etc. may often be disposed of in the trash. Check with the local solid waste authority to be sure. Rags may be sent to an industrial laundry. Know which pre-cleaning wastes may be hazardous waste

BMP-3 Washing and Cleaning: Minimize the amount of water used during washing and cleaning to reduce the amount of wash water that will need to be disposed. Avoid cleaning products that contain hazardous substances (e.g. hydrofluoric acid, muriatic acid, sodium hydroxide, bleach, etc.) that can create hazardous waste. Avoid acidic, caustic, and other products that may damage paved or coated surfaces. When possible, avoid using soap – even biodegradable soap is harmful to the environment. Before using soap, test to see whether hot water under pressure will do the job. Avoid using solvent-based cleaners (especially chlorinated solvent cleaners).

Beware of pressure washing surfaces that contain lead-based paint, or areas with freestanding liquids (e.g. oil, solvents, antifreeze, etc.). Pressure washing these types of surfaces may generate hazardous waste (e.g., lead-based paint chips, oil/grease, hydrofluoric acid, muriatic acid, etc.). Generating hazardous waste may dramatically increase your operating costs and limit your disposal options. For more information on hazardous waste determination call the Monterey County Division of Environmental Health at (831) 647-7654 or 755-4511.

BMP-4 Wash Water Containment and Collection: Contain and collect the wash water and dispose of it as described below. Decide what is the best method of collection (e.g. berms, storm drain cover mats, containment pools, vacuums/pumps, vacuum boom, inflatable pipe plug, etc). Locate property high and low spots to determine where wash water can be pooled for collection.

A simple and acceptable method for collecting wash water on private property requires only a drain plug, small sump pump, and a length of hose. If a small parking-lot-type catch basin is available, remove the grate, plug the drain pipe (usually 2, 3, or 4 inches in diameter), and place the pump in the catch basin, attached to a garden hose which will discharge to disposal (see section below regarding disposal). Vacuum booms are another option for capturing and collecting wash water. Sand bags can be used to create a barrier around storm drains, and plugs or rubber mats can be used to seal storm drain openings. Other common equipment used for containing and collecting wash water generated during pressure washing activities include: vacuum pumps, booms/berms, portable containment areas, weighted storm drain covers, oil/water separators, holding tanks, portable sump pumps, absorbents, and more. These are described in more detail below.

Avoid mixing non-hazardous wash water with wash water known to contain hazardous levels of pollutants. This will increase the volume of waste that requires treatment and/or disposal as a hazardous waste, thus increasing disposal costs. Do not leave areas of wash water on paved surfaces for evaporation. Sweep up any visible solids and sediments remaining after all the wash water has been collected.

Surface cleaning wastewater that contains visible debris or residue, soap, detergent or other cleaning agents, hazardous waste, or excessive amounts of any pollutant, may not be left on paved surfaces to evaporate because the residues will eventually be discharged to the storm drain system.

For additional information about containing wash water, see the Section titled "Devices That May be Used to Contain and Collect Wash Water."

BMP-5 Wash Water Disposal:. Do not discharge wash water to storm drain. Once wash water has been collected, either (1) discharge it to the sanitary sewer, or septic system via the sanitary sewer clean-out or sanitary sewer inlet at the point of generation (job site), (2) discharge it to landscaping or other suitable unpaved areas, or (3) collect it in a container for later disposal at an appropriate off-site location. Such locations could include a liquid waste receiving facility at a municipal wastewater treatment plant, such as MRWPCA's

Regional Treatment Plant located north of the City of Marina, or the sanitary sewer at the pressure washer's place of business using the sewer clean out. Use of disposal options (1) and (2) require the property owner's permission.

Discharges to the sanitary sewer must comply with the discharge requirements of the appropriate wastewater authority. The requirements of the two principal wastewater authorities within the area covered by the Monterey Regional Storm Water Management Program (MRSWMP) are described in the Section titled "Requirements for Discharge to the Sanitary Sewer."

When cleaning surfaces such as buildings and decks without loose paint, sidewalks, or plazas without soap, thorough dry cleanup should normally be sufficient to allow the wash water to be discharged to the sanitary sewer without pretreatment. However, if any debris is present in the wash water it should first pass through a "20 mesh" or finer screen to remove the material before discharging it to the sanitary sewer. The material that is removed should be disposed of in the trash.

Discharges of surface cleaning wastewater to a septic system must be approved by the Monterey County Division of Environmental Health. Discharges that contain hazardous waste, have the potential to harm septic systems, or are likely to contaminate groundwater, will not be approved.

With the property owner's permission wash water can sometimes be disposed of to landscaping or other unpaved areas. If this means of disposal is being considered, first check the slope of the intended disposal area to be sure there will be no runoff into a street, gutter, or waterway. Also, ensure that the wash water will not create a nuisance condition or contain food products or contaminants (i.e. solvents, cleaners, oils, metals, etc.) that may constitute a hazardous waste. If disposal to landscaped areas is being considered, avoid damage to plants and soil by minimizing or eliminating the use of soaps, detergents, and chemicals. In addition, minimize the use of water to avoid wash water overflowing from these areas. Repeated discharges to landscaped areas may result in an accumulation of contaminants, thus damaging vegetation and increasing contaminant levels in the soil. If the soil is very dry, wet it down thoroughly before discharging, so that wash water will soak into the soil instead of running off to the street, gutter, or storm drain. Wash water disposal to land must not create a nuisance condition. Wash water containing garbage, food wastes, or visible trash may not be discharged to land.

Be sure to read cleaning product labels before disposing of wash water. Follow use and disposal instructions carefully. If there is any question as to whether a wash water, or waste material, is considered to be a hazardous material, check with the Monterey County Division of Environmental Health to make this determination and properly dispose of these materials. Depending on the condition of the surface being cleaned, the wastewater generated could be classified as hazardous waste. Some examples include:

3. Wastewater generated from parking lots, storage areas, and gas stations may contain oil, gas, solvents, antifreeze, metals, and/or pesticides.

4. Washing building exteriors with paint made prior to 1978 may contain lead.

Generating hazardous waste may dramatically increase operating costs and limit disposal options. Contact the Monterey County Division of Environmental Health for more information on hazardous waste determination and disposal.

DEVICES THAT MAY BE USED TO CONTAIN AND COLLECT WASH WATER

The following are examples of devices that may be used to contain and collect wash water. The collection devices described are not endorsed and are only provided as a reference tool. In addition, there may be other containment devices available, which are not listed. Note: When working with electrical equipment in wet environments, it is important to understand and comply with applicable health/safety and electrical codes, and well as utilize appropriate safety equipment (e.g. Ground Fault Interrupters, etc.)

For information about where equipment and materials of these types can be obtained, see the Section titled "Sources of Equipment and Supplies."

