ORDINANCE NO 2008-03

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF ENCINITAS, CALIFORNIA AMENDING ENCINITAS MUNICIPAL CODE CHAPTER 23.24 RELATIVE TO GRADING

WHEREAS, the City Council finds that the City's Municipal Code provisions need to be reviewed and amended periodically; and

WHEREAS, the City Council finds that the amendments are consistent with the adopted Local Coastal Program in that the amendments are not adding regulations that would be inconsistent with the Local Coastal Program and that the amendments will enable the protection and preservation of coastal resources and provide controls for drainage and siltation while enhancing storm-water management; and

NOW, THEREFORE, the City Council of the City of Encinitas hereby ordains as follows:

SECTION 1: CHAPTER 23.24: GRADING, EROSION AND SEDIMENT CONTROL

Chapter 23.24 of the Encinitas Municipal Code is hereby amended to read as follows:

See Attachment "A"

SECTION 2: REPEAL OF ORDINANCES 2002-03 AND 2002-15

The City Council having reviewed Section 1 of this Ordinance and with consideration given to the text within Attachment "A", hereby repeals Ordinances 2002-03 and 2002-15 since the language in Ordinance 2002-03 and 2002-15 is substantially consistent with the amendments to Chapter 23.24 adopted herein which will be forwarded to the State Coastal Commission for the purpose of amending the Encinitas Local Coastal Program.

SECTION 3: ENVIRONMENTAL FINDING:

The City Council, in their independent judgment, finds that the adoption of the Municipal Code Amendments will be exempt from Environmental Review pursuant to General Rule 15061 (b) (3) since there would be no possibility of a significant effect on the environment because the amendments will not directly result in development; any development as a result of the amended language will be subject to CEQA review and analysis.

SECTION 4: PUBLIC NOTICE AND EFFECTIVE DATE:

The City Clerk is directed to prepare and have published a summary of this ordinance no less than five (5) days prior to consideration of its adoption, and again within fifteen (15) days following adoption, indicating the votes cast.

This Ordinance was introduced on February 27, 2008 and will become effective following certification by the California Coastal Commission as being consistent with the Local Coastal Program for the City of Encinitas.

PASSED AND ADOPTED this 12th day of March, 2008 by the following vote, to wit:

AYES: Barth, Bond, Dalager, Houlihan, Stocks.

NAYS: None.

ABSTAIN: None.

ABSENT: None.

Signature on File

Jerome Stocks, Mayor of the City of Encinitas, CA.

ATTESTATION AND CERTIFICATION:

I hereby certify that this is a true and correct copy of Ordinance 2008-03, which has been published pursuant to law.

Signature on File

Deborah Cervone, City Clerk/Director of Legislative Services

ATTACHMENT "A"

ENCINITAS MUNICIPAL CODE, TITLE 23 IS HEREBY AMENDED TO READ:

Underline represents new language and ~~strikethrough~~ represents deletion.

23.24.010

CHAPTER 23.24

GRADING, EROSION AND SEDIMENT CONTROL

23.24.010 - Chapter Cited. This Chapter shall be known as the "City of Encinitas Grading, Erosion and Sediment Control Ordinance" and may so be cited. (Ord. 88-16)

23.24.020 - Purpose and Goals. The purpose of this Chapter is to establish minimum requirements for grading, excavating and filling of land, to provide for the issuance of grading permits and to provide for the enforcement of the requirements. This Chapter is adopted pursuant to, and to implement provisions of, the Encinitas General Plan and certified Local Coastal Program Land Use Plan (LUP). It is the intent of the City to protect life and property and promote the general welfare; enhance and preserve the physical environment of the community; and maintain the natural scenic character of the City. The provisions of this Chapter shall be administered to achieve, to the extent possible, appropriate goals and policies of the General Plan/LUP as well as the following goals: (Ord. 94-06)

A. Ensuring that future development of lands occurs in the manner most compatible with surrounding areas and so as to have the least effect upon other persons or lands, or upon the general public;

B. Ensuring that soil will not be stripped and removed from lands in ~~the more scenic parts of~~ the City, leaving the lands barren, unsightly, unproductive, and subject to erosion and the hazards of subsidence and faulty drainage;

C. Encouraging the planning, design and development of building sites in such fashion as to provide the maximum in safety and human enjoyment, while adapting development to and taking advantage of the best use of the natural terrain;

~~D. Ensuring that soil erosion, sedimentation, increased rates of surface runoff and related environmental damage are controlled in order to protect downstream waterways and wetlands;~~

D. Ensuring that soil erosion, sedimentation, and storm water runoff are regulated to reduce, to the maximum extent practicable, pollutants entering wetlands, the

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Strike-out/Underlined Version of City Proposed Ordinance

Storm Water Conveyance System and Waters of the State to protect water quality. (Ord. 2002-03).

E. Encouraging and directing special attention toward the retention insofar as practical, of the natural landscaping, especially with regard to existing trees and native plant materials.

23.24.030 - Definitions. When used in this Chapter, the following words shall have the meanings ascribed to them in this Section:

~~A. Applicant: Any person, corporation, partnership, association of any type, public agency or any other legal entity who submits an application to the City Engineer for a permit pursuant to this Chapter.~~

A. Applicant: Any person, corporation, partnership, limited liability company, non-profit entity, joint venture, association of any type, public entity or any other legal entity which submits an application to the City Engineer for a permit pursuant to this Chapter. (Ord. 2002-03).

B. Approved Grade: the grade/earth surface that complies with all sections of the Encinitas Municipal Code and at least one or more of the following criteria as determined by the City Engineer:

(1) The natural grade created by natural geological events unaffected by construction techniques such as cutting, filling, landscaping or berming.

(2) A grade created by excavation into a natural grade as defined under subsection (1) above

(3) The grade created by grading activities before 1986 provided that the grade was shown on one or more of the following: approved grading plans, historical photographs that have not been modified, historical topographic surveys and/or in geotechnical reports prepared by certified professionals. Under this subsection, the City Engineer may, following a review of supporting evidence, determine that evidence submitted to support the pre-1986 grade is adequate.

(4) Grade created after 1986 in accordance with an approved grading permit, grading permit as per an approved tentative map or other permit issued in accordance with the Encinitas Municipal Code.

~~B~~ C. As-Graded: The surface conditions extent on completion of grading.

~~C~~.D. Bedrock: In-place solid rock.

~~D~~.E. Bench: A relatively level step excavated into earth material on a slope on which fill is to be placed.

~~E. Best Management Practices: A technique or series of techniques which, when used in an erosion control plan, is proven to be effective in controlling construction related runoff, erosion and sedimentation.~~

F. Best Management Practices or BMPs: means schedules of activities, practices or devices, prohibitions of practices, site designs, procedures, and other methods to prevent or reduce the discharge of pollutants directly or indirectly to Storm Water, the Storm Water Conveyance System, or Waters of the State. BMPs may be structural or nonstructural. BMPs may include any type of pollution prevention and pollution control measure which the City Engineer finds is necessary to reduce pollutants entering the Waters of the State to the maximum extent practicable. (Ord. 2002-03).

~~F.~~G. Borrow: Earth material acquired from an off-site location for use in grading on a site.

~~G.~~H. Certify: A signed, written statement that the specific inspections and tests that were required have been performed and that such tests comply with the applicable requirements of this Chapter.

~~H~~ I. Civil Engineer: A professional engineer registered in the State of California to practice in the field of civil works.

~~I~~ J. Civil Engineering: The application of the knowledge of the forces of nature, principles of mechanics and the properties of materials to the evaluation, design and construction of civil works for the beneficial uses of mankind.

~~J.~~K. Compaction: The densification of a fill by mechanical means.

~~K.~~L. Cross lot drainage: Runoff that directly flows on the surface of the ground and across lot lines to a neighboring property.

~~K.~~M. Drainageway: A natural or man-made channel which collects and intermittently or continuously conveys stormwater runoff.

~~L.~~N. Earth Material: Any rock, natural soil or fill and/or combination ~~there of~~ thereof.

~~M.~~O. Engineering Geologist: A geologist experienced and knowledgeable in engineering geology and certified by the State of California to practice engineering geology.

~~N.~~P. Erosion: The wearing away of the ground surface as a result of the movement of wind, water, and/or ice.

~~O.~~Q. Excavation or Cut: Any earth, sand, gravel, rock or similar material that is cut into, dug, quarried, uncovered, removed, displaced, or relocated by man and the conditions resulting therefrom.

~~P.~~ R. Fill or Embankment: Deposits, removal and recompaction of soil, rock or other similar irreducible materials placed by man.

~~Q.~~S. Final Erosion and Sediment Control Plan (Final Plan): A set of best management practices or equivalent measures designed to control surface runoff and erosion and to retain sediment on a particular site after all other planned final structures and permanent improvements have been erected or installed.

~~R.~~T. Grade: The vertical location of the ground surface.

Existing or ~~Natural~~ Grade - the grade prior to grading. (Also see Natural Grade, below and Approved Grade, above) Rough Grade - the stage at which the grade approximately conforms to the approved plan. Rough grades shall be within 0.2 feet of finish grades. Finish Grade - the final grade of the site which conforms to the approved plan.

~~S.~~U. Grading: Any land disturbance or land fill, or removal and recompaction, or combination thereof that results in the displacement, removal, excavation, import, export or recompaction of soil.

~~T.~~ V. Interim Erosion and Sediment Control Plan (Interim Plan): A set of best management practices or equivalent measures designed to control surface runoff and erosion and to retain sediment on a particular site during the period in which pre-construction and construction-related land disturbances, fills and soil storage occur, and before final improvements are completed.

~~U.~~ W. Key: A designed compacted fill placed in a trench excavated in earth material beneath the toe of a proposed fill slope.

~~V.~~X. Land Fill: Any human activity depositing soil or other earth materials.

~~X.~~Y. Natural grade is the grade/ earth surface that complies with all other sections of the Encinitas Municipal Code and at least one or more of the following criteria as determined by the City Engineer:

(1) The grade created by natural geological events unaffected by construction techniques such as cutting, filling, landscaping or berming.

(2) A grade created by excavation into a natural grade as defined under subsection (1) above

(3) The grade created by grading activities before 1986 provided that the grade was shown on one or more of the following:-approved grading plans, historical

photographs that have not been modified, historical topographic surveys and/or in geotechnical reports prepared by certified professionals. Under this subsection, the City Engineer may, following a review of supporting evidence, determine that evidence submitted to support the pre-1986 grade is adequate.

~~W.~~Z. Nuisance runoff- runoff generated from sources other than storm water.

~~W~~ AA. Permittee: The applicant in whose name a valid permit is duly issued pursuant to this Chapter and his/her agents, employees and others acting under his/her direction.

~~X.~~BB.~~X.~~ Priority Project: A project identified by criteria used by the San Diego Regional Water Quality Control Board, the City of Encinitas Storm Water Ordinance, the City of Encinitas BMP Manual Part II or the Encinitas Local Coastal Program as a priority project for the purpose of post construction storm water pollution control.

CC. Road Maintenance: work that is required to keep a public or private access road in proper and functioning order and in the approved completed condition. Typical road maintenance includes overlays and repair of cracks for paved roads. For non-paved roads, typical maintenance includes leveling and smoothing the surface, dust control treatment, and/or replacement of granular materials on the road surface. Road maintenance work shall not include: construction of new paving, road widening, replacement of pavement sections or change of grade in excess of six inches.

~~X.~~DD. Runoff or Storm Water Runoff - that portion of water generated from natural sources, such as from rain or melted snow that flows over the ground ~~and ultimately reaches streams, estuaries, or the ocean. (Ord. 2002-03)~~

~~Y.~~EE. Sediment: Earth material deposited by water or wind.

~~AA.~~FF.Site: A parcel or parcels of real property owned by one or more than one person which is being or is capable of being developed as a single project.

~~AA~~ GG. Slope: An inclined ground surface the inclination of which is expressed as a ratio of horizontal distance to vertical distance.

~~.BB~~ HH. Soil: Naturally occurring superficial deposits overlying bed rock.

~~CC~~II.~~CC~~ Soil Engineer: A civil engineer experienced and knowledgeable in the practice of soil engineering.

~~DD~~.JJ.~~DD~~. Soil Engineering: The application of the principles of soil mechanics in the investigation, evaluation and design of civil works involving the use of earth materials and the inspection and testing of the construction thereof.

~~EE~~.KK.~~EE~~. Wet Season or Rainy Season: The period from October 1 ~~to~~ thru April ~~15~~ 30. (Ord.2002-03)

~~FF~~. LL. "Maximum Extent Practicable" or MEP- ~~the standard established by Congress in Clean Water Act section 402(p)(3)(B)(iii) that municipal dischargers of Storm Water must meet. MEP is an acceptability standard for Best Management Practices based on a level of pollutant reduction that can be achieved by the most effective set of BMPs that can be implemented and still remain practicable; MEP generally emphasizes pollution prevention and source control BMPs as the first line of defense in combination with treatment methods as a backup. (Ord. 2002-03).~~ The technology-based standard established by Congress in CWA Section 402(p)(3)(B)(iii) that operators of MS4s must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of source control and treatment control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup on a permament basis after completion of construction (additional line of defense).

~~GG~~. MM. Person- An individual, corporation, partnership, limited liability company, non-profit entity, joint venture, association of any type, or any other legal entity. (Ord. 2002-03).

~~HH~~.NN. Pollutant- any agent that may cause or contribute to the degradation of water quality, including, but not limited to, Earth Materials. (Ord. 2002-03).

~~JJ~~.OO Post Construction BMPs – Combinations of site design, erosion control, waste management, and mechanical and bio-filtration devices, intended to limit discharge of pollutants into the municipal storm sewer systems (MS4) on a permanent basis after completion of construction.

~~II~~.PP Storm Water Conveyance System- private and public drainage facilities within the City of Encinitas by which Storm Water may be conveyed to Waters of the United States, including but not limited to, streets, roads, catch basins, natural and artificial channels, natural and artificial drainage features, aqueducts, canyons, stream beds, gullies, curbs, gutters, ditches, and storm drains. Historic and current development make use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are part of the Storm Water Conveyance System regardless of whether they are natural, man-made, or partially modified features. (Ord. 2002-03).

~~FF~~ QQ. Uncontrolled Stockpiles: Any fill placed on land for which no soil testing was performed or no acceptable compaction reports or other acceptable soil reports were prepared or submitted. Also referred to as "uncontrolled embankment" or "undocumented fill".

~~KK~~. RR. Waters of the State- any water, surface or underground, including saline waters within the boundaries of California. The definition of the "Waters of the State" is broader than that for the "Waters of the United States" in that all water in the State is considered to be a "Waters of the State" regardless of circumstances or condition. Under this definition, a municipal storm sewer system (MS4) is always considered to be a "Waters of the State". [California Water Code Section 13050 (e)]. (Ord. 2002-03).

~~LL~~.SS. Waters of the United States- water subject to the regulatory jurisdiction of the United States under the Federal Clean Water Act and applicable case law. In general, this includes "navigable" waters, waters tributary to "navigable" waters, and adjacent wetlands. [40 Code of Federal Regulations section 122.2.]" (Ord. 2002-03).

23.24.040 - Public Health, Safety, and Welfare. Whenever the City Engineer determines that any existing excavation or embankment or fill on private property has become a threat to life and limb, or endangers property, or adversely affects the safety, use or stability of a public way or drainage channel, or discharges pollutants into waters of the State, the owner of the property upon which the excavation or fill is located, or other person or agency in control of said property, upon receipt of notice in writing from the City Engineer, shall within the period specified therein repair or eliminate such excavation or embankment so as to eliminate the hazard and be in conformance with the requirements of this code.

23.24.050 - Other Laws. Neither this ordinance nor any administrative decision made under it:

A. Exempts the Permittee from procuring other required permits or ~~com-plying~~ complying with the requirements and conditions of such a permit; or

B. Limits the right of any person to maintain, at any time, any appropriate action, at law or inequity, for relief or damages against the Permittee arising from the permitted activity.

23.24.055 - Amendment An Amendment to any portion of this Chapter constitutes a proposed amendment to the implementing regulations of the City's Local Coastal Program (LCP). A proposed LCP amendment shall comply in form, content and procedure with the provisions of Chapter 30.82 of the Municipal Code. An amendment to this Chapter shall not become effective until certified by the Coastal Commission pursuant to California Public Resources Code Section 30514. (Ord. 94-06)

23.24.060 - Landscape Guidelines Manual. The City Council may by resolution adopt a Landscape Guidelines Manual to provide for plans, programs and standards for landscaping, fire suppression, open space easement maintenance, erosion control, planting and irrigation. Upon adoption by the City Council and certification by the Coastal Commission, the contents of that Manual shall be part of the requirements of

this Chapter. Any permits issued pursuant to this Chapter shall comply with the provisions of that Manual. (Ord. 95-04)

23.24.070 - Erosion and Sediment Control Manual. The City Council may by resolution adopt a Manual of Standards for Erosion and Sediment Control Measures to provide guidance in controlling water quality impacts of construction related erosion. Upon adoption by the City Council and certification by the Coastal Commission, the contents of that Manual shall be part of the requirements of this Chapter. Any permits issued pursuant to this Chapter shall comply with the provisions of that Manual. (Ord. 95-04)

23.24.071 - BMP Manual, Part II. Upon adoption by the City Council and certification by the Coastal Commission, the contents of that Manual shall be part of the requirements of this Chapter. The City Council adopted the City of Encinitas Storm Water Best Management Practices Manual Part II in Ordinance No. 2002-14 on December 11, 2002. This manual provides design, construction, and operation requirements for minimizing storm water pollution, and its content shall be part of the requirements of this Chapter. Any permits issued pursuant to this Chapter shall comply with the provisions of the Best Management Practices Manual Part II. Sections of the Best Management Practices Manual Part II are highlighted for the purpose of inclusion into the Local Coastal Program by this reference.

23.24.072- Engineering Design Manual. The City Council may by resolution adopt an Engineering Design Manual, which will include standards and requirements for grading permits and grading plan preparation. Upon adoption by the City Council and certification by the Coastal Commission, the contents of that Manual shall be part of the requirements of this Chapter. Any permits issued pursuant to this Chapter shall comply with the provisions of that Manual.

23.24.073-Contaminated Soils. The City Council may by resolution adopt a policy to provide guidance on the testing, handling and disposal of contaminated soils that will include requirements that will be necessary for applicants to comply with prior to issuance of grading permits. Any permits issued pursuant to this Chapter shall comply with the provisions of that policy.

23.24.080 - General Requirements. No person may grade, fill, excavate, store or dispose of soil and earth materials, clear existing vegetation or perform any other land-disturbing or land filling activity without first obtaining a permit as set forth in this Chapter. Any removal of BMPs that were required for a priority project will require a grading permit for corrective or other action. If applicable, a requirement may be imposed to replace the BMP with equivalent water quality protection. If the grading is taking place in the Coastal Zone, a Coastal Development Permit may also be required.

23.24.090 - General Exemptions. All land-disturbing or land-filling activities or soil storage shall be under-taken in a manner designed to minimize surface runoff, erosion and sedimentation and to safeguard life, limb, property, and the public welfare.

A person performing such activities need not apply for a permit pursuant to this Chapter, if all the following criteria are met:

A. The land area which is disturbed or filled is 10,000 square feet or less.

B. The effected n~~N~~atural and finished slopes are less than ~~10~~ 25% gradient and the grading could not result in an adverse condition to existing or proposed structures, neighboring properties, public rights-of-way or storm water pollution control devices.

C. The v~~V~~olume of soil or earth materials stored, graded, moved, replaced, imported, exported or otherwise disturbed is 50 cubic yards or less. (Ord. 2002-15)

D. Rainwater runoff is diverted, either during or after construction, from an area smaller than 5,000 square feet.

E. An impervious surface, if any, of less than 5,000 square feet is created or replaced.

F. No drainageway is blocked or has its stormwater carrying capacities or characteristics modified.

G. The activity does not take place on an inland or coastal bluff, within 100 feet by horizontal measurement from the top of an inland or coastal bluff, the bank of a watercourse, the mean high water-mark (line of vegetation) of a body of water or within the wetlands associated with a watercourse or water body, whichever distance is greater.

H.~~No~~ r~~R~~etaining wall ~~is~~ constructed ~~higher than four~~ six feet or lower measured from the top of the wall to the lowest adjacent grade. (Ord. 2002-15)

I. Grading is proposed for a development that is not classified as a priority project for post construction storm water pollution control.

J. No clearing and grubbing of vegetation and no disturbance of land within an environmentally sensitive area are proposed.

23.24.100 - Categorical Exemptions. Other sections of this Subarticle notwithstanding, the following activities are exempt from the permit requirements:

A. An excavation below finished grade for basements and footings of a building, retaining wall or other structure authorized by a valid building permit. This shall not exempt any fill made with the material from such excavation nor exempt any excavation having an unsupported height greater than 5 feet after the completion of the structure.

B. Cemetery graves.

C. Refuse disposal sites controlled by other regulations.

D. Normal agricultural crop management practices that take place on land that has been farmed during each of the preceding three years. (Ord. 94-06)

E. Emergencies posing an immediate danger to life or property, or substantial flood or fire hazards. Emergency shall be as defined in the CEQA Guidelines as published by the State of California Office of Planning and Research. However, a grading permit will be required if the emergency work completed does not otherwise qualify as a general exemption or categorical exemption. If a grading permit is required, the grading permit must be obtained once the emergency work is completed. No final inspection or other permits will be issued for the project site unless and until the required grading permit is issued and all work required by the grading permit is completed to the satisfaction of the City Engineer in conformance with this Chapter.

~~F. Any activity where total volume of material disturbed, stored, disposed or used as fill does not exceed 50 cubic yards, does not obstruct a drainage course, and does not occur over an area greater than 10,000 square feet.~~

~~G.~~F Excavations within public rights-of-way covered by a ~~Public Works encroachment or~~ public improvement or construction permit issued by the Engineering Services Department.

G. Road Maintenance that meets all State and city requirements for storm water pollution control and is not adversely impacting any natural or manmade drainage.

23.24.105 Impervious Surface and Drainage. A project that proposes to create over 500 square feet of new impervious surface area will need to obtain a construction permit and adhere to all standards for drainage and Best Management Practices as contained in the Manual of Best Management Practices, Part II as adopted and amended by the City Council.

23.24.110 - Environmental Protection Procedure

A. ~~Community Development~~ Planning and Building Department Review - Prior to issuing a grading permit, the applicant shall fulfill all environmental protection requirements contained in this Code. All applications shall be reviewed by the ~~Community Development~~ Planning and Building Department, whereupon a determination will be made as to whether further environmental review will be required.

B. ~~California~~ Coastal ~~Commission~~ Development Permit Review - No grading permit shall be issued for ~~an~~ project or development within the California Coastal Zone until the applicant has presented an approved Coastal Development Permit ~~Act permit~~ or a certificate of exemption from Coastal Development ~~Act~~ Permit

requirements granted by the Planning and Building Director or, if applicable, the California Coastal Commission. (Ord. 2003-08).

23.24.~~130~~ 15- Application Form. The applicant shall provide all requested information on the application form. The application form shall be signed and dated by the owner of the site or by an authorized representative of the owner. The application form shall be submitted with the applicable permit application, required items listed for the permit application, appropriate studies and appropriate fees and deposits. The City Engineer may require additional information in accordance with the Municipal Code prior to issuance of the grading permit or granting final approval of the grading at the property.

23.24.120 - Permit Application. The application for any grading permit (regular or minor) must include all of the following items unless a specific item is waived in writing by the City Engineer following a review of the project application:

A. Application form.

B. Site Map and Grading Plan.

C. Interim Erosion and Sediment Control Plan.

D. Final Erosion and Sediment Control Plan~~, where required.~~

~~E. Soil Engineering Report, where required~~.

~~F~~.E Drainage Study.

F.~~G~~. Engineering ~~Geology~~ Geotechnical Report~~, where required.~~

G. Title Report

~~G~~.H. Landscape and Irrigation Plan~~, where required~~ or other erosion control measure as approved by the City Engineer.

~~H~~.I. Work schedule (prior to issuance of permit).

~~I~~.J. Application fees.

~~J~~.K. Acceptable security (prior to issuance of permit).

~~K~~.L. Any supplementary material required by the City Engineer.

~~L~~. M. Applicants subject to the Statewide General NPDES Permit for Storm Water Discharges Associated with Construction Activities must provide evidence of

existing coverage under the General Construction Permit and submit a Storm Water Pollution Prevention Plan to the City for review and approval as required by the general NPDES permit for construction. (Ord. 2002-03)

N. Demonstration of compliance with City and State Codes for Post Construction Storm Water Treatment and Pollution Control, including, but not limited to, depiction of all the existing and proposed BMPs, depiction of how all the runoff generated on impervious areas will be routed to BMP areas and treated before discharge, signed maintenance agreements and signed covenants for post construction BMPs.

O. Demonstration of compliance with Municipal Code requirements, including, but not limited to Chapters 23.06 and 23.08 which require that certain grading activities complete a Citizen Participation Program and obtain a Design Review Permit. If grading is proposed in the Coastal Zone, a Coastal Development Permit may also be required (see 23.24.110B)

P. Upon completion of plan-check and approval of grading plans, the applicant's engineer shall prepare photo-mylars for signatures of the City Engineer and any other city or agency official that has reviewed the grading plans for conformance with City of Encinitas and agency codes.

23.24.125 - Minor (Simplified) Grading Permit

~~A. Where the proposed grading does not exceed 1000 cubic yards, is upon a single lot or parcel of land, is in conjunction with a building permit for one single family dwelling unit, and will not necessitate the construction of any public drainage facilities or interfere with any drainage course, upon approval of the City Engineer the Building Official may accept the application for and grant a grading permit for such grading in conjunction with the issuance of a building permit in accordance with this Chapter.~~

~~B. The Building Official shall perform all of the duties imposed upon and exercise all of the authority granted to the City Engineer in connection with such application for a minor grading permit and any grading per formed pursuant to such permit.~~

~~C. It is the intent of this Section to simplify issuance of grading permits for proposed grading described in subsection (a). The minimum items required for a permit application shall include:~~

~~1. application form;~~

~~2. combined site map, grading plan and erosion and sediment control plan;~~

~~3. work schedule;~~

~~4. application fees;~~

~~5. preliminary soils report;~~

~~6. acceptable security.~~

~~The Building Official and/or City Engineer may require additional items to be submitted as provided for in this Subarticle.~~

A. A minor (simplified) grading permit may be authorized by the City Engineer if Subsections 1 through 7,. below, are met to the satisfaction of the City Engineer.

1. The proposed grading is between 50 and 250 cubic yards. The City Engineer may authorize a Minor Grading Permit in accordance with Subsection 8, below. If the City Engineer authorizes a minor grading permit for removal and recompaction grading in excess of 250 cubic yards, additional inspection fees will be assessed for grading in excess of 250 cubic yards.
2. The grading does not propose to create slopes more than six feet high.
3. The grading is proposed on an existing slope less than six feet high.
4. The grading is not proposed within any environmentally sensitive areas, floodplain, floodway, within 100 feet of any coastal or inland bluffs, or area with geologic or slope stability problems, and does not divert or adversely impact any drainage flow.
5. The grading or other aspects of the development do not require any discretionary permit review by the Planning and Building Department other than a Coastal Development Permit.
6. The grading or other aspects of the development neither proposes nor is required to provide public improvements.
7. The grading or other aspects of the development do not propose cross lot drainage or major drainage improvements.
8. If the proposed grading is for removal and recompaction of unsuitable soils under a building footprint, and the proposed depth of excavation is four feet or less, a simplified grading permit may be issued for grading up to 750 cubic yards.

B. It is the intent of this Section to simplify issuance of grading permits for proposed grading meeting the requirements described in Section 23.24.125(A), above. The application for a minor grading permit must include all of the following items:

1. ~~Seven~~ Three copies of the grading plan prepared on a standard D-size sheet. The plan must be prepared, stamped and signed by a California Registered Civil Engineer. At a minimum, the grading plan shall include:
   a. Existing and proposed ground contours and spot elevations;

b. Cross sections (to scale) showing existing and proposed grading, property lines, adjacent properties and improvements on adjacent properties, and any adjacent public improvements;
c. Existing and proposed drainage;
d. Proposed Best Management Practice storm water pollution control measures for both construction and post construction phases of the project in conformance with the City standards contained within City of Encinitas BMP Manual, Part II;
e. Existing and proposed hard surface areas;
f. Existing and proposed landscape materials, including any trees or vegetation proposed for removal;
g. Existing and proposed building footprints, including any buildings proposed for removal; and
h. Interim erosion control measures.

2. Payment of applicable fees or deposits for plan-check, permit issuance and inspection.
3. Any additional items required by the City Engineer in order to verify compliance with applicable City codes and regulations.

C. The application and grading plan for a minor grading permit must also be in compliance with all applicable City codes, regulations and procedures, including those contained within this Chapter.

D. The City Engineer may require a full grading permit in addition to a minor grading permit if it is discovered during construction that one or more of the requirements under subsection 23.24.125 (A) are not satisfied.

23.24.126-Precise Grading Plan A precise grading plan with the following elements shown must be submitted for review and approval of the City Engineer if the approved grading plan does not show in sufficient detail any existing and/or proposed structures, building pad elevations and building footprints, existing and proposed drainage and post construction BMPs. The precise grading plan must be approved by the City Engineer prior to the issuance of any building permits for the property. If a precise grading plan is consistent with the standards for a minor grading permit, the precise grading plan may be processed in accordance with Section 23.24.125.

In addition to the requirements contained in Section 23.24.120, the following information must be accurately depicted on the precise grading plan:

A. Building footprint;
B. Hardscape, existing and proposed;
C. Landscaping, existing and proposed;
D. Invert elevations in their exact locations must be shown for area drains, swales and sewer;
E. Post construction BMPs;

F. Sewer and water laterals, any hydrants, dry utilities and any other subsurface construction must be shown in the exact locations;

G. Any walls, freestanding and/or retaining must be shown in their exact locations;

H. Pools and spas, if applicable;

I. Any other existing or proposed structures not listed above;

J. Detention basins;

K. Driveways/easements;

L. Setbacks in accordance with Encinitas Municipal Code Title 30 (Zoning Ordinance); and

M. Reference to any previous permits for the property, including Coastal Development Permits, Use Permits or Variances.

~~23.24.130 - Application Form. The applicant shall provide all requested information on the application form. The application form shall be signed and dated by the owner of the site or by an authorized representative of the owner.~~

23.24.140 - Grading Plan. The Grading Plan shall be prepared and signed by a California registered civil engineer and if a soils and geology report is required, the grading plan shall also be signed by a registered soils engineer and a certified engineering geologist. The grading plan shall contain the following information:

A. Existing and proposed topography of the site taken at a contour interval sufficiently detailed to define the topography over the entire site. ~~Ninety percent (90%) of the contours shall be plotted within one contour interval of the true location.~~ The contour elevation, pad and finished floor elevations, and all other elevations shown on the Grading Plan shall be based upon the most recent vertical datum approved by the City Engineer. The plan shall provide benchmark information and description used for preparation of the grading plan. The plan shall also provide the engineering scale and north arrow pointing to the top or right on appropriate sheets of the plan.

