

May 16, 2008
City of Modesto
Community and Economic Development Department and
Public Works Department

**STORM DRAINAGE DESIGN INTERIM POLICY FOR –
INFILL/REDEVELOPMENT PENDING THE ADOPTION & IMPLEMENTATION OF THE
NEW STORM WATER MASTER PLAN**

PURPOSE:

The purpose of this interim storm drainage design policy is to address some concerns with the current 2006 City of Modesto Standard Specifications regarding storm drainage design. In particular, there have been questions raised over whether the standards adequately spell out requirements for infill development and redevelopment. In addition, because of varying interpretations of infill and new redevelopment storm drainage requirements, both externally and intradepartmental, a definitive interpretation is duly warranted.

It is the intent of this interim policy to clarify any confusion and/or differences in the interpretation of the storm design standards by providing clear and concise requirements for infill, redevelopment and new development. The benefits of this policy will be to facilitate the improvement plan review process by creating faster turn-around, decrease the number of re-submittals, and improve communication between developers, private engineers, and City staff. Moreover, by implementing this interim policy, the City of Modesto will be protecting its interests by providing flood intervention, preventing safety issues or loss of life, reducing maintenance costs, minimizing inconveniences, and protecting against major property damage.

STORM DRAIN REQUIREMENTS – INFILL AND REDEVELOPMENT

A. APPLICABILITY

Infill and redevelopment shall be defined by all of the following criteria for the property:

1. Commercial parcels 3 acres or less
2. Must not be in a specific plan area
3. One legal lot surrounded by urban development on at least three sides (does not have to be directly adjacent to)
4. Served by existing underground utilities (sewer and water)
5. Redevelopment sites 3 acres or less including sites with existing buildings (site does not necessarily have to coincide within the City's Redevelopment Area)

B. SCOPE

There are two methods for draining storm water within infill and redevelopment areas – Positive Storm Drainage System (available in only certain areas as shown in Figure 3.1 from the 2008 Draft Storm Drainage Master Plan) and Containment On-Site (where no positive storm drainage is available – rockwell areas see Figure 3.7 of the SDMP). Stamped and signed storm drain calculations shall be required upon improvement plan submittal regardless of storm drain method used.

1. Positive Storm Drainage System – Defined as areas that drain to a gravity system or to an MID or TID lateral. If positive storm drainage is available, the following criteria, as well as all other federal and state requirements (i.e. the City of Modesto Guidance Manual for New Development Stormwater Quality Control Measures and CASQA’s Stormwater Best Management Practice Handbook for New Development and Redevelopment), is applicable:

- a. The site must store the volume of the 100-year, 24-hour storm ($R = 2.88''$) less the volume of the 5-year, 24-hour storm ($R = 1.80''$) which is allowed to flow to the positive storm drainage system. No volume of percolation is allowed. This equates to storing $1''$ over the entire site ($2.88'' - 1.80'' \approx 1''$) which must percolate within 48 hours. A geotechnical boring and percolation report are required. Percolation test shall be in the proposed percolation areas and at the correct depth. An absorption rate based on the observed percolation rate (with a minimum safety factor of 2) should be incorporated into the system design.
 - Note – The owner shall be responsible for maintaining all on-site storm drain infrastructure. The City of Modesto is not responsible for this maintenance.
- b. A hydrology study will be required to show no increase in discharge to the positive storm drain system. *If* discharging to an MID or TID lateral, restricted flow rates are currently established by existing drainage agreements in some locations. However, a flow rate of 1 to 5 cfs for the entire storm drain area has been allowed pending approvals for construction of a basin pump station from either MID or TID.
 - Note – Neither MID or the City of Modesto will execute a discharge agreement with a private developer because there is no control of the on-site facilities in terms of discharge quantity and quality.
- c. In areas that have historically experienced localized flooding (hot zones – see Figure 3.6 of the SDMP), a downstream facility capacity analysis will be required before connecting to the positive storm drainage system.

2. No Positive Storm Drainage System – For areas where no positive storm drainage is available, (rockwell areas) the following design criteria is applicable:

- a. The volume of the 100-year, 24-hour storm ($R = 2.88''$) must be completely contained on-site and percolate within 48 hours. A minimum of 50% of the volume shall be stored underground or in a basin in the percolation area. The other 50% of the storm volume may be stored above ground within the on-site top-of-curb provided the 100-year, 24-hour water level is at least 1' below the building(s) finished floor elevation.
- b. A geotechnical boring and percolation report are required. Percolation test shall be in the proposed percolation areas and at the correct depth. An absorption rate based on the observed percolation rate (with a minimum safety factor of 2) should be incorporated into the system design.

