4. Low Impact Development Required for Regulated Projects

Regulated projects shall be designed and constructed in accordance with Low Impact Development principals to mimic the site's predevelopment hydrology. Regulated projects are public and private development, redevelopment, and road projects meeting minimum criteria for size and approval date as follows:

- New development projects creating 10,000 square feet or more (until December 1, 2011) or 5,000 square feet or more (after December 1, 2011), of impervious surface collectively over the entire project site, including commercial, industrial, residential housing subdivisions (i.e., detached single-family home subdivisions, multi-family attached subdivisions (town homes), condominiums, and apartments), mixed-use, and public projects shall include the entire project in the treatment system design.
- Redevelopment of regulated projects altering **more than 50 percent** of the impervious surface of a previously existing development shall include the entire project, consisting of all existing, new, and/or replaced impervious surfaces, in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the entire redevelopment project). Exceptions exist for projects previously constructed with stormwater treatment systems in accordance with Provision C3 of the municipal stormwater permit.
- Redevelopment of regulated project altering **less than 50 percent** of the impervious surface of a previously existing development shall include only the new and/or replaced impervious surface of the project in the treatment system design.
- Road construction of 10,000 square feet or more of newly constructed contiguous impervious surface are regulated projects requiring treatment system design. Included in the definition of road projects are:
    - Construction of public and private streets and roads,
    - Construction of sidewalks and bicycle lanes built as part of the project,
    - Construction impervious trails greater than 10 feet wide or within 50 feet of the top of bank of a creek.

  Adding traffic lanes to widen existing streets or roads creates regulated projects with applicability as follows:

    - Altering **more than 50 percent** of the impervious surface of an existing road makes the entire project, consisting of all existing, new, and/or replaced impervious surfaces, subject to treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the entire street or road that has traffic lanes added).
    - Altering **less than 50 percent** of the impervious surface of an existing road makes only the new and/or replaced impervious surface of the project subject to treatment system design. However, if runoff from the existing traffic lanes and the added traffic lanes cannot be

separated, the treatment system must be designed and sized to treat stormwater runoff from the entire road.

Excluded from the definition of roads projects are:

- Sidewalks, bicycle lanes, or trails constructed with permeable surfaces,
- Sidewalks built as part of new streets or roads that direct stormwater runoff to adjacent vegetated areas,
- Bicycle lanes built as part of new streets or roads that are not hydraulically connected to the new streets or roads and that direct stormwater runoff to adjacent vegetated areas,
- Impervious trails built to direct stormwater runoff to adjacent vegetated areas, or other non-erodible permeable areas away from creeks or towards the outboard side of levees,
- Caltrans highway projects and associated facilities.

LID Source Control: All Regulated Projects shall implement onsite LID source control measures that, at a minimum, include the following:

- Minimize stormwater pollutants of concern in urban runoff through measures that plumb the following types of discharges to the sanitary sewer:
    - Discharges from indoor floor mat/equipment/hood filter wash racks or covered outdoor wash racks for restaurants;
    - Dumpster drips from covered trash, food waste and compactor enclosures;
    - Discharges from covered outdoor wash areas for vehicles, equipment, and accessories;
    - Swimming pool water, if discharge to onsite vegetated areas is not a feasible; and
    - Fire sprinkler test water, if discharge to onsite vegetated areas is not a feasible.
- Install properly design covers, drains, and storage precautions for outdoor material storage areas, loading docks, repair/maintenance bays, and fueling areas;
- Install properly designed trash storage areas;
- Install landscaping that minimizes irrigation and runoff, promotes surface infiltration, minimizes the use of pesticides and fertilizers, and incorporates other appropriate sustainable landscaping practices and programs such as Bay-Friendly Landscaping;
- Install efficient irrigation systems; and
- Install “No Dumping – Drains to Bay” medallions at catch basins. Obtain standard medallions from the City.

LID Site Design: All Regulated Projects shall implement LID site design that, at a minimum, includes the following:

- Limit disturbance of natural water bodies and drainage systems; minimize compaction of highly permeable soils; protect slopes and channels; and minimize impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies;
- Conserve natural areas, including existing trees, other vegetation, and soils;
- Minimize impervious surfaces;
- Minimize disturbances to natural drainages; and
- Minimize stormwater runoff by implementing one or more of the following site design measures
    - Direct roof runoff into cisterns or rain barrels for reuse.
    - Direct roof runoff onto vegetated areas.
    - Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
    - Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
    - Construct sidewalks, walkways, and/or patios with permeable surfaces.
    - Construct driveways, bike lanes, and/or uncovered parking lots with permeable surfaces.