B. Cross sections (to scale) showing existing and proposed grading, property lines, adjacent properties and improvements on adjacent properties, and any adjacent public improvements.

~~B.~~ C. Contours shall extend a minimum of 50 feet off-site, or a sufficient distance to show on- and off-site drainage.

~~C.~~ D. Site's property lines and existing and proposed easements shown in true location with respect ~~to the plan's topographic information~~ to the most recent horizontal control monuments approved by the City Engineer. If easements or property lines are not correctly shown, the grading permit may be revoked by the City Engineer.

~~D.~~ E. Location and graphic representation of all existing and proposed natural and ~~proposed~~ man-made drainage facilities.

~~E.~~ F. Detailed plans of all surface and subsurface drainage devices, walls, cribbing, dams, and other protective devices to be constructed with or as a part of the proposed work, together with a map showing the drain-age area and the estimated runoff of the area served by any drain.

~~F.~~ G. Location and graphic representation of proposed excavations and fills, of onsite storage of soil and other earth material, and of onsite disposal.

~~G.~~ H. Location of existing trees with trunks greater than 4 inches 3 feet above natural grade and the location and type of vegetation to be left undisturbed.

~~H.~~ I. Location of proposed final surface runoff, erosion and sediment control measures.

~~H.~~J. Quantity of soil or earth material in cubic yards to be excavated, filled, removed or recompacted, stored or otherwise utilized onsite.

~~J.~~ K. Outline of the methods to be used in clearing vegetation, and in storing and disposing of the cleared vegetation ~~vegetative matter~~.

~~K.~~L .Proposed sequence and schedule of excavation, filling and other land-disturbing and filling activities, and soil or earth material storage and disposal. Grading shall be phased whenever the City Engineer finds that phasing is feasible and necessary to protect the Waters of the State. Areas that are cleared and graded shall be minimized to only portions of the site that are necessary for construction, and the exposure time of disturbed soil areas shall be minimized. (Ord. 2002-03)

~~L.~~M. Location of any buildings or structures on the property where the work is to be performed and the location of any buildings or structures on land of adjacent owners which are within 15 feet of the property or which may be affected by the proposed grading operations.

~~M~~N. An estimate of the cost of implementing all grading improvements submitted in a form acceptable to the City Engineer.

~~N.~~O. 100 year flood plain as shown on the most recent FEMA flood insurance rate map (FIRM) ~~County flood plain~~ map, if applicable.

P. Location, design, detail, and cross section of all proposed post construction BMPs.

Q. If applicable, location, design, detail, and cross section of any proposed shoring.

R. Setbacks in accordance with Encinitas Municipal Code Title 30 (Zoning Ordinance); and

S. Reference to any previous or existing permits for the property, including Coastal Development Permits, Use Permits or Variances.

23.24.150 - Interim Erosion and Sediment Control Plan. All the following information shall be provided on the grading plan by a California registered civil engineer with respect to conditions existing on the site during land disturbing or filling activities or soil storage:

~~A. Maximum surface runoff from the site shall be calculated using the method approved by the City Engineer.~~

~~B. The Interim Plan shall also contain the following information:~~

~~1. a delineation and brief description of the measures to be undertaken to retain sediment on the site, including, but not limited to, the designs and specifications for sediment detention basins and traps, and a schedule for their maintenance and upkeep;~~

~~2. a delineation and brief description of the surface runoff and erosion control measures to be implemented, including, but not limited to, types and method of applying mulches, and designs and specifications for diverters, dikes and drains, and a schedule for their maintenance and upkeep;~~

~~3. a delineation and brief description prepared by a landscape architect of the vegetative measures to be used, including, but not limited to, types of seeds and fertilizer and their application rates, the type, location and extent of pre existing and undisturbed vegetation types, and a schedule for maintenance and upkeep.~~

~~C. The location of all the measures listed by the Applicant under Subsection (b) above, shall be depicted on the Grading Plan, or on a separate plan at the discretion of the City Engineer.~~

~~D. An estimate of the cost of implementing and maintaining all interim erosion and sediment control measures must be submitted in a form acceptable to the City Engineer.~~

A. A plan and schedule to reduce erodible soil exposure in the event of rain must be graphically and verbally described on the grading plan. The plan and schedule to reduce erodible soil exposure must include, but may not be limited to, a phased grading schedule, consultation with the National Weather Service to determine the forecast during the wet season and plans to have erosion control measures in place on the site no later than 24 hours prior to the forecasted rain event.

B. Erosion control measures must be graphically and verbally described on the grading plan. The description of erosion control measures may include, but may not be limited to: geotextile material, mats, bonded fiber matrix, hydro seeding, vegetation stabilization, preservation of existing vegetation on site, seeding and planting of ground cover and permanent landscaping and necessary irrigation.

C. Flow control measures must be graphically and verbally described on the grading plan. The description of flow control measures may include, but may not be limited to: dikes made of gravel bags, fiber rolls, use of stabilized earth to reduce flow velocity and trap sediments and energy dissipaters.

~~D. Diversion of runoff around the areas subject to construction must be graphically and verbally described on the grading plan. The diversion of runoff nuisance flow may include, but may not be limited to: runoff from off-site, conveyance of concentrated flows via lined ditches or pipes, flows directed away from the construction area and away from and over slopes via installation of pipes and lined ditches.~~

D. Diversion of runoff and nuisance flow around the areas subject to construction must be graphically and verbally described on the grading plan. The diversion of runoff may include, but may not be limited to: runoff from off-site, conveyance of concentrated flows via lined ditches or pipes, flows directed away from the construction area and away from and over slopes via installation of pipes and lined ditches.

E. Sediment control devices must be graphically and verbally described on the grading plan. The description of sediment control devices may include, but may not be limited to: storm drain inlet protection by installation of check dams around, but not blocking the inlets, silt fences, gravel bags, berms, fiber rolls, desilting and sediment basins and stabilized construction entrances/exits.

F. The management of waste on the construction site must be graphically and verbally described on the grading plan. The description of the waste management plan may include, but may not be limited to: inclusion of a 24 hour emergency contact plan, spoil prevention and control, solid waste management, hazardous waste management, liquid waste management, concrete wash outs, and storage of minimum qualities of material on site for spill control.

G. ~~The City Engineer may require the applicant~~ Any additional measures as required by the City Engineer to temporarily stabilize and reseed disturbed soil areas to protect the waters of the State. (Ord. 2002-03)

H. For bonding purposes, an estimate of the cost of implementing and maintaining all interim erosion and sediment control measures must be submitted in a form acceptable to the City Engineer.

23.24.160 - Final Erosion and Sediment Control Plan. All the following information shall be provided by a California registered civil engineer with respect to conditions existing on the site after final structures and improvements (except those required under this Section) have been completed and where these final structures have not been covered by an Interim Plan:

A. Maximum runoff from the site shall be calculated using the method approved by the City Engineer.

B. The Final Plan shall also contain the following information:

1. a description of and specifications for sediment retention devices;

2. a description of and specifications for surface runoff and erosion control devices;

3. a description of vegetative measures prepared by a landscape architect;

4. a description and illustration of permanent landscape and irrigation for grading of slopes four feet or higher or where erosion potential exists, based upon a review of the plans by the City Engineer; and

~~4.~~ 5. a graphic representation of the location of all items in Subsections (1)-(3 4) above;

~~5.~~6. A description of the maintenance necessary for proper functioning of the storm water runoff and erosion control methods used for the site, a maintenance schedule, and names and addresses of the persons who will perform the maintenance. (Ord. 2002-03).

C. For bonding purposes, ~~A~~ an estimate of the costs of implementing all final erosion and sediment control measures must be submitted in a form acceptable to the City Engineer.

D. ~~Upon approval of the City Engineer,~~ ~~t~~ The required elements of the Grading Plan and the Final Erosion and Sediment Control Plan ~~may~~ must be combined onto one plan.

~~23.24.170 Soil Engineering Report. A soil engineering report, when required by the City Engineer, shall be prepared and certified by a California registered soils engineer and shall be based on adequate and necessary test borings, and shall contain all the following information:~~

~~A. Data regarding the nature, distribution, strength, and erodibility of existing soils.~~

~~B. Data regarding the nature, distribution, strength, and erodibility of soil to be placed on the site, if any.~~

~~C. Conclusions and recommendations for grading procedures.~~

~~D. Conclusions and recommended designs for interim soil stabilization devices and measures and for permanent soil stabilization after construction is completed when necessary.~~

~~E. Design criteria for corrective measures when necessary.~~

~~F. Opinions and recommendations covering adequacy of sites to be developed by the proposed grading.~~

~~Recommendations included in the report and approved by the City Engineer shall be incorporated in the grading plans or specifications.~~

23.24.170 - Soil Engineering Report. A soil engineering report, when required by the City Engineer, shall be prepared and certified by a California registered soils engineer and shall be based on adequate and necessary test borings, and shall, unless otherwise stipulated in Municipal Code Chapter 30.34, contain all the following information:

A. A description of site conditions addressing on-site soils and geological conditions.

B. A description of site geology and seismic and regional geology.

C. Information relative to current and past use of the site if applicable.

D. Evaluation and description of on-site soils and geological problems including, but not limited to fill, undocumented fill, compressible material, ground water seepage, slope stability, liquefaction, collapsible soils, landslide and erosion. A minimum factor of safety of 1.5 shall be used for static slope stability analysis.

E. Evaluation and description of subsurface soil conditions based upon excavation of adequate numbers of boreholes and/or trenches. Results of laboratory soil tests providing adequate information on soil type and strength.

F. Conclusions and recommendations addressing grading procedures, soil stabilization during and post construction, foundation design, and slope stability.

G. Recommendations for corrective measures relative to other potential site geotechnical issues such as temporary shoring, interim slopes during construction, expansive soils, liquefaction, collapsible soils, consolidation, undocumented fill, compressible material, soil erosion, seepage, and landslide.

H. All recommended measures shall be shown ~~of~~ on the proposed grading plans or improvement plans.

I. Recommendations included in the report and approved by the City Engineer shall be incorporated in the grading plans or specifications.

~~23.24.180 - Engineering Geology Report. An engineering geology report, when required by the City Engineer, shall be prepared by a California certified engineering geologist and shall be based on adequate and necessary test borings and shall contain the following information:~~

~~A. An adequate description of the geology of the site.~~

~~B. Conclusions and recommendations regarding the effect of geologic conditions on the proposed development.~~

~~C. Opinions and recommendations covering the adequacy of sites to be developed by the proposed grading.~~

~~Recommendations included in the report and approved by the City Engineer shall be incorporated in the grading plans or specifications.~~

23.24.180 - Engineering Geology Report. In addition to a soils report, an engineering geology report will be required when the City Engineer determines that the proposed development is located within an existing or a potential geologic hazardous area. Geological hazardous area is referred to as areas subject to landslide, faulting, or other hazards identified by the City Engineer. The report shall be prepared by a California certified engineering geologist and California certified civil engineer or geotechnical engineer and shall be based on adequate and necessary test borings and shall, unless otherwise stipulated in Municipal Code Chapter 30.34, contain the following information.

A. An adequate description of the geology of the site and its effect on the proposed grading/development of the site.

B. Conclusions and recommendations regarding the mitigation of geologic conditions on the proposed development.

C. Faulting and seismic evaluation of the site.

D. Opinions and recommendations covering the adequacy of the sites to be developed by the proposed grading.

E. The report shall contain a geologic map and cross-sections.

F. Large diameter boring and downhole logging of said boring will be required to evaluate landsliding and slope stability issues.

G. Recommendations included in the report and approved by the City Engineer shall be incorporated in the grading plans or specifications.

23.24.190 - Landscape and Irrigation Plan. A landscape and irrigation plan and cost estimate, when required by the City Engineer, shall be prepared by ~~a California state licensed landscape architect, except when said plan applies to one single family dwelling unit on one legal parcel in which case the plan need not be prepared by a licensed landscape architect.~~ a person authorized by the State of California Business and Professions Code to prepare landscape and irrigation plans. All landscape and irrigation plans prepared shall conform to all the requirements set forth in the City Landscape Guidelines Manual. All landscaping and irrigation shall be completed as early as feasible. (Ord. 2002-03).

23.24.200 - Work Schedule. The Applicant must submit a master work schedule showing the following information prior to issuance of permit:

A. Proposed grading schedule.

B. Proposed schedule for installation of all interim erosion and sediment control measures.

C. Schedule for construction of final improvements, if any.

D. Schedule for installation of permanent erosion and sediment control devices where required.

23.24.210 - Security.

A. The City Engineer shall only require security to be posted for items of work which, if not completed by the applicant, may impact public health, safety, erosion control, storm water pollution control or result in a visual impact as determined by the City Engineer. For purposes of inspection fee calculations, all engineering work shall be included. ~~The Applicant shall provide security guaranteeing proper completion of the work described and delineated on the permit and approved plans in the amount of 100% of the approved cost estimates.~~ The security shall be in the form of one or more of the following ~~at the option of~~ as determined by the City Engineer: (Ord. 93-24)

1. A deposit of money or negotiable securities of the kind approved for securing deposits of public monies.

2. An instrument of credit from one or more financial institutions subject to regulation by the State or Federal government and pledging that the funds

necessary to carry out the permitted works are on deposit and guaranteed for payment, or a letter of credit issued by such a financial institution.

~~3. A lien on the Permittee's property.~~

~~4.~~ 3. A performance bond with an automatic renewal provision from an approved bonding company. Bonding may be for up to a maximum of 80% of the total security required by the permit with the remaining portion of the required security in the form of cash or approved instrument of credit.

B. The security shall be conditioned upon the payment to the City of any costs incurred by the City in completing the required work or in employing a contractor to complete such work. Whenever the City Engineer finds that a default has occurred in the performance of any term or condition of work authorized by a permit, ~~he shall give~~ written notice shall be given of such default to the Permittee by the City Engineer. Such notice shall state the work remaining to be done~~, the estimated cost of completion,~~ and the time estimated by the City Engineer to be necessary for the completion of work. After receipt of such notice, the Permittee must, within the time specified, satisfactorily complete the permitted work.

C. If the default is not corrected by the Permittee within the time specified, the City Engineer shall proceed without delay and without further notice of proceedings ~~whatever~~ to use the security or any portion thereof to complete the required work. The balance, if any, of any cash deposit shall, upon completion of the work, be returned to the depositor or to ~~his~~ appropriate successors or assigns after deducting the cost of the work.

23.24.220 – ~~Deposits~~ Fees and Deposits.

A. Before accepting a grading permit application and plans and specifications for checking, the City Engineer shall collect a plan checking and application processing fee or deposit, as approved by resolution of the City Council.

B. A ~~deposit~~ fee for each grading permit shall be collected by the City Engineer prior to issuance of a grading permit as approved by resolution of the City Council.

C. If a deposit account is established, a~~A~~ny portion of said deposit not used to cover the actual costs of the City in processing a permit application will be refunded, but no funds will be released until all billings are in, and until final acceptance of the work by the City Engineer. In determining the actual costs incurred by the City in connection with the processing of grading permits, the costs as recorded by the Director

of Finance shall be prima facie evidence of actual costs of services performed by the City.

D. Failure to pay ~~deposits~~ fees and obtain a permit before commencing work shall be deemed a violation of this Ordinance, except when it can be proven to the satisfaction of the City Engineer that an emergency existed which made it impractical to first obtain the permit. A violation shall result in an assessment of double permit fees for work done prior to permit issuance. Payment of a double fee shall not relieve any person from fully complying with the requirements of this Ordinance nor from any other penalties prescribed herein.

E. Additional fees approved by resolution of the City Council shall be collected as required by the City Engineer.

F. If the City Engineer performs emergency work on private property, ~~he~~ the City shall charge the property owner all direct and indirect costs ~~which~~ that are necessary to complete the work ~~to his satisfaction~~ in the quality expected by standard engineering practices. In addition, the City Engineer may charge a mobilization cost equal to ten (10) percent of the cost for performing the work.

G. The State of California, its political subdivisions or other governmental agencies shall file applications for permits and shall be issued permits as required by this Article; provided, however, that no fees shall be required for work to be performed directly by the State of California, its political subdivisions or other governmental agencies. Contractors working for the State of California, its political subdivisions, or other governmental agencies shall obtain a permit and shall pay all applicable permit fees.

23.24.230 - Permit Limitations and Conditions. All grading permits shall be subject to the following limitations and conditions:

A. General Conditions. The issuance of a grading permit shall constitute an authorization to do only that work which is described or illustrated on the application for the permit, or on the grading plans and specifications approved by the City Engineer. If a grading plan shows work beyond the property, or the work proposed impacts adjacent properties, appropriate agreements/easements shall be secured to the satisfaction of the City Engineer by the applicant prior to commencement of construction.

B. Jurisdictions of Other Agencies. Permits issued under the provisions of this code shall not relieve the owner of the responsibility for securing permits or licenses that may be required from other City departments or other governing agencies. All grading plans and grading operations shall comply with the State Water Resources Control Board regulations in effect at the time of grading.

C. Conditions of Approval. In granting any permit under this Code, the City Engineer may attach such conditions as may be reasonably necessary to prevent creation of a nuisance or threat to public or private property. Such conditions may include, but shall not be limited to:

1. Improvements of any existing grading to bring it up to the standards of this Code;

2. Requirements for fencing of excavations of fills which would ~~other-wise~~ otherwise be hazardous if not fenced.

D. Modification of Approved Plans. Any modifications of or changes to the approved grading plans must be approved by the City Engineer. Modifications which significantly affect the tract layout, land use, or conditions of approval must have the approval of ~~other applicable~~ the appropriate ~~legislative body~~ authorizing agency. Approval shall only be considered at a properly noticed public meeting. All property owners within ~~300~~ 500 feet of the permit site shall be notified of the meeting.

E. It shall be a condition of every permit issued under this Chapter that the applicant shall comply with all the provisions of the City of Encinitas Watercourse Protection, Storm Water Management and Discharge Control Ordinance in Chapter 64.20.08 of this Code and City of Encinitas BMP Design Manual, Part II. (Ord. 2002-03).

23.24.240 - Permit Duration.

A. The Permittee shall fully perform and complete all of the work required to be done pursuant to the grading permit within the time limit specified therein or, if no time is so specified, within one hundred eighty days after the date of issuance of the permit. The time limit specified may be extended by the City Engineer upon written request of the Permittee, owner or surety, if in the discretion of the City Engineer, good and sufficient cause has been shown.

B. Every permit issued shall expire by limitation and become null and void if the work authorized by such permit is not commenced within ninety days from the date of such permit, or if the work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period on ninety days.

C. In order to revalidate an expired permit the Permittee shall resubmit all required application forms, maps, plans, reports, schedules, and security to the City Engineer except where an item to be resubmitted is waived by the City Engineer. The City Engineer may require additional fees to be paid.

D. If a permit is not issued in accordance with the approved plans within ninety days from the date of such approval by the City Engineer, the applicant shall resubmit updated application forms, maps, plans, reports, schedules, and security to the

City Engineer for review and re-approval. The City Engineer may waive the resubmittal if the original material is found by the City Engineer to meet necessary standard engineering practices.

23.24.250 - Assignment of Permit. A permit issued pursuant to this Chapter may be assigned, provided:

A. The Permittee notifies the City Engineer of the proposed assignment.

B. The proposed assignee:

1. submits an application form pursuant to this Chapter; and

2. agrees in writing to all the conditions and duties imposed by the permit; and

3. agrees in writing to assume responsibility for all work performed prior to the assignment; and

4. provides security pursuant to this Chapter; and

5. agrees to pay all applicable fees.

C. The City Engineer approves the assignment.

The City Engineer shall set forth in writing the reasons for his/her approval or disapproval of an assignment.

23.24.260 Permit Denial, Suspension, Revocation, and Default

23.24.260 .01 Permit Denial. Unless approved corrections are made to the grading plan, a grading permit shall not be issued if any of the conditions under Subsections A through C are found to exist.

A. Hazardous Grading. The City Engineer finds that the work, as proposed by the applicant, will damage any private or public property, or interfere with any existing drainage course in a manner which may cause damage to any adjacent property, or result in the depositing of debris on any public way, or create an unreasonable hazard to person or property, or cause or contribute to an exceedance of state water quality objectives, or fails to reduce pollutants from the site to the maximum extent practicable. If it can be shown, to the satisfaction of the City Engineer, that the hazard can be essentially eliminated by the construction of retaining structures, buttress fills, drainage structures, construction and post construction BMPs, or by other facilities and means, the City Engineer may issue the grading permit on the condition that such construction work ~~be~~ is shown on the grading plans and installed as part of the grading permit. ~~performed.~~ (Ord. 2002-03)

B. Geological Hazard. If, in the opinion of the City Engineer, the land area for which grading is proposed is subject to geological hazard to the extent that no reasonable amount of corrective work can eliminate or sufficiently reduce the hazard to person or property, the grading permit shall be denied.

C. Flood Hazard. If, in the opinion of the City Engineer, the land area for which grading is proposed is subject to flood hazard, the plans showing the corrective work proposed to be done must be approved by the City Engineer before issuance of a permit.

~~D. Nonperformance. If any applicant shall have failed or refused to complete the work required by any permit within the time allowed and has not renewed the permit as provided in this Chapter, the City Engineer may refuse to issue any new permit until the delinquent work is completed.~~

~~E.~~ D. Subdivision or Use Permit. Under either of the following circumstances, a grading permit shall not be issued unless and until a Tentative Map or subdivision has been approved or conditionally approved or a use permit issued:

1. If the purpose of the proposed grading as stated in the application is to prepare the land for subdivision or for some use for which a use permit is required; or

2. Notwithstanding the purpose of the proposed grading, as stated in the application, if the City Engineer and the Director of ~~Community Development~~ Planning and Building find that the purpose of the proposed grading is to prepare the land for subdivision, or for some use for which a use permit is required. (Ord. 2003-08).

23.24.260 .02-Permit Suspension.

The City Engineer shall suspend the grading permit and issue a stop work order, and Permittee shall cease all work on the work site, except work necessary to remedy the cause of the suspension, upon notification of such suspension when:

(a) the City Engineer determines that the permit was issued in error or on the basis of incorrect or incomplete information supplied, or in violation of any ordinance or regulation or the provisions of this ordinance;

(b) Permittee fails to submit reports when required under this Chapter;

(c) inspection by the City Engineer reveals that the work or the work site:

(1) is not in compliance with the conditions set forth in this Chapter; or

(2) is not in conformity with the Grading Plan, or the Interim or Final Erosion and Sediment Control Plans, as approved or as modified under this Chapter; or

(3) is not in compliance with an order to modify under this Chapter;

(d) Permittee fails to comply with an order to modify the grading and/or grading plan within the time limits imposed by the City Engineer;

(e) Permittee fails to properly provide for wet season activity, as required by this Chapter, or fails to comply with all of the provisions of the City of Encinitas Watercourse Protection, Storm Water Management and Discharge Control Ordinance in Chapter 20.08 of this Code, The Best Management Practice Manual, and the State Regional Water Quality Board Permit.

(f) Permittee fails to construct grading and improvements consistent with the approved grading plan and approved revisions to the plan

(g) The City Engineer shall reinstate a suspended permit upon Permittee's correction of the cause of the suspension.

23.24.260 .03 Permit Revocation

The City Engineer shall first have resort to the procedures set forth in this Section before any other enforcement procedure set forth in this Chapter.

1. The City Engineer shall revoke the grading permit if Permittee fails or refuses to perform corrective grading work, as required under Subsections a through c below.

a) Permittee refuses to stop work after suspension of the permit and receipt of a stop work order or work suspension notification.

b) Permittee stops construction for a cumulative total of 90 days or longer. For the purpose of this section, "stops construction" shall mean that the City Engineer finds that no significant construction activities have taken place on the project site.

c) Permittee has failed to remedy the cause of a work suspension within 90 days following the work suspension.

2. The City Engineer shall not reinstate a revoked permit.

3. When a grading permit is revoked in accordance with the provisions of this chapter, the City Engineer shall utilize the project security to remedy the causes of the permit revocation.

~~F. Permit Revocation. The City Engineer shall first have resort to the procedures set forth in this Section before any other enforcement procedure set forth in this Chapter.~~

~~1. The City Engineer shall suspend the permit and issue a stop work order, and Permittee shall cease all work on the work site, except work necessary to remedy the cause of the suspension, upon notification of such suspension when:~~

~~(a) the City Engineer determines that the permit was issued in error or on the basis of incorrect or information sup plied, or in violation of any ordinance or regulation or the provisions of this ordinance;~~

~~(b) Permittee fails to submit reports when required under this Chapter;~~

~~(c) inspection by the City Engineer reveals that the work or the work site:~~

~~(1) is not in compliance with the conditions set forth in this Chapter; or~~

~~(2) is not in conformity with the Grading Plan, or the Interim or Final Erosion and Sediment Control Plans, as approved or as modified under this Chapter; or~~

~~(3) is not in compliance with an order to modify under this Chapter;~~

~~(d) Permittee fails to comply with an order to modify within the time limits imposed by the City Engineer;~~

~~(e) Permittee fails to properly provide for wet season activity, as required by this Chapter.~~

~~(e) Permittee fails to properly provide for wet season activity, as required by this Chapter, or fails to comply with all the provisions of the City of Encinitas Watercourse Protection, Storm Water Management and Discharge Control Ordinance in Chapter 64 20.08 of this Code. (Ord. 2002-03 or14).~~

~~2. The City Engineer shall revoke the permit and issue a stop work order, and Permittee shall cease work if Permittee fails or refuses to cease work, as required under this Section, after suspension of the permit and receipt of a stop work order and notification there of .~~

~~3. The City Engineer shall reinstate a suspended permit upon Permittee's correction of the cause of the suspension.~~

~~4. The City Engineer shall not reinstate a revoked permit.~~

~~23.24.270- No Improvements Planned. Where an applicant does not plan to construct permanent improvements on the site, or plans to leave portions of the site graded but unimproved, applicant must:~~

~~A. Meet all the requirements of this Chapter except that an Interim Plan designed to control runoff and erosion on the site for the period of time during which the site, or portions thereof, remain unimproved must be submitted in lieu of a Final Plan; and~~

~~B. Submit an executed contract for maintenance and upkeep of Interim Plan runoff and erosion control measures for the period of time that the site remains graded but unimproved.~~

23.24.270- No Improvements Planned. Where an applicant does not plan to construct permanent improvements on the site, or plans to leave portions of the site graded but unimproved, applicant shall: (Ord. 2002-03).

A. Meet all the requirements of this Chapter, including an Interim Plan designed to control runoff and erosion on the site for the period of time during which the site, or portions thereof, remain unimproved, and also shall include a description of the maintenance necessary for proper functioning of the storm water runoff and erosion control methods used for the site, a maintenance schedule, and names and addresses of the persons who will perform the maintenance; and (Ord. 2002-03).

B. Submit an executed contract, secured by the methods described in Section 23.24.210 of this Chapter, for maintenance of Interim Plan runoff and erosion control measures for the period of time that the site remains graded but unimproved. (Ord. 2002-03).

23.24.280 - Issuance of Permits. The City Engineer shall issue a permit upon approval of a Grading Plan, and where required, Interim Plan, Final Plan, soil engineering report, and engineering geology report, deposit of appropriate security and payment of fees. A permit shall be issued subject to the following conditions:

A. The Permittee shall maintain a copy of the permit, approved plans and reports required under this Chapter on the work site and available for public inspection during all working hours.

B. The Permittee shall, at all times, be in conformity with approved Grading Plan, Interim and Final Plans.

23.24.290 - Grading Inspection and Supervision.

A. All grading operations for which a permit is required shall be subject to inspection by the City Engineer or ~~his~~ authorized representative.

B. Prior to the approval of any building or grading plans and specifications, the City Engineer may inspect the site to determine that the plans and specifications are current and reflect existing condition.

C. The Permittee, or ~~his~~ authorized agent, shall notify the City Engineer when the following grading operations are ready for inspection:

1. Pre-job Inspections and Meetings. Prior to any grading, brushing, or clearing, there shall be a pre-grading meeting held on the site. Prior to construction of any public improvements, ~~pouring curb and gutter or placement of pavement base material,~~ there shall be a pre-~~paving~~ construction meeting held on the site~~,~~. ~~if~~ If required by the City, as applicable to the specific construction of the project, ~~com posing of~~ the project geologist, civil engineer of record, contractor, and owner or developer must be in attendance. The Permittee, or ~~his~~ authorized agent, shall notify the City Engineer at least two (2) working days prior to the meetings and shall be responsible for notifying all principals responsible for grading or paving related operations.

2. Grading Operation Inspections. It shall be the duty of the person doing the work authorized by a permit to notify the City Engineer at least twenty-four hours prior to the work being ready for the following inspections:

(a) Excavation and Fill Inspection

(1) Canyon Cleanout: After all brush and unsuitable material has been removed and an acceptable base has been exposed, but before any fill is placed.

(2) Toe bench and key: After the natural ground or bed-rock is exposed and prepared to receive fill, but before fill is placed.

(3) Over-Excavation: After the area has been excavated but before fill is placed.

(4) Excavation: After the excavation is started, but before the vertical depth of the excavation exceeds ten (10) feet, and every ten (10) feet interval thereafter. Continuation of this excavation operation need not await the arrival of the grading inspector provided that proper notification has been made to the City Engineer.

(5) Fill: After the fill has started, but before the vertical height of the fill exceeds ten (10) feet, and every ten (10) feet interval thereafter. Continuation of this fill operation need not await the arrival of the grading inspector provided that proper notification has been made to the City Engineer.

(6) Rough grade inspection shall include inspection by City geologist on geologic related items, if required.

(7) The site geologist or geotechnical engineer shall provide documentation of the acceptability of all excavations prior to fill.

(8) Adequate time shall be allowed for City inspectors, the project civil engineer and project geotechnical engineer to perform all required inspections.

(b) Concrete or gunite drainage device inspection:

(1) Alley gutter and/or concrete device draining asphalt:

(i) Subgrade (prior to placement of concrete): Sub-grade is to be prepared and required reinforcement placed. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans. The geotechnical engineer shall provide a field memo documenting that subgrade soils have been properly prepared.

(ii) Concrete placement: Concrete placement need not await the arrival of the grading inspector provided proper notification has been made to the City Engineer.

(2) Curb and gutter (private property):

(i) Subgrade (prior to placement of concrete): Sub-grade is to be made, forms and reinforcement are to be placed. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans. The geotechnical engineer shall provide a field memo documenting that subgrade soils have been properly prepared.

(ii) Concrete placement: Concrete placement need not await the arrival of the grading inspector provided proper notification has been made to the City Engineer.

(3) Terrace drains, down drains, and all other paved drainage devices:

(i) Subgrade: Prior to placement of welded wire mesh or reinforcing steel. The civil engineer shall ~~pro-vide~~ provide a field memo that line and grade is set in accordance with the approved plans.

(ii) Reinforcement: ~~Rein-forcing~~ Reinforcing steel or welded wire mesh are to be installed but prior to placement of gunite or concrete.

