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DEVELOPMENT ENGINEERING DESIGN BULLETIN

CATEGORY: **3 Improvement Plans, Storm Drain**
TITLE: **3.4.4 First Flush Treatment Vaults**

DATE: **June 1, 2008**

INTRODUCTION

All projects are required to treat storm run-off as mitigation for potential adverse impacts on water quality. ***(Refer to Design Bulletin 3.4.3 for design information on first flush).*** The favored option for public streets includes the use of underground vaults, such as the High Velocity Stormwater Interceptor made by Jensen Precast. When designed properly, the interceptor has proven to treat storm water to acceptable levels.

Projects utilizing these vaults will typically use underground detention when required to provide quantity mitigation.

The following is a discussion of design aspects that should be addressed when incorporating these facilities into a storm drain system.

DISCUSSION

A. As required by the Chico Municipal Code (C.M.C.), conveyance pipes must be designed to provide 2-fps scouring velocity when half full. The requirement applies to the on-line collection system and to all other pipes that will be publicly maintained. Pipes that provide storage only (not conveyance) are the only exception to the minimum velocity requirement.

B. The City does not have standards for anticipated pollutants, nor for levels of reduction. It is therefore the responsibility of the design engineer to include in their analysis, a discussion regarding the nature of anticipated pollutants and the relative reduction of the anticipated pollutants.

   1. Typical pollutants that can be expected include suspended solids as small as clay particles, oils and other hydrocarbons, fertilizers, and pesticides.

C. Design engineers must provide sizing calculations for treatment vaults. The design engineer or manufacturer's engineer can perform these calculations.

D. Where possible, treatment vault(s) shall be placed prior to the storage pipes. Pollutants and sediments can be easily maintained and the amount of sediment within the storage pipes will be reduced.

E. Treatment vaults must be located so that they are accessible to maintenance trucks. Storage pipes should have access for maintenance at both ends. ***(Refer to Design Bulletin 3.4.1 for maintenance of Quality & Quantity Facilities).***