Berms

Berms may be used to prevent wastewater from entering a storm drain by placing a protective barrier around the storm drain inlet, thus allowing wastewater to pool around the inlet prior to proper collection and disposal. This type of containment may be less effective or ineffective when the storm drain is located at the bottom of a slope and/or a large amount of wastewater is generated.

Storm Drain Covers/Mats

These devices are placed on top of the storm drain cover grate, creating a quick seal, thus preventing wastewater from entering the storm drain system. Storm drain covers/mats (magnetic vinyl mats, PVC drain covers, polyurethane mats, and others) allow wastewater to accumulate on top of it until the pressure washing activity is complete and the wash water can be collected for proper disposal. Storm drain covers/mats are frequently used along with a vacuum device that diverts wastewater into the sanitary sewer.

Containment Pools

A portable or temporary containment pool is another option which may be used to collect wash water. Containment pools are easy to assemble, provide an immediate work area, and allow wash water to be collected in a manner that will prevent pollutants from entering the storm drain system. Containment pools vary in size and material and can also be used for washing equipment and vehicles.

Vacuums/Pumps

Devices such as wet/dry vacuums, sump pumps, and vacuum pumps may be used to collect and dispose of wash water after pressure washing. Vacuum devices typically have an extension (vacuum boom) which allows the water to be collected efficiently. In addition, many vacuum devices are equipped with a hose that can run from the pump to the sanitary sewer, a treatment device, or a holding tank depending on the disposal method.

Vacuum Boom

Vacuum booms are an attachment for the vacuum device. The boom typically rests flush on the ground and draws wastewater through small holes on the bottom of the boom. In addition, different varieties of vacuum booms are available for areas with steep slopes or rough terrain.

Inflatable Pipe Plug

Inflatable pipe plugs prevent wash water from entering a storm drain system by blocking the pipe leading from the drain inlet. Unlike the storm drain mats/covers that block the storm drain grates, the inflatable pipe plug is inserted into the storm drain pipe and uses the inlet structure beneath the grate to collect the wash water. Once inserted, the plug is inflated to make a snug fit. Once the wash water has been contained, it can be collected and disposed by using a portable pump device. Note: inflatable pipe plugs should only be used in storm drains on private property. They are not authorized to be used in public storm drain inlets or pipes.

CONSTRUCTION SITE BMPs

This guidance specifies Best Management Practices (BMPs) for construction sites that shall be employed to protect water quality during construction. At a minimum, every construction site shall employ applicable BMPs outlined below. The additional best management practices, measures and controls described below shall be employed as applicable and to the maximum extent practicable to prevent pollutants from entering stormwater runoff. For additional details on items shown with an asterisk (*), see Section 4 “Sources of Additional Information” in this Guidance Series.

Section 1.0 Construction Site Planning BMPs

Project proponent must develop and implement a plan to manage storm water and non-storm water discharges from the site at all times. Grading during the wet season must be minimized and should coincide with seasonal dry weather periods to the maximum extent practicable. If grading does occur during the wet season, project proponent is required to implement additional BMPs for any rain events which may occur.

1.1 Site Plan

1.1.1 Plan the development to fit the topography, soils, drainage pattern and natural vegetation of the site.

1.1.2 Remove existing vegetation only when absolutely necessary.

1.1.3 Delineate clearing limits, easements, setbacks, sensitive or critical areas, trees, drainage courses, and buffer zones to prevent excessive or unnecessary disturbances and exposure.

1.1.4 Avoid construction on steep slopes*

1.1.5 Minimize cuts and fills*

1.1.6 Align temporary and permanent roads and driveways along slope contours*

1.2 Other Measures

1.2.1 Phase grading operations to reduce disturbed areas and time of exposure

1.2.2 Avoid excavation and grading during wet weather

1.2.3 Winterize construction site*

Section 2.0 Erosion and Sediment Control BMPs

Project proponent must stabilize all slopes and emphasize erosion prevention as the most important measure for keeping sediment on site during construction, and must utilize sediment controls as a supplement to erosion prevention for keeping sediment on-site during construction, and never as the single or primary method.

2.1 Soil Cover

2.1.1 Install cover materials such as vegetative debris, mulch, crushed stone, geotextile fabric, erosion control blankets*

2.1.2 Use soil stabilizers as appropriate*

2.1.3 Use temporary seeding and planting to reduce erosion potential*

2.1.4 Temporarily stabilize and reseed disturbed soil areas as rapidly as possible

2.1.5 Permanently re-vegetate or landscape as early as maximally practicable

2.2 Tracking Control (for sites where on-site room allows for these measures)

2.2.1 Construct stabilized access roads and entrances*

2.2.2 Construct entrance/exit tire wash*

2.2.3 When cleaning sediments from streets, driveways and paved areas on construction sites, use dry sweeping methods where possible. If water must be used to flush pavement, collect runoff in temporary storage tanks to settle out sediments prior to discharge to the storm drains, and protect storm drain inlets.

2.3 Structures to Control and Convey Runoff

2.3.1 Earth dikes, drainage swales and ditches*

2.3.2 Slope drains and subsurface drains*

2.2.3 Velocity dissipation devices*

2.3.4 Flared culvert end sections*

2.3.5 Check dams*

2.4 Other Measures

2.4.1 Slope roughening/terracing/rounding*

2.4.2 Level spreader*

2.5 BMPs to Capture Sediment

2.5.1 Use terracing, riprap, sand bags, rocks, straw bales, and/or temporary vegetation on slopes to reduce runoff velocity and trap sediments. Do not use asphalt rubble or other demolition debris for this purpose.

2.5.2 Protect storm drain inlets from sediment-laden runoff. Storm drain inlet protection devices include sand bag barriers, filter fabric fences, block and gravel filters, and excavated drop inlet sediment traps.*

2.5.3 When dewatering the site, remove sediment from the discharge using filtration methods. Mobile units specifically designed for construction site dewatering can be rented for this purpose.

2.6 Other Controls (as required)

2.6.1 Silt fence*

2.6.2 Straw bale barrier (other than at storm drain inlets)*

2.6.3 Sand bag barrier*

2.6.4 Brush or rock filter*

2.6.5 Sediment trap*

2.6.6 Temporary sediment basin*

*For additional details, see Section 4.0 “Sources of Additional Information” below.

Section 3.0 General Site and Materials Management

3.1 All Construction Sites

3.1.1 Identify all storm drains, drainage swales, channels, sloped areas, and creeks located on or near the construction site and make sure all subcontractors are aware of their locations and use appropriate methods to prevent pollutants from entering them.

3.1.2 Clean up leaks, drips, and other spills immediately.

3.1.3 Refuel vehicles and heavy equipment in one designated location.

3.1.4 Wash vehicles at an appropriate off-site facility. If equipment must be washed on-site, do not use soaps, solvents, degreasers, or steam cleaning equipment, and prevent wash water from entering the storm drain.