(iii) Concrete placement: Concrete placement need not await the arrival of the grading inspector provided proper notification has been made to the City Engineer.

(c) Drainage device other than concrete or gunite inspection:

(1) Subdrains :

(i) After excavation but prior to placement of filter material and pipe. The subdrain pipe and filter material shall be onsite for inspection.

(ii) After filter material and subdrain has been placed but prior to covering with backfill. The project civil engineer shall survey and verify the location and grade of all subdrains prior to backfill.

(2) Storm drains and inlets:

(i) After placement of storm drains but prior to covering with backfill. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans.

(ii) After placement of inlet forms, but prior to pouring concrete. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans.

(3) Earth Swales:

(i) Prior to rough grading approval or lumber drop.

(ii) Prior to final grading approval.

(d) Rough Grade Inspection. When all rough grading has been completed. Under normal circumstances, all subdrains and slope drains shall be in place and approved as a condition for rough grading approval.

(e) Final Inspection. After all work, including installation of all drainage structures and other protective devices, has been completed and all written professional approvals and the required reports have been submitted. An As-Built plan will be required to document any changes made to the project in the field.

(f) Erosion Control Facilities:

(1) After excavation of desilting basins, but prior to fill placement. Prefabricated devices are to be available onsite for inspection.

(2) After fill placement for desilting basins, but prior to placement of concrete or other non-erosive materials.

(3) After completion of an erosion control system in accordance with an approved erosion control plan and the requirements of the City Engineer.

D. If the inspector finds the soil or other conditions not as stated in the approved plans and soil or geology reports or as in additional information which was required for issuance of the grading permit, ~~he~~ the inspector may, using reasonable judgment, refuse to allow further work until approval is obtained for a revised grading plan which will conform to the conditions.

E. The provisions ~~of Section 202(d), Stop Orders,~~ of the Uniform Building Code regulating Stop Orders shall apply to all grading work and whenever the City Engineer determines that any work does not comply with the terms of a permit, or this Ordinance, or that the soil or other conditions are not as stated on the permit, ~~he~~ the City Engineer may order the work stopped by notice in writing served on any persons engaged in doing or causing of such work to be done and any such persons shall forthwith stop such work until authorized by the City Engineer to proceed with the work.

F. Prior to the issuance of building permits for a graded site, the rough grading shall be completed in accordance with this Section and to the satisfaction of the responsible civil engineer, or architect, engineering geologist, soil engineer, and the City Engineer.

G. Whenever any work on which inspections are required is covered or concealed by additional work without first having been inspected, the City Engineer may require by written notice, that such work be exposed for examination. The work of exposing and recovering shall not entail or be subject to expense by the City.

23.24.300 - Implementation of Permits.

A. It shall be the responsibility of the civil engineer, who prepares the grading plan approved by the City Engineer, to incorporate all recommendations from the soil engineering and engineering geology reports into the grading plan. ~~He~~ The Civil Engineer of record shall also be responsible for the professional inspection and approval of the grading within ~~his~~ the Civil Engineer's approved area of technical specialty. This responsibility shall include, but need not be limited to, inspection and approval as to the establishment of line, grade and ~~drain-age~~ drainage of the development area. The project civil engineer and/or general contractor shall act as the coordinating agent in the event the need arises for liaison between the project professional grading ~~con-tractor~~

contractor, and the City Engineer~~,~~ . ~~t~~The civil engineer who prepares and signs the grading plan shall also be responsible for the preparation of revised plans, erosion control plans, and the submission of as-graded grading plans when required by the City Engineer upon completion of the work. The soil engineer and engineering geologist shall review and sign the grading plans, if required by the City Engineer to assure inclusion of the recommendation.

B. Soil engineering and engineering geology reports shall be required as specified in this Chapter. During grading, all necessary reports, compaction data, soil engineering and engineering geology recommendations shall be submitted to the owner by the soil engineer and engineering geologist. The owner shall submit copies of the report to the civil engineer and two copies of all reports to the City Engineer.

C. The soil engineer's area of responsibility shall include, but need not be limited to, the professional inspection and approval concerning the preparation of ground to receive fills, testing for required compaction, stability of all final slopes, design of buttress fills, subdrain installation and incorporation of data supplied by the engineering geologist.

D. The engineering geologist's area of responsibility shall include, but need not be limited to, professional inspection and written approval of the adequacy of natural ground for receiving fills, the stability of cut slopes with respect to geological matters, and the need for subdrains or other ground water drainage devices. ~~He~~ The engineering geologist shall report ~~his~~ professional findings to the soil engineer and the civil engineer for engineering analysis. ~~He~~ The engineering geologist shall inspect unsuitable soil removal, placement of subdrain and preparation of benching prior to placement of fill.

~~E. The City Engineer, or his authorized representative, will expeditiously inspect the project at the various stages of work requiring approval and at any more frequent intervals necessary to determine that adequate control is being exercised by the professional consultants.~~

E. The City Engineer or authorized representative shall inspect the project work at various stages in accordance with the Municipal Code and standard engineering practices. The number and frequency of inspections may be modified by the City Engineer if the work involved requires additional or fewer inspections.

F. When preliminary soil engineering reports are not required by the City Engineer, ~~he may require~~ inspection and testing by a certified testing agency shall be required if grading is proposed. The testing agency's responsibility shall include, but need not be limited to, approval of cleared areas and benches to receive fill, and the compaction of fills.

G. If the civil engineer, the soil engineer, the engineering geologist, or the testing agency finds that the work is not being done in conformance with the provisions of the approved specifications and grading plans, the discrepancies shall be reported

immediately in writing to the person in charge of the grading work. Recommendations for corrective measures, if necessary, shall be submitted to the owner. The owner shall submit two copies of all recommendations and reports to the City Engineer.

H. Protection of Utilities. During grading operations the Permittee shall be responsible for the prevention of damage to any public utilities or services both within the limits of grading and along any routes of travel of equipment.

I. Protection of Adjacent Property. The Permittee, under the grading permit, is responsible for the prevention of damage to adjacent property and no person shall excavate on land sufficiently close to the property line to endanger any adjoining public street, sidewalk, alley, or other public or private property without supporting and protecting such property from settling, cracking, or other damage which might result.

J. Cross Lot Drainage. Cross lot drainage is not allowed unless, based on evidence submitted and reviewed, the City Engineer finds that the runoff has historically crossed the property lines and construction of a drainage system to receive and convey runoff is not economically feasible. If cross lot drainage is found to be allowable by the City Engineer, the applicant is responsible for providing a design that complies with the State of California and City of Encinitas drainage codes, practices and procedures. The design of cross lot drainage shall include flow control and a discharge system that mimics pre-development conditions of the project site and the receiving site or sites. The City Engineer may also require installation of an infiltration system to reduce nuisance flow and runoff volume. Refer also to Municipal Code Chapter 30.34 for additional requirements pertaining to properties located on or adjacent to bluffs.

23.24.310 - Completion of Work. Upon completion of the rough grading work and at the final completion of the work under the grading permit but prior to the issuance of building permits or release of grading securities or issuance of a certificate of use and occupancy, the City Engineer may require:

A. An as-graded grading plan prepared by the civil engineer, which shall include corrected original ground surface elevations, if necessary, graded ground surface elevations, lot drainage patterns, manufactured slope inclination, and location of all drainage facilities and subdrains.

B. A written approval by the civil engineer approving the grading as being substantially in conformance with the approved grading plan and which specifically approves the following items as appropriate to the project and stage of grading:

1. Construction of line and grade for all engineered drainage devices and retaining walls (rough and final grading releases).

2. Staking of property corners for proper building location if appropriate (rough grading release).

3. Setting of all monuments in accordance with the recorded tract map if applicable (rough or final grading release).

4. Location of permanent walls or structures on property corners or property lines where monumentation is not required (final grading release).

5. Location and inclination of all manufactured slopes (rough and final grading release).

6. Construction of earthen berms and positive building pad drainage (rough and final grading releases).

7. Construction of all post construction BMPs in accordance with the approved grading plans.

C. A soil engineering report prepared by the soil engineer, including type of field testing performed, suitability of utility trench and retaining wall backfill, summaries of field and laboratory tests and other substantiating data, and comments on any changes made during grading and their effect on the recommendations made in the soil engineering investigation report. Each field density test shall be identified, located on a plan or map, the elevation of test and finish grade elevation shown, and the method of obtaining the in place density described, either ASTM Soil Compaction Test D-1557-70 or the approved equal shall be so noted. The soil engineer shall provide a written approval as to the adequacy of the site for the intended use, as affected by soil engineering factors. The City Engineer may require that the soil tests or testing be ~~per-formed~~ performed by an approved testing agency under the supervision ~~by~~ of a licensed civil engineer.

D. A geology report if required prepared by the engineering geologist, including a final description of the geology of the site including any new information disclosed during the grading, and the effect of same on recommendations incorporated in the approved grading plan. ~~He~~ The engineering geologist shall provide a written approval as to the adequacy of the site for the intended use as affected by geologic factors and when required by the City Engineer, shall submit an as-built geologic map.

~~E. If appropriate, an executed agreement guaranteeing continual maintenance and upkeep of Final Erosion Control Plan runoff and erosion control measures and an executed contract providing for said maintenance and upkeep for a 3-year period (rough or final grading release).~~

E. An executed contract, secured by the methods described in Section 23.24.210 of this Chapter, for maintenance of Final Erosion Control Plan runoff and erosion control measures for up to a three year period ~~(rough or final)~~. (Ord. 2002-03).

F. Partial Release. The City Engineer may, ~~at his discretion~~ following review of the project, allow ~~portions of the permitted work receipt of~~ rough and final

grading releases for portions of the project. Prior to partial release of any work, the appropriate items listed (A) through (~~F~~E) in this Section shall be provided.

G. The permitted grading work will not be considered complete until all requirements of this Section have been fulfilled and the grading permit receives a final approval signature by the City Engineer.

23.24.320 - Time of Grading Operations. Grading and equipment operations within one-half (1/2) mile of a structure for human occupancy shall not be conducted between the hours of 5:30 p.m. and 7:30 a.m. nor on Saturdays, Sundays, and City recognized holidays. The City Engineer may, however, permit grading or equipment operations during specific hours after 5:30 p.m. or before 7:30 a.m. ~~or on Saturdays, Sundays, and City recognized holidays~~ if ~~he~~ the City Engineer determines that such operations are not detrimental to the health, safety, or welfare of the inhabitants of such a structure and that the modified hours are consistent with Chapter 9.32 of the Municipal Code regulating times of construction and use of construction equipment.

Permitted hours of operation may be shortened by the City Engineer's finding of a previously unforeseen effect on the health safety, or welfare of the surrounding community.

23.24.330 - Violations.

A. Any grading commenced or done contrary to the provisions of this Chapter, or other violation of this Chapter, shall be, and the same is declared to be, a public nuisance. Upon order of the City Council, the City Attorney shall commence necessary proceedings for the abatement of any such public nuisance in the manner provided by law. Any failure, refusal, or neglect to obtain a permit as required by this Chapter shall be prima facie evidence of the fact that a public nuisance has been committed in connection with any grading commenced or done contrary to the provisions of this Chapter.

B. In the event that grading is commenced without a permit, the City Engineer shall cause such work to be stopped until a permit is obtained. The permit fee, in such instance, shall then be double that which would normally be required. The payment of such double fee shall not relieve any person from fully complying with the requirements of this Chapter and the performance of the work. Such fee shall not be construed to be a penalty, but for enforcement of the provisions of this Chapter in such cases.

In the event that any grading is commenced or done contrary to the provisions of this Chapter or of the grading permit, the City Engineer may cause to be recorded with the County Recorder a notice of grading violation for the property. The City Engineer shall cause the notice of grading violation to be removed when the City Engineer determines that the violation no longer exists.

~~C. Each person, firm or corporation who commences or does any grading contrary to the provisions of this Chapter, or otherwise violates the provisions of this Chapter, is guilty of a misdemeanor. Every day during any portion of which any violation or any provisions of this Title is committed, continued or permitted by such person, firm or corporation, shall be deemed a separate violation and shall be punishable as provided in this Code.~~

C. Any person who commences or does any grading in violation of this Chapter is guilty of a misdemeanor. Every day that a violation of this Chapter is committed, continued or permitted to exist is a separate violation, punishable as provided in this Code (see Chapter 1.08). (Ord. 2002-03).

D. Any grading or clearing which~~, according~~ has been verified by ~~to~~ a city field inspection of the property~~, was done~~ to be in violation of this Ordinance, ~~shall~~ may be grounds for denying all applications for grading permits, use permits, major and minor subdivisions, rezones, specific plans, specific plan amendments, and general plan amendments proposed for the property on which the violation occurred until the land and vegetation unlawfully disturbed are, as feasible, ~~completely~~ restored to their pre-grading/clearing condition. In-lieu of a restoration grading plan, the City Engineer may authorize submittal of a grading plan showing grading and corrective measures necessary to bring the unauthorized grading into conformance with the Municipal Code. ~~Upon application of the property owner, the City Council may excuse all or a portion of the restoration on such terms and conditions as are deemed appropriate to protect the environment and the public interest. interest~~. No other city permits, unless the permits are needed for correcting the unauthorized grading or clearing, may be issued on the property unless the unauthorized grading or clearing has been properly permitted. The permitting process to correct the unauthorized grading may include, but may not be limited to, review by the Planning Department, the Planning Commission or other authorized body of an application for a Coastal Development Permit, a review under the California Environmental Quality Act, a permit for development of constrained property or other required permits for the intended use of the property. The City Engineer may not issue a grading permit to correct the unauthorized grading until all other Encinitas Municipal Code requirements have been satisfied to the satisfaction of the City Engineer.

23.24.340 - Action Against Security. The City Engineer may act against the appropriate security if any of the conditions listed in Subsections (a)-(d) below exists. The City Engineer shall use funds from the appropriate security to finance remedial work under-taken by the City or a private contractor under contract to the City, and to reimburse the City for all direct costs incurred in the process of the remedial work.

A. The Permittee ceases land-disturbing activities and/or filling and abandons the work site prior to completion of the Grading Plan.

B. The Permittee fails to conform to the Interim Plan or Final Plan, as approved or as modified under this Chapter and has had his/her permit revoked under provisions of this Chapter.

C. The techniques utilized under the Interim or Final Plan fail within 1 year of installation, or before a Final Plan is implemented for the site or portions of the site, whichever is later.

~~D. The City Engineer determines that action by the City is necessary to provide for the public safety, to prevent excessive erosion from occurring on the site.~~

D. The City Engineer determines that action by the City is necessary to provide for the public safety, to prevent excessive erosion from occurring on the site, or to otherwise protect water quality. (Ord. 2002-03).

23.24.350 - Release of Security. Security deposited with the City for faithful performance of the grading and erosion control work and to finance necessary remedial work shall be released according to the following schedule:

A. Securities held against the successful completion of the Grading Plan and the Interim Erosion Control Plan shall be released to the Permittee at the completion of work, provided no action against such security is filed prior to that date.

B. Securities held against the successful completion of the Final Erosion Control Plan shall be released to the Permittee 1 year after completion of work, provided no action against such security has been filed prior to that date.

C. Securities held for maintenance of runoff and erosion control measures shall be held for the period required by this Chapter. (Ord. 2002-03).

23.24.360 - Transfer of Responsibility for Approval. If the civil engineer, the soil engineer, the engineering geologist, the testing agency or the grading contractor of record are changed during the course of the work, the work shall be stopped unless and until: (1) the owner submits a letter of notification verifying the change of the responsible professional; and (2) the new responsible professional submits in writing that ~~he has reviewed~~ all prior reports and/or plans (specified by date and title) and work performed by the prior responsible professional have been properly reviewed and ~~that he concurs with the~~ all findings, conclusions, and recommendations are appropriate, and ~~is satisfied with~~ the work performed is consistent with standard engineering practices. ~~He~~ The new responsible professional may modify or revise recommendations, specifications or work performed if accompanied by supporting data and approved by the City Engineer. ~~He~~ The new responsible professional must state that ~~he assumes~~ all responsibility within ~~his~~ the purview of the area of professional responsibility is assumed as of a specified date. All exceptions must be justified in writing to the satisfaction of the City Engineer.

23.24.370 - Wet Season Work.

~~A. No grading permit shall be issued for work occurring between October 1st of any year and April 15th of the following year, unless the plans for such work include details of protective measures, including desilting basins or other temporary drainage or control measures, or both, as may be deemed necessary by the field inspector to protect adjoining public and private property from damage by erosion, flooding, or the deposition of mud or debris which may originate from the site or result from such grading operations.~~

A. Grading shall be minimized during the wet season to the extent feasible. Grading operations shall be phased as necessary to allow minimal exposure of disturbed soils during the grading operation. If grading does occur during the wet season, the City Engineer may require the applicant to implement additional best management practices for any rain events that may occur. No grading permit shall be issued for work occurring from October 1 to April 30 unless the plans include details of protective measures, including de-silting basins or other temporary drainage control measures, or both, as may be deemed necessary by the City Engineer to protect adjoining public and private property or the Waters of the State from damage by erosion, flooding, or the deposit of mud or debris which may originate from the site or result from grading operations. (Ord. 2002-03).

B. If grading is begun prior to October 1st, all protective measures shall be installed prior to October 1st. If grading is begun on or after October 1st, all protective measures shall be installed before grading is begun. All protective measures shall be maintained in good working order until April ~~15th~~ 30th of the succeeding year, where grading is done between October 1st and December 31st, or until April ~~15th~~ 30th of the same year where grading is done between January 1st and April ~~15th~~ 30th, unless their removal at an earlier date is approved by the City Engineer. (Ord. 2002-15)

C. Where a grading permit is issued and the work is commenced after April 15th and before September 15th of any year, and the permit was issued without an Interim Erosion and Sediment Control Plan, and it appears that the grading and installation of the permanent drainage devices as authorized by the permit will not be completed prior to October 1, then on or before September 15th, the owner of the site on which the grading is being performed shall file or cause to be filed with the City Engineer an Interim Erosion and Sediment Control Plan as provided for in this Chapter and shall implement the measures contained in the approved plan by October 1. The plan check fee for the Interim Erosion and Sediment Control Plan shall be paid at the time of plan submittal and shall be in the amount provided for in this Chapter.

D. For continuation of grading activities, other than installation, maintenance, or repair of measures on the Erosion Control Plans, during the wet season, Permittee must apply for and receive, every seven days, special permission to proceed.

E. The City Engineer shall grant permission under this section on the basis of weather forecasts, site conditions, experience and other pertinent factors which indicate the activity may commence or continue without excessive erosion occurring.

F. Should the Permittee fail to submit the plans, fail to provide the protective measures or fail to obtain permission for wet season activities as required by this Chapter by the dates specified therein, it shall be deemed that a default has occurred under the conditions of the grading permit security. Thereupon the City Engineer may enter the property for the purpose of installing, by City forces or by other means, the drainage and erosion control devices shown on the approved plans, or if there are not approved plans, as ~~he~~ may be deemed necessary to protect adjoining property from storm damage, or the City Engineer may cause the owner of the site to be prosecuted as a violator of this code, or ~~he may take~~ both actions may be taken.

G. The City Engineer shall have the authority to require implementation of all erosion control systems and requirements at any time of the year.

23.24.380 - Erosion Control System.

~~A. The faces of cut and fill slopes and the project site shall be prepared and maintained to control against erosion in accordance with this Chapter. Where cut slopes are not subject to erosion due to the erosion resistant character of the materials, such protection may be omitted only upon approval of the City Engineer.~~

A. Erosion prevention shall be considered the most important erosion control measure, with sediment controls as a necessary backup. The faces of cut and fill slopes and the project site shall be prepared and maintained to control against erosion and runoff in accordance with this Chapter. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted only upon approval of the City Engineer. (Ord. 2002-03).

B. Paved streets, sidewalks, and other improvements shall be maintained in a neat and clean condition free of loose soil, construction debris and trash. Street sweeping or other equally effective means shall be used on a regular basis to prevent storm flows from carrying sediment and debris outside the project boundaries. Watering shall not be used to clean streets except for fine material not otherwise removed by sweeping or other mechanical means.

C. The registered civil engineer who prepared the grading plan and ~~de-signed~~ designed the erosion control devices shall be responsible for modification of the design of devices, as necessary, during the rainy season.

D. Desilting facilities shall be provided at drainage outlets from the graded site.

E. Desilting basins shall be designed in accordance with City standards. Permanent desilting facilities shall be designed and constructed as to be aesthetically compatible with the surrounding development and terrain.

F. Desilting basins constructed of compacted earth shall be compacted to a relative compaction of ninety (90) percent of maximum density. A soil engineering report, prepared by the soil engineer, which includes the type of field testing performed, location and results of testing shall be submitted to the City Engineer for approval upon completion of the desilting basins.

G. Equipment and workers for emergency work shall be made available at all times during the rainy season. Necessary materials shall be available onsite and stockpiled at convenient locations to facilitate rapid construction of temporary devices when rain is imminent.

H. Erosion protection shall consist of effective planting of all cut slopes in excess of three ~~five~~ (3 ~~5~~) feet high and fill slopes more than three (3) feet high unless otherwise approved by the City Engineer. Slopes exceeding five (5) feet high will require an approved sprinkler system, as determined by the City Engineer.

I. Protection for the slopes shall be installed as soon as practicable which may be prior to rough grade approval. Effective planting shall be installed, fully germinated and effectively cover the required slopes prior to final approval unless otherwise approved by the City Engineer.

J. The erosion control provisions shall take into account drainage patterns during the current and future phases of grading throughout the rainy season.

K. All removable protective devices shown shall be in place at the end of each working day when the five (5) day rain probability forecast exceeds forty (40) percent.

L. Unvegetated slopes shall be protected in accordance with the guidelines set forth by the Erosion and Sediment Control Manual or in accordance with other requirements set forth by the City Engineer.

23.24.390 - Erosion Control Maintenance.

A. After each rainstorm exceeding 1/4-inch in a 12 hour period, silt and debris shall be removed from all temporary check berms and de-silting basins and the basins pumped dry. The requirement to clean and pump permanent de-silting basins will be addressed on a case-by-case basis. No person shall allow the removed silt and debris to enter the Storm Water Conveyance System. (Ord. 2002-03).

B. After each rainstorm, the performance of the erosion control system shall be evaluated and revised and repaired as necessary.

C. Devices shall not be moved or modified without the approval of the City Engineer.

D. The contractor shall be responsible and shall take necessary precautions to prevent public trespass onto areas where impounded water creates a threat to public health, safety and welfare.

~~E. The contractor and Permittee or project owner shall be responsible for the continued maintenance of the devices during the wet season. In the event of failure or refusal by the contractor, Permittee or project owner to properly maintain the devices, the City Engineer may cause emergency maintenance work to be done to protect adjacent private property, public property. The cost shall be charged to the owner and shall include an initial mobilization cost plus the cost of doing the work as provided for in this Chapter.~~

E. The contractor, the Permittee, and project owner shall be jointly and severally responsible for the continued maintenance of the devices during the wet season. In the event of failure or refusal by the contractor, permittee or project owner to maintain the devices, the City Engineer may cause emergency maintenance work to be done to protect adjacent private property, public property or the Waters of the State. The cost shall be charged to the owner and shall include an initial mobilization cost plus the cost of doing the work as provided for in this Chapter. (Ord. 2002-03).

F. In the event the City Engineer must cause emergency maintenance work to be done, ~~he may revoke~~ the grading permit may be revoked in writing. The permit shall not be renewed until an erosion control system approved by the City Engineer is installed and a fee of one-half the amount required for the original permit is paid by the owner. The City Engineer may waive installation of an erosion control system after April 15.

G. If any grading subject to the provisions of this Chapter has commenced on private property without a valid grading permit, the property owner shall be required to prepare and implement an erosion control plan which has been approved by the City Engineer. In the event of failure by the property owner to install an approved erosion control system, the City Engineer may cause emergency work to be done to protect adjacent private property, ~~and~~ public property or the Waters of the State. (Ord. 2002-03).

23.24.400 - Dry Season Work. The Permittee conducting any earth moving operations under this Ordinance shall be responsible for controlling dust at all times. Provisions for dry season dust control ~~should~~ shall be included in the grading plan.

23.24.410 - Import and Export of Materials. Where transport ~~an excess of two thousand (2,000) cubic yards~~ of earth is ~~are per project site is moved transported~~ proposed on public roadways from or to the site of an earth grading operation, ~~all~~ the following requirements in A through D shall apply. In those instances where an excess of two thousand (2,000) cubic yards of earth per project site is transported on public roadways, in addition to requirements A through D, requirements E through G shall also apply.

A. Either water or dust palliative, or both, must be applied for the alleviation or prevention of excessive dust resulting from the loading or transportation of earth from or to the project site on public roadways. The Permittee shall be responsible for maintaining public rights-of-way used for handling purposes in a condition free of dust, earth, or debris attributed to the grading operation.

B. Loading and transportation of earth from or to the site must be accomplished within the time of operation limitations established in this grading Ordinance.

C. Access roads to the premises shall be only at points designated on the approved grading plan.

D. The last fifty (50) feet of the access road, as it approaches the intersection with the public roadway, shall have a grade not to exceed three (3) percent. There must be three hundred (300) feet clear, unobstructed sight distance to the intersection from both the public roadway and the access road. If the three hundred (300) feet sight distance cannot be obtained, ~~flagmen~~ contractor personnel for traffic control shall be posted in the locations approved by the City Traffic Engineer.

E. A stop sign conforming to the requirements of the California Vehicle Code shall be posted at the entrance of the access road to the public roadway.

F. An advance warning sign must be posted on the public roadway four hundred (400) feet on either side of the access intersection, carrying the words "truck crossing". The sign shall be diamond shape, each side being thirty (30) inches in length, shall have a yellow background, and the letters thereon shall be five (5) inches in height. The sign shall be placed six (6) feet from the edge of the pavement and the base of the sign shall be five (5) feet above the pavement level. The advance warning sign shall be covered or removed when the access ~~inter-section~~ intersection is not in use.

G. Appropriate security as determined by the City Engineer may be required to guarantee maintenance and repair of City streets used during grading and moving of import or export materials.

23.24.420 - Haul Routes. Where excavation or embankment material is imported or exported from one grading site to another over public streets, whether or not either

site is otherwise subject to grading permit requirements, the City Engineer may specify the route to be used in transporting the materials upon public streets.

Deviation from this designated haul route shall constitute a violation of the conditions of the permit issued under this ordinance. When the City Engineer does specify a route, ~~he~~ the route shall ~~do so~~ be specified in writing on the permit document, and ~~shall immediately notify~~ the Traffic Division of the Sheriff's Department shall immediately be notified that said haul route has been specified.

The City Engineer may further specify load limits where, in his opinion, the standard load capacity of vehicles used in such hauling would cause excessive damage to streets on the designated route. Any grading or hauling contractor moving earth materials in violation of this ordinance shall be financially responsible for any damage to the public streets done by the hauling vehicles, and shall pay to the City of Encinitas the cost, as determined by the City Engineer, of repairing such damage.

At least 24 hours before hauling is to commence, the applicant shall also be required to notify the Traffic Division of the San Diego County Sheriff's Department and the City Engineer. The Sheriff's Department and/or City Engineer may require traffic control devices to be provided by the applicant where reasonably necessary to protect the health, safety, and general welfare.

23.24.430 Depositing Materials on Public or Private Property

A. Where Prohibited. No person shall dump, move or place any earth, sand, gravel, rock, stone, or other graded, filled or excavated material, or leave any bank, slope or other excavated surface unprotected so as to cause any of such materials to be deposited upon or to roll, blow or wash upon or over the premises of another without the express consent of the owner of each such premises so affected or upon or over any public property, place or way. Such consent shall be in writing and in a form acceptable to the City Engineer.

B. Spilling, etc., Loads. No person shall, when hauling any earth, sand, gravel, rock, stone or other excavated material over any place, allow such materials to blow or spill over and upon such street, alley or place or adjacent private property.

C. Removal of Deposits from Public Places. When, due to a violation of Subsection (a) of this Section, any earth, sand, gravel, rock, stone or other excavated material is caused to be deposited upon or to roll, flow or wash upon any public place or way, the person responsible ~~therefor~~ shall inform the City Engineer and cause the same to be removed from such public place or way immediately ~~within twenty four hours~~. The City Engineer shall determine the urgency of the clean up operation and in no case shall the clean up operation take more than twenty four (24) hours. In the event it is not so removed, the City Engineer shall cause such removal and the cost of such removal by the City Engineer shall be paid to the City by the person who failed to so remove the material.

23.24.450 - Cuts.

A. General. Unless otherwise recommended in the approved soil engineering and/or engineering geology report, cuts shall conform to the provisions of this Section.

B. Slope. The slope of cut surfaces shall be no steeper than is safe for the intended use. Cut slopes shall be no steeper than two horizontal to one vertical. Slopes steeper than two to one may be permitted under special circumstances where the intent of the steeper slope is to provide a slope of varying steepness in order to more closely approximate a natural appearing embankment. All proposed deviations from the two to one limit shall be accompanied by a soils report containing the results of surface and subsurface exploration and analysis and certifications from the soils engineer and engineering geologist that in their professional opinions the underlying bedrock and soil supporting the slope have strength characteristics sufficient to provide a stable slope and will not pose a danger to persons or property. In no case shall the average slope exceed two to one. All slopes shall be protected against erosion and any unstable slopes shall be stabilized. (Ord. 2002-03)

C. Drainage and Terracing. Drainage and terracing shall be provided as required by this Subarticle.

D. Buttress Cuts. All proposed buttress cuts that would exceed a vertical depth of 25 feet, a horizontal dimension ~~distance~~ of 100 feet or are proposed to remain exposed for more than 5 working days and would lie immediately adjacent to a public right-of-way or offsite structures shall receive special, specific approval from the City Engineer.

23.24.460 - Fills.

A. General. Unless otherwise recommended in the approved soil engineering report and/or engineering geology report, fills shall conform to the provisions of this Section.

B. Slope. Fill slopes shall not be constructed steeper than is safe for intended use. Fill slopes shall be no steeper than two horizontal to one vertical. Slopes steeper than two to one may be permitted under special circumstances where the intent of the steeper slope is to provide a slope of varying steepness in order to more closely approximate a natural appearing embankment. All proposed deviations from the two to one limit shall be accompanied by a soils report containing the results of surface and subsurface exploration and analysis and certifications from the soils engineer and engineering geologist that in their professional opinions the underlying bedrock and soil supporting the slope have strength characteristics sufficient to provide a stable slope and will not pose a danger to persons or property. In no case shall the average slope exceed

two to one. All slopes shall be protected against erosion and any unstable slopes shall be stabilized. (Ord. 2002-03).