LID Treatment System Design: All Regulated Projects shall design and install stormwater treatment systems to treat 100% of the amount of runoff defined for the Regulated Project's drainage area with LID treatment measures. LID treatment measures are harvesting and re-use, infiltration, evapotranspiration, or if these are infeasible, biotreatment. Infeasibility of harvesting and re-use, infiltration, or evapotranspiration at a project site may result from conditions including the following:

- Locations where seasonal high groundwater is within 10 feet of the base of the LID treatment measure,
- Locations within 100 feet of a groundwater well used for drinking water,
- Development sites where pollutant mobilization in the soil or groundwater is a documented concern,
- Locations with potential geotechnical hazards,
- Smart growth and infill or redevelopment sites where the density and/or nature of the project would create significant difficulty for compliance with the onsite volume retention requirement, or

- Locations with tight clay soils significantly limit the infiltration of stormwater.

Biotreatment systems shall be designed to have a surface area to accommodate a 5 inches/hour stormwater runoff surface loading rate. The planting and soil media for biotreatment systems shall be designed to sustain plant growth and maximize stormwater runoff retention and pollutant removal. Green roofs may be considered biotreatment systems that treat roof runoff only if they meet certain minimum specifications.

Restrictions on the Use of Infiltration Treatment Systems: Infiltration devices, are not allowed unless the designer demonstrates that the system will not cause or contribute to degradation of groundwater quality. An infiltration device is any structure that is deeper than wide and designed to infiltrate stormwater into the subsurface, including dry wells, injection wells, and infiltration trenches (french drains).

Infiltration devices are not allowed for treatment of runoff from areas of industrial or light industrial activity; areas subject to high vehicular traffic (i.e., 25,000 or greater average daily traffic on a main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage areas (e.g., bus, truck); nurseries; and other land uses that pose a high threat to water quality unless stormwater is first treated by a method other than infiltration

Infiltration devices shall not be placed in the vicinity of known contamination sites unless it has been demonstrated that increased infiltration will not increase leaching of contaminants from soil, alter groundwater flow conditions affecting contaminant migration in groundwater, or adversely affect remedial activities.

Infiltration devices shall not be located nearer than 100 feet horizontally from any known water supply wells, septic systems, and underground storage tanks with hazardous materials. Infiltration stormwater treatment systems require or are further restricted by the following:

- Implementation of appropriate pollution prevention and source control measures to protect groundwater at the project site, including the inclusion of a minimum of two feet of suitable soil to achieve a maximum 5 inches/hour infiltration rate for the infiltration system;
- Provision of adequate maintenance to maximize pollutant removal capabilities;
- Allowance of at least 10 feet of vertical distance from the base of any infiltration device to the seasonal high groundwater mark;

Alternative Compliance: MRP Provision C.3.e allows regulated projects that cannot comply with these treatment requirements to seek alternative compliance.

> **Option 1: LID Treatment at an Offsite Location:** A portion of runoff may be treated with LID treatment measures onsite or with LID treatment measures at a joint stormwater treatment facility **and** the remaining

portion treated with LID treatment measures at an offsite project in the same watershed. The offsite LID treatment measures must provide hydraulically-sized treatment of an equivalent quantity of both stormwater runoff and pollutant loading and achieve a net environmental benefit.

Option 2: Payment of In-Lieu Fees: A portion of the runoff may be treated with LID treatment measures onsite or with LID treatment measures at a joint stormwater treatment facility and the applicant may pay equivalent in-lieu fees to treat the remaining portion of runoff with LID treatment measures at a Regional Project. The Regional Project must achieve a net environmental benefit. Review the MRP Provision C.3.e for use and restrictions on this option.

Treatment System Numeric Sizing Criteria: Regulated projects shall have treatment systems designed to meet at least one of the following hydraulic sizing design criteria:

- **Volume Hydraulic Design Basis** – Treatment systems whose primary mode of action depends on volume capacity shall be designed to treat stormwater runoff equal to:
    - The maximized stormwater capture volume for the area, on the basis of historical rainfall records, determined using the formula and volume capture coefficients set forth in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998), pages 175–178 (e.g., approximately the 85th percentile 24-hour storm runoff event); or
    - The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology set forth in Section 5 of the California Stormwater Quality Association's Stormwater Best Management Practice Handbook, New Development and Redevelopment (2003), using local rainfall data.
- **Flow Hydraulic Design Basis** – Treatment systems whose primary mode of action depends on flow capacity shall be sized to treat:
    - 10 percent of the 50-year peak flowrate;
    - The flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths; or
    - The flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity.
    - **Combination Design Basis** – Treatment systems that use a combination of flow and volume capacity shall be sized to treat at least 80 percent of the total runoff over the life of the project, using local rainfall data.