3.1.5 Never wash down pavement or surfaces where materials have spilled. Use dry cleanup methods whenever possible.

3.1.6 Avoid contaminating clean runoff from areas adjacent to your site by using berms and/or temporary or permanent drainage ditches to divert water flow around the site.

3.1.7 Keep materials out of the rain. Schedule clearing or heavy earth moving activities for periods of dry weather. Cover exposed piles of soil, construction materials and wastes with plastic sheeting or temporary roofs. Before it rains, sweep and remove materials from surfaces that drain to storm drains, creeks, or channels.

3.1.8 Place trash cans around the site to reduce litter. Dispose of non-hazardous construction wastes in covered dumpsters or recycling receptacles. Recycle leftover materials whenever possible.

3.1.9 Dispose of all wastes properly. Materials that can not be reused or recycled must be taken to an appropriate landfill or disposed of as hazardous waste.

3.1.10 Cover open dumpsters with plastic sheeting or a tarp during rainy weather. Secure the sheeting or tarp around the outside of the dumpster. If your dumpster has a cover, close it.

3.1.11 Train your employees and inform subcontractors about the stormwater requirements and their own responsibilities.

3.2 Construction Projects Involving Paint Work

3.2.1 Non-hazardous paint chips and dust from dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash. Chemical paint stripping residue and chips and dust from marine paints or paints containing lead or tributyl tin must be disposed of as a hazardous waste.

3.2.2 When stripping or cleaning building exteriors with high-pressure water, cover or berm storm drain inlets. If possible (and allowed by your local wastewater authority), collect (mop or vacuum) building cleaning water and discharge to the sanitary sewer.

3.2.3 Never clean brushes or rinse paint containers into a street, gutter, storm drain, or creek.

3.2.4 For water-based paints, paint out brushes to the extent possible and rinse to a drain leading to the sanitary sewer (i.e., indoor plumbing).

3.2.5 For oil-based paints, paint out brushes to the extent possible, and filter and reuse thinners and solvents. Dispose of unusable thinners and residue as hazardous waste.

3.2.6 Recycle, return to supplier or donate unwanted water-based (latex) paint.

3.2.7 Dried latex paint may be disposed of in the garbage.

3.2.8 Unwanted oil-based paint (that is not recycled), thinners, and sludges must be disposed of as hazardous waste.

3.3 Construction Projects Involving Cement and Concrete Work

3.3.1 Avoid mixing excess amounts of fresh concrete or cement mortar on-site.

3.3.2 Store dry and wet materials under cover, protected form rainfall and runoff.

3.3.3 Wash out concrete transit mixers only in designated wash-out areas where the water will flow into settling ponds or onto dirt or stockpiles of aggregate base or sand. Pump water from settling ponds to the sanitary sewer, where allowed. Whenever possible, recycle washout by pumping back into mixers for reuse. Never dispose of washout into the street, storm drains, drainage ditches, or creeks.

3.3.4 Whenever possible, return contents of mixer barrel to the yard for recycling. Dispose of small amounts of excess concrete, grout, and mortar in the trash.

3.4 Construction Projects Involving Roadwork/Pavement Construction

3.4.1 Apply concrete, asphalt, and seal coat during dry weather to prevent contaminants from contacting stormwater runoff.

3.4.2 Cover storm drain inlets and manholes when paving or applying seal coat, slurry seal, fog seal, etc.

3.4.3 Always park paving machines over drip pans or absorbent materials, since they tend to drip continuously.

3.4.4 When making saw-cuts in pavement, use as little water as possible. Cover each storm drain inlet completely with filter fabric during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the catch basins. Use a wet-dry vacuum to pick up slurry prior to drying or after the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site.

3.4.5 Wash down exposed aggregate concrete only when the wash water can: (1) flow onto a dirt area; (2) drain onto a bermed surface from which it can be pumped and disposed of properly; or (3) be vacuumed from the area along the curb where sediment has accumulated by blocking a storm drain inlet.

3.4.6 Allow aggregate rinse to settle, and pump the water to the sanitary sewer if allowed by your local wastewater authority.

3.4.7 Never wash sweepings from exposed aggregate concrete into a street or storm drain. Collect and return to aggregate base stockpile, or dispose with trash.

3.4.8 Recycle broken concrete and asphalt.

Section 4.0 Sources of Additional Information

Additional information on Construction Site Controls is available in the publications listed below.

4.1 California Stormwater Quality Association (2003) Storm Water Best Management Practice Handbook – Construction.

4.2 Association of Bay Area Governments. 1995. Manual of Standards for Erosion and Sediment Control Measures. A comprehensive filed guide for controlling soil erosion in California.

4.3 BASMAA. 1996. Start at the Source – Residential Site Planning and Design Guidance Manual.

4.4 Caltrans. (2003) Storm Water Quality Handbooks – Construction Contractors Guide and Specifications. May.

4.5 California RWQCB, San Francisco Region, Erosion and Sediment Control Field Manual (most recent edition).

4.6 Caltrans (2003), Storm Water Quality Handbooks – Project Planning and Design Guide.

POST-CONSTRUCTION BMPS FOR NEW DEVELOPMENT AND REDEVELOPMENT

The focus of this guidance is post-construction BMPs for new development or redevelopment projects. Post-construction BMPs are grouped into three types:

1. Site Planning Measures that avoid or reduce disturbance of the site and limit the addition of impervious surfaces;

2. Pollution Prevention and Source Control Measures that reduce or eliminate potential future sources of pollutants; and

3. Treatment Control Measures that treat polluted runoff from new development/redevelopment sites.

This guidance is focused strictly on specific controls that can be incorporated into individual development projects to avoid or reduce the pollutants from the particular project. Where appropriate, pros and cons are described along with typical conditions under which these controls have been found to be effective.

The best opportunities for post-construction controls are available in larger projects or when implemented on a regional basis, and most of this guidance emphasizes controls that can be introduced in larger new development/redevelopment projects through the discretionary approval process. The second section of this guidance presents a list of controls that can be employed for small infill-type projects which are subject only to the ministerial approval process where the opportunities are limited.

Projects requiring discretionary approval from the local jurisdiction include almost all projects except minor infill development. This discretionary approval process is commonly the design review process, although other discretionary approvals such as a use permit or a subdivision map approval may also be triggered depending on the characteristics of the project.

Projects requiring ministerial approval are small improvement projects that conform to the site zoning requirements and include either a new single-family unit or minor modifications to an existing single family unit or a single structure. Such projects typically do not need discretionary approval, but will in all cases need a ministerial permit, such as a building or a grading permit.