C. Preparation of Ground. The existing ground surface shall be prepared to receive fill by removing vegetation, non-complying fill or other ~~in-competent~~ incompetent material. No compacted fill shall be placed unless the under-lying soil or bedrock has been investigated by the soil engineer or geologist and found to be capable of safely supporting the additional weight. Where the slope of the existing ground surface is five horizontal to one vertical, or steeper, the fill shall be supported on level benches cut into competent material. Except where recommended by the soils engineer or geologist as not being necessary, subdrains shall be provided under all fills placed in natural drainage courses and in other locations where seepage is evident. Such subdrainage systems shall be of a material and design approved by the soil engineer and acceptable to the City Engineer. The location of the subdrains shall be recorded in plan and elevation by the soil engineer and shown on all as-built plans.

D. Fill Material. No organic or other reducible material shall be incorporated in fills. Except as recommended by the soils engineer and approved by the City Engineer, no rock or similar irreducible material with a maximum dimension greater than twelve inches shall be buried or placed in compacted fills. No rock or similar irreducible material with a maximum dimension greater than 6 inches shall be buried within ten feet of finished grade in public or private right-of-ways.

E. Drainage and Terracing. Drainage and terracing shall be provided as required by this Subarticle.

F. Slopes to Receive Fill. Where fill is to be placed above the top of an existing or proposed cut or natural slope steeper than three horizontal to one vertical, the toe of the fill shall be set back from the top edge of the slope a minimum distance as may be specifically recommended by a soils engineer or engineering geologist and approved by the City Engineer. Fills shall not toe out on slopes steeper than two horizontal to one vertical.

G. Inspection and Testing. The soil engineer shall provide sufficient inspection during fill placement and compaction operations to determine that such work is being performed in accordance with conditions of plan approval and requirements of this Code. Continuous inspection shall be provided by the soil engineer, or ~~his~~ responsible representative, for all fills that will exceed a vertical height or depth of thirty feet. Tests to determine density of the compacted fill soils shall be made on the basis of not less than one test for each two-foot vertical lift of the fill but not less than one test for each one thousand cubic yards of material placed. In addition, density tests at a point approximately one foot below the fill slope surface shall be made on the basis of not less than one test for every 5000 square feet of slope face. All such density tests shall be reasonably uniformly distributed within the fill or fill slope surface. Results of such testing and location of tests shall be presented in the soil engineer's report.

H. Compaction. All fills shall be compacted throughout their full extent to a minimum of ninety percent (90%) of the maximum density as determined by ASTM Soil Compaction Test D1557-70. Field density shall be ~~deter-mined~~ determined by a method acceptable to the City Engineer.

1. Compaction may be less than ninety percent (90%) of maximum density, as determined by the above test, within six inches of the slope surface when such surface material is placed and compacted by a method acceptable to the City Engineer.

2. Slope surfaces may be prepared for planting by scarifying by methods approved by the geotechnical engineer provided such slopes when so prepared otherwise comply with the requirements of this Section.

3. The field representative for the City may require the use of sand cone density tests in combination with nuclear device tests. There shall be at least one sand cone test in every five total density tests.

~~I. Fill Depths. Building structures upon fill materials in excess of 10 feet in depth shall only be allowed where all reasonable use of the property is otherwise precluded and then only upon attainment of the ultimate consolidation of the fill material achieved through a state of the art soils investigation, a settlement monitoring program and surcharging of the fill material with an appropriate overburden of soil.~~

~~J.~~I. Construction on Cut/Fill Boundaries. The construction of structures across the line separating cut areas from fill areas shall be allowed only when mitigation measures to avoid differential settlements are implemented in accordance with an approved grading plan. ~~strongly discouraged.~~ The depths of fill under building envelopes on graded pads should be uniform. Uniform depths of fill should be obtained by over-excavating and blending the fill material prior to replacement and recompaction. The soils engineering report shall make specific recommendations regarding the treatment of the cut/fill transition zone.

23.24.470 - Setbacks.

A. General. The setbacks and other restrictions specified by this Section are minimum and may be increased by the City Engineer or by the recommendations of a civil engineer, soil engineer or engineering geologist, if necessary for safety and stability, or to prevent damage of adjacent properties from deposition or erosion, or to provide access for slope maintenance and drainage. Retaining walls may be used to reduce the required setbacks when approved by the City Engineer.

~~B. Setback Detail. The tops of cuts and the toes of fills shall be setback from the outer boundaries of the permit area and structures in accordance with Detail 1.~~

~~DETAIL 1~~

~~DETAIL 1 NOTES:~~

~~1. PA means permit area boundary and/or property line; MFD means manufactured surface.~~

~~2. Setbacks shall also comply with applicable zoning regulations.~~

~~3. Table A applies to manufactured slopes and 2:1 or steeper natural slopes. Setbacks from natural slopes flatter than 2:1 shall meet the approval of the City Engineer.~~

~~4. "b" may be reduced to 5' minimum of an approved drainage device is used; roof gutters and downspouts may be required.~~

~~5. "b" may be reduced to less than 5' if no drainage is carried on this side and if roof gutters are included.~~

~~6. If the slope between "a" and "b" levels is replaced by a retaining wall, "a" may be reduced to zero and "b" remains as shown in Table A. The height of the retaining wall shall be controlled by zoning regulations.~~

~~7. "b" is measured from the face of the structure to the top of the slope.~~

~~8. "d" is measured from the lower outside edge of the footing along a horizontal line to the face of the slope. Under special circumstances "d" may be reduced as recommended in the approved soil report and approved by the City Engineer.~~

~~9. The use of retaining walls to reduce set backs (Fig. B) must be approved by the City Engineer.~~

~~10. "f" may be reduced if the slope is composed of sound rock that is not likely to produce detritus and is recommended by the soil engineer or engineering geologist and approved by the City Engineer.~~

~~11. "a" and "e" shall be 2' when PA coincides with Arterial or local street right-of-way and when improved sidewalk is adjacent to right-of-way.~~

~~12. "e" shall be increased as necessary for interceptor drains.~~

B. Setback Requirement. Any structure shall be set back a minimum of ten feet from the top of a slope. The setback may be reduced to a minimum of seven feet by the City Engineer following the review of recommendations from the project's qualified geotechnical consultant. As an alternative to the required setback from the top of slope for the structure, the structure's footings may be deepened to provide a minimum horizontal distance of ten feet from the edge of footing to daylight. All structures shall maintain a minimum setback of five feet from the toe of slope.

C. The setback requirements contained in pargraph B, above, are for the structural and geotechnical stability of building foundations and shall not reduce any setback requirements in other sections of the Municipal Code. The setback mentioned here does not apply to dynamic slopes with active erosion such as coastal bluffs, creek or river banks, or canyons as specified in Chapter 30.34 of the Municipal Code.

23.24.480 - Drainage and Terracing.

A. General. Unless otherwise indicated on the approved Grading Plan, drainage facilities and terracing shall conform to the provision of this Section.

B. Terrace. Terraces at least 6 feet in width shall be established at not more than 30-foot vertical intervals on all cut or fill slopes to control surface drainage and debris except that where only one terrace is required, it shall be at mid-height. For cut or fill slopes greater than 60 feet and up to 120 feet in vertical height, one terrace at approximately mid-height shall be 12 feet in width. Terrace widths and spacing for cut and fill slopes greater than 120 feet in height shall be designed by the civil engineer and approved by the City Engineer. Suitable access shall be provided to permit proper cleaning and maintenance.

Swales or ditches on terraces shall have a minimum gradient of 5%, a maximum gradient of 12%, and shall be constructed per adopted standards.

A single run of swale or ditch shall not collect runoff from a tributary area exceeding 13,500 square feet (projected) without discharging into a downdrain.

C. Subsurface Drainage. Cut and fill slopes shall be provided with sub-surface drainage as necessary for stability.

D. Disposal. All drainage facilities shall be designed to carry waters to the nearest practicable drainageway approved by the City Engineer and/or other appropriate jurisdiction as a safe place to deposit such waters. Erosion of ground in the area of discharge shall be prevented by installation of nonerosive downdrains or other devices.

Building pads shall have a drainage gradient of 2% toward approved drainage facilities, unless waived by the City Engineer.

EXCEPTION: The gradient from the building pad may be 1% if all the following conditions exist throughout the permit area:

1. no proposed fills are greater than 10 feet in maximum depth,

2. no proposed finish cut or fill slope faces have a vertical height in excess of 10 feet,

3. no existing slope faces, which have a slope face steeper than 10 horizontally to 1 vertically, have a vertical height in excess of 10 feet.

Finish grades, other than above, shall conform to the following minimum drainage gradient standards:

Minimum Gradient

a.	Earth swales	2.0%
b.	Earth (sheet flow)	2.0%
c.	Asphalt pavement (sheet flow)	1.0%
d.	Concrete drain in earth area	0.5%
e.	Concrete gutter in asphalt paved area	0.25%

E. Interceptor Drains. Paved interceptor drains shall be installed along the top of all cut slopes where the tributary drainage area above slopes towards the cut and has a drainage path greater than 40 feet measured horizontally. Interceptor drains shall be paved with a minimum of 3 inches of concrete or gunite and reinforced. They shall have a minimum depth of 12 inches and a minimum paved width of 30 inches measured horizontally across the drain. The slope of drain shall be approved by the City Engineer.

F. Overflow Protection. Berms, swales or other devices shall be provided at the top of cut or fill slopes to prevent surface waters from over-flowing onto and damaging the face of the slope. Special drainage provisions shall be made where a building or structure exists within five feet of the top of a slope.

23.24.490 - Rounding and Blending of Slopes. (Ord. 2003-10).

Grading plans shall be reviewed to insure compliance with all of the following:

A. All slopes greater than 10 feet high shall be rounded into the existing terrain to create an undulated condition and to produce a naturally appearing contoured

transition from slope face to natural ground and abutting cut or fill surfaces where conditions permit.

B. In order to avoid a man-made appearance and avoid straight, uniform slopes, every effort shall be made to construct slopes that appear natural in character. In order to accomplish this, the steepness of slopes should vary and slope faces should undulate in an effort to produce a more natural appearing slope and avoid sharp, angular changes in the direction of slope faces.

C. Grading shall be designed to retain natural topography and vegetation and cause the least amount of disturbance while allowing development.

D. Uniform "stair-stepping" of building pads shall be avoided where feasible. Diversity in building and subdivision design solutions, including but not limited to pad shape and location/offsets and the shape of slopes, which add to the variety of hillside development, shall be encouraged.

E. Whenever possible, use of existing building sites and pads shall be encouraged. Proposed development shall be designed to conform to the existing site conditions and terrain where feasible.

F. Use of engineered vertical walls, including keystone and other block or masonry walls, shall be avoided where possible and minimized where necessary in order to avoid visual impact. Consideration should be given to rounding of walls and use of offset walls softened with landscape treatment. This provision is not intended to apply to sea walls regulated pursuant to Chapter 30.34 of the Municipal Code.

23.24.500 Clearing of Vegetation and Other Surface Materials. The clearing of vegetation from an area shall not be undertaken until both of the following have occurred:

A. All discretionary approvals have been issued if the clearing of vegetation is taking place in preparation for land development, and

B. A Grading permit has been issued if the site to be cleared exceeds 10,000 square feet.

23.24.510 - Planting of Slopes.

A. Planting. The surface of slopes shall be protected against damage from erosion by planting with grass or ground cover plants. If grass or ground cover is not established by the beginning of the wet season, temporary erosion control measures such as erosion control mats or blankets shall be installed on the slopes. All permanent (inactive) slopes shall be protected by groundcover or grass. Temporary slopes shall be stabilized during the rainy season and during storm events in the dry season. Slopes exceeding fifteen feet in vertical height shall also be planted with shrubs, spaced at not

to exceed ten feet on centers; or trees, spaced at not to exceed twenty feet on centers; or a combination of shrubs and trees at equivalent spacings, in addition to the grass or ground cover plants. The plants selected shall be from a list of plants approved by the City Engineer and planting methods used shall be suitable for the soil and climatic conditions of the site. Plant material shall be selected which will produce a permanent planting coverage effectively controlling erosion. Consideration shall be given to deep-rooted plant material needing limited watering; to low maintenance during the lifetime of the project; to high root to shoot ratio (weight above ground parts versus root system); wind susceptibility and fire retardant characteristics. Planting need not be provided for cut slopes rocky in character and not subject to damage by erosion and any slopes protected against erosion damage by other methods when such methods have been specifically recommended by a soils engineer, engineering geologist, or equivalent authority and found to offer erosion protection equal to that provided by the planting specified in this Section. Planting shall be done as early as feasible (Ord. 2002-03)

B. Irrigation. Slopes required to be planted by Subsection (a) shall be provided with an approved system of irrigation, designed to cover all portions of the slope and plans therefor shall be submitted and approved prior to installation. A functional test of the system will be required. The requirements for permanent irrigation systems may be modified upon specific recommendation of a landscape architect or equivalent authority that because of the type of plants selected, the planting methods used and the soil and climatic conditions of the site, irrigation will not be necessary for the maintenance of the slope planting.

C. Release of Security. The planting and irrigation systems, required by this Section, shall be installed within 30 days after rough grading. Prior to final approval of grading and before the release of the grading security, the planting shall be well established and growing on the slopes. Well established shall mean that at least 80 percent of the slope area has germinated and is in a healthy, actively growing state.

RESOLUTION 2008-23

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ENCINITAS, CALIFORNIA, APPROVING THE BEST MANAGEMENT PRACTICES MANUAL, PART II

WHEREAS, the California Regional Water Quality Control Board, San Diego Region, adopted Order No. R9 2007-0001, San Diego Municipal Stormwater Permit (Permit), on January 24, 2007; and

WHEREAS, in accordance with Order No. R9 2007-0001, the Best Management Practices Manual, Part II prescribes minimum BMPs for Land Development and Construction activities in the City of Encinitas; and

WHEREAS, the Grading Ordinance is a part of the City of Encinitas Local Coastal Program and was amended by the City Council on March 12, 2008 by the adoption of Ordinance 2008-03 and Section 23.24.071 of the Encinitas Municipal Code requires highlighted sections of the Best Management Practices Manual, Part II to become, by reference, a part of the Local Coastal Program; and

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Encinitas does hereby approve the Best Management Practices Manual, Part II on behalf of the City of Encinitas. The highlighted portions of the Best Management Practices Manual, Part II shall be transmitted to the California Coastal Commission for approval as fulfillment of Section 23.24.071 of the Encinitas Municipal Code, as noted above.

The City Council, in their independent judgment, finds that the adoption of the Best Management Pracitces Manual, Part II will be exempt from Environmental Review pursuant to General Rule 15061 (b) (3) since there would be no possibility of a significant effect on the environment because the amendments will not directly result in development; any development as a result of the amended language will be subject to CEQA review and analysis.

PASSED AND ADOPTED by the City Council of the City of Encinitas at a regular meeting thereof, held on the 26th day of March, 2008, by the following vote to wit:

AYES: Barth, Bond, Dalager, Houlihan, Stocks.
NAYS: None.
ABSTAIN: None.
ABSENT: None.

ATTEST:

ignature on File

DEBORAH CERVONE, City Clerk

ignature on File

JEROME STOCKS, Mayo
City of Encinitas

City of Encinitas
Storm Water Best Management Practices Manual, Part II

STORM WATER MANUAL

FOR NEW DEVELOPMENT

AND REDEVELOPMENT

A Manual for Construction & Permanent Post Construction
Storm Water Best Management Practices Requirements

Introduced: November 12, 2002
Adopted: December 11, 2002
Modified: April 9, 2003
Modified: March 2008

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I. INTRODUCTION

I.1. Best Management Practice Manual Part II Organization

This manual describes how to comply with the permanent improvement and construction phase storm water requirements for new development projects in the City of Encinitas. This manual further guides the project applicant through the selection, design, and incorporation of storm water BMPs into the project's design plan.

This manual groups development-related storm water BMPs into two categories:

1. *construction BMPs*, which are practices, procedures, devices or materials used to prevent the transport and introduction of pollutants both on and from a project site during construction; and
2. *permanent BMPs*, which are the site design features, source control features, and treatment control BMPs that become a permanent part of a project's design and remain functioning throughout the "use" phase of a project site. (See the definitions for site design, source control and treatment control BMPs in this appendix).

Section I, "Introduction," describes storm water pollution background information and legal or regulatory requirements associated with storm water pollution control.

Section II, "Project Review & Permitting Process," outlines the project plan review and approval process all permits. Applicants should use Section II as the roadmap to navigate through this manual and ensure storm water requirements are accurately and efficiently incorporated into their projects during project review. The remaining sections provide technical information necessary to incorporate the storm water requirements.

Section III, "Permanent Storm Water BMP Selection Procedure," lists the permanent storm water BMP requirements, which are organized into a progression intended to demonstrate a typical project planning and design process and to maximize storm water protections while minimizing project costs.

Section IV, "Construction Storm Water BMP Performance Standards," describes the City's construction storm water BMP standards.

Section V, "Implementation & Maintenance of Requirements," describes how the implementation and the maintenance of construction and permanent BMPs must be assured for all permits. For permanent BMPs, this section provides a process and the requirements for executing a maintenance agreement with the City.

Section VI contains appendices to the Best Management Practice Manual Part II that are either necessary or designed to provide guidance in completing the storm water requirements in this manual.

I.2. Background

Urban runoff discharged from municipal storm water conveyance systems has been identified by local, regional, and national research programs as one of the principal causes of water quality problems in most urban areas. The City of Encinitas' storm water conveyance system, which collects runoff and rainwater from our streets, rooftops, driveways, parking lots, and other impervious areas and conducts flows directly to our beaches and lagoons without receiving treatment (our storm water conveyance system is separate from our sanitary sewer system). Urban runoff potentially contains a host of pollutants like trash and debris, bacteria and viruses, oil and grease, sediments, nutrients, metals, and toxic chemicals. These contaminants can adversely affect receiving and coastal waters, associated wildlife, and public health. Urban runoff pollution is a year-round problem because of the many urban water uses that discharge runoff to the storm water conveyance system.

Storm water pollution can negatively affect human health and aquatic plant and animal life. Potentially harmful viruses and bacteria are now found in our coastal waters along with soil particles, solids/debris, litter, oil, grease, and chemical compounds. Oil and grease from parking lots, pesticides, cleaning solvents, and other toxic chemicals can contaminate storm water and these contaminants can be transported into receiving waters—the beaches, lagoons, and creeks we all enjoy. Fertilizer constituents from nurseries, lawns, and golf courses or leaking septic tanks can cause algal blooms and encourage microbial growth to create an increasing spiral of biological activity known as eutrophication. Disturbances of the soil from construction can allow silt to wash into storm channels and receiving waters making them muddy, turbid, and inhospitable to natural aquatic organisms. Many artificial surface treatments such as galvanized metal, paint, or preserved wood containing metals contribute to pollution by storm water run-on or leaching by storm water as the surfaces corrode, flake, dissolve, or decay. Heavy metals, such as copper from automobile brakes and lead and chromium from paints and primer coatings, are toxic to aquatic organisms and may bio-accumulate.

Land development and construction activities significantly alter drainage patterns and contribute pollutants to urban runoff primarily through erosion, the removal or change of existing natural vegetation during construction, and the creation of new impervious surfaces such as parking lots, which often permanently contribute pollutants throughout the "use" of the project site. When homes, work places, recreational areas, roads, parking lots, and structures are built, new impervious areas are built- creating the potential for a "double-negative" impact to water quality. First, the natural landscape's ability to infiltrate and cleanse storm water and urban runoff is "capped" by the impervious surfaces. As impervious surfaces increase, water that normally would have percolated into the soil to be naturally filtered flows over the land surface directly to downstream wetlands, creeks, and eventually the Pacific Ocean. Accordingly, increases in impervious cover can increase the frequency and intensity of storm water flows. Second, new impervious surfaces often become a source of pollutants associated with development which include automotive fluids, cleaning solvents, toxic or hazardous chemicals, detergents, sediment, metals, pesticides, oil and grease, and food wastes. These pollutants, which are often temporarily captured on impervious surfaces, are transported to the storm water conveyance system by storm water and urban runoff. The pollutants flow untreated through the storm water conveyance system and ultimately into our creeks, rivers, beaches, and lagoons. With the

growing concerns of urban runoff and storm water pollution, local, state, and federal agencies devised regulations requiring development planning and construction controls to treat storm water-related pollution from new development projects before it reaches any receiving waters.

The Municipal Storm Water National Pollutant Discharge Elimination System (NPDES) Permit (Municipal Permit), issued on February 21, 2001 to the City of Encinitas, the County of San Diego, the Port of San Diego, and 17 other cities in the region by the San Diego Regional Water Quality Control Board (Regional Board), requires the development and implementation of storm water regulations addressing storm water pollution issues in development planning and construction associated with private and public development projects. Specifically, private and public development projects are required to include storm water best management practices (BMPs) both during construction, and in the projects permanent design in order to reduce pollutants discharged from the project site to the maximum extent practicable (see Appendix G for a detailed description of the various types and categories of BMPs discussed in this manual).

The primary objectives of the Best Management Practice Manual Part II requirements are to:

1. Effectively prohibit non-storm water discharges; and
2. Reduce the discharge of pollutants from storm water conveyance systems to the Maximum Extent Practicable (MEP statutory standard) both during construction and throughout the use of a developed site.

To address pollutants that may be generated from new development once the site is in use, the Municipal Permit further requires that the City implement a series of permanent BMPs described in a document called the Model Standard Urban Storm Water Mitigation Plan, or SUSMP (pronounced "sue-sump"), which was approved by the Regional Board on June 12, 2002.

This manual is an uncodified ordinance adopted pursuant to the City of Encinitas Watercourse Protection, Storm Water Management and Discharge Control Ordinance codified in Chapter 20.08 of the Encinitas Municipal Code. It is Part II of the City of Encinitas Storm Water Best Practices Manual and provides instructions on the City's construction phase and permanent BMP requirements, based on the Model SUSMP, for new projects in the City of Encinitas. It applies to all projects even if the project is currently under review or previous approvals have been obtained.

I.3. Legal Framework

The requirement to implement storm water BMP requirements for development projects is based on Section 402 (p) of the Clean Water Act. The Federal Clean Water Act amendments of 1987 established a framework for regulating storm water discharges from municipal, industrial, and construction activities under the NPDES program. Under the Federal Clean Water Act, municipalities throughout the nation are issued a Municipal NPDES Permit. The primary goal of the Municipal Permit is to stop polluted discharges from entering the storm water conveyance system and local receiving and coastal waters.

In California, the State Water Resources Control Board (SWRCB), through the nine Regional Boards, administers the NPDES storm water municipal permitting program. Based on the San Diego Municipal Permit issued by the San Diego Regional Board, the City is required to develop and implement construction and permanent storm water BMPs addressing pollution from new private and public development projects.

In order to comply with the conditions of the Municipal Permit, the City of Encinitas adopted the City of Encinitas Watercourse Protection, Storm Water Management and Discharge Control Ordinance ("Storm Water Ordinance") codified in Chapter 20.08 of the Encinitas Municipal Code. This manual is an uncodified ordinance adopted by reference as Part II of the City of Encinitas Storm Water Best Practices Manual. The Municipal Permit requires the City to categorize and prioritize land uses in order to establish effective BMPs. The Storm Water Ordinance authorizes the City Engineer to establish Best Management Practices (BMPs), including permanent improvements, for all types of land uses. In addition, the Stormwater Ordinance establishes criteria to evaluate threat to water quality from various land used including land development and construction.

The City Engineer may establish alternative Best Management Practices. The allowable use of alternative BMPs at a specific site shall be determined at the sole discretion of the City Engineer. The City Engineer may establish Best Management Practices for a specific site or activity if necessary to reduce Pollutants to the Maximum Extent Practicable or to comply with an order of the San Diego Regional Water Quality Control Board. The City Engineer may also establish additional Best Management Practices for a specific site if the City Engineer determines that the Best Management Practices implemented at the site have not reduced the pollutants to the Maximum Extent Practicable."

All requirements of the Stormwater Best Management Practices Manual II, as amended on March 24, 2008, shall apply to:

- Applications for tentative maps and development permits that have not been deemed complete prior to March 24, 2008.
- Applications for extensions or time for tentative maps and development permits that have not been deemed complete prior to March 24, 2008.
- Applications for construction permits that do not require tentative maps or development permits that have not had their construction permit applications deemed complete prior to March 24, 2008.
- A permit has not already been issued and construction has not already started by March 24, 2008
- Public projects that have not begun initial design prior to March 24, 2008.

II. PROJECT REVIEW & PERMITTING PROCESS

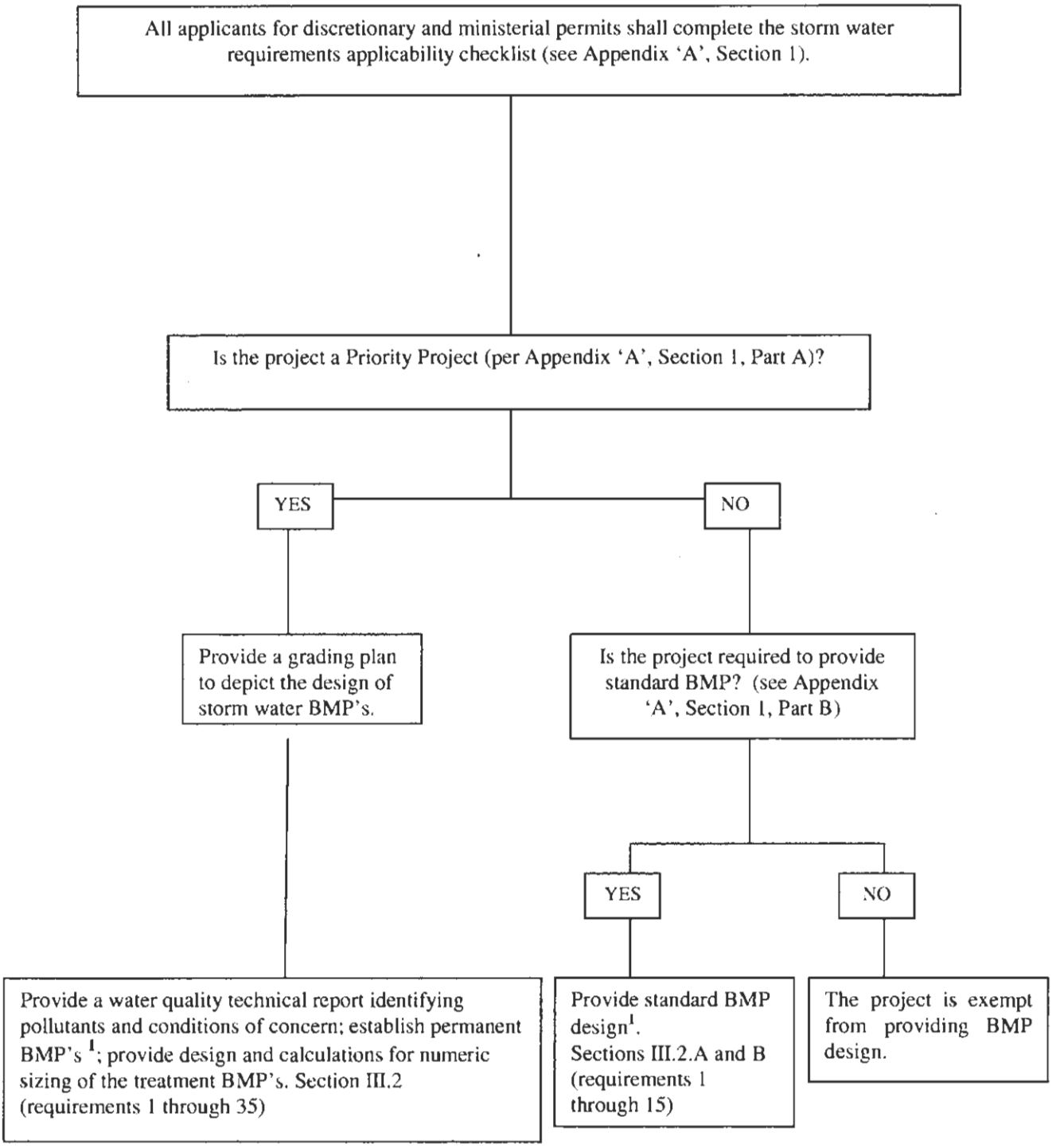
The City of Encinitas Storm Water Management Ordinance requires that all new development and redevelopment activities comply with the storm water pollution prevention requirements per the Municipal Code Chapter 20.08 and Grading and Erosion Control Chapter 23.24. These storm water pollution prevention requirements, which are described in detail in Section III, "Permanent Storm Water Best Management Practices Selection Procedure," and Section IV, "Construction Storm Water Best Management Practices Performance Standards," are site specific and vary based on the project's potential impact on the quality of receiving waters.

The steps below describe the elements of the plan review and permitting processes for storm water best management practice (BMP) requirements. The flow chart in Figure I, "Post-Construction Storm Water Quality Review Process", demonstrates how storm water requirements are incorporated into projects requiring subdivision approvals, development permits or other discretionary actions. The flow chart in Figure II, "Construction Storm Water Quality Review Process", describes how storm water requirements are incorporated into projects during the construction permit review process.