STORM DRAIN REQUIREMENTS – NEW DEVELOPMENT [Less than 3 acres]

A. **APPLICABILITY**

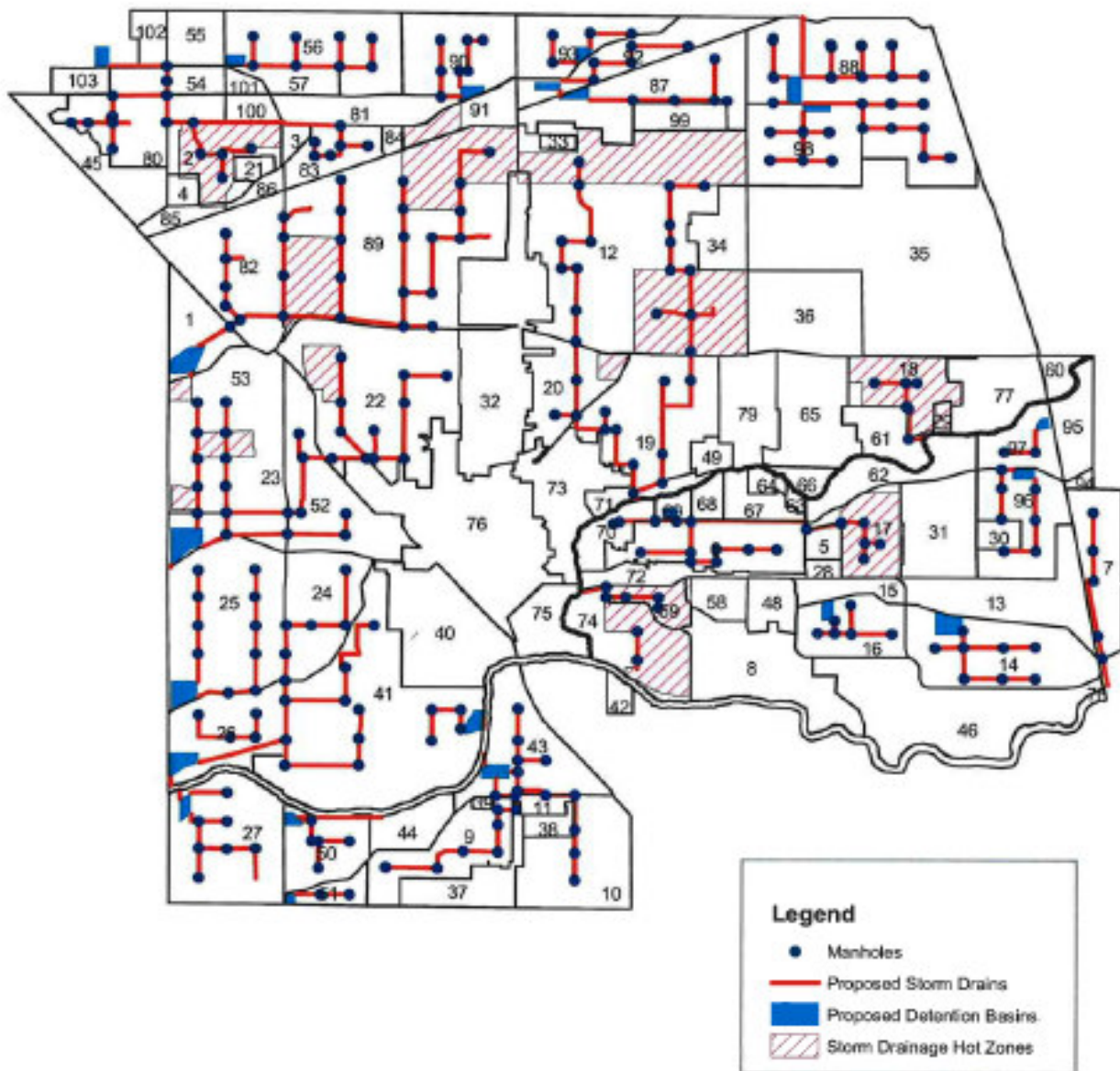
All new development that is not classified as infill or redevelopment

B. **SCOPE**

If the new development is located in a positive storm drainage area, then the requirements for infill projects shall be applicable. If not, all new development shall contain the 100-year, 6-day storm volume (R = 5.6") on-site. To achieve this requirement, the following design criteria are allowed:

1. Above ground storage to top-of-curb provided the water level is at least 1' below the building(s) finished floor elevation
2. Underground storage in a French Drain or basin in the percolation area
3. Volume of percolation over the 6 days beginning immediately

At a minimum, the surface and underground portion of the storage must be designed to hold the 100-year, 24-hour storm volume (R = 2.88"), where at least 50% is held underground or in a basin, and shall drain within 48 hours. A geotechnical boring and percolation report are required. Percolation test shall be in the percolation areas and at the correct depth. An absorption rate based on the observed percolation rate (with a minimum safety factor of 2) should be incorporated into the system design.



Stantec

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Client/Project

**CITY OF MODESTO
2008 STORM DRAINAGE MASTER PLAN**

FIGURE 3.6

Title

**HOT ZONES AND PROPOSED
IMPROVEMENTS WITHIN
THE SOI**

JANUARY 2008
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