Post-Construction BMPs for Projects Requiring Discretionary Approvals

Site Planning BMPs

This group of post-construction controls includes site planning to protect sensitive resources at or near the site and the use of alternate paving and cover materials to reduce the amount of impervious surfaces added by a new development. Studies have shown that in single-family residential areas, streets are the primary producers of runoff, and sidewalks and lawns, if properly vegetated, are a minor source. In multi-family developments, streets, parking lots and roofs generate similar quantities of runoff. In commercial/industrial areas, parking lots and roofs are the main generators of runoff. It follows then that to reduce impervious surfaces, in single-family residential areas reduction of street width and driveway lengths should be the primary strategy, while in multi-family developments and industrial/commercial areas, strategies should focus on reducing parking lots and the footprint of buildings. For more information on site planning, refer to “Start at the Source Residential Site Planning and Design Guidance Manual for Stormwater Quality Protection”, available from BASMAA.

Site planning BMPs that minimize impervious surface and maximize infiltration are described below:

1. Cluster development – Concentrate the development on a limited portion of the site and leave the remaining portion undisturbed. This should be used where appropriate without creating other hazards such as those of access during emergencies.

2. Preserve natural drainages – This measure includes not filling in the natural drainage features at the site, maintaining invert/streambeds to maximize capacity, and providing vegetated setbacks or buffer strips outside of the maximum water surface level. Main concerns are related to safety especially of children and future need for mosquito/pest control.

3. Reduce sidewalk widths, especially in low-traffic areas – This control provides limited runoff reduction benefits, and reduction of width may not possible due to Americans with Disabilities Act (ADA) requirements.

1. Avoid curb and gutter along driveways and streets where appropriate – This is recommended in areas where flooding and ponding of water creating mosquito habitat is not a problem. Replace with swales.

2. Use alternate paving materials/porous/permeable materials, where appropriate – This measure includes use of alternate paving materials (e.g., porous asphalt, pervious concrete, pavers), landscaping, mulch, gravel and cobbles where appropriate to provide ground cover, and reduce the use of asphalt or other impervious pavement. Pavers are recommended for driveways, walkways, and patios in single-family residences where the site does not generate highly polluted runoff (that could contaminate groundwater if it were to infiltrate) and where ADA requirements do not have to be met. In non-residential areas, pavers are recommended for emergency access roads, overflow parking areas, and non-handicapped parking stalls. (Note: Some types of alternate paving materials may not be suitable where heavy loads (e.g. truck movement) are anticipated.) For more information on alternate paving materials, see Post-Construction Controls for New Development Fact Sheets available from BASMAA.

3. Reduce the length of driveways or infiltrate driveway runoff – This control applies mainly to single-family residential units. If reduction of the driveway length is not possible, grade and construct driveway so that runoff from driveway is directed to the adjacent landscaped areas.

4. Reduce street width by eliminating on-street parking (where such actions do not pose a safety hazard) – This measure can be generally used in new residential areas. In addition to reducing the impervious area, this control has the added benefit of removing cars from streets and making street sweeping easier and more effective. If on-street parking in residential areas is eliminated, the developer must provide adequate off-street visitor parking.

5. Reduce alley width or use alternate materials for paving alleys – If alleys are included in a proposed development, width should be minimized or alternate paving materials should be used.

6. Set aside open space – This control is recommended for all developments (residential and non-residential). The main concern with open space relates to maintenance, weed control, and fire prevention. This group includes controls that can be incorporated into new development/redevelopment projects to avoid pollution in the long run by eliminating sources.

Pollution Prevention and Source Control BMPs

This group of BMPs includes controls that can be incorporated into new development/redevelopment projects to avoid pollution by eliminating sources.

1. Provide green areas where pets can be exercised – Pet excrement is a major source of bacteria in urban runoff. Provide green areas in new residential developments where people can walk their pets and keep pet excrement away from sidewalks and streets.

2. Install landscaping or other cover – Clearing and grading of surfaces in new development can increase potential for erosion. Install landscaping or other cover materials to minimize erosion from graded surfaces. Use of native plant materials is recommended because native plants require less maintenance and irrigation, and are typically more resistant to fires than non-native grasses. Native plants do take longer to cover slopes, therefore during the first few years, supplemental protection (erosion blanket, mulch, etc.) will be necessary.

3. Incorporate low-maintenance landscaping – At sites where erosion may not be a concern but landscaping is proposed as part of the development, use low-maintenance landscaping that does not require frequent fertilizer, pesticide and herbicide application. Assistance in identifying the types of trees, shrubs, and ground cover that would work in the community, based on local climatic and soil conditions, can be obtained from garden centers, landscapers, and other sources.

4. Label storm drains to discourage dumping – Label all storm drain inlets and catch basins within the project area with prohibitive language (such as: “NO DUMPING – DRAINS TO OCEAN”) and/or graphical icons to discourage illegal dumping. Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area. Legibility of stencils and signs must be maintained.

5. Where possible, eliminate gutters/roof drains or direct runoff to landscaped areas – Roof drains can be eliminated only in one to two-story buildings. Where these cannot be eliminated, direct the downspout of the gutter to a landscaped area or into an infiltration trench. Install several gutters to distribute the flow.

6. Construct designated vehicle wash area – In new residential developments involving more than 50 units, construct a designated vehicle wash area so that the runoff from vehicle washing can be property treated and/or disposed. Contact the local wastewater authority to determine if the discharge can be plumbed to the sanitary sewer. If not, provide appropriate treatment and disposal of this runoff.

7. Where possible use underground parking and the construction of multi-storied parking structures – For commercial projects build underground or multi-story parking structures so that not only is impervious surface minimized but the parking surfaces are under a roof and not exposed to storm water.

8. Where possible use cooperative or shared parking – For commercial areas this may be a cooperative effort between commercial entities or between commercial entities and the City.

9. Use alternate paving materials for parking lots – This control is recommended for overflow parking areas and for less frequently used parking spaces (typically these are spaces along the periphery of the parking lot that will not have to meet ADA requirements and due to low usage there will be less concern regarding pollution of groundwater through infiltration of stall runoff).

10. Use measures to reduce building footprint and increase use of taller structures (where appropriate) – This control is recommended for commercial and municipal structures, where it would also be consistent with other City planning and building requirements.

11. Berm waste storage areas – Grade and pave outdoor waste receptacle areas to prevent run-on of storm water, and install a low containment berm around it. Alternately, construct a covered enclosure with wash-down capabilities plumbed into the sanitary sewer, after first contacting the local wastewater authority to verify that this practice will be acceptable.

12. Install valves on storm drain inlets in loading dock areas – At commercial/industrial facilities where loading docks are proposed, install a valve(s) to control runoff in the event of spills.

Treatment BMPs

This group of BMPs includes controls that can be built at new development and redevelopment sites to capture and treat the polluted runoff before it enters the City's storm drain system or other receiving waters. Those BMPs which are feasible for the proposed development should be incorporated into its design.