II.1 Step 1: Determine Applicable Storm Water BMP Requirements

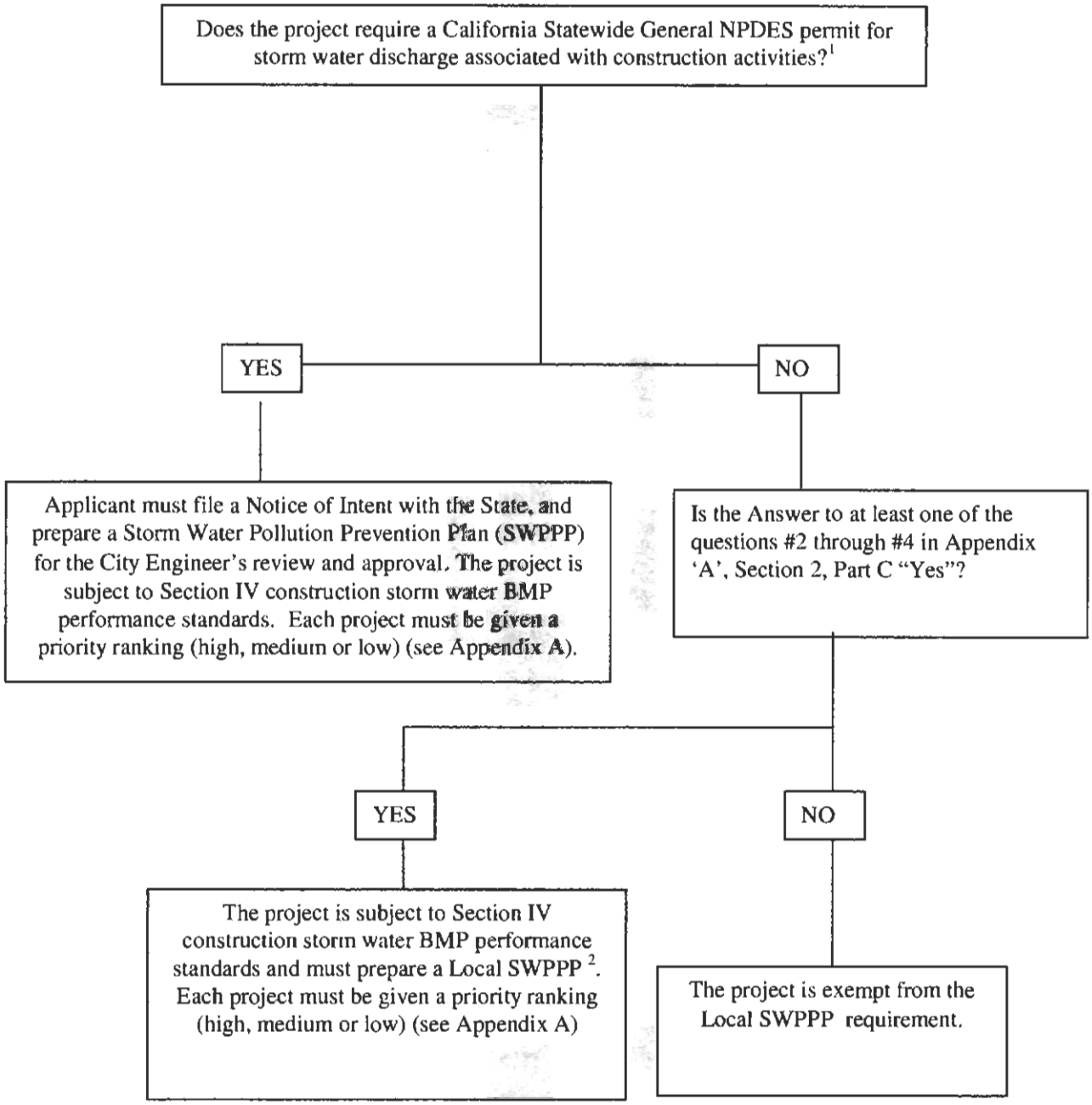
Prior to submittal of plan check documents, applicants must complete the "Storm Water Requirements Applicability Checklist" in Appendix A to determine if their project is subject to permanent and construction storm water best management practice (BMP) requirements. (Note: this form must be completed for all permit applications, even if previous approvals exist. Projects with previous approvals will be required to comply with the storm water requirements in this document). This checklist must be completed, signed by the responsible party for the project, and submitted with the permit application. For private projects, the project design must include all required permanent BMPs for the application package to be deemed complete.

Figure I: Post-Construction Storm Water Quality Review Process



[1] ***BMP selection and design are subject to the approval of the City Engineer***

Figure II: Construction Storm Water Quality Review Process



1. Projects propose land disturbance of more than 1 acre .
2. BMP selection and design are subject to the approval of the City Engineer

II.1.A. Permanent Storm Water BMP Requirements

II.1.A.i. ***Standard Requirements.*** Projects subject to standard permanent storm water requirements must incorporate the site design and source control requirements identified in Sections III.2.A and B (requirements 1 through 15) into the project (see Table 1). Refer to Step 2: "Prepare & Submit Appropriate Plans," for guidance in the BMP design process.

II.A.1.ii. ***Priority Project Requirements.*** Projects subject to priority project permanent storm water requirements must incorporate all applicable requirements in Section III.2, "Establish Permanent Storm Water Best Management Practices," (requirements 1 through 33) into the project design. The major difference between the BMP requirements for priority projects and non-priority projects (standard BMPs) is that treatment control BMPs for priority projects must be sized based on the numeric sizing criteria (Section III.2 requirement 31). Non-priority projects are not required to meet numeric sizing criteria. Priority projects BMP requirements include the site design and source control BMPs, BMPs applicable to individual priority project categories, and treatment control BMPs. If a priority project meets one or more priority project category definition, based upon the list below, the project is subject to all BMPs applicable to individual priority project categories. For example, if a project proposes to build 50 attached residential units and a 6,000 square foot restaurant with a 70-space surface parking lot, the project would be subject to the individual priority project category BMP requirements for "Attached Residential Development", "Restaurants", and "Parking Lots" as shown in the list below. Refer to Step 2, "Prepare & Submit Appropriate Plans", for guidance in the permanent BMP design process.

1. Residential development of 10 units or more
2. Commercial development greater than 1 acre
3. Heavy industry
4. Industrial development greater than 1 acre
5. Automotive repair shops
6. Restaurants
7. Hillside development greater than 5,000 square feet
8. Projects located within or directly adjacent to or directly discharging to receiving waters within Environmentally Sensitive Areas that create 2,500 square feet or more of impervious surface or increase the area of imperviousness to 10% or more of its naturally occurring condition
9. Projects greater than 2,500 square feet of impervious surface that discharge to receiving waters within or adjacent to Environmentally Sensitive Areas
10. Parking Lots 5,000 square feet or more impervious surface or with > 15 parking spaces and potentially exposed to urban runoff
11. Streets, roads, highways, and freeways which would create a new paved surface that is 5,000 square feet or greater of impervious surface
12. Retail Gasoline Outlets, 500 square feet or more with a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.

II.1.B. Construction Storm Water BMP Requirements

Projects subject to the construction storm water best management practices requirements must comply with the standards included in Section IV, "Construction Storm Water BMP Performance Standards", as appropriate given site conditions, season, project design, and construction methods. Refer to Step 2-B "Construction Storm Water BMPs". .

II.2 Step 2 – Prepare & Submit Appropriate Plans.

After determining the general categories of storm water requirements that apply to the project in Step 1 (e.g., construction BMPs, standard permanent BMPs, and/or priority project permanent BMPs), refer to the instructions in this step (see below) to determine what analysis and/or specific BMP requirements in Sections III and IV of the Best Management Practice Manual Part II must be provided and/or incorporated into the project[1].

II.2.A. Permanent Storm Water BMPs

Section III, "Permanent Best Management Practices Selection Procedure", contains a process for reviewing the project site location and preliminary project design before progressively identifying and incorporating site design BMPs, source control BMPs, requirements for individual priority project types, and treatment control BMPs into the project design. The procedure is organized so that the level of analysis required is commensurate with the potential pollutant type and quantity, the location of the project relative to sensitive receiving waters, and the type of storm water requirements that apply to a particular project.

II.2.A.i. *Standard Development Project - Standard Requirements.* Projects subject to only standard permanent BMP requirements need only to complete the "Identify Pollutants from the Project Area" procedure (Section III.1.A) and then incorporate the requirements in Section III.2.A, "Site Design BMPs", and Section III.2.B, "Source Control BMPs" (requirements 1-15). Applicants must incorporate all necessary permanent BMPs into the project plans prior to submittal, regardless of project type. Analysis of the project's anticipated pollutants of concern must also be included with the project submittal.

II.2.A.ii. *Priority Development Project (SUSMP) - Priority Project Requirements.* Projects subject to the priority project permanent BMP requirements must complete all of the analyses required in Section III.1, "Identify Pollutants and Conditions of Concern", and incorporate all of the applicable BMP requirements in Section III.2, "Establish Storm Water BMP Requirements" (requirements 1-33). Applicants must incorporate all necessary permanent BMPs into the project plans prior to submittal, regardless of project type. In addition, projects subject to priority project requirements may be required to submit a Water Quality Technical Report in accordance with Appendix C, as deemed necessary by the City Engineer. Analysis of the project's anticipated pollutants

[1] Projects are only required to provide applicable BMPs. For example, an attached residential development project subject to the priority project requirements would not have to meet the "private road" requirements in this manual if no private roads were proposed. In addition, the City Engineer may approve proposed alternatives to the BMP requirements in this manual if they are determined to be applicable and equally effective.

of concern, anticipated pollutants of concern in downstream receiving waters, and conditions of concern must also be included in the Water Quality Technical Report as part of the project submittal.

II.2.B. Construction Storm Water BMPs

Section IV, "Construction Storm Water BMP Performance Standards", describes the construction site management requirements with which contractors must comply. In addition, Section IV lists the performance standards that construction sites must meet and provides a list of erosion control, sediment control, and materials management BMPs for reference. Each project must be given a priority of high, medium or low (see Appendix A). (Note: Prioritization of construction projects will determine the inspection frequency by City staff and may be changed during the construction process based on the potential for pollutants to be discharged from the site.)

II.2.B.i. *Construction Projects Over 1 Acre.* Those projects that have been determined to require construction BMPs in Step 1 must identify the construction BMPs to be implemented in accordance with the performance standards in Section IV, "Construction Storm Water BMP Performance Standards". If a project disturbs 1 acres or more, the applicant must provide a Storm Water Pollution Prevention Plan (SWPPP) identifying all construction BMP requirements required by Section IV, in accordance with the most current State General Permit for Storm Water Discharges Associated with Construction Activity (State General Construction Permit). Consistent with the State General Construction Permit, the City will require that BMPs be installed and maintained for all applicable projects in addition to good housekeeping and site and materials management. Appendix E provides general guidelines for preparation of a SWPPP as well as a more detailed checklist on how to meet the requirements. The City of Encinitas BMP Manual also provides general guidelines and design for construction projects. The City requires that a copy of the NOI and SWPPP be submitted with the plan check package.

II.2.B.ii. *Construction Projects Under 1 Acre.* Those projects that have been determined to require construction BMPs in Step 1 must identify the construction BMPs to be implemented in accordance with the performance standards in Section IV, "Construction Storm Water BMP Performance Standards." For projects that disturb less than 1 acre and are determined to have a potential to impact water quality during construction, the applicant must provide a Local SWPPP, which identifies all construction BMP requirements required by Section IV with the project submittal. The Local SWPPP shall depict the BMPs to be implemented during construction in order to reduce/eliminate discharge of pollutants into the storm drain conveyance system. The Local SWPPP shall include but not be limited to erosion and sediment control BMPs, good housekeeping measures, and site and materials management. The City of Encinitas BMP Manual also provides general guidelines and design for construction projects.

After preparing plans and supporting documents according to the requirements in this manual, submit plans to the City Engineering for review (See Step 3).

II.3 Step 3 – Determine Adequacy of Proposed Plans.

The City Engineer will review submitted plans for compliance with the applicable storm water requirements contained in this manual. The City Engineer may approve proposed alternatives to the BMP requirements in this manual if they are determined to be applicable and equally effective. Additional analysis or information may be required to enable staff to determine the adequacy of proposed BMPs and will be requested through plan check comments following the conclusion of a staff review cycle. After all storm water requirements have been approved by the City Engineer, proceed to Step 4 to assure implementation and maintenance of the approved BMPs through permit conditions, plan notes, and if necessary, maintenance agreements.

II.4 Step 4 - Assure Implementation & Maintenance of Requirements.

Applicants must provide assurances that permanent storm water BMPs will be constructed and permanently maintained throughout the use of a developed site, and that construction BMPs will be implemented and maintained until construction is complete. The summaries below describe how construction and permanent BMP requirements must be assured during permit review processes. After the City Engineer has approved all construction and/or permanent BMPs, refer to Section III.3, "Provide Proof of Ongoing Stormwater BMP Maintenance" to determine how construction and permanent BMP implementation and maintenance will be assured.

II.4.A. Permanent Storm Water BMPs

For all projects, permanent storm water maintenance requirements shall be incorporated into the project design and be shown on the plans. The maintenance plans for permanent BMPs shall be prepared by a registered civil engineer in the State of California and approved by the City Engineer prior to approval of the discretionary permit and/or final permits (grading, public improvements, building, or other ministerial permits). In addition, permanent BMP maintenance requirements shall be noted on the plans. No modifications of the permanent storm water BMPs are allowed unless the City Engineer has approved the modifications and a permit showing the proposed changes has been obtained from the City Engineer.

II.4.B. Construction BMPs

For projects requiring construction permits, construction BMP requirements shall be incorporated into the project design and shown on the plans prior to the issuance of any permits. Construction BMP maintenance requirements shall also be noted on the plans. Any construction BMP requirements that cannot be shown graphically must be noted on the plans.

III. PERMANENT BEST MANAGEMENT PRACTICES SELECTION PROCEDURE

All projects must complete the analysis required in the subsections of Section III.1.A. below. Priority projects should also complete sections III.1.B and III.1.C.

III.1 Identify Pollutants and Conditions of Concern

III.1.A Identify Pollutants from the Project Area

Using Table 1, identify the project's anticipated pollutants. Pollutants associated with any hazardous material sites that have been remediated or are not threatened by the proposed project are not considered a pollutant of concern. Projects meeting the definition of more than one project category shall identify all general pollutant categories that apply.

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

	General Pollutant Categories								
Priority Project Categories	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & 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 >1 acre	P(1)	P(1)		P(2)	X	P(5)	X	P(3)	P(5)
Heavy industry /industrial development	X		X	X	X	X	X		
Automotive Repair Shops			X	X(4)(5)	X		X		
Restaurants					X	X	X	X	
Hillside Development >5,000 ft^2	X	X			X	X	X		X
Parking Lots	P(1)	P(1)	X		X	P(1)	X		P(1)
Retail Gasoline Outlets			X	X	X	X	X		
Streets, Highways & 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.

III.1.B Identify Pollutants of Concern in Receiving Waters

For priority projects, identify all the pollutants that the proposed project generates based on Table 1 and list the pollutant(s) on the Water Quality Technical Report.

III.1.C Identify Conditions of Concern

For priority projects, the following analysis shall be conducted and reported in the project's Water Quality Technical Report (as required):

1. Evaluate the project's conditions of concern in a drainage study report prepared by a registered civil engineer in the State of California, with experience in fluvial geomorphology and water resources management. The report shall consider the project area's location (from the larger watershed perspective), topography, soil and vegetation conditions, percent impervious area, natural and infrastructure drainage features, wet season groundwater depth, and any other relevant hydrologic and environmental factors to be protected specific to the project area's watershed.
2. As part of the drainage study, a qualified, licensed professional shall provide a report on proposed infiltration techniques (trenches, basins, dry wells, permeable pavements with underground reservoir for infiltration) regarding any potential adverse geotechnical concerns. Geotechnical conditions such as: slope stability, expansive soils, compressible soils, seepage, groundwater depth, and loss of foundation or pavement subgrade strength should be addressed, and mitigation measures provided.
3. As part of the drainage study, the civil engineer shall conduct a field reconnaissance to observe and report on downstream conditions, including undercutting erosion, slope stability, vegetative stress (due to flooding, erosion, water quality degradation, or loss of water supplies) and the area's susceptibility to erosion or habitat alteration as a result of an altered flow regime.
4. The drainage study shall compute rainfall runoff characteristics from the project area including, at a minimum, peak flow rate, flow velocity, runoff volume, time of concentration, and retention volume. These characteristics shall be developed for the two-year and 10-year frequency, Type I storm, of six-hour or 24-hour duration (whichever is the closer approximation of the site's time of concentration), during critical hydrologic conditions for soil and vegetative cover[2]. The drainage study shall report the project's conditions of concern based on the hydrologic and downstream conditions discussed above. Where downstream conditions of concern have been identified, the drainage study shall establish that pre-project hydrologic conditions affecting downstream conditions of concern would be maintained by the proposed project, satisfactory to the Copermittee, by incorporating the site design, source control, and treatment control requirements identified in Section VI.2.

2. Design storms can be found at http://www.wrcc.dri.edu/pcpnfreq.html. The Copermittees may calculate the storm events using local rain data. In addition, isopluvial maps contained in the County of San Diego Hydrology Manual may be used to extrapolate rainfall data to areas where insufficient data exists. If isopluvial maps are selected, Copermittees shall describe their method for using isopluvial maps in their Jurisdictional SUSMP.

For Priority Development Projects (PDP) that disturb 50 acres or more:

1. PDP post-project runoff flow rates and durations shall not exceed pre-project runoff flow rates and durations (Interim Hydromodification Criteria), where the increased discharge flow rates and durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses, attributable to changes in flow rates and durations.

2. PDPs disturbing 50 acres or more shall implement hydrologic controls to manage post-project runoff flow rates and durations as required by the Interim Hydromodification Criteria. Interim Hydromodification Criteria are defined in Appendix I of this Manual.

III.2 Establish Permanent Storm Water Best Management Practices

After identifying the project's pollutants of concern, and conditions of concern (for priority projects) in Section III.1, projects subject to standard or priority project requirements shall implement all applicable site design and source control BMPs listed below. Projects subject to priority project requirements must also implement the BMPs applicable to individual priority project categories as well as structural treatment control BMPs. Applicants may employ alternative comparable and equally effective site design and source control BMPs (including requirements applicable to individual priority project categories) that are satisfactory to the City Engineer.

Projects are encouraged to address these objectives through the creation of a hydrologically functional project design that attempts to mimic the natural hydrologic regime. Mimicking a site's natural hydrologic regime can be pursued by:

- Reducing imperviousness, conserving natural resources and areas, maintaining and using natural drainage courses in the storm water conveyance system, and minimizing clearing and grading.
- Providing runoff storage measures dispersed uniformly throughout a site's landscape through the use of a variety of detention, retention, and runoff practices.
- Implementing on-lot hydrologically functional landscape design and management practices.

These design principles offer an innovative approach to urban storm water management, one that does not rely on the conventional end-of-pipe or in-the-pipe structural methods but instead uniformly or strategically integrates storm water controls throughout the urban landscape. Useful resources for applying these principles, referenced in the appendix, include *Start at the Source* (1999), and *Low-Impact Development Design Strategies* (1999) (see Appendix E). Effective source controls offer another strategy to reduce a project's need for treatment. Therefore, projects shall incorporate, where applicable, storm water BMPs into the project design, in the following progression:

- Site Design BMPs
- Source Control BMPs
- BMPs for Individual Priority Project Categories (these are site design and source control BMPs)
- Treatment Control BMPs

The series of best management practices listed in Section III.2 have been organized sequentially to allow the applicant and design professional to incorporate site design BMPs, source control BMPs, and where necessary, requirements applicable to individual priority project categories and treatment control BMPs in this progression.

Priority projects must implement LID site design BMPs and source control BMPs, and must also implement treatment control BMPs unless a waiver is granted based on the infeasibility of all treatment control BMPs. LID BMPs must meet minimum requirements in municipal permit section D.1.d.(4). BMPs must also achieve certain performance standards in municipal permit section D.1.d.(5) and (6) . Selection of BMPs from the menus included in this SUSMP, using the rules set out in this SUSMP, must fulfill these requirements.

In addition, runoff treated by LID and site design or source control BMPs, such as rooftop runoff treated in landscaping, may be useful in reducing the quantity of runoff required to be treated in Section III.2.c, "Treatment Control BMPs."

To select a structural treatment BMP using the Treatment Control BMP Selection Matrix, each priority project shall compare the list of pollutants for which the downstream receiving waters are impaired (if any), with the pollutants anticipated to be generated by the project (as identified in Table 1). Any pollutants identified by Table 1 which are also causing a Clean Water Act section 303(d) impairment of the receiving waters of the project shall be considered primary pollutants of concern. Priority projects that are anticipated to generate a primary pollutant of concern shall meet all applicable requirements in Section III.2.c, and shall select a single or combination of storm water BMPs from Table 2 which maximizes pollutant removal for the particular primary pollutant(s) of concern.

Alternatively, a project proponent may elect to implement a combination of LID BMPs that either disperse and infiltrate, or direct to bioretention facilities, the flows from all impervious areas on-site. These BMPs are presumed to provide maximum extent practicable treatment for all pollutants of concern; therefore no further documentation of the treatment BMP selection process is required.

Priority projects that are <u>not</u> anticipated to generate a pollutant for which the receiving water is Clean Water Act Section 303(d) impaired shall meet applicable standard requirements in Section III.2.c, and shall select a single or combination of storm water BMPs from Table 3 which are effective for pollutant removal of the identified secondary pollutants of concern, consistent with the "maximum extent practicable" standard defined in Attachment C of the Municipal Permit.

Where a site generates both primary and secondary pollutants of concern, primary pollutants of concern receive priority for BMP selection. For such sites, selected BMPs must only maximize pollutant removal for the primary pollutants of concern. Where a site generates only secondary pollutants of concern, selected BMPs shall target the secondary pollutant of concern determined to be most significant for the project. Selected BMPs must be effective for the widest range of pollutants of concern anticipated to be generated by a priority project (as identified in Table 1), consistent with the maximum extent practicable standard defined in Attachment C of the Municipal Permit.

Treatment control BMPs with high or medium pollutant removal efficiency for the project's

most significant pollutant of concern shall be selected. Treatment control BMPs with a low removal efficiency ranking shall only be approved by the Copermittee when a feasibility analysis has been conducted which exhibits that implementation of treatment control BMPs with a high or medium removal efficiency ranking are infeasible.

Treatment control BMPs shall not be constructed within a receiving water. Alternative storm water BMPs not identified in Table 3 may be approved at the discretion of the Copermittee, provided the alternative BMP is as effective in removal of pollutants of concern as other feasible BMPs listed in Table 3.

Table 2. Site Design and Source Control Storm Water BMP Selection Matrix.

Priority Project Category	*Site Design BMPs[1]*	*Source Control BMPs[2]*	*Requirements Applicable to Individual Priority Project Categories[3]*										
			a. Private Roads	b. Residential Driveways & Guest Parking	c. Dock Areas	d. Maintenance Bays	e. Vehicle Wash Areas	f. Outdoor Processing Areas	g. Equipment Wash Areas	h. Parking Areas	i. Roadways	j. Fueling Areas	k. Hillside Landscaping
Detached Residential Development	R	R	R	R									R
Attached Residential Development	R	R	R										
Commercial Development >One Acre	R	R			R	R	R	R					
Industrial Development > One Acre	R	R			R	R	R	R	R			R	
Automotive Repair Shop	R	R			R	R	R		R			R	
Restaurants	R	R			R				R				
Hillside Development >5,000 ft^2	R	R	R										R
Parking Lots	R	R								R[4]			
Retail Gasoline Outlets	R	R					R					R	
Streets, Highways & Freeways	R	R									R		

R = Required; select BMPs as required from the applicable steps in Section III.2.a & b, or equivalent as identified in Appendix A.
(1) Refer to Section III.2.a
(2) Refer to Section III.2.b
(3) Priority project categories must apply specific storm water BMP requirements, where applicable. Projects are subject to the requirements of all priority project categories that apply.
(4) Applies if the paved area totals >5,000 square feet or with >15 parking spaces and is potentially exposed to urban runoff.

Notes on Pollutants of Concern:

In Table 4, Pollutants of Concern are grouped as gross pollutants, pollutants that tend to associate with fine particles, and pollutants that remain dissolved. Table 3, below defines the pollutant groupings to be applied in Table 4.

Table 3. Treatment Control BMP Selection Matrix Reference

Pollutant	Coarse Sediment and Trash	Pollutants that tend to associate with fine particles during treatment	Pollutants that tend to be dissolved following treatment
Sediment	X	X	
Nutrients		X	X
Heavy Metals		X	
Organic Compounds		X	
Trash & Debris	X		
Oxygen Demanding		X	
Bacteria		X	
Oil & Grease		X	
Pesticides		X	

Table 4. Treatment Control BMP Selection Martrix

Pollutants of Concern	Bioretention / Flow Through Facilities (LID)	Settling Basins (Dry Ponds)	Wet Ponds and Wetlands	Infiltration Facilities or Practices (LID)	Media Filters	High-rate biofilters	High-rate media filters	Trash Racks & Hydro -dynamic Devices
Coarse Sediment and Trash	High	High	High	High	High	High	High	High
Pollutants that tend to associate with fine particles during treatment	High	High	High	High	High	Medium	Medium	Low
Pollutants that tend to be dissolved following treatment	Medium	Low	Medium	High	Low	Low	Low	Low

Notes on Treatment Control BMP Categories

All rankings are relative. Ranking of all facilities assumes proper sizing, design, and periodic maintenance. Following are general descriptions of each category.

Bioretention / Flow Through Facilities (infiltration planters, flow-through planters, bioretention areas, and bioretention swales). Facilities are designed to capture runoff and infiltrate slowly through soil media which also supports vegetation. Bioretention facilities, except for flow-through planters, effectively promote infiltration into native soils. In clay soils, facilities may capture excess treated runoff in an underdrain piped to the municipal storm drain system. Typical criteria: an infiltration surface area at

least 4% of tributary impervious area, 6-inch average depth of top reservoir, 18-inch soil layer, 12-inch to 18-inch gravel subsurface storage layer.

- **Settling Basins and Wetlands** (extended detention basins, "wet" basins, decorative or recreational lakes or water features also used for stormwater treatment, constructed wetlands). Facilities are designed to capture a minimum water quality volume of 80% of total runoff and detain for a minimum of 48 hours. Some wetland designs have proven effective in removing nutrients, but performance varies.

- **Infiltration Facilities or Practices** (infiltration basins, infiltration trenches, dry wells, dispersal of runoff to landscape, pervious pavements). These facilities and landscape designs capture, retain, and infiltrate a minimum of 80% of runoff into the ground. Infiltration facilities are generally only feasible in permeable (Hydrologic Soil Group A or B) soils. Volume and area of infiltration facilities depends on soil permeability and safety factor used. Typical criteria: Infiltration facilities should have pretreatment to remove silt to prolong life of the facility. A 10-foot vertical separation from average seasonal groundwater depth is required. Dispersal to landscape may be accomplished in any soil type and generally requires a maximum 2:1 ratio impervious:pervious and concave topography to ensure the first 1 inch of rainfall is retained.

- **Media Filters** (sand filters). Filters designed to treat runoff produced by a rainfall of 0.2 inches per hour (or 2×85^{th} percentile hourly rainfall intensity) by slow infiltration through sand or other media. Typical criteria: Surface loading rate not to exceed 5 inches/hour. Entire surface of the sand must be accessible for maintenance.

- **High Rate Biofilters** (tree wells, typically proprietary). Biofilters with specially designed media to rapidly filter runoff while removing some pollutants. Filterra® (proprietary version) recommends surface loading rates of up to 100 inches/hour.

- **High-rate Media Filters** (typically proprietary). Vaults with replaceable cartridge filters filled with inorganic media.

- **Drainage Inserts** have low effectiveness in removing pollutants that tend to associate with fine particles and have medium effectiveness in removing coarse sediment and trash. They are sometimes used to augment more effective treatment facilities and are sometimes used alone when more effective facilities have been deemed infeasible.

III.2.a Site Design BMPs and Low Impact Development (LID)

Maintain Pre-Development Rainfall Runoff Characteristics

Control post-development peak storm water runoff discharge rates and velocities to maintain or reduce pre-development downstream erosion by applying the following concepts:

1. Minimize impervious footprint. (1) Increase building density (number of stories above

or below ground); (2) construct walkways, trails, patios, overflow parking lots and alleys, and other low-traffic areas with permeable surfaces, such as pervious concrete, porous asphalt, unit pavers, and granular materials; (3) construct streets, sidewalks, and parking lot aisles to the minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised; and (4) minimize the use of impervious surfaces, such as decorative concrete, in the landscape design.

2. Conserve natural areas. (1) Concentrate or cluster development on the least environmentally sensitive portions of a site while leaving the remaining land in a natural, undisturbed condition; and (2) Use natural drainage systems to the maximum extent practicable. Refer to the Environmentally Sensitive Lands regulations of the Land Development Code (LDC § 142.01, et. seq.) for more guidance in protecting environmentally sensitive lands.

3. Minimize Directly Connected Impervious Areas. (1) Where landscaping is proposed, drain rooftops into adjacent landscaping prior to discharging to the storm water conveyance system; and (2) where landscaping is proposed, drain impervious parking lots, sidewalks, walkways, trails, and patios into adjacent landscaping.

4. Maximize canopy interception and water conservation. (1) Preserve existing native trees and shrubs; and (2) plant additional native or drought tolerant trees and large shrubs in place of non-drought tolerant exotics.

Protect Slopes and Channels

5. Convey runoff safely from the tops of slopes.

6. Vegetate slopes with native or drought tolerant vegetation.

7. Stabilize permanent channel crossings.

8. 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. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.

Priority projects shall be designed so as to minimize directly connected impervious surfaces and to promote infiltration using LID techniques. Priority projects shall, to the maximum extent practicable, minimize the introduction of pollutants and conditions of concern that may result in significant impacts, generated from site runoff to the storm water conveyance system. Priority Projects shall also control post-development peak storm water runoff discharge rates and velocities to maintain or reduce pre-development downstream erosion and to protect stream habitat. Priority projects can address these objectives through the creation of a hydrologically functional project design that attempts to mimic the natural hydrologic regime. Many of these techniques are outlined and reviewed in the County of San Diego's LID Handbook and Appendices. Mimicking a site's natural hydrologic regime can be pursued by:

1. Reducing imperviousness, conserving natural resources and areas, maintaining and using natural drainage courses in the storm water conveyance system, and minimizing clearing and grading.
2. Providing runoff storage measures dispersed throughout a site's landscape with the use of bioretention facilities and detention, retention, and infiltration practices.

These design principles offer an innovative approach to urban storm water management, one that does not rely on the conventional end-of-pipe or in-the-pipe structural methods but instead uniformly or strategically integrates storm water controls throughout the urban landscape. Useful resources for applying these principles, referenced in the appendix, include the County of San Diego's LID Handbook (2007), *Start at the Source* (1999), *Low-Impact Development Design Strategies* (1999), the City of Portland's Stormwater Manual (2004), and the Contra Costa Clean Water Program's *Stormwater C.3 Guidebook (2006)*

Step 1: Objective: Maintain Pre-Development Rainfall Runoff Characteristics

Priority projects shall control post-development peak storm water runoff discharge rates and velocities to maintain or reduce pre-development downstream erosion. In addition, projects should control runoff discharge volumes and durations to the maximum extent practicable using the site design, source control, and treatment control requirements identified in Section III.1.c.

Design Concept 1: Minimize Project's Impervious Footprint & Conserve Natural Areas

The following site design options shall be considered and, incorporated and implemented where determined applicable and feasible by the Copermittee, during the site planning and approval process, consistent with applicable General Plan policies and other development regulations.

1. Minimize and disconnect impervious surfaces. This can be achieved in various ways, including, but not limited to increasing building density (number of stories above or below ground) and developing land use regulations seeking to limit impervious surfaces. Decreasing the project's footprint can substantially reduce the project's impacts to water quality and hydrologic conditions. Copermittees are encouraged to develop standards for relaxing height and other zoning restrictions as incentives to achieve this design concept.
2. Conserve natural areas, soils, and vegetation where feasible. This can be achieved by concentrating or clustering development on the least environmentally sensitive portions of a site while leaving the remaining land in a natural, undisturbed condition. The following list provides a guideline for determining the least sensitive portions of the site, in order of increasing sensitivity. Jurisdictions should also refer to their Multiple Species Conservation Plans or other biological regulations, as appropriate.
3. Areas devoid of vegetation, including previously graded areas and agricultural fields.
4. Areas of non-native vegetation, disturbed habitats and eucalyptus woodlands.
5. Areas of chamise or mixed chaparral, and non-native grasslands.
6. Areas containing coastal scrub communities.
7. All other upland communities.
8. Occupied habitat of sensitive species and all wetlands (as both are defined by the Copermittee).
9. All areas necessary to maintain the viability of wildlife corridors.
10. Within each of the previous categories, areas containing hillsides (as defined in this Model SUSMP) should be considered more sensitive than the same category

without hillsides.

11. Construct walkways, trails, patios, overflow parking lots and alleys and other low-traffic areas with permeable surfaces, such as pervious concrete, permeable asphalt, unit pavers, and granular materials.
12. Construct streets, sidewalks and parking lot aisles to the minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised.
13. Maximize canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs.
14. Minimize the use of impervious surfaces, such as decorative concrete, in the landscape design.
15. Use natural drainage systems to the maximum extent practicable.
16. Other site design options that are comparable, and equally effective.
17. Minimize soil compaction

Design Concept 2: Minimize Directly Connected Impervious Areas (DCIAs)

Priority projects shall consider, and incorporate and implement the following design characteristics, where determined applicable and feasible by the Copermittee.

1. Where landscaping is proposed, drain rooftops into adjacent landscaping prior to discharging to the storm drain.
2. Where landscaping is proposed, drain impervious sidewalks, walkways, trails, and patios into adjacent landscaping.
3. Other design characteristics that are comparable and equally effective.

Step 2: Protect Slopes and Channels

Project plans shall include storm water BMPs to decrease the potential for erosion of slopes and/or channels, consistent with local codes and ordinances and with the approval of all agencies with jurisdiction, e.g., the U.S. Army Corps of Engineers, the San Diego Regional Water Quality Control Board, and the California Department of Fish and Game. The following design principles shall be considered, and incorporated and implemented where determined applicable and feasible by the Copermittee :

1. Minimize disturbances to Natural Drainages
2. Convey runoff safely from the tops of slopes.
3. Vegetate slopes with native or drought tolerant vegetation.
4. Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
5. Stabilize permanent channel crossings.
6. 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. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.
7. Other design principles that are comparable and equally effective.

III.2.b Source Control BMPs

Design Outdoor Material Storage Areas to Reduce Pollution Introduction

9. Hazardous materials with the potential to contaminate urban runoff shall be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with rain, runoff, or spillage into the storm water conveyance system; and (2) protected by secondary containment structures such as berms, dikes, or curbs. The storage area shall be paved and sufficiently impervious to contain leaks and spills, and it shall have a roof or awning to minimize direct precipitation within the secondary containment area.

Design Trash Storage Areas to Reduce Pollution Introduction

10. Trash storage areas shall: (1) be paved with an impervious surface, designed not to allow run-on from adjoining areas, and screened or walled to prevent off-site transport of trash; ~~or~~ and, (2) contain attached lids on all trash containers that exclude rain or ~~(3)~~ contain a roof or awning to minimize direct precipitation.

Limited exclusion: detached residential homes.

Use Efficient Irrigation Systems & Landscape Design

11. Employ rain shutoff devices to prevent irrigation during and after precipitation.
12. Design irrigation systems to each landscape area's specific water requirements.
13. Use flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.

Limited exclusion: detached residential homes.

Provide Storm Water Conveyance System Stenciling and Signage

14. Provide concrete stamping, or the equivalent, of all storm water conveyance system inlets and catch basins within the project area with prohibitive language (e.g., "No Dumping – I Live Downstream"), satisfactory to the City Engineer. Stamping may also be required in Spanish.

15. Post signs utilizing prohibitive language and/or graphical icons prohibiting illegal dumping at public access points along channels and creeks within the project area, trailheads, parks, and building entrances.

Step 3: Provide Storm Drain System Stenciling and Signage

Storm drain stencils are highly visible source control messages, typically placed directly adjacent to storm drain inlets. The stencils contain a brief statement that prohibits the dumping of improper materials into the urban runoff conveyance system. Graphical icons, either illustrating anti-dumping symbols or images of receiving water fauna, are effective supplements to the anti-dumping message. Priority projects shall include the following requirements in the project design.

8. Provide stenciling or labeling of all storm drain inlets and catch basins within the

project area with prohibitive language (such as: "NO DUMPING – I LIVE IN <<name receiving water>>") and/or graphical icons to discourage illegal dumping.
9. Post signs and prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area.
10. Maintain legibility of stencils and signs.

Step 4: Design Outdoor Material Storage Areas to Reduce Pollution Introduction

Improper storage of materials outdoors may increase the potential for toxic compounds, oil and grease, heavy metals, nutrients, suspended solids, and other pollutants to enter the urban runoff conveyance system. Where the priority project plans include outdoor areas for storage of hazardous materials that may contribute pollutants to the urban runoff conveyance system, the following storm water BMPs are required:

Hazardous materials with the potential to contaminate urban runoff shall either be: (1) 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 (2) protected by secondary containment structures such as berms, dikes, or curbs.

The storage area shall be paved and sufficiently impervious to contain leaks and spills.

The storage area shall have a roof or awning to minimize direct precipitation within the secondary containment area.

Step 5: Design Trash Storage Areas to Reduce Pollution Introduction

All trash container areas shall meet the following requirements (limited exclusion: detached residential homes):

1. Paved with an impervious surface, designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash; and

Provide attached lids on all trash containers that exclude rain, or roof or awning to minimize direct precipitation.

Step 6: Use Efficient Irrigation Systems & Landscape Design

Priority projects shall design the timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water conveyance system. (Limited exclusion: detached residential homes.) In compliance with the Water Conservation in Landscaping Act, the following methods to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible by the Copermittee:

1. Employing rain shutoff devices to prevent irrigation after precipitation.
2. Designing irrigation systems to each landscape area's specific water requirements.
3. Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
4. Employing other comparable, equally effective, methods to reduce irrigation water

runoff.

III.2.C. BMPs Applicable to Individual Priority Project Categories

Where identified in Table 1, the following requirements shall be incorporated into applicable priority projects. Projects shall adhere to each of the individual priority project category requirements that apply to the project (e.g., a restaurant with more than 15 parking spaces would be required to incorporate the requirements for " g. Equipment Wash Areas" and "h. Parking Areas" into the project design).

a. Private Roads

16. The design of private roadway drainage shall use at least one of the following (for further guidance, see Start at the Source [1999]): (1) rural swale system- street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, and culverts under driveways and street crossings; (2) urban curb/swale system- street sloping to the curb, periodic swale inlets drain to vegetated swale/biofilter; or (3) dual drainage system- precipitation up to 0.6" or rainfall intensity of up to 0.2 inch/hour captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder.

b. Residential Driveways & Guest Parking

17. Driveways shall have one of the following: (1) shared access; (2) wheel strips (paving only under tires); or (3) design allowing the drainage of runoff into landscaping prior to discharging to the storm water conveyance system.

18. Uncovered temporary or guest parking on private residential lots shall be: (1) paved with a permeable surface; or (2) designed to drain into landscaping prior to discharging to the storm water conveyance system.

c. Dock Areas

19. Loading/unloading dock areas shall include the following: (1) covered loading dock areas or design drainage to preclude urban run-on and runoff; and (2) Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.

d. Maintenance Bays

20. Maintenance bays shall include at least one of the following: (1) indoor repair/ maintenance bays ; or, (2) design to preclude urban run-on and runoff.

21. Maintenance bays shall include 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 water conveyance system is prohibited.

e. & f. Vehicle & Equipment Wash Areas

22. Areas for washing/steam cleaning of vehicles and areas for outdoor equipment/accessory washing and steam cleaning shall be self-contained to preclude run-on and run-off, covered with a roof or overhang, and equipped with a clarifier or

other pretreatment facility, or properly connected to the sanitary sewer with written permission from the local sewer district.

g. Outdoor Processing Areas

23. Outdoor processing areas shall: (1) cover or enclose areas that would be the most significant source of pollutants; or,(2) slope the area toward a dead-end sump;

24. Grade or berm processing area to prevent run-on from surrounding areas.

25. Installation of storm drains in areas of equipment repair is prohibited.

h. Surface Parking Areas

26. Where landscaping is proposed in surface parking areas (both covered and uncovered), incorporate landscape areas into the drainage design.

27. Overflow parking (parking in excess of the project's minimum parking requirements) may be constructed with permeable paving.

i. Non-Retail Fueling Areas

Non-Retail fueling areas shall be designed with the following:

28. Fuel dispensing area that is: (1) paved with Portland cement concrete or equivalent smooth impervious surface (asphalt concrete is prohibited); (2) designed to 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; (3) sloped to prevent ponding; (4) separated from the rest of the site by a grade break that prevents run-on of urban runoff; and (5) designed to drain to the project's treatment control BMP(s) prior to discharging to the storm water conveyance system.

29. Overhanging roof structure or canopy that is: (1) equal to or greater than the area within the fuel dispensing area's grade break; and (2) designed not to drain onto or across the fuel dispensing area.

j. Hillside Landscaping

30. Hillside areas disturbed by project development shall be landscaped with deep-rooted, drought tolerant plant species selected for erosion control, to the satisfaction of the City Engineer.

Step 7: Incorporate Requirements Applicable to Individual Priority Project Categories

Where identified in Table 2, the following requirements shall be incorporated into applicable priority projects during the storm water BMP selection and design process. Projects shall adhere to each of the individual priority project category requirements that apply to the project (e.g., a restaurant with more than 15 parking spaces would be required to incorporate the requirements for " g. Equipment Wash Areas and "h. Parking Areas" into the project design).

a. Private Roads

The design of private roadway drainage shall use at least one of the following (for further guidance, see *Start at the Source* [1999]):

1. Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings;
2. Urban curb/swale system: street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter;
3. Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system.
4. Other methods that are comparable and equally effective within the project.

b. Residential Driveways & Guest Parking

The design of driveways and private residential parking areas shall use one at least of the following features;

1. Design driveways with shared access, flared (single lane at street) or wheelstrips (paving only under tires); or, drain into landscaping prior to discharging to the storm water conveyance system.
2. Uncovered temporary or guest parking on private residential lots may be: paved with a permeable surface; or, designed to drain into landscaping prior to discharging to the storm water conveyance system.
3. Other features which are comparable and equally effective.

c. Dock Areas

Loading/unloading dock areas shall include the following:

1. Cover loading dock areas, or design drainage to preclude urban run-on and runoff.
2. Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.
3. Other features which are comparable and equally effective.

d. Maintenance Bays

Maintenance bays shall include the following:

1. Repair/maintenance bays shall be indoors; or, designed to preclude urban run-on and runoff; and
2. 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 jurisdiction, obtain an Industrial Waste Discharge Permit.

OR

3. Other features which are comparable and equally effective.

e. Vehicle Wash Areas

Priority projects that include areas for washing/steam cleaning of vehicles shall use the following :

1. Self-contained; or covered with a roof or overhang;
2. Equipped with a clarifier or other pretreatment facility;
3. Properly connected to a sanitary sewer.
4. Other features which are comparable and equally effective.

f. Outdoor Processing Areas

Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, landfills, waste piles, and wastewater and solid waste treatment and disposal, and other operations determined to be a potential threat to water quality by the Copermittee shall adhere to the following requirements.

1. Cover or enclose areas that would be the most significant source of pollutants; or, slope the area toward a dead-end sump; or, discharge to the sanitary sewer system following appropriate treatment in accordance with conditions established by the applicable sewer agency.
2. Grade or berm area to prevent run-on from surrounding areas.
3. Installation of storm drains in areas of equipment repair is prohibited.
4. Other features which are comparable or equally effective.

g. Equipment Wash Areas

Outdoor equipment/accessory washing and steam cleaning activities at priority projects shall use the following:

1. Be self-contained; or covered with a roof or overhang;
2. Be equipped with a clarifier, grease trap or other pretreatment facility, as appropriate;
3. Be properly connected to a sanitary sewer.
4. Other features which are comparable or equally effective.

h. Parking Areas

To minimize the offsite transport of pollutants from parking areas, the following design concepts shall be considered, and incorporated and implemented where determined applicable and feasible by the Copermittee:

1. Where landscaping is proposed in parking areas, incorporate landscape areas into

the drainage design.
2. Overflow parking (parking stalls provided in excess of the Copermittee's minimum parking requirements) should be constructed with permeable paving.
3. Other design concepts that are comparable and equally effective.

i. Roadways

Priority roadway projects shall select treatment control BMPs following the treatment control selection procedure identified in Section III.2.c, "Treatment Control BMPs".

j. Fueling Area

Retail and non-retail fuel dispensing areas shall contain the following:

1. Overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's treatment control BMP(s) prior to discharging to the storm water conveyance system.

2. Paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.
3. Have an appropriate slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of urban runoff.
4. 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.

k. Hillside Landscaping

1. Hillside areas, as defined in this SUSMP, that are disturbed by project development shall be landscaped with deep-rooted, drought tolerant plant species selected for erosion control, satisfactory to the Copermittee.

III.2.d Treatment Control BMPs

31. Where identified in Table 1, and after site design and source control BMPs have been incorporated into the project, applicants of priority projects shall design a single or combination of treatment control BMPs designed to infiltrate, filter, and/or treat runoff from the project footprint to one of the "Numeric Sizing Treatment Standards" listed in Table 3, below. Applicants must use the Structural Treatment BMP Selection Procedure outlined in Section III.2.D.i below to select appropriate treatment control BMPs. Applicants are encouraged to design projects so that runoff is treated by site design BMPs such as rooftop runoff treated in landscaping, so that it may be applied towards the numeric sizing treatment standards, satisfactory to the City Engineer. In addition, applicants are encouraged to apply a "drainage basin approach" in meeting the treatment requirements. Treating entire hydrologic sub-drainages, which often extend off-site, is an equitable, environmentally sound regional solution that applies

treatment requirements to hydrologically defined areas, rather than legally defined parcels. When integrated with other projects, this approach can provide a more efficient and cost effective method of treatment by locating fewer, more effective BMPs to treat entire sub-drainages once, like pieces of a puzzle. In all instances, structural treatment BMP(s) may be located on- or off-site, used singly or in combination, or shared by multiple new developments, pursuant to the following criteria:

(a) All structural treatment control BMPs shall infiltrate, filter, and/or treat the required runoff volume or flow prior to discharging to any receiving water body supporting beneficial uses, including, but not limited to, wetlands originally constructed as mitigation for habitat loss and receiving waters that contain structural BMPs. A BMP may not be constructed in these areas unless the use is approved by the Regional Water Quality Control Board;

(b) Multiple post-construction structural treatment control BMPs for a single priority project shall collectively be designed to comply with the numeric sizing treatment standards Based on 85th percentile storm event;

(c) Shared BMPs shall be operational prior to the use of any dependent development or phase of development. The shared BMPs shall only be required to treat the dependent developments or phases of development that are in use;

(d) Interim storm water BMPs that provide equivalent or greater treatment than is required may be implemented by a dependent development until each shared BMP is operational. If interim BMPs are selected, the BMPs shall remain in use until permanent BMPs are operational.

e) If mechanical facilities are proposed for structural treatment of the storm water, the applicant shall provide facilities that are easy to maintain and are capable of removing all pollutants of concerns generated by the proposed priority project. At least 50% of the required structural treatment capacity shall be provided using natural treatment media such as a grassy swale or vegetated detention pond.

Minimizing a development's detrimental effects on water quality can be most effectively achieved through the use of a combination of site design, source and treatment control storm water BMPs. Where projects have been designed to minimize, to the maximum extent practicable, the introduction of anticipated pollutants of concern that may result in significant impacts to the receiving waters through the implementation of site design and source control storm water BMPs, the development would still have the potential for pollutants of concern to enter the storm water conveyance system. Therefore, priority projects shall be designed to remove pollutants of concern from the storm water conveyance system to the maximum extent practicable through the incorporation and implementation of treatment control BMPs.

In meeting the requirements in this section, priority projects shall implement a single or combination of storm water BMPs that will remove anticipated pollutants of concern, as identified by the procedure in III.1, in site runoff to the maximum extent practicable. Treatment control BMPs with a high or medium pollutant removal efficiency for the project's most significant pollutant of concern shall be selected. Treatment control BMPs with a low removal efficiency ranking shall only be approved by the Copermittee when a feasibility analysis has been conducted which exhibits that implementation of treatment control BMPs

with a high or medium removal efficiency ranking are infeasible.

Treatment control BMPs must be implemented unless a waiver is granted to the project by the Copermittee based on the infeasibility of any treatment control BMP.

Step 8: Design to Treatment Control BMP Standards

All priority projects shall design, construct and implement structural treatment control BMPs that meet the design standards of this section, unless specifically exempted by the limited exclusions listed at the end of Step 8. Structural treatment control BMPs required by this section shall be operational prior to the use of any dependent development, and shall be located and designed in accordance with the requirements here in Step 8 and below in Step 9. Copermittees may choose to eliminate one or more of the numeric sizing methods listed below in the Jurisdictional SUSMPs.

Volume

1. Volume-based BMPs shall be designed to mitigate (infiltrate, filter, or treat) either:

   i. The volume of runoff produced from a 24-hour 85th percentile storm event, as determined from the local historical rainfall record (0.6 inch approximate average for the San Diego County area)[3]; or

   ii. The volume of runoff produced by the 85th percentile 24-hour runoff event, determined as the maximized capture urban runoff 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

   iii. The volume of annual runoff based on unit basin storage volume, to achieve 90 percent or more volume treatment by the method recommended in *California Stormwater Best Management Practices Handbook – Industrial/ Commercial, (1993)*, or

   iv. The volume of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile 24-hour runoff event,[4]

OR

3. This volume is not a single volume to be applied to all of San Diego County. The size of the 85th percentile storm event is different for various parts of the County. The Copermittees may calculate the 85th percentile storm event using local rain data. In addition, isopluvial maps contained in the County of San Diego Hydrology Manual may be used to extrapolate rainfall data to areas where insufficient data exists. If isopluvial maps are selected, Copermittees shall describe their method for using isopluvial maps in their Jurisdictional SUSMP.
4. Under this volume criterion, hourly rainfall data may be used to calculate the 85th percentile storm event, where each storm event is identified by its separation from other storm events by at least six hours of no rain. If hourly rainfall data is selected, the Copermittees shall describe the method using hourly rainfall data in their Jurisdictional SUSMPs.

Flow

2. Flow-based BMPs shall be designed to mitigate (infiltrate, filter, or treat) either:

   i. The maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour for each hour of a storm event; or

   ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from the local historical rainfall record, multiplied by a factor of two, for each hour of a storm event; or

   iii. The maximum flow rate of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile hourly rainfall intensity multiplied by a factor of two, for each hour of a storm event.

Limited Exclusions:

a. Proposed restaurants, where the land area for development or redevelopment is less than 5,000 square feet, are excluded from the numerical sizing criteria requirements listed in Step 8.

b. Where significant redevelopment results in an increase of less than 50 percent of the impervious surfaces of a previously existing development, and the existing development was not subject to SUSMP requirements, the numeric sizing criteria apply only to the addition, and not to the entire development.

Step 9: Locate BMPs Near Pollutant Sources

Structural treatment control storm water BMPs should be implemented close to pollutant sources to minimize costs and maximize pollutant removal prior to runoff entering receiving waters. Such BMPs may be located on- or off-site, used singly or in combination, or shared by multiple new developments, pursuant to the following requirements:

1. All structural treatment control BMPs shall be located so as to infiltrate, filter, and/or treat the required runoff volume or flow prior to its discharge to any receiving water body supporting beneficial uses;
2. Multiple post-construction structural treatment control BMPs for a single priority development project shall collectively be designed to comply with the design standards of Step 8;
3. Shared storm water BMPs shall be operational prior to the use of any dependent development or phase of development. The shared BMPs shall only be required to treat the dependent developments or phases of development that are in use;
4. Interim storm water BMPs that provide equivalent or greater treatment than is required by Step 8 may be implemented by a dependent development until each shared BMP is operational. If interim BMPs are selected, the BMPs shall remain in use until permanent BMPs are operational.

Step 10: Restrictions on Use of Infiltration BMPs

Three factors significantly influence the potential for urban runoff to contaminate ground water. They are (i) pollutant mobility, (ii) pollutant abundance in urban runoff, (iii) and soluble fraction of pollutant. The risk of contamination of groundwater may be reduced by pretreatment of urban runoff. A discussion of limitations and guidance for infiltration practices is contained in, *Potential Groundwater Contamination from Intentional and Non-Intentional Stormwater Infiltration, Report No. EPA/600/R-94/051, USEPA (1994).*

To protect groundwater quality, each Copermittee shall apply restrictions to the use of any BMPs that are designed to primarily function as infiltration devices (such as infiltration trenches and infiltration basins). As additional ground water basin data is obtained, Copermittees may develop additional restrictions on the use of any BMPs that allow incidental infiltration. At a minimum, use of structural treatment BMPs that are designed to primarily function as infiltration devices shall meet the following conditions[5]:

2. Urban runoff from commercial developments shall undergo pretreatment to remove both physical and chemical contaminants, such as sedimentation or filtration, prior to infiltration.
3. All dry weather flows shall be diverted from infiltration devices except for those non-storm water discharges authorized pursuant to 40 CFR 122.26(d)(2)(iv)(B)(1): diverted stream flows, rising ground waters, uncontaminated ground water infiltration [as defined at 40 CFR 35.2005(20)] to storm water conveyance systems, uncontaminated pumped ground water, foundation drains, springs, water from crawl space pumps, footing drains, air conditioning condensation, flow from riparian habitats and wetlands, water line flushing, landscape irrigation, discharges from potable water sources other than water main breaks, irrigation water, individual residential car washing, and dechlorinated swimming pool discharges.
4. Pollution prevention and source control BMPs shall be implemented at a level appropriate to protect groundwater quality at sites where infiltration structural treatment BMPs are to be used.
5. The vertical distance from the base of any infiltration structural treatment BMP to the seasonal high groundwater mark shall be at least 10 feet or as determined on an individual, site-specific basis by the Copermittee. Where groundwater does not support beneficial uses, this vertical distance criterion may be reduced, provided groundwater quality is maintained.
6. The soil through which infiltration is to occur shall have physical and chemical characteristics (such as appropriate cation exchange capacity, organic content, clay content, and infiltration rate) that are adequate for proper infiltration durations and treatment of urban runoff for the protection of groundwater beneficial uses.
7. Infiltration structural treatment BMPs shall not be used for areas of industrial or light industrial activity; areas subject to high vehicular traffic (25,000 or greater average daily traffic on main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage areas (bus, truck, etc.); nurseries; and other high threat to water quality land uses and

5. These conditions do not apply to structural treatment BMPs which allow incidental infiltration and are not designed to primarily function as infiltration devices (such as grassy swales, detention basins, vegetated buffer strips, constructed wetlands, etc.)

activities as designated by each Copermittee in their Local SUSMP.

8. The horizontal distance between the base of any infiltration structural BMP and any water supply wells shall be 100 feet or as determined on an individual, site-specific basis by the Copermittee.

Where infiltration BMPs are authorized, their performance shall be evaluated for impacts on groundwater quality. In developing the Jurisdictional SUSMPs, Copermittees may develop additional restrictions on the use of treatment control BMPs that are designed to primarily function as infiltration devices. Copermittees shall consider the Permit Section D.1.g. requirements to control the contribution of pollutants from one portion of the watershed to another portion of the watershed through interagency agreements among the Copermittees. In those instances where a Copermittee determined that implementation of proposed infiltration BMPs within their jurisdiction has a potential impact to groundwater quality in another jurisdiction, Copermittees may include a notification requirement be placed upon those proposing such use in addition to the above protection measures.

III.3 PROVIDE PROOF OF ONGOING STORM WATER BMP MAINTENANCE

Copermittees shall not consider structural BMPs "effective," and therefore shall not accept storm water BMPs as meeting the MEP standard, unless a mechanism is in place that will ensure ongoing long-term maintenance of all structural BMPs. This mechanism can be provided by the Copermittee or by the project proponent. As part of project review, if a project proponent is required to include interim or permanent structural BMPs in project plans, and if the Copermittee does not provide a mechanism for BMP maintenance, the Copermittee shall require that the applicant provide verification of maintenance requirements through such means as may be appropriate, at the discretion of the Copermittee, including, but not limited to covenants, legal agreements, maintenance agreements, and/or conditional use permits.

Maintenance Mechanisms

1. Public entity maintenance: The Copermittee may approve a public or acceptable quasi-public entity (e.g., the County Flood Control District, or annex to an existing assessment district, an existing utility district, a state or federal resource agency, or a conservation conservancy) to assume responsibility for maintenance, repair and replacement of the BMP. Unless acceptable to individual Copermittees, public entity maintenance agreements shall ensure estimated costs are front-funded or reliably guaranteed, (e.g., through a trust fund, assessment district fees, bond, letter of credit or similar means). In addition, the Copermittees may seek protection from liability by appropriate releases and indemnities. The Copermittee shall have the authority to approve storm water BMPs proposed for transfer to any other public entity within its jurisdiction before installation. The Copermittees shall be involved in the negotiation of maintenance requirements with any other public entities accepting maintenance responsibilities within their respective jurisdictions; and in negotiations with the resource agencies responsible for issuing permits for the construction and/or maintenance of the facilities. The Copermittee must be identified as a third party beneficiary empowered to enforce any such maintenance agreement within their respective jurisdictions.

2. Project proponent agreement to maintain storm water BMPs: The Copermittee may enter into a contract with the project proponent obliging the project proponent to maintain, repair and replace the storm water BMP as necessary into perpetuity. Security may be required.
3. Assessment districts: The Copermittee may approve an Assessment District or other funding mechanism created by the project proponent to provide funds for storm water BMP maintenance, repair and replacement on an ongoing basis. Any agreement with such a District shall be subject to the Public Entity Maintenance Provisions above.
4. Lease provisions: In those cases where the Copermittee holds title to the land in question, and the land is being leased to another party for private or public use, the Copermittee may assure storm water BMP maintenance, repair and replacement through conditions in the lease.
5. Conditional use permits: For discretionary projects only, the Copermittee may assure maintenance of storm water BMPs through the inclusion of maintenance conditions in the conditional use permit. Security may be required.
6. Alternative mechanisms: The Copermittee may accept alternative maintenance mechanisms if such mechanisms are as protective those listed above.

Verification Mechanisms

For discretionary projects, the Copermittee-approved method of storm water BMP maintenance shall be incorporated into the project's permit, and shall be consistent with permits issued by resource agencies, before decision-maker approval of discretionary permits. For projects requiring only ministerial permits, the Copermittee-approved method of storm water BMP maintenance shall be incorporated into the permit conditions before the issuance of any ministerial permits. In all instances, the project proponent shall provide proof of execution of a Copermittee-approved method of maintenance repair and replacement before the issuance of construction approvals. Copermittees carrying out public projects that are not required to obtain permits shall be responsible for ensuring that a Copermittee-approved method of storm water BMP maintenance repair and replacement is executed prior to the commencement of construction. For all properties, the verification mechanism will include the project proponent's signed statement, as part of the project application, accepting responsibility for all structural BMP maintenance, repair and replacement, until a Copermittee-approved entity agrees to assume responsibility for structural BMP maintenance, repair and replacement.

Maintenance Requirements

1. Operation & Maintenance (O&M) Plan: The Copermittee shall ensure that a copy of an Operation & Maintenance (O&M) plan, prepared by the project proponent satisfactory to the Copermittee, is attached to the approved maintenance agreement, which describes the designated responsible party to manage the storm water BMP(s), employee's training program and duties, operating schedule, maintenance frequency, routine service schedule, specific maintenance activities, copies of resource agency permits, and any other necessary activities. At a minimum, maintenance agreements shall require the inspection and servicing of all structural

BMPs on an annual basis. The project proponent or Copermittee-approved maintenance entity shall complete and maintain O&M forms to document all maintenance requirements. Parties responsible for the O&M plan shall retain records for at least 5 years. These documents shall be made available to the Copermittee for inspection upon request at any time.

2. Access Easement/Agreement: As part of the maintenance mechanism selected above, the Copermittee shall require the inclusion of a copy of an executed access easement that shall be binding on the land throughout the life of the project, until such time that the storm water BMP requiring access is replaced, satisfactory to the Copermittee.

III.4 WAIVER OF STRUCTURAL TREATMENT BMP REQUIREMENTS

Copermittees may provide for a project to be waived from the requirement of implementing structural treatment BMPs (Section VI.2.c, "Design to Treatment Control BMP Standards") if infeasibility can be established. A Copermittee shall only grant a waiver of infeasibility when all available structural treatment BMPs have been considered and rejected as infeasible. Copermittees shall notify the Regional Board within 5 days of each waiver issued and shall include the name of the person granting each waiver.

Waivers may only be granted from structural treatment BMP and structural treatment BMP sizing requirements. Priority development projects, whether or not granted a waiver may not cause or contribute to an exceedance of water quality objectives. Pollutants in runoff from projects granted a waiver must still be reduced to the maximum extent practicable.

Each Copermittee that implements a waiver program may at its option also develop a SUSMP waiver impact fee program, to require project proponents who have received waivers to transfer the savings in cost, or a proportionate share thereof, as determined by the Copermittee, to a storm water mitigation fund. Each Copermittee shall notify the RWQCB if a SUSMP waiver impact fee program is developed pursuant to this model SUSMP. Further details for any SUSMP waiver impact fee program may be set out in jurisdictional SUSMP submissions, or in supplemental submissions if multiple Copermittees establish a joint mitigation fund program for that watershed.

This model SUSMP does not preclude Copermittees or groups of Copermittees from imposing any other fees or charges on development projects that are permitted by law, or from managing or expending the monies received from such non-SUSMP programs in any manner authorized by law.

IV. CONSTRUCTION STORM WATER BMP PERFORMANCE STANDARDS

Those projects that have been determined to require construction BMPs in Steps 1 and 2 of Section II, must identify the construction BMPs to be implemented in accordance with the performance standards in this section. The construction BMPs must be identified in a Storm Water Pollution Prevention Plan or Local SWPPP for projects disturbing more than or less than 1 acre, respectively. These plans must be prepared in accordance with the guidelines in Appendix D.

It is the responsibility of the property owner and/or contractor to select, install, and maintain appropriate BMPs. A list of construction BMPs is provided for reference in Appendix E. BMPs must be installed in accordance with an industry recommended standard or in accordance with the requirements of the State General Construction Permit. More information about BMPs is provided in the California Storm Water Quality Association (CASQA) BMP Manual for Construction Activities.

This section of the BMP Manual establishes the minimum BMPs for construction sites in the City of Encinitas. These minimum BMPs are established as directed in the City's Storm Water Municipal NPDES Permit, issued by the San Diego Regional Water Quality Control Board). In response to the Municipal NPDES Permit, the City has revised the Storm Water Ordinance (Storm Water Management Ordinance, EMC Chapter 20.08) and the Grading Ordinance (Grading, Erosion, and Sediment Control Ordinance, EMC Chapter 23.24). All sites must, at all times, comply with the requirements of both of these ordinances.

Best management practices are to be shown on building plans, grading plans, and improvement plans. They are generally presented in the form of erosion and sediment control plans. The following section presents the minimum BMPs that must be included in these plans. In addition, the City requires that either a certification of compliance with the California General Permit for construction Activities (NOI) or a Storm Water Management Plan Checklist be submitted for all projects. This requirement is presented in Section 3 below. Plans will be reviewed by Engineering staff during plan check and construction sites will be inspected in order to verify compliance with the minimum BMPs outlined herein, in the Grading Ordinance, and in the Storm Water Management Ordinance. Failure to comply with these regulations can result in Notice of Violations, Stop Work Orders, Citations, and fines.