Treatment control design standards, depending on the type of units, are based on either treating a given volume of runoff (e.g., first 0.5 inch of runoff) or a peak flow rate associated with a design storm. The volume approach is often utilized for small catchments where there tends to be a "first flush" condition (e.g., a parking lot). Design storms for storm water controls may be small (e.g. recurrence intervals of 3 months to 2 years) compared to flood control designs standards because of the need to minimize the size and cost of the unit, and because most runoff is associated with the more frequent smaller events. Treatment controls must be designed such that volumes and flows in excess of the design standard bypass the unit, otherwise there is the possibility of aggravating flooding and also causing re-suspension of previously captured sediments or other constituents. Also, all of the treatment BMPs described below require some inspection, maintenance, and disposal of solids to ensure optimum performance and often to avoid flooding.

1. Rooftop Catchment Systems – These are rooftops which can sometimes be designed into large commercial and industrial sites to pool stormwater which, following the storm, evaporates. This effectively eliminates rooftop runoff from the storm drain system, and thereby reduces the hydraulically-connected impervious area. Another function of these systems is to slow down the runoff to reduce peaks. Problems with rooftop catchment systems are mainly related to leakage.

2. Vegetated Filter Strips – Vegetated filter strips, buffer strips, or riparian buffer zones are strips of vegetation placed between receiving waters (e.g., along streams) and pollutant sources. The effectiveness of the strips depend primarily on the width of the strip, and the vegetation type and condition. Strips of 100-300 feet in width are often considered. Such strips have been successfully applied to urban, agricultural, and forestry situations. Vegetation type selection must take into account the climate and usually should be drought-resistant. Maintenance is primarily annual cutting. Such strips are recommended for developments located along receiving waters such as streams, rivers and lakes, but outside the flood control boundary.

3. Vegetated Swales – Swales are shallow low gradient channels that are vegetated. They are commonly applied in rural residential areas in lieu of traditional curb/gutters and underground stormwater drainage pipes. Water quality improvement is achieved primarily through filtration, and performance is dependent on the swale hydraulic capacity and vegetation type and condition. Influent water should be relatively free of coarse sediment to avoid burying the vegetation. Where sediment loads are of concern, sediment settling basins can be provided upstream of the swales. Maintenance consists primarily of vegetation management and settling basin cleanouts. Swales are generally recommended for low-density residential developments located in relatively flat terrain.

4. Infiltration Basins – Infiltration basins store and infiltrate stormwater into the surficial groundwater aquifer. Performance is critically dependent on soil porosity and adequate depth to groundwater. Such conditions are typical of inland valleys, in contrast to low lying coastal areas. In order to maintain recharge rates, influent water may require pretreatment to remove sediments. Infiltration basins are effective at reducing runoff rates and volumes and can provide water supply benefits through aquifer recharge. Maintenance primarily consists of periodic removal of accumulated trash, debris and sediments to maintain recharge rates. Infiltration basins are generally recommended in areas where the depth to groundwater is relatively high and the soils are highly pervious. Where such conditions exist, this technology is generally applicable to the entire range of urban development, although the potential for groundwater contamination is often of concern in industrial areas.

5. Infiltration Trenches – Infiltration trenches are shallow drains filled with high porosity materials (e.g. gravel). Stormwater discharged to these trenches is stored during the runoff event and infiltrates into the groundwater during dry weather periods. As with infiltration basins, performance requires porous sub-soils and adequate depth to the groundwater table. The acceptability and designs of infiltration trenches must take into consideration the potential for infiltrating water to adversely affect soil strength around foundations. Infiltration trenches are generally not recommended for roof runoff near buildings because of building code requirements; but can be effective as part of the overall open channel drainage system.

6. Dry Detention Ponds/Basins – These are basins designed to temporarily store and treat storm water prior to gradually releasing it downstream. Such basins can provide flood control and storm water treatment benefits. Treatment performance depends on storage volume (12-24 hours of residence time is considered a good rule of thumb), and good circulation (avoidance of short circuiting). A major factor limiting good performance is that, during larger storm runoff events, water entering a dry basin may re-suspend previously settled material in which case the ponds may act as a source of sediment and associated chemicals. In general dry basins are not as effective as wet basins (discussed below), however, in certain arid areas, wet basins are not feasible. Performance of dry basins can be improved by incorporating slow release outlet structures. Such basins are generally applicable to residential, commercial, and industrial development in areas where there is insufficient runoff to maintain wet basins.

7. Retention Ponds/Wet Basins – These are basins that contain a permanent pool of water. Such ponds can provide flood control, ecological, and water quality benefits. The performance of wet basins depends on the size of the basin, watershed characteristics, and influent conditions. The primary treatment process in retention ponds is settling. Maintenance is required for removing debris, vegetation management, and maintaining the inlet and outlet structures. Accumulation rates in such basins typically require that accumulated sediment be removed about once every 10-20 years. Retention ponds are generally applicable to most urban situations, as long as there is adequate space for the facility and acceptable geological conditions.

8. Constructed/Restored Wetlands – In addition to providing flood control and water supply benefits through artificial recharge of groundwater, constructed wetlands designed for stormwater management provide water quality benefits through a number of processes including sedimentation, filtration, absorption, biological processes, and nutrient uptake. Pollutant removal performance depends on the size of the wetland relative to the watershed, the design of the wetland, and the type and composition of wetland vegetation. Wetlands also provide additional ecological and recreational benefits. If a significant amount of sedimentation is anticipated, a deep settling basin could be constructed (which the water would enter prior to reaching the wetland). The basin would require periodic maintenance to remove accumulated sediment. Constructed wetlands require maintenance, especially in the first 5-10 years during which vegetation is growing and natural seeding is occurring. Providing suitable hydrologic conditions for vegetation growth and water treatment is key to successful performance of constructed wetlands. Constructed wetlands are generally applicable to most urban situations, as long as there is adequate space for the facility, an adequate source of water, and appropriate soils. In California, such wetlands would likely be seasonal in nature. The cost of urban lands often preclude this type of treatment in the more densely developed portions of urban areas.

A variation of this control is the use of existing wetlands for urban runoff treatment. Existing wetlands at or downstream of a new development/redevelopment project can be enhanced to improve hydrology, and runoff from the development project can be directed to the wetlands. Note that the dry detention ponds/basins, retention ponds/wet basins, and the constructed wetlands need to be periodically

monitored for accumulation of toxic materials, and provisions made for cleanout and disposal pretreatment may be added (to remove heavy sediment trash and debris) to reduce maintenance. If a significant amount of sediment is anticipated, a deep settling basin could be constructed. This would also need to be periodically cleaned out to maintain capacity.