BMP requirements differ between the wet season (Oct. 1 – Apr. 30 of each year) and the dry season (May 1 – Sept. 30 of each year), the type of the project and topography of the site, as described below.

IV.1. Site Management Requirements

Construction is a dynamic operation where changes are expected. Storm water BMPs for construction sites are usually temporary measures that require frequent maintenance to maintain effectiveness and may require relocation, revision, and re-installation, particularly as project grading progresses. Therefore, owner/contractor self-inspections are required. They shall be performed by the owner's/contractor's Qualified Contact Person specifically trained in storm water pollution prevention site management and storm water BMPs,

including the installation and maintenance of sediment and erosion control measures. Additional qualified persons may assist with the inspection activities under the direction of the Qualified Contact Person. A Qualified Contact Person is required for all sites during both wet and dry weather conditions.

There are four primary purposes of the self-inspections conducted by owners and contractors:

- To ensure that the owners/contractors take full responsibility for managing storm water pollution caused by their activities.
- To ensure that storm water BMPs are properly documented and implemented and are functioning effectively.
- To identify maintenance (e.g., sediment removal) and repair needs.
- To ensure that the project proponents implement their storm water management plans.

A self-inspection checklist, noting date, time, conditions, and inspection date, must be kept on-site and made available for inspection, if requested. Self-inspections must be performed by a Qualified Contact Person according to the following schedule:

- Daily forecasting at all times
- At 24-hour intervals during extended rainfall events
- Daily evaluations as earth moving/grading is being conducted during the wet season
- Weekly (every 7 days) in the dry season as earth moving/grading is progressing

Storm water pollution prevention site management requirements include:

A. A qualified person who is trained and competent in the use of BMPs shall be on site daily, although not necessarily full time, to evaluate the conditions of the site with respect to storm water pollution prevention. This qualified contact person shall represent the contractor/ owner on storm water issues.

B. The qualified person shall implement the conditions of the Storm Water Pollution Prevention Plan, contract documents and/or local ordinances with respect to erosion and sediment control and other waste management regulations. They shall be kept on site and available to the City inspector at all times.

C. The qualified person is responsible for monitoring the weather and implementation of any emergency plans as needed. The weather shall be monitored on a 5-day forecast plan and a full BMP protection plan shall be activated when there is a 40% chance of rain.

D. The qualified person is responsible for overseeing any site grading and operations and evaluating the effectiveness of the BMPs. This person shall modify the BMPs as necessary to keep the dynamics of the site in compliance. This person or other qualified persons are responsible for checking the BMPs routinely for maintenance and documenting the BMPs being implemented.

IV.2. Performance Standards

The City Engineer will evaluate the adequacy of the owner's/contractor's site management for storm water pollution prevention, inclusive of BMP implementation, on construction sites based on performance standards for storm water BMPs. Poor BMP practices shall be challenged. Performance standards shall include:

A. No measurable increase of pollution (including sediment) in runoff from the site.
B. No slope erosion.
C. Water velocity moving offsite must not be greater than pre-construction levels and shall be discharged in a fashion that will not increase erosion potential downstream.

A site will be considered inactive if construction activities have ceased for a period of 7 or more consecutive calendar days. At any time of year, an inactive site must be fully protected from erosion and discharges of sediment. It is also the owner's/contractor's responsibility at both active and inactive sites to implement a plan to address all potential non-storm water discharges.

Regardless of any inspections conducted by the City, property owners or contractors are required to prevent any construction-related materials, wastes, spills or residues from entering a storm water conveyance system.

IV.3. Minimum Best Management Practices

Construction sites are evaluated for their threat to water quality to local receiving water bodies. This evaluation is based primarily on soil erosion potential, site slope, site size and type, the sensitivity of receiving waters and proximity to environmentally sensitive areas. Each site's threat to water quality is determined by City staff based on a review of the plans, the site, site location, or current site conditions.

Required minimum BMPs have been established for construction sites. If particular minimum BMPs are infeasible at any specific site, the City will require the implementation of other equivalent BMPs. The City may also require additional site specific BMPs as necessary to comply with the current General Municipal Stormwater Permit, and the City's Watercourse Protection, Stormwater Management and Discharge Control Ordinance, and the Grading Ordinance.

IV.3.A. Dry Season Requirements (May 1 through September 30):

A. Perimeter protection BMPs must be installed and maintained to comply with performance standards (above).

B. Sediment control BMPs must be installed and maintained to comply with performance standards (above).

C. BMPs to control sediment tracking must be installed and maintained at entrances/exits to comply with performance standards (above).

D. Material needed to install standby BMPs necessary to completely protect the

exposed portions of the site from erosion and to prevent sediment discharges, must be stored on site. Areas that have already been protected from erosion using physical stabilization or established vegetation stabilization BMPs as described below are not considered to be "exposed" for purposes of this requirement.

E. The owner/contractor must have an approved "weather triggered" action plan and have the ability to deploy standby BMPs as needed to completely protect the exposed portions of the site within 24 hours of prediction of a storm event (a predicted storm event is defined as a forecasted, 40% chance of rain). On request, the owner/contractor must provide proof of this capability that is acceptable to the City Engineer.

F. Deployment of physical or vegetation erosion control BMPs must commence as soon as grading and/or excavation is completed for any portion of the site. The project proponent may not continue to rely on the ability to deploy standby BMP materials to prevent erosion of graded areas that have been completed.

G. The area that can be cleared or graded and left exposed at one time is limited to the amount of acreage that the owner/contractor can adequately protect prior to a predicted rainstorm. Requirement "G" will require grading to be phased at larger sites. For example, it may be necessary to deploy erosion and sediment control BMPs in areas that are not completed but are not actively being worked before additional grading is done.

H. Properly protected, designated storage areas are required for materials and wastes.

I. Non-stormwater discharges must be eliminated or controlled to the maximum extent practicable.

High Priority Sites (<u>in addition</u> to A. through G.):

H. Site specific BMPs that:
   1. remove pollutants from the construction site discharge,
   2. maintain or reduce the peak flow from the site during a rain event, and
   3. comply with BMPs outlined in the project SWPPP, if applicable.

<u>IV.3.B Rainy Season Requirements (October 1 through April 30):</u>

A. Perimeter protection BMPs must be installed and maintained to comply with performance standards (above).

B. Sediment control BMPs must be installed and maintained to comply with performance standards (above).

C. BMPs to control sediment tracking must be installed and maintained at site entrances/exits to comply with performance standards (above).

D. Material needed to install standby BMPs necessary to completely protect the exposed portions of the site from erosion, and to prevent sediment discharges, must be stored on site. Areas that have already been protected from erosion using physical stabilization or established vegetation stabilization BMPs as described below are not considered to be "exposed" for purposes of this requirement.

E. The owner/contractor must have an approved "weather triggered" action plan and have the ability to deploy standby BMPs as needed to completely protect the exposed portions of the site within 24 hours of prediction of a storm event (a predicted storm event is defined as a forecasted, 40% chance of rain). On request, the owner/contractor must provide proof of this capability that is acceptable to the City Engineer.

F. Deployment of physical or vegetation erosion control BMPs must commence as soon as grading and/or excavation is completed for any portion of the site. The owner/contractor may not continue to rely on the ability to deploy standby BMP materials to prevent erosion of graded areas that have been completed.

G. The area that can be cleared or graded and left exposed at one time is limited to the amount of acreage that the owner/contractor can adequately protect prior to a predicted rainstorm.

H. Erosion control BMPs must be upgraded if necessary to provide sufficient protection for storms likely to occur during the rainy season.

I. Perimeter protection and sediment control BMPs must be upgraded if necessary to provide sufficient protection for storms likely to occur during the rainy season.

J. Adequate physical or vegetation erosion control BMPs must be installed and established for all graded areas prior to the start of the rainy season. These BMPs must be maintained throughout the rainy season. If a selected BMP fails, it must be repaired and improved, or replaced with an acceptable alternate as soon as it is safe to do so. The failure of a BMP shows that the BMP, as installed, was not adequate for the circumstances in which it was used and shall be corrected or modified as necessary. Repairs or replacements must therefore put a more effective BMP in place.

K. All vegetation erosion control must be established prior to the rainy season to be considered as a BMP.

L. The amount of exposed soil allowed at one time shall not exceed that which can be adequately protected by deploying standby erosion control and sediment control BMPs prior to a predicted rainstorm.

M. A disturbed area that is not completed but that is not being actively graded must be fully protected from erosion if left for 7 or more calendar days. The ability to deploy standby BMP materials is not sufficient for these areas. BMPs must

actually be deployed.

N. Site specific BMPs that:

1. remove pollutants from the site discharge for priority project
2. maintain or reduce the peak flow from the construction site during a rain event for priority projects, and
3. comply with BMPs outlined in the project SWPPP, if applicable.

IV.4 Advanced Treatment

Construction sites that are determined by the City Engineer to pose an exceptional threat to water quality must implement advanced treatment for sediment. In evaluating the threat to water quality, the following factors will be considered:

a. For purposes of this Section, Exceptional Threat to Water Quality shall be defined as a site that meets all of the following criteria:

   i. All or part of the site is within 200 feet of waters named on the CWA Section 303(d) list of Water Quality Limited Segments as impaired for sedimentation and/or turbidity;
   ii. The disturbance area is greater than five acres, including all phases of the development;
   iii. The disturbed slopes are steeper than 4:1 (horizontal: vertical) with at least 10 feet of relief, and drain toward the 303(d) listed receiving water for sedimentation and/or turbidity;
   iv. The site contains a predominance of soils with USDA-NRCS Erosion factors k_f greater than or equal to 0.4. K_f is an NRCS soil erosion factor and the table for soils and their erosion factors in the San Diego region is readily accessible from the NRCS's web soil survey page or field office. The range of k_f in San Diego is 0.15 to 0.55. Michigan NRCS reports, "Soil erodibility factor K represents both susceptibility of soil to erosion and the rate of runoff, as measured under the standard unit plot condition. Soils high in clay have low K values, about 0.05 to 0.15, because they are resistant to detachment. Coarse textured soils, such as sandy soils, have low K values, about 0.05 to 0.2, because of low runoff even though these soils are easily detached. Medium textured soils, such as the silt loam soils, have moderate K values, about 0.25 to 0.4, because they are moderately susceptible to detachment and they produce moderate runoff. Soils having a high silt content are most erodible of all soils. They are easily detached; tend to crust and produce high rates of runoff. Values of K for these soils tend to be greater than 0.4".

b. Advanced treatment may be required on sites that do not meet all four of the criteria for Exceptional Threat to Water Quality listed above at the discretion of the City based on a record of non-compliance with Stormwater regulations.

c. Treatment effluent water quality shall meet or exceed the water quality objectives for sediment, turbidity, and pH as listed in the Water Quality Control Plan for the San Diego Basin (9) for inland surface waters, lagoons, and estuaries for the appropriate

hydrologic unit.

d. Sufficient water treatment technologies and controls to meet the above objectives and not cause any impairments to water quality due to operation of the treatment process itself. In addition, treatment chemicals, if used;

    a. Must be approved by the US Environmental Protection Agency (EPA) for potable water use or by another "reputable agency" engaged in the regulation and enforcement of water quality who specifically evaluates the use of such chemicals on stormwater runoff.

IV.7 Limitation of Grading

The area that can be cleared or graded and left exposed ay any one time is limited to the amount of acreage that the owner / contractor can adequately protect prior to a predicted rain event. At no time, shall disturbed soil area of a project site be more than 50 acres for an individual grading permit. The City Engineer may approve, on a site specific basis, expansions to the active disturbed soil area limit. Soil stabilization and sediment control materials shall be maintained on site sufficient to protect the disturbed soil areas.

Based upon these limitations, grading shall be phased at larger construction sites. As such, it may deemed necessary to deploy erosion and sediment control BMPs in areas that are not completed but are actively being worked on before additional grading is done.

V. IMPLEMENTATION & MAINTENANCE OF REQUIREMENTS

After all project BMPs have been approved by the City Engineer, applicants must ensure implementation and maintenance of the BMPs according to the processes outlined in the applicable sections for projects requesting any development permits. In addition, any project that will require a "General NPDES Permit for Storm Water Discharges Associated with Industrial Activities" shall include the following note on the plans and condition in the permit/approval:

Industrial NPDES Permit Requirement

"The Permittee or designee (or contractor for public projects) shall provide evidence of coverage under the General Industrial National Pollutant Discharge Elimination System Permit, in the form of a Notice of Intent (NOI) filed with the State Water Resources Control Board, prior to the issuance of any construction permits."

V.1. Post Construction BMPs, SUSMP

V.1.i. Permanent BMP Requirements. Applicants proposing projects that include permanent BMPs must prepare a maintenance agreement, satisfactory to the City Engineer and in conformance with the program outlined in the "Permanent Storm Water BMP Maintenance Agreement Requirements". Storm Water BMP

Maintenance Agreement shall be approved prior to the issuance of any permits. The permanent BMPs shall be graphically shown on the plans where possible, and made a condition of the project's permit/approval. The permanent BMPs operation and maintenance requirements (O & M plan discussed below) shall also be noted on the plans and made a condition of the project's permit/approval.

V.2. Construction Permits

V.2.i. Construction Permits for Projects Under 1 Acre. Projects proposing to disturb less than 1 acre during construction shall include construction requirements, where possible, on the plans. Any remaining construction BMPs that cannot be shown graphically on the plans shall be either noted on, or stapled to, the plans (Local SWPPP) and made a condition of the permit. The project's construction priority ranking (see Appendix D) must also be noted on the construction plans. The applicant and contractor are responsible to maintain the construction BMPs throughout the construction and any construction stoppage period. Construction BMPs maintenance as well as implementation of the SWPPP and Local SWPPP shall continue until construction is completed and post construction BMPs are well established.

V.2.ii. Construction Permits for Projects Over 1 Acre. Projects proposing to disturb more than 1 acre during construction shall include all construction BMPs in a Storm Water Pollution Prevention Plan, prepared in accordance with Appendix D, "Storm Water Pollution Prevention Plan Guidelines." The construction BMPs shall also be shown on the plans, where possible. Any remaining construction BMPs that cannot be shown graphically on the plans shall be either noted or stapled to the plans and made a condition of the permit. The project's construction priority ranking (see Appendix D) must also be noted on the construction plans. The applicant and contractor are responsible to maintain the construction BMPs throughout the construction and any construction stoppage period. Construction BMPs maintenance as well as implementation of the SWPPP and Local SWPPP shall continue until construction is completed and post construction BMPs are well established.

V.3. Permanent BMP Maintenance Agreement Requirements

Applicants shall propose a maintenance agreement assuring all permanent BMPs will be maintained throughout the "use" of a project site, satisfactory to the City Engineer (see Appendix G for a list of potential mechanisms). For discretionary projects, the City-approved method of permanent BMP maintenance shall be incorporated into the project's permit and shall be consistent with permits issued by resource agencies before decision-maker approval of discretionary actions. For projects requiring only ministerial permits, the City-approved method of permanent BMP maintenance shall be incorporated into the permit conditions before the issuance of any construction permits. In all instances, the applicant shall provide proof of execution of a City-approved method of maintenance repair and replacement before the issuance of construction approvals.

For all properties, the verification mechanism will include the project proponent's signed statement, as part of the project application, accepting responsibility for all permanent BMP maintenance, repair and replacement.

The maintenance agreement shall include the following:

1. *Operation & Maintenance (O&M) Plan*: The applicant shall include an Operation & Maintenance (O&M) plan, prepared satisfactory to the City Engineer, with the approved maintenance agreement, which describes the designated responsible party to manage the storm water BMP(s), employee's training program and duties, operating schedule, maintenance frequency, routine service schedule, specific maintenance activities (including maintenance of storm water conveyance system stamps), copies of resource agency permits, and any other necessary activities. At a minimum, maintenance agreements shall require the applicant to provide inspection and servicing of all permanent treatment BMPs on an annual basis. The project proponent or City-approved maintenance entity shall complete and maintain O&M forms to document all maintenance requirements. Parties responsible for the O&M plan shall retain records for at least 5 years. These documents shall be made available to the City Engineer for inspection upon request at any time.

2. *Access Easement/Agreement:* As part of the maintenance mechanism selected below, the applicant shall execute an access easement that shall be binding on the land throughout the life of the project, until such time that the permanent treatment BMP requiring access is replaced, satisfactory to the City Engineer.

VI. RESOURCES & REFERENCES

APPENDIX A

STORM WATER REQUIREMENTS APPLICABILITY CHECKLIST

Complete Sections 1 and 2 of the following checklist to determine your project's permanent and construction storm water best management practices requirements. This form must be completed and submitted with your permit application.

Section 1. Permanent Storm Water BMP Requirements:
If any answers to Part A are answered "Yes," your project is subject to the "Priority Project Permanent Storm Water BMP Requirements," and "Standard Permanent Storm Water BMP Requirements" in Section III, "Permanent Storm Water BMP Selection Procedure" in the *Best Management Practice Manual Part II.* If all answers to Part A are "No," and any answers to Part B are "Yes," your project is only subject only to the Standard Permanent Storm Water BMP Requirements. If every question in Part A and B is answered "No," your project is exempt from permanent storm water requirements.

Part A: Determine Priority Project Permanent Storm Water BMP Requirements.

Does the project meet the definition of one or more of the priority project categories?*	Yes	No
1. Residential development of 10 or more units		
2. Heavy Industry		
3. Commercial development greater than 1 Acre		
4. Automotive repair shop		
5. Restaurant		
6. Hillside development greater than 5,000 square feet		
7. Industrial development greater than 1 acre		
8. Project discharging to receiving waters within Environmentally Sensitive Areas		
9. Project greater than 2,500 square feet of impervious surface that discharge to receiving waters within or adjacent to Environmentally Sensitive Areas		
10. Parking lots 5,000 ft^2 or more of impervious surface or with >15 parking spaces and potentially exposed to urban runoff		
11. Streets, roads, driveways, highways, and freeways which would create a new paved surface that is 5,000 square feet or greater of impervious surface		
12. Retail Gasoline Outlets, 500 square feet or more with a projected Average Daily Traffic (ADT) of 100 or more vehicles per day		
* Refer to the definitions Section II for expanded definitions of the priority project categories.		
Limited Exclusion: Trenching and resurfacing work associated with utility projects are not considered priority projects. Parking lots, buildings and other structures associated with utility projects are priority projects if one or more of the criteria in Part A is met. If all answers to Part A are "No", continue to Part B.		

Part B: Determine Standard Permanent Storm Water Requirements.

Does the project propose:	Yes	No
1. New impervious areas, such as rooftops, roads, parking lots, driveways, paths andsidewalks.		
2. Reconstruction of the existing impervious areas, such as rooftops, roads, parking lots, driveways, paths and sidewalks in excess of 1000 square feet.		
3. Permanent structures within 100 feet of any natural water body?		
4. Trash storage areas?		
5. Liquid or solid material loading and unloading areas?		
6. Vehicle or equipment fueling, washing, or maintenance areas?		
7. Require a General NPDES Permit for Storm Water Discharges Associated with Industrial Activities (Except construction)?*		
8. Commercial or industrial waste handling or storage, excluding typical office or household waste?		
9. Any grading or ground disturbance during construction?		
10. Any new storm drains, or alteration to existing storm drains that reduces natural storm water treatment?		
*To find out if your project is required to obtain an individual General NPDES Permit for Storm Water Discharges Associated with Industrial Activities, visit the State Water Resources Control Board web site at, www.swrcb.ca.gov/stormwtr/industrial.html		

Section 2. Construction Storm Water BMP Requirements:

If the answer to question 1 of Part C is answered "Yes," your project is subject to Section IV, "Construction Storm Water BMP Performance Standards," and must prepare a Storm Water Pollution Prevention Plan (SWPPP). If the answer to question 1 is "No," but the answer to any of the remaining questions is "Yes," your project is subject to Section IV, "Construction Storm Water BMP Performance Standards," and must prepare a Local SWPPP . If every question in Part C is answered "No," your project is exempt from any construction storm water BMP requirements. If any of the answers to the questions in Part C are "Yes," complete the construction site prioritization in Part D, below.

Part C: Determine Construction Phase Storm Water Requirements.

Would the project meet any of these criteria during construction?	Yes	No
Is the project subject to California's statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities?		
2. Does the project propose grading or soil disturbance?		
3. Would storm water or urban runoff have the potential to contact any portion of the construction area, including washing and staging areas?		
4. Would the project use any construction materials that could negatively affect water quality if discharged from the site (such as, paints, solvents, concrete, and stucco)?		

APPENDIX B

STORMWATER BEST MANAGEMENT PRACTICES

The following are a list of BMPs may be used to minimize the introduction of pollutants of concern that may result in significant impacts to receiving waters. Other BMPs approved by the Copermittee as being equally or more effective in pollutant reduction than comparable BMPs identified below are acceptable. See Appendix B: *Suggested Resources* for additional sources of information. All BMPs must comply with local zoning and building codes and other applicable regulations.

Site Design BMPs

1. Minimizing Impervious Areas.
2. Reduce sidewalk widths.
3. Incorporate landscaped buffer areas between sidewalks and streets.
4. Design residential streets for the minimum required pavement widths.
5. Minimize the number of residential street cul-de-sacs and incorporate landscaped areas within cul-de-sac centers with curb-cuts to reduce their impervious cover.
6. Use open space development that incorporates smaller lot sizes.
7. Increase building density while decreasing the building footprint.
8. Reduce overall lot imperviousness by promoting alternative driveway surfaces and shared driveways that connect two or more homes together.
9. 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.
10. Increase Rainfall Infiltration.
11. Use permeable materials for private sidewalks, driveways, parking lots, and interior roadway surfaces (examples: hybrid lots, parking groves, permeable overflow parking, etc.).
12. Use curb-cuts to direct pavement runoff into swales, landscaping, and natural areas prior to entering the MS4.
13. 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.
14. Pitch driveways and parking areas toward yards and vegetated areas prior to draining into the MS4.
15. Conserve and utilize natural soils and/or use amended soils to encourage light infiltration/ percolation.
16. Minimize disturbances to natural drainages
17. Minimize soil compaction in planned green space (landscaped areas, lawns, etc.) and re-till soils when compacted by grading/construction equipment.
18. Maximize Rainfall Interception.
19. Maximizing canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs.
20. Cisterns / Rain barrels.
21. Foundation landscaping.

Minimize Directly Connected Impervious Areas (DCIAs):

1. Draining rooftops into adjacent landscaping prior to discharging to the storm drain.
2. Use curb-cuts to allow parking lots to drain into landscape areas co-designed as biofiltration areas and/or swales prior to draining into the MS4.
3. Draining roads, sidewalks, and impervious trails into adjacent landscaping.
4. Slope and Channel Protection.
5. Use of natural drainage systems to the maximum extent practicable.
6. Stabilized permanent channel crossings.
7. Planting native or drought tolerant vegetation on slopes.
8. Energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels.

Source Control BMPs

1. Storm drain system stenciling and signage
2. Outdoor material and trash storage area designed to reduce or control rainfall runoff
3. Efficient irrigation system

Treatment Control BMPs

1. Biofilters
2. Bioretention Swale (detains and infiltrates water through soil)
3. Stormwater Planter Box (open-bottomed)
4. Stormwater Flow-Through Planter (sealed bottom)
5. Vegetated filter strip
6. Bioretention Area
7. Vegetated Roofs / Modules / Walls
8. Detention Basins
9. Extended/dry detention basin with grass / vegetated lining
10. Extended/dry detention basin with impervious lining

Infiltration Facilities

1. Infiltration basin
2. Infiltration trench
3. Dry well
4. Permeable Paving
5. Gravel
6. Permeable asphalt
7. Pervious concrete
8. Unit pavers, ungrouted, set on sand or gravel
9. Subsurface Reservoir Bed

Wet Ponds and Wetlands

1. Wet pond (permanent pool)
2. Constructed wetland

Filtration Systems

1. Media filtration
2. Sand filtration

Hydrodynamic Separation Systems

3. Swirl Concentrator
4. Cyclone Separator

Trash Racks and Screens

APPENDIX C

WATER QUALITY TECHNICAL REPORT GUIDELINES

Purpose

To describe the permanent storm water Best Management Practices (BMPs) that will be incorporated in the project to mitigate the impacts of urban runoff due to the development.

Minimum Requirements

- Prepared by Registered Civil Engineer

Organization & Content

Table of Contents

Vicinity Map

Project Description

- Narrative of project activities

Site Map

- Entire property included on one map (use key map if multi-sheets)
- Drainage areas and direction of flow
- Private storm drain system(s)
- Nearby water bodies and municipal storm drain inlets
- Location of storm water conveyance systems (ditches, inlets, storm drains, etc.)
- Location of existing and proposed storm water controls
- Location of "impervious" areas- paved areas, buildings, covered areas
- Locations where materials would be directly exposed to storm water
- Location of building and activity areas (e.g. fueling islands, garages, waste container area, wash racks, hazardous material storage areas, etc.)
- Areas of potential soil erosion (including areas downstream of project)

Pollutants and Conditions of Concern

- Project located in which Watershed
- Impaired water bodies downstream of the project and impairment
- Impacts to hydrologic regime
- Pollutants based upon land use

Types of BMPs

Site Design BMPs

- Reduce impervious surfaces
- Conserve natural Areas

- ❑ Minimize directly connected areas
- ❑ Protect slopes and channels

Source Control BMPs

- ❑ Inlet stenciling and signage
- ❑ Materials Storage
- ❑ Trash storage
- ❑ Efficient irrigation
- ❑ Other controls (as applicable)

Structural Treatment BMPs

- ❑ Basis for selection (include targeted pollutants, justification, and alternative analysis)
- ❑ Design criteria (include calculations)
- ❑ Pollutant removal information (other than vendor specifications)
- ❑ Literature References

Maintenance (i.e. identify the responsible parties who will implement the Best Management Practices)

- ❑ Maintenance schedule
- ❑ Maintenance Costs
- ❑ Qualifications of maintenance personnel

Drainage Study

APPENDIX D

STORM WATER POLLUTION PREVENTION PLAN/LOCAL SWPPP GUIDELINES

At a minimum, the Storm Water Pollution Prevention Plan (SWPPP) or Local SWPPP, whichever is required, must cover the areas listed below. These requirements do not relieve the owner of the state SWPPP requirement; owners should also follow all applicable state SWPPP guidelines. The SWPPP must be kept on site and made available upon request of a representative of the City of Encinitas. Projects that are also required to obtain a general construction National Pollutant Discharge Elimination System (NPDES) Permit are encouraged to visit the State Water Resource Control Board's website for permit application instructions, NOI and NOT forms and guidance in preparing a Storm Water Pollution Prevention Plan (go to: www.swrcb.ca.gov/stormwtr/docs/constpermit).

Planning and Organization

- Identify the pollution prevention team members who will maintain and implement the SWPPP or Local SWPPP.
- If applicable, incorporate or reference the appropriate elements of other regulatory requirements.

Site Map

Features displayed on the map must include:

- An outline of the entire property
- Drainage areas on the property and direction of flow
- Areas of soil erosion
- Nearby water bodies and municipal storm drain inlets
- Location of storm water conveyance systems (ditches, inlets, storm drains, etc.)
- Location of existing storm water controls (oil/ water separators, sumps, etc.)
- Location of "impervious" areas- paved areas, buildings, covered areas
- Locations where materials are directly exposed to storm water
- Locations where toxic or hazardous materials have spilled in the past
- Location of building and activity areas (e.g. fueling islands, garages, waste container area, wash racks, hazardous material storage areas, etc.)

List of Significant Materials

List materials stored and handled at the site. Include the location and typical quantities.

Description of Potential Pollutant Sources

- Provide a narrative description of the site's activities and list the potential pollutant sources and the potential pollutants that could be discharged in storm water discharges from each activity.
- List non-storm water discharges including the source, quantity, frequency, and characteristics of the discharges and drainage area.

Assessment of Potential Sources

Describe which activities are likely to be sources of pollution in storm water and which pollutants are likely to be present in storm water discharges.

Best Management Practices

Describe the BMPs that will be implemented at the site for each potential pollutant and its source.

APPENDIX E

EXAMPLE CONSTRUCTION BEST MANAGEMENT PRACTICES

An effective storm water management plan is one in which all potential pollutants are recognized and a plan to control/prevent them is designed. The plan must include a combination of BMPs to target each potential pollutant. This should include the following control measures.

a) Planning and scheduling
b) Erosion Control
c) Flow Control
d) Sediment Control
e) Waste Management

A) Planning and Scheduling

Grading and clearing should be phased to reduce the amount and the duration of sediment exposure. If possible schedule grading during the dry season (Mid-April through October) particularly avoiding December through February.

Consult with the National Weather Service at (619) 289-1212 to determine the forecast during the wet season. Plan to have erosion control methods in place 24 hours prior to a rain event.

B) Erosion Control

1) Physical Stabilization

a) Geotextiles/Mats – Used for temporary or permanent soil stabilization, and are especially effective on steep slopes and channels. Geotextiles and mats are used to reduce erosion from rainfall impact, hold soil in place, and absorb and hold moisture near the soil surface.
b) Hydraulic Mulch –. Hydraulic mulching is an erosion control measure that consists of applying a mixture of shredded wood fiber and tackifier with hydromulching equipment. Mulches protect the soil from rainfall impact or wind.
c) Soil Binders – Soil binding consists of applying and maintaining polymeric or lignin sultanate soil stabilizers. Soil binders typically are applied to disturbed areas requiring temporary protection from erosion.
d) Hydroseeding – Hydroseeding consists of applying a mixture of wood fiber, seed, fertilizer and stabilizing emulsion with hydromulch equipment. It is typically applied to disturbed areas requiring temporary protection against erosion.

2) Vegetation Stabilization

a) Preservation of existing vegetation
b) Seeding and planting
c) Establish permanent landscaping

d) Flow Controls

Earth Dikes– These are structures that intercept, divert, and convey surface runoff, generally sheet flow, to a sediment-trapping device or stabilized outlet.

Drainage Swales & Lined Ditches – Divert off-site runoff around the construction site, divert runoff from stabilized areas around disturbed areas, and direct runoff into sediment basins or traps.

Outlet Protection/Velocity Dissipation Devices – Physical devices composed of rock, grouted riprap, or concrete rubble placed at pipe outlets to prevent scour and reduce the velocity and/or energy of exiting storm water flows. Outlet protection is needed where discharge velocities and energies at the outlets of culverts, conduits or channels are sufficient to erode the immediate downstream reach

Slope Drains – A slope drain is a temporary pipe or lined channel to drain the top of a slope to a stable discharge point at the bottom. Slope drains are usually lined ditches used to intercept and direct surface flow away from slope areas to protect cut or fill slopes. The slope drain is applicable for any construction site where concentrated surface runoff can accumulate and must be conveyed down the slope in order to prevent erosion.

D) Sediment Control

Storm Drain Inlet Protection – Devices used at storm drain inlets to detain and/or filter sediment-laden runoff to allow sediment to settle and/or to filter sediment.

Silt Fence – A silt fence is a temporary barrier of permeable fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff from exposed, erodible soil. Silt fences may be used for perimeter control, placed upstream of the point(s) of discharge of sheet flow from a site. They may also be used as interior controls below disturbed areas where runoff may occur in the form of sheet or rill erosion, and perpendicular to minor swales or ditch lines.

Sandbag Barrier – A sandbag barrier is a temporary sediment barrier consisting of stacked sandbags designed to intercept and slow the flow of sediment-laden sheet flow runoff. Sandbag barriers allow sediment to settle from runoff before water leaves the construction site.

Fiber Rolls – A fiber roll consists of materials rolled or bound into a roll and placed on a slope to intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide some removal of sediment from the runoff.

Gravel Bag Berm – A gravel bag consists of gravel bags that are installed end-to-end to form a barrier across a slope to intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide some removal of sediment from the runoff.

Check Dam – A check dam is a small device constructed of rock or sandbags placed across a natural or man-made channel or drainage ditch. Restricting the velocity of flow in the ditch reduces erosion of the drainage ditch.

Desilting Basin – Sediment-laden runoff is directed to a designed temporary basin that allows sediment to settle out before the runoff is discharged. A desilting basin is generally less extensive than a Sediment Basin.

Sediment Trap – A sediment trap is a small temporary ponding area with a controlled release structure formed by excavating or constructing an earthen embankment across a waterway or low drainage area. Its purpose is to collect and store sediment from sites cleared and/or graded during construction for a *short* period of time (6 months).

Sediment Basin – A sediment basin is designed with controlled release structures and is constructed by excavating or constructing an earthen embankment across a ditch or low drainage area. Its purpose is to collect and store sediment from sites cleared and graded during construction for *extended* periods of time before reestablishment of permanent vegetation and/or construction of permanent drainage structures. They should be located at the storm water outlet for the site, but not in any natural or undisturbed steam.

Off-Site Sediment Tracking

a) Stabilized construction entrances/exits – Stabilized entrance to reduce the tracking of mud and dirt onto public roads by construction vehicles.

b) Construction road stabilization – A temporary access road connecting existing public roads to a remote construction area. It is designed for the control of dust and erosion created by vehicular tracking.

E) Waste Management

Below are some methods to manage construction wastes to prevent runoff into the drainage system.

a) Spill Prevention and Control
b) Solid Waste Management
c) Hazardous Waste Management
d) Concrete Waste Management
e) Liquid Waste Management

Spill Prevention and Control

Each contractor must have a spill prevention and control plan in place prior to grading operations. The plan will include:

- Contact phone numbers, emergency and after-hours of responsible parties.
- Coordination with the City of Encinitas Public Works, Fire and Storm Water Department. Ability to control runoff through berms, gravel bags, sandbags or storm drain covers.
- Maintain absorbent material on site.

Basic Guidelines:

- Spills shall not be buried or washed with water.
- Water used for cleaning and decontamination shall not be allowed to enter storm drains or watercourses.
- Water overflow or minor water spillage shall be contained and shall not be allowed to discharge into drainage facilities.
- Proper storage, clean up and spill reporting instructions for hazardous materials stored or used on the project site shall be posted at all times.

Minor Spills

- Use absorbent materials and do not hose down or bury the material.
- Remove the absorbent material and dispose of properly.

Semi-Significant Spills

- Contain the spill.
- Notify the Inspector.
- Clean up with dry methods.
- If the spill occurs in dirt areas, contain the spill with an earthen dike.
- Dig up and properly dispose of the material.
- If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant Spills

- Notify the Inspector immediately and follow up with a report
- Notify 911
- Notifications to external agencies will require a phone call and a written report.
- Obtain the services of a Haz-Mat team immediately. Construction personnel shall not attempt to clean up the job site.

Solid Waste Management

This is the practice to minimize or eliminate the discharge of pollutants resulting from the creation of stockpiling, and removal of construction waste.

- Place trash cans on construction sites
- Prevent storm water run-on and run-off through the use of berms, dikes and temporary diversion structures.
- Solid waste storage areas shall be located at least 15 m from drainage facilities and watercourses and shall not be located in areas prone to flooding or ponding.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Have hazardous waste hauled to an appropriate disposal and/or recycling facility.

Hazardous Waste Management

This is the practice to minimize or eliminate the discharge of pollutants from construction site hazardous waste to the storm drain system or to watercourses.

Hazardous waste on construction projects is generated from the use of:

Petroleum products	Asphalt products
Concrete curing compounds	Pesticides
Palliatives	Acids
Septic Waste	Paints
Stains	Solvents
Wood Preservatives	Roofing Tar

Or any material deemed a hazardous waste in California, Title 22.

Major components of the hazardous waste management are education, proper storage and disposal procedures, maintenance and inspection.

Concrete Waste Management

This is the practice to minimize or eliminate the discharge of pollutants of concrete waste materials to the storm drain system. The discharge of pollutants to storm water from concrete waste can be prevented. Some ways to reduce concrete wastes in storm water are:

- Store dry and wet materials under cover
- Avoid mixing excess amounts of fresh concrete on-site
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams
- Perform the washout of concrete trucks off-site or in designated areas
- Do not allow excess concrete to be dumped on-site, except in designated areas
- On-site washout areas should be located at least 50 ft. from storm drains, creeks, ditches.
- Do not wash out slurries generated from saw-cutting, coring, grinding, grooving, and hydro-concrete demolition into the storm drain or drainage course.
- Educate employees, subcontractors and suppliers on concrete waste management
- Once concrete wastes are washed into the designated areas and allowed to harden, the concrete shall be broken up, removed, and disposed of.
- Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities shall be back-filled and repaired.
- Inspect weekly.

Liquid Waste Management

This is the practice to prevent discharge of pollutants to the storm drain system as a result of the creation, collection, and disposal of non-hazardous liquid waste.

Some ways to reduce liquid waste in storm water are:

- Employee, subcontractor and suppliers training
- Contain liquid waste in a controlled area, such as a holding pit, sediment basin or portable tank.
- Capture all liquid waste running off a surface, which has the potential to affect the storm drain system.
- Do not allow liquid wastes to flow or discharge uncontrolled.
- Inspect employees and subcontractors to ensure appropriate practices.
- Inspect containment areas.

APPENDIX F

SUGGESTED RESOURCES

SUGGESTED RESOURCES	HOW TO GET A COPY
The County of San Diego Low Impact Development Handbook; Stormwater Management Strategies . (2007). Presents guidance for LID stormwater planning and management techniques. Fact Sheets on LID BMPs are provided in the Appendices.	The County of San Diego The Department of Planning and Land Use 5201 Ruffin Road, Suite B San Diego, CA 92123 http://www.sdcounty.ca.gov/dplu/LID_PR.html www.sdcounty.ca.gov/dplu/
Better Site Design: A Handbook for Changing Development Rules in Your Community (1998) Presents guidance for different model development alternatives.	Center for Watershed Protection 8391 Main Street Ellicott City, MD 21043 410-461-8323 www.cwp.org
California Urban runoff Best Management Practices Handbooks (2003) for Construction Activity, Municipal, and Industrial/Commercial Presents a description of a large variety of Structural BMPs, Treatment Control, BMPs and Source Control BMPs	Los Angeles County Department of Public Works Cashiers Office 900 S. Fremont Avenue Alhambra, CA 91803 626-458-6959 www.cabmphandbooks.org
Caltrans Urban runoff Quality Handbook: Planning and Design Staff Guide (Best Management Practices Handbooks (1998) Presents guidance for design of urban runoff BMPs	California Department of Transportation P.O. Box 942874 Sacramento, CA 94274-0001 916-653-2975
Bioretention Manual (updated 2002) Presents guidance for designing, building, and maintaining bioretention facilities.	Prince George's County Watershed Protection Branch 9400 Peppercorn Place, Suite 600 Landover, MD 20785 http://www.co.pg.md.us/Government/AgencyIndex/DER/ESD/Bioretention/bioretention.asp
Contra Costa Clean Water Program *Stormwater C.3 Guidebook* Includes an integrated design approach to meet California Stormwater NPDES treatment and hydrograph modification management requirements using Low Impact Development site design techniques and facilities.	Contra Costa Clean Water Program 255 Glacier Drive Martinez, CA 94553 www.cccleanwater.org/construction/nd.php
Design of Stormwater Filtering Systems (1996) by Richard A. Claytor and Thomas R. Schuler Presents detailed engineering guidance on ten different urban runoff-filtering systems.	Center for Watershed Protection 8391 Main Street Ellicott City, MD 21043 410-461-8323
Development Planning for Stormwater Management, A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), (May 2000)	Los Angeles County Department of Public Works http://dpw.co.la.ca.us/epd/ or http://www.888cleanLA.com

SUGGESTED RESOURCES	HOW TO GET A COPY
Florida Development Manual: A Guide to Sound Land and Water Management (1988) Presents detailed guidance for designing BMPs	Florida Department of the Environment 2600 Blairstone Road, Mail Station 3570 Tallahassee, FL 32399 850-921-9472
Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters (1993) Report No. EPA–840-B-92-002. Provides an overview of, planning and design considerations, programmatic and regulatory aspects, maintenance considerations, and costs.	National Technical Information Service U.S. Department of Commerce Springfield, VA 22161 800-553-6847
Guide for BMP Selection in Urban Developed Areas (2001)	ASCE Envir. and Water Res. Inst. 1801 Alexander Bell Dr. Reston, VA 20191-4400 (800) 548-2723
Low-Impact Development Design Strategies - An Integrated Design Approach (June 1999)	Prince George's County, Maryland Department of Environmental Resource Programs and Planning Division 9400 Peppercorn Place Largo, Maryland 20774 *http://www.co.pg.md.us/Government/DER/PPD/pgcounty/lidmain.htm*
Maryland Stormwater Design Manual (1999) Presents guidance for designing urban runoff BMPs	Maryland Department of the Environment 2500 Broening Highway Baltimore, MD 21224 410-631-3000
National Stormwater Best Management Practices (BMP) Database, Version 1.0 Provides data on performance and evaluation of urban runoff BMPs	American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191 703-296-6000
National Stormwater Best Management Practices Database (2001)	Urban Water Resources Research Council of ASCE Wright Water Engineers, Inc. (303) 480-1700
Operation, Maintenance and Management of Stormwater Management (1997) Provides a thorough look at storm water practices including, planning and design considerations, programmatic and regulatory aspects, maintenance considerations, and costs.	Watershed Management Institute, Inc. 410 White Oak Drive Crawfordville, FL 32327 850-926-5310
Portland Stormwater Management Manual (2004) Includes design illustrations and criteria for bioretention facilities.	Environmental Services 1120 SW 5th Ave., Rm. 1000 Portland, OR 97204 503-823-7740 http://www.portlandonline.com/bes/index.cfm?c=35122&
Potential Groundwater Contamination from Intentional and Non-Intentional Stormwater Infiltration	Report No. EPA/600/R-94/051, USEPA (1994).

SUGGESTED RESOURCES	HOW TO GET A COPY
Preliminary Data Summary of Urban runoff Best Management Practices (August 1999) EPA-821-R-99-012	*http://www.epa.gov/ost/stormwater/*
Reference Guide for Stormwater Best Management Practices (July 2000)	City of Los Angeles Urban runoff Management Division 650 South Spring Street, 7th Floor Los Angeles, California 90014 *http://www.lacity.org/san/swmd/*
Second Nature: Adapting LA's Landscape for Sustainable Living (1999) by Tree People Detailed discussion of BMP designs presented to conserve water, improve water quality, and achieve flood protection.	Tree People 12601 Mullholland Drive Beverly Hills, CA 90210 (818) 623-4848 Fax (818) 753-4625
Start at the Source (1999) Detailed discussion of permeable pavements and alternative driveway designs presented.	Bay Area Stormwater Management Agencies Association 2101 Webster Street Suite 500 Oakland, CA 510-286-1255 www.basmaa.org
Stormwater Management in Washington State (1999) Vols. 1-5 Presents detailed guidance on BMP design for new development and construction.	Department of Printing State of Washington Department of Ecology P.O. Box 798 Olympia, WA 98507-0798 360-407-7529
Stormwater, Grading and Drainage Control Code, Seattle Municipal Code Section 22.800-22.808, and Director's Rules, Volumes 1-4. (Ordinance 119965, effective July 5, 2000)	City of Seattle Department of Design, Construction & Land Use 700 5th Avenue, Suite 1900 Seattle, WA 98104-5070 (206) 684-8880 *http://www.ci.seattle.wa.us/dclu/Codes/sgdccode.htm*
Texas Nonpoint Source Book – Online Module (1998)www.txnpsbook.org Presents BMP design and guidance information on-line	Texas Statewide Urban runoff Quality Task Force North Central Texas Council of Governments 616 Six Flags Drive Arlington, TX 76005 817-695-9150
The Practice of Watershed Protection by Thomas R. Shchuler and Heather K. Holland	Center for Watershed Protection 8391 Main Street Ellicott City, MD 21043 410-461-8323 www.cwp.org
Urban Storm Drainage, Criteria Manual – Volume 3, Best Management Practices (1999) Presents guidance for designing BMPs	Urban Drainage and Flood Control District 2480 West 26th Avenue, Suite 156-B Denver, CO 80211 303-455-6277

APPENDIX G

POTENTIAL PERMANENT TREATMENT BMP MAINTENANCE MECHANISMS

1. Project proponent agreement to maintain storm water BMPs: The City may enter into a contract with the project proponent obliging the project proponent to maintain, repair and replace the storm water BMP as necessary into perpetuity. Security may be required.
2. Assessment districts: The City may approve an Assessment District or other funding mechanism created by the project proponent to provide funds for storm water BMP maintenance, repair and replacement on an ongoing basis. Any agreement with such a District shall be subject to the Public Entity Maintenance Provisions above.
3. Lease provisions: In those cases where the City holds title to the land in question, and the land is being leased to another party for private or public use, the City may assure storm water BMP maintenance, repair and replacement through conditions in the lease.
4. Public entity maintenance: The City may approve a public or acceptable quasi-public entity (e.g., the County Flood Control District, or annex to an existing assessment district, an existing utility district, a state or federal resource agency, or a conservation conservancy) to assume responsibility for maintenance, repair and replacement of the permanent treatment BMP. Unless acceptable to the City, public entity maintenance agreements shall ensure estimated costs are front-funded or reliably guaranteed, (e.g., through a trust fund, assessment district fees, bond, letter of credit or similar means). In addition, the City may seek protection from liability by appropriate releases and indemnities. The City shall have the authority to approve storm water BMPs proposed for transfer to any other public entity within its jurisdiction before installation. The City shall be involved in the negotiation of maintenance requirements with any other public entities accepting maintenance responsibilities within their respective jurisdictions; and in negotiations with the resource agencies responsible for issuing permits for the construction and/or maintenance of the facilities. The City must be identified as a third party beneficiary empowered to enforce any such maintenance agreement within their respective jurisdictions.

The City may accept alternative maintenance mechanisms if such mechanisms are as protective as those listed above.

APPENDIX H

DEFINITIONS

"Advanced Treatment" means to use mechanical or chemical means to flocculate and remove suspended sediment from runoff from construction sites prior to discharge. Advanced treatment is required when an exceptional threat to water quality has been determined.

"Attached Residential Development" means any development that provides 10 or more residential units that share an interior/exterior wall. This category includes, but is not limited to: dormitories, condominiums and apartments.

"Automotive Repair Shop" means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.

"Commercial Development" means any development on private land that is not exclusively heavy industrial or residential uses. The category includes, but is not limited to: mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses, hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, automotive dealerships, commercial airfields, and other light industrial complexes.

"Commercial Development greater than 1 acre" means any commercial development that result in the disturbance of one acre or more of land.

"Detached Residential Development" means any development that provides 10 or more freestanding residential units. This category includes, but is not limited to: detached homes, such as single-family homes and detached condominiums.

"Directly Connected Impervious Area (DCIA)" means the area covered by a building, impermeable pavement, and/ or other impervious surfaces, which drains directly into the storm drain without first flowing across permeable vegetated land area (e.g., lawns).

"Environmentally Sensitive Areas" means areas that include, but are not limited to, all Clean Water Act 303(d) impaired water bodies ("303[d] water bodies"); areas designated as an "Area of Special Biological Significance" (ASBS) by the State Water Resources Control Board (*Water Quality Control Plan for the San Diego Basin* (1994) and amendments); water bodies designated as having a RARE beneficial use by the State Water Resources Control Board (*Water Quality Control Plan for the San Diego Basin* (1994) and amendments), or areas designated as preserves or their equivalent under the Multiple Species Conservation Program (MSCP) within the Cities and County of San Diego. The limits of Areas of Special Biological Significance are those defined in the *Water Quality Control Plan for the San Diego Basin* (1994 and amendments). Environmentally sensitive area is defined for the purposes of implementing SUSMP

requirements, and does not replace or supplement other environmental resource-based terms, such as "Environmentally Sensitive Lands," employed by Copermittees in their land development review processes. As appropriate, Copermittees should distinguish between environmentally sensitive area and other similar terms in their Local SUSMPs.

"Hillside" means lands that have a natural gradient of 25 percent (4 feet of horizontal distance for every 1 foot of vertical distance) or greater and a minimum elevation differential of 50 feet, or a natural gradient of 200 percent (1 foot of horizontal distance for every 2 feet of vertical distance) or greater and a minimum elevation differential of 10 feet.

"Hillside development greater than 5,000 square feet" means any development that would create more than 5,000 square feet of impervious surfaces in hillsides with known erosive soil conditions.

"Hydromodification" means the change in the natural hydrologic processes and runoff characteristics (i.e. interception, infiltration, overland flow, interflow and groundwater flow) caused by urbanization or other land use changes that result in increased stream flows and changes in sediment transport. In addition, alternation of stream and river channels, installation of dams and water impoundments, and excessive streambank and shoreline erosion are also considered hydromodification, due to their disruption of natural watershed hydrologic processes....

"Infiltration" means the downward entry of water into the surface of the soil.

"Low Impact Development (LID)" means a stormwater management and land development strategy that emphasizes conservation and the use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely reflect pre-development hydrologic functions.

"Maximum Extent Practicable (MEP)" means the technology-based standard established by Congress in the Clean Water Act 402(p)(3)(B)(iii) that municipal dischargers of urban runoff must meet. MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional lines of defense).

"Natural Drainage" means a natural swale or topographic depression which gathers and/or conveys runoff to a permanent or intermittent watercourse or waterbody.

"New Development" means land disturbing activities; surface grading for structural development, including construction or installation of a building or structure, the creation of impervious surfaces; and land subdivision.

"Pollutant" is any agent that may cause or contribute to the degradation of water quality such that a condition or pollution or contamination is created or aggrevated.

"Parking Lot" means land area or facility for the temporary parking or storage of motor vehicles used personally, or for business or commerce.

"Projects Discharging to Receiving Waters within Environmentally Sensitive Areas" means all development and significant redevelopment that would create 2,500 square feet of impervious surfaces or increase the area of imperviousness of a project site to 10% or more of its naturally occurring condition, and either discharge urban runoff to a receiving water within or directly adjacent (where any portion of the project footprint is located within 200 feet of the environmentally sensitive area) to an environmentally sensitive area, or discharge to a receiving water within an environmentally sensitive area without mixing with flows from adjacent lands (where the project footprint is located more than 200 feet from the environmentally sensitive area).
"Project Footprint" means the limits of all grading and ground disturbance, including landscaping, associated with a project.

"Post Project Flows" means the peak runoff flows and runoff volume anticipated after the project has been constructed, taking into account all permeable and impermeable surfaces, soil and vegetation types and conditions after landscaping is complete, detention or retention basins or other water storage elements incorporated into the site design, and any other features that would affect runoff volumes and peak flows.

'Pre-Development Hydrologic Conditions" means hydrologic conditions that would exist assuming no pavement, structures or hardened surfaces, site vegetation typical of native conditions in the climate and ecological zone of the site, topography similar to current conditions without structures, pavements, or artificially hardened surfaces, and soil types similar to current conditions without structures, pavements, or artificially hardened surfaces. The terms "pre-development runoff", "pre-development flow", or "pre-development volume", are the quantitative measures associated with this definition.

"Receiving Waters" means surface bodies of water, which directly or indirectly receive discharges from urban runoff conveyance systems, including naturally occurring wetlands, streams (perennial, intermittent, and ephemeral (exhibiting bed, bank, and ordinary high water mark)), creeks, rivers, reservoirs, lakes, lagoons, estuaries, harbors, bays and the Pacific Ocean. The Copermittee shall determine the definition for wetlands and the limits thereof for the purposes of this definition, provided the Copermittee definition is as protective as the Federal definition utilized by the United States Army Corps of Engineers and the United States Environmental Protection Agency. Constructed wetlands are not considered wetlands under this definition, unless the wetlands were constructed as mitigation for habitat loss. Other constructed BMPs are not considered receiving waters under this definition, unless the BMP was originally constructed in receiving waters.

"Retail Gasoline Outlets (RGO)" This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 vehicles per day.

Construction of treatment control BMPs is prohibited in "Receiving Waters" may not be used to satisfy SUSMP requirements

"Residential Development" means any development on private land that provides living accommodations for one or more persons. This category includes, but is not limited to: single-family homes, multi-family homes, condominiums, and apartments.

"Restaurant" means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet. Restaurants where land development is less than 5,000 square feet shall meet all SUSMP requirements except for structural treatment BMP and numeric sizing criteria requirement and hydromodification requirement.

"Sediment" means soils or other surficial materials eroded and then transported or deposited by the action of wind, water, ice, or gravity. Sediments can increase turbidity, clog fish gills, reduce spawning habitat, lower young aquatic organisms survival rates, smother bottom dwelling organisms, and suppress aquatic vegetation growth.

"Significant Redevelopment" means development that would create, add, or replace at least 5,000 square feet of impervious surfaces on an already developed site that falls under a priority development project categories. Where redevelopment results in an increase of less than 50% of the impervious surfaces of a previously existing development, and the existing development was not subject to SUSMP requirements, the numeric sizing criteria identified in Section 2, Step 8 apply only to the addition, and not to the entire development. When redevelopment results in an increase of more than 50% of the impervious surfaces of a previously existing development, the numeric sizing criteria applies to the entire development. Significant redevelopment includes, but is not limited to: the expansion of a building footprint; addition to or replacement of a structure; replacement of an impervious surface that is not part of a routine maintenance activity; and land disturbing activities related with structural or impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Significant redevelopment does not include trenching and resurfacing associated with utility work; resurfacing and reconfiguring surface parking lots; new sidewalk construction, pedestrian ramps, or bikelane on existing roads; and replacement of damaged pavement.

"Site Design BMP" also known as a significant part of Low Impact Development (LID), means any project design feature that reduces the amount of impervious surfaces, disconnects impervious surfaces, reduces creation or severity of potential pollutant sources, and/or reduces the alteration of the project site's natural flow regime. Redevelopment projects that are undertaken to remove pollutant sources (such as existing surface parking lots and other impervious surfaces) or to reduce the need for new roads and other impervious surfaces (as compared to conventional or low-density

new development) by incorporating higher densities and/or mixed land uses into the project design, are also considered site design BMPs.

"Source Control BMP (both structural and non-structural)" means land use or site planning practices, or structures that aim to prevent urban runoff pollution by reducing the potential for contamination at the source of pollution. Source control BMPs minimize the contact between pollutants and urban runoff. Examples include roof structures over trash or material storage areas, and berms around fuel dispensing areas.

"Storm Water Best Management Practice (BMP)" means any schedules of activities, prohibitions of practices, general good house keeping practices, pollution prevention and educational practices, maintenance procedures, structural treatment BMPs, and other management practices to prevent or reduce to the maximum extent practicable the discharge of pollutants directly or indirectly to receiving waters. Storm Water BMPs also include treatment requirements, operating procedures and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. This SUSMP groups storm water BMPs into the following categories: site design, source control, and treatment control (pollutant removal) BMPs.

"Storm Water Conveyance System" means private and public drainage facilities by which storm water may be conveyed to Receiving Waters, such as: natural drainages, ditches, roads, streets, constructed channels, aqueducts, storm drains, pipes, street gutters, or catch basins.

"Streets, Roads, Highways, and Freeways" means any project that is not part of a routine maintenance activity, and would create a new paved surface that is 5,000 square feet or greater used for the transportation of automobiles, trucks, motorcycles and other vehicles. For the purposes of SUSMP requirements, Streets, Roads, Highways and Freeways do not include trenching and resurfacing associated with utility work; applying asphalt overlay to existing pavement; new sidewalk, pedestrian ramps, or bikelane construction on existing roads; and replacement of damaged pavement.

"Treatment Control (Structural) BMP" means any engineered system designed and constructed to remove pollutants from urban runoff. Pollutant removal is achieved by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process.

APPENDIX I

INTERIM HYDROMODIFICATION CRITERIA – PROJECTS > 50 ACRES

Regional Water Quality Control Board Order R9-2007-0001 Provision D.1.g (6) (Municipal Permit) requires the County of San Diego and its NPDES Co-permittees to identify Interim Hydromodication Criteria (IHC) within 365 days of Order adoption (i.e., Januaery 24, 2008). The interim criteria will apply until the final Hydorograph Modification Management Plan (HMP) is implemented. The IHC is described in the order "as an interim range of runoff flow rates for which Priority Development Project post-project runoff flow rates and durations shall not exceed pre-project runoff flow rates and durations." The purpose of the IHC is to prevent development-related changes in stormwater runoff from causing, or further accelerating, stream channel erosion or other adverse impacts to beneficial stream uses. This memorandum provides background on fluvial geomorphology and hydro graph modification management, describes flow control criteria applied in other HMPs, and provides a recommendation for developing the San Diego IHC.

GEOMORPHIC CONTEXT
Stream channels form in response to the sediment and runoff delivered from the watershed, in combination with channel slope and underlying geology. In a stable stream channel, water and sediment are in balance so that the channel neither aggrades nor erodes over time, though the channel may adjust dynamically to individual storm events. There are environmental influences that alter channel geomorphology including fire, landslides and tectonic uplift or subsidence. When these changes occur, stream channels adjust over time to achieve a new dynamic equilibrium under the altered conditions.

Anthropogenic land use changes have altered the balance of runoff and sediment supply in many Southern California watersheds, beginning with the introduction of cattle grazing in the 19th century. Modern land development tends to increase the rate and volume of runoff delivered to stream channels, due to the increase in impervious surfaces and drainage efficiency. In the Southern and Central coast regions of California, these anthropogenic changes have caused degradation of many stream channels, and the magnitude and rate of these changes has not allowed for adjustment to a new equilibrium state.

HYDRO GRAPH MODIFICATION
Hydrograph modification refers to changes in the magnitude and frequency of stream flows as a result of urbanization, and the resulting impacts on the receiving channels in terms of erosion, sedimentation and degradation of in stream habitat. The degree to which a channel will erode is a function of the increase in driving forces (shear stress), the resistance of the channel (critical shear stress), the change in sediment delivery, and the geomorphic condition of the channel. Critical shear stress is the stress threshold above which erosion occurs. Not all flows cause erosion -- only those that generate shear stress in excess of the critical shear stress of the bank and bed materials. Urbanization increases the shear stress exerted on the channel by stream flows and can trigger erosion in the form of incision (channel

downcutting) or widening (bank erosion) or both. Increases in flow below critical shear stress levels have little or no effect on the channel.

The existing (pre-project) geomorphic condition of the receiving channel is important because it influences the response of the channel to the imposed stresses. Stream channels that have been previously impacted by earlier land use changes or direct interventions may not be in equilibrium with existing conditions, and these instabilities can influence channel response to hydrograph modification. For example, in an aggrading channel an increase in effective stress may increase channel stability by bringing sediment transport capacity closer to sediment load, while in an eroding channel a small increase in effective stress may cause a large increase in erosion. Changes in sediment or water delivery can also cause fundamental geomorphic thresholds to be crossed, for example by converting a wide and shallow braided channel into a narrow and deep single thread channel.

The standard for hydrograph modification management is to meet pre-project conditions. Where receiving stream channels are already unstable, it can best be thought of as a method to avoid accelerating or exacerbating existing problems. Where receiving stream channels are in a state of dynamic equilibrium, hydrograph modification management may prevent the onset of erosion or other problems.

HYDROLOGIC CRITERIA

It is well established that watershed urbanization tends to increase the frequency and duration of stormwater runoff, and the effect is most dramatic for smaller, more frequent runoff events (Beighley et al., 2003, Hollis 1975). Rainfall events that may have been absorbed or retained by a natural ground surface produce runoff when those surfaces are paved. These smaller events are also associated with stream flows that are most important for erosion, due to the combination of their magnitude and frequency. The most geomorphically-effective flows are those that are both large enough to move an appreciable amount of sediment and frequent enough to have a significant cumulative impact, generally around the 1- to 5-year recurrence interval *(Q1-Q5)* (Wolman & Miller, 1960). Much of the impact of hydrograph modification is an increase in the frequency of geomorphically effective flows.

INTERIM HYDROMODIFCATION CRITERIA (IHC)

The range of flows to be managed under the curve-matching option is expressed as a percentage of the 5-year peak flow (Q5) based on the understanding that dominant discharge for Southern CA streams is in the vicinity of Q5. The curve-matching range is presented as an estimate at this time and may be refined prior to adoption of the final IHC.

1. Estimated post-project runoff durations and peak flows do not exceed pre-project durations and peak flows. The project proponent must use a continuous simulation hydrologic computer model such as USEP A's Hydrograph Simulation Program-Fortran (HSPF) to simulate preproject and post-project runoff, including the effect of proposed IMPs, detention basins, or other stormwater management facilities. To use this method, the project proponent shall compare the pre-project and post-project model output for a rainfall record of at least 30 years, and shall show the following criteria are met:

a. For flow rates from 20% of the pre-project 5-year runoff event (0.2Q5) to the pre-project 10-year runoff event (Q10), the post-project discharge rates and durations shall not deviate above the pre-project rates and durations by more than 10% over more than 10% of the length of the flow duration curve. (Note that the O.2Q5 end of the range may be modified).

b. For flow rates from 0.2Q5 to Q5, the post-project peak flows shall not exceed pre-project peak flows. For flow rates from Q5 to Q10, post-project peak flows may exceed pre-project flows by up to 10% for a I-year frequency interval. For example, post-project flows could exceed pre-project flows by up to 10% for the interval from Q9 to Q10 or from Q5.5 to Q6.5, but not from Q8 to Q10. (Note that the O.2Q5 end of the range may be modified).

c. Implementation of Low Impact Development Integrated Management Practices (LID IMPs). The project proponent may implement LID IMPs to manage hydrograph modification impacts, using design procedures, criteria, and sizing factors (ratios of LID IMP volume or area to tributary area) specified by the Co-permittees. The Co-permittees' LID IMP designs and sizing factors shall be determined using continuous simulation of runoff from a long-term rainfall record.