9. Filtration Systems – Filtration systems convey stormwater through filter media (e.g., sand, compost, charcoal) to treat the storm water. The chemicals treated vary depending on the type of media and may include fine sediment, colloidal material, hydrocarbons, organics, nutrients and dissolved metals. Such systems come in many sizes and designs including: (1) inserts placed in individual storm drain inlets, (2) linear units that treat stormwater from small impervious areas such as parking lots, and (3) large 1-2 acre sand filters that treat runoff from urban catchments. Filters are effective as long as the capacity of the filter is not exceeded, and the filter is not allowed to clog. Filter inserts are particularly problematic in this regard, and recent testing and evaluation questions their applicability where material in runoff will clog or block the filter. In stormwater applications filter systems are required to remove blocking materials (leaves, trash, debris, sediments, oil and grease) and storage to better manage flow rates. Experience to date with filter type inserts for drain inlets suggest that the units are easily clogged with sediment and debris, with resultant bypassing of most of the flows. Therefore, inserts are not recommended unless frequent inspection and cleaning is performed. Filtration systems will have limited application in small well-maintained parking lots.

10. Oil/Grit Separators – Oil/grit (gravity) separators are usually multi-chambered treatment units that are placed underground and treat stormwater from a drainage catchment. The individual chambers often are designed to trap grit and floatables, and adsorb hydrocarbons. Flows in excess of the design capacity should be diverted around the unit, otherwise there is the possibility that sediment previously trapped in the chambers will be re-suspended and flushed downstream. Inspection and maintenance is required to ensure that the units are not filling up with sediment, as accumulation can affect performance. Traditional gravity oil/water separators that utilize skimming devices and coalescing plates (to increase droplet size and capture) are generally not applicable to stormwater conditions where total hydrocarbon concentrations are generally less than 10 mg/l. The performance of oil/grit separators varies depending on the chosen design. Research should be done before selecting any separators to verify that they will perform as desired. In general, oil/grit separators are useful only at sites where there are chances that oil spills could occur and to a limited degree at development sites that have high oil and grease loadings such as petroleum storage yards and vehicle storage facilities.

Post-Construction BMPs for Projects Requiring Ministerial Approvals

1. Incorporate low-maintenance landscaping – Use low-maintenance drought-tolerant landscaping that does not require frequent fertilizer, pesticide and herbicide application.

2. Label storm drains to discourage dumping – Label all storm drain inlets and catch basins within the project area with prohibitive language (such as: “NO DUMPING – DRAINS TO OCEAN”) and/or graphical icons to discourage illegal dumping. Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area. Legibility of stencils and signs must be maintained.

3. Where possible, direct gutters to landscaped areas – Roof drains may be eliminated only in one to two-story buildings. Where these cannot be eliminated, direct the downspout of the gutter to landscaped area or into an infiltration trench. Install several gutters to distribute the flow. Note that roof drains may be eliminated in residential and some commercial areas only, and should not be eliminated in industrial areas.

4. Use alternate paving materials/porous/permeable materials, where appropriate – Use alternate paving materials (pavers), landscaping, mulch, gravel and cobbles where appropriate to provide ground cover, and reduce the use of asphalt or other impervious pavement. Pavers are recommended for driveways, walkways, and patios in single-family residences where the site does not generate highly polluted runoff (that could contaminate groundwater if it were to infiltrate) and where ADA requirements do not have to be met. In non-residential areas, pavers are recommended for emergency access roads, overflow parking areas, and non-handicapped parking stalls. These are not recommended where heavy loads (e.g. truck movement) are anticipated. For more information on alternate paving materials, see Post-Construction Controls for New Development Fact Sheets available from BASMAA.

Providing Proof of Ongoing Post-Construction BMP Maintenance

As part of project review, if a project applicant is required to include Structural or Treatment Control BMPs in project plans, the City will require that the applicant provide verification of maintenance provisions through such means as may be appropriate, including, but not limited to legal agreements, covenants, CEQA mitigation requirements and/or Conditional Use Permits.

For all properties, the verification will include the developer's signed statement, as part of the project application, accepting responsibility for all structural and treatment control BMP maintenance until the time the property is transferred and, where applicable, a signed agreement from the public or private entity assuming responsibility for Structural or Treatment Control BMP maintenance. A sample agreement is included in Attachment A at the end of this section.

The transfer of property to a private or public owner shall have conditions requiring the recipient to assume responsibility for maintenance of any Structural or Treatment Control BMP included in the sales or lease agreement for that property. The condition of transfer shall include a provision that the property owners conduct maintenance inspection of all Structural or Treatment Control BMPs at least once a year and retain proof of inspection. For residential properties where the Structural or Treatment Control BMPs are located within a common area which will be maintained by a homeowner's association, language regarding the responsibility for maintenance shall be included in the projects conditions, covenants and restrictions (CC&Rs).

Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

Sources of Additional Information

For additional information on post-construction controls for new development and redevelopment projects, see the following:

Bay Area Stormwater Management Agencies Association. 1996. Start at the Source. Residential Site Planning and Design Guidance Manual for Stormwater Quality Protection.

City of Olympia. 1994. Impervious Surface Reduction Study. Conducted by the Public Works Department. Water Resources Program. November. (for information on reducing impervious surfaces such as street widths, sidewalks, and parking facilities).

Wilson, A. 1994. "Stormwater Management, Environmentally Sound Approaches", published in the Environmental Building News, Vol. 3, No. 5, September/October. (for a general discussion of new development controls).

City of San Rafael. 1991. Hillside Residential Design Guidelines Manual. Prepared by Gast Hilmer Associates. (for more information on designing and building residential developments in hilly areas).

Bay Area Stormwater Management Agencies Association (BASMAA). 1997. Compilation of New Development Stormwater Treatment Controls in the San Francisco Bay Area. June. (For treatment controls)

California State Stormwater Quality Task Force. 1993. California Stormwater Best Management Practice Handbook – Municipal. March. (For treatment controls)

US Environmental Protection Agency. 1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Issued Under Authority of Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990. EPA 840-B-92-002. January.

Center for Watershed Protection, Watershed Protection Techniques, A Quarterly Bulletin on Urban Watershed Restoration and Protection Tools.

Center for Watershed Protection. 1996. Design of Stormwater Filtering Systems, prepared for Chesapeake Research Consortium, December.

Center for Watershed Protection. 1995. Site Planning for Urban Stream Protection, prepared by T. Schueler for Metropolitan Washington Council of Governments. (For information on cluster development, stream protection buffers, street reduction controls)

MANDATORY DESIGN STANDARDS

All discretionary development and redevelopment projects that fall into one of the following categories are subject to the Design Standards set forth below. These categories are:

1. Single-Family Hillside Residences

2. 100,000 Square Foot Commercial Developments

3. Automotive Repair Shops

4. Retail Gasoline Outlets

5. Restaurants

6. Home Subdivisions with 10 or more housing units

7. Parking lots 5,000 square feet or more or with 25 or more parking spaces and potentially exposed to storm water runoff

1. Design Standards Applicable to All Categories:

a. Peak Storm Water Runoff Discharge Rates. Post-development peak storm water runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increased peak storm water discharge rate will result in increased potential for downstream erosion.

b. Conserve Natural Areas. If determined appropriate by the City, the following items must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

1) Concentrate or cluster Development on portions of a site while leaving the remaining land in a natural undisturbed condition.

2) Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.

3) Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.

4) Promote natural vegetation by using parking lot islands and other landscaped areas.

5) Preserve riparian areas and wetlands.

c. Minimize Storm Water Pollutants of Concern. The development must be designed so as to minimize, to the maximum extent practicable, the introduction of pollutants of concern that may result in significant impacts, generated from site runoff of directly connected impervious areas (DCIA), to the storm water conveyance system as approved by the building official. Pollutants of concern consist of any pollutants that exhibit one or more of the following characteristics: current loadings or historic deposits of the pollutant are impacting the beneficial uses of a receiving water, elevated levels of the pollutant are found in sediments of a receiving water and/or have the potential to bioaccumulate in organisms therein, or the detectable inputs of the pollutant are at concentrations or loads considered potentially toxic to humans and/or flora and fauna. In meeting this specific requirement, “minimization of the pollutants of concern” will require the incorporation of a BMP or combination of BMPs best suited to maximize the reduction of pollutant loadings in that runoff to the Maximum Extent Practicable.

d. Protect Slopes and Channels. Project plans must include BMPs consistent with local codes, ordinances, or other regulatory mechanism and these Design Standards to decrease the potential of slopes and/or channels from eroding and impacting storm water runoff:

1) Convey runoff safely from the tops of slopes and stabilize disturbed slopes.

2) Utilize natural drainage systems to the maximum extent practicable.

3) Stabilize permanent channel crossings.

4) Vegetate slopes with native or drought tolerant vegetation, as appropriate.

5) Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion, with the approval of all agencies with jurisdiction, e.g., the U.S. Army Corps of Engineers and the California Department of Fish and Game.

e. Provide Storm Drain System Stenciling and Signage. All storm drain inlets and catch basins within the project area must be stenciled with prohibitive language (such as: “NO DUMPING – DRAINS TO OCEAN”) and/or graphical icons to discourage illegal dumping. Signs

and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area. Legibility of stencils and signs must be maintained.

f. Properly Design Outdoor Material Storage Areas. Outdoor material storage areas refer to storage areas or storage facilities solely for the storage of materials. Where proposed project plans include outdoor areas for storage of materials that may contribute pollutants to the storm water conveyance system, the following Structural or Treatment BMPs are required:

1) Materials with the potential to contaminate storm water must be: (a) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (b) protected by secondary containment structures such as berms, dikes, or curbs.

2) The storage area must be paved and sufficiently impervious to contain leaks and spills.

3) The storage area must have a roof or awning to minimize collection of storm water within the secondary containment area.

g. Properly Design Trash Storage Areas. A trash storage area refers to an area where a trash receptacle or receptacles (dumpsters) are located for use as a repository for solid wastes. All trash storage areas must meet the following Structural or Treatment Control BMP requirements (individual single family residences are exempt from these requirements):

1) Trash container areas must have drainage from adjoining roofs and pavement diverted around the area(s).

2) Trash container areas must be screened or walled to prevent off-site transport of trash.

h. Provide Proof of Ongoing BMP Maintenance. If a project applicant has included or is required to include, Structural or Treatment Control BMPs in project plans, the applicant shall provide verification of maintenance provisions through such means as may be considered appropriate by the City, including but not limited to legal agreements, covenants, CEQA mitigation requirements and/or Conditional Use Permits. For all properties, the verification will include the developer's signed statement, as part of the project application, accepting responsibility for all structural and treatment control BMP maintenance until the time the property is transferred and, where applicable, a signed agreement from the public entity assuming responsibility for Structural or Treatment Control BMP maintenance. The transfer of property to a private or public owner must have conditions requiring the recipient to assume responsibility for maintenance of any Structural or Treatment Control BMP to be included in the sales or lease agreement for that property, and will be the owner's responsibility. The condition of transfer shall include a provision that the property owners conduct maintenance inspection of all Structural or Treatment Control BMPs at least once a year and retain proof of inspection. For residential properties where the Structural or Treatment Control BMPs are located within a common area which will be maintained by a homeowner's association, language regarding the responsibility for maintenance must be included in the project's conditions, covenants and restrictions (CC&Rs). Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, how the necessary maintenance can be performed, and assistance that the City may be able to provide. The transfer of this information shall also be required with any subsequent sale of the property. If Structural or Treatment Control facilities are located within a public area proposed for transfer, they will be the responsibility of the developer until they are accepted for transfer by the public agency. Structural or Treatment Control facilities proposed for transfer must meet design standards adopted by the public entity for the facilities installed and shall be approved by the public agency prior to its installation.

i. Properly Design Structural and Treatment Control Facilities. Structural and treatment control facilities shall be designed based on either a volumetric or flow based treatment control design standard, or both, as described below to mitigate (infiltrate, filter or treat) storm water runoff:

1) Volumetric Treatment Control Design Standard:

a) The 85th percentile 24-hour runoff event determined as the maximized capture storm water volume for the area, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998); or

b) The volume of annual runoff based on unit basin storage water quality volume, to achieve 80 percent or more volume treatment by the method recommended in California Stormwater Best Management Practices Handbook – Industrial/Commercial, (2003); or

c) The volume of runoff produced from a historical-record based reference 24-hour rainfall criterion for "treatment" that achieves approximately the same reduction in pollutant loads achieved by the 85th percentile 24-hour runoff event.

2) Flow Based Treatment Control Design Standard:

a) The flow of runoff produced from a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the area; or

b) The flow of runoff produced from a rain event that will result in treatment of the same portion of runoff as treated using volumetric standards above.

Limited Exclusion: Restaurants and Retail Gasoline Outlets, where the land area for development or redevelopment is less than 5,000 square feet, are excluded from the numerical Structural or Treatment Control BMP design standard requirement only.

2. Provisions Applicable to Individual Priority Project Categories:

a. 100,000 Square Foot Commercial Developments:

1) Properly Design Loading/Unloading Dock Areas:

a) Cover loading dock areas or design drainage to minimize run-on and runoff of storm water.

b) Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.

2) Properly Design Repair/Maintenance Bays:

a) Repair/maintenance bays must be indoors or designed in such a way that doesn't allow storm water run-on or contact with storm water runoff.

b) Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local wastewater authority, obtain an Industrial Waste Discharge Permit.

3) Properly Design Vehicle/Equipment Wash Areas:

a) Self-contained and/or covered areas must be equipped with a clarifier, or other pretreatment facility, and

b) Properly connected to a sanitary sewer or other appropriately permitted disposal facility.

b. Restaurants:

1) Properly Design Equipment/Accessory Wash/Steam Clean Areas:

a) These areas must be self-contained, equipped with a grease trap, and properly connected to a sanitary sewer.

b) If the wash area is to be located outdoors, it must be covered, paved, have secondary containment, and be connected to the sanitary sewer or other appropriately permitted disposal facility.

c. Retail Gasoline Outlets:

1) Properly Design Fueling Area:

a) The fuel dispensing area must be covered with an overhanging roof structure or canopy. The canopy's minimum dimensions must be equal to or greater than the area within the grade break. The canopy must not drain onto the fuel dispensing area, and the canopy downspouts must be routed to prevent drainage across the fueling area.

b) The fuel dispensing area must be paved with Portland cement concrete (or equivalent smooth impervious surface), and the use of asphalt concrete shall be prohibited.

c) The fuel dispensing area must have a 2% to 4% slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of storm water to the extent practicable.

d) At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.

d. Automotive Repair Shops:

1) Properly Design Fueling Area:

a) The fuel dispensing area must be covered with an overhanging roof structure or canopy. The canopy's minimum dimensions must be equal to or greater than the area within the grade break. The canopy must not drain onto the fuel dispensing area, and the canopy downspouts must be routed to prevent drainage across the fueling area.

b) The fuel dispensing area must be paved with Portland cement concrete (or equivalent smooth impervious surface), and the use of asphalt concrete shall be prohibited.

c) The fuel dispensing area must have a 2% to 4% slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of storm water to the extent practicable.

d) At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.

2) Properly Design Repair/Maintenance Bays:

a) Repair/maintenance bays must be indoors or designed in such a way that doesn't allow storm water run-on or contact with storm water runoff.

b) Design a repair/maintenance bay drainage system to capture all wash-water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local wastewater authority, obtain an Industrial Waste Discharge Permit.

3) Properly Design Vehicle/Equipment Wash Areas:

a) These areas must be self-contained and/or covered, equipped with a clarifier, or other pretreatment facility, and properly connected to a sanitary sewer or other appropriately permitted disposal facility.

4) Properly Design Loading/Unloading Dock Areas:

a) Cover loading dock areas or design drainage to minimize run-on and runoff of storm water.

b) Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.

e. Parking Lots:

1) Properly Design Parking Areas:

a) Reduce impervious land coverage of parking areas.

b) Infiltrate or treat runoff.

2) Properly Design To Limit Oil Contamination and Perform Maintenance:

a) Treat to remove oil and petroleum hydrocarbons at parking lots that are heavily used (e.g. fast food outlets, lots with 25 or more parking spaces, sports event parking lots, shopping malls, grocery stores, discount warehouse stores).

b) Ensure adequate operation and maintenance of treatment systems particularly sludge and oil removal, and system fouling and plugging prevention control.

1. Waiver.

At its discretion and for good cause, the City may waive one or more of the requirements set forth in this Section if impracticability for a specific property can be established. A waiver of impracticability shall be granted only when all other Structural or Treatment Control BMPs have been considered and rejected as infeasible. Recognized situations of impracticability include, (i) extreme limitations of space for treatment on a redevelopment project, (ii) unfavorable or unstable soil conditions at a site to attempt infiltration, and (iii) risk of ground water contamination because a known unconfined aquifer lies beneath the land surface or an existing or potential underground source of drinking water is less than 10 feet from the soil surface. A waiver may be revoked for cause and with proper notice.

4. Limitation on Use of Infiltration BMPs.

Three factors significantly influence the potential for storm water to contaminate ground water. They are (i) pollutant mobility, (ii) pollutant abundance in storm water, (iii) and soluble fraction of pollutant. The risk of contamination of groundwater may be reduced by pretreatment of storm water. In addition, the distance of the groundwater table from the infiltration BMP may also be a factor determining the risk of contamination. A water table distance separation of ten feet depth in California presumptively poses negligible risk for storm water not associated with industrial activity or high vehicular traffic.

Site specific conditions must be evaluated when determining the most appropriate BMP. Additionally, monitoring and maintenance must be provided to ensure groundwater is protected and the infiltration BMP is not rendered ineffective by overload. This is especially important for infiltration BMPs for areas of industrial activity or areas subject to high vehicular traffic [25,000 or greater average daily traffic (ADT) on main roadway or 15,000 or more ADT on any intersecting roadway]. In some cases pretreatment may be necessary.

5. Alternative Certification for Storm Water Treatment Mitigation.

In lieu of conducting a detailed BMP plan review to verify Structural or Treatment Control BMP adequacy, the City may, at its discretion, elect to accept a signed certification from a Civil Engineer or a Licensed Architect registered in the State of California, that the plan meets the criteria established herein. Certifying person(s) will have to demonstrate to the City's satisfaction that they have been trained on BMP design for water quality not more than two years prior to the signature date. Training conducted by an organization with storm water BMP design expertise (e.g., a University, American Society of Civil Engineers, American Society of Landscape Architects, American Public Works Association, or the California Water Environment Association) may be considered qualifying.

Attachment A

(Sample Agreement)

Agreement Regarding Maintenance of Structural or Treatment Control BMPs (Best Management Practices)

for APN No. _____

_____, being the owner of the real property located at _____, California, consents and agrees to inspect and maintain annually, prior to October 15 of each year, the Structural or Treatment Control BMPs (such as silt and/or grease traps or detention systems) on the subject property as shown on the improvement plans dated _____, on file with the City of _____. I agree to forward a letter providing proof of inspection and maintenance to the City of _____ Public Works Department prior to October 15 of each year.

In order to transfer the property to a private or public owner, I shall require the recipient to assume responsibility for maintenance of any Structural or Treatment Control BMPs in the sales or lease agreement for that property. The condition of transfer shall include a provision that the new property owner agrees to forward a letter providing proof of BMP inspection and maintenance to the City of _____ Public Works Department prior to October 15 of each year.

Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

I have read the above agreement and understand it.

_____

Owner

_____

Date

(Ord. 2014-01 § 1 (Exh. A), 2014).

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[1] Facilities or a combination of facilities, of a different design than in Section B.3.b.ii. may be permitted if all of the following measures of equivalent effectiveness are demonstrated: 1) equal or greater amount of runoff infiltrated or evapotranspired; 2)

equal or lower pollutant concentrations in runoff that is discharged after biofiltration; 3) equal or greater protection against shock loadings and spills; and 4) equal or greater accessibility and ease of inspection and maintenance

2 Technical guidance for designing bioretention facilities is available from the Central Coast LID Initiative. The guidance includes design specifications and plant lists appropriate for the Central Coast climate. (http://www.centralcoastlidi.org/Central_Coast_LIDI/LID_Structural_BMPs.html)

3 Use either the methodology provided in Part I.D of the December 2009 Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act, or, rainfall statistics provided by the Central Coast Water Board, whichever produces a more accurate value for rainfall depth.

4 Calculate Equivalent Impervious Surface Area using guidance in Attachment E.
