CHAPTER 3

3.000 STORM DRAINAGE

3.010 General

The standards established by this chapter are intended to represent the minimum standards for the design and construction of storm drainage facilities.

All storm drainage retention and detention, water quality and erosion control shall conform to Department of Ecology's Stormwater Manual for the Puget Sound Basin, 1992 edition.

Stormwater facilities, including detention and water quality facilities, for residential plats with public roads shall be transferred to the City for ownership and maintenance at the time of final plat. Stormwater facilities for commercial developments, multi-family developments and short plats with private roads shall be maintained by the property owner(s); however, the facilities shall be located within easements that allow emergency maintenance by the City. Emergency maintenance performed by the City on private stormwater facilities shall be at the cost of the owner(s).

3.020 Design Standards

The design of storm drainage and/or retention/detention system shall depend on the system type and local site conditions. The design elements of storm drainage systems shall conform to the Stanwood Public Works Standards.

A. Retention/detention facilities may not be located in an area that is used to satisfy an open space requirement unless the design includes a vault or other approved underground system.

   The City shall make the sole determination whether the proposed underground stormwater facilities are compatible with open space and satisfy the intent of the City for open space amenities.

B. The use of commercial parking lots for retention/detention of storm water will be reviewed by the Public Works Director and approved or denied based on the design. All stormwater retention/detention systems must conform to the Puget Sound Stormwater Management Manual as outlined in the Stanwood Municipal Code. The retention/detention area shall be situated away from any area of pedestrian movement unless means for rapid closing of the areas is incorporated into the design. This type of retention/detention will consist of oversized pipes and an orifice control structure; however, it is the desire of the City that biofiltration swales and/or retention/detention ponds are the preferred method of stormwater retention/detention.

C. New detention facilities with slopes greater than 3:1 shall be fenced. Fences shall be vinyl coated chain link. Landscaping shall be provided around the

perimeter of the fence in accordance with the requirements of the Stanwood Municipal Code.

D. Maximum catch basin spacing shall be 200 feet on grades to 3 percent, 300 feet for grades >3 percent. 500 feet may be acceptable for distances between access structures. No surface water shall cross any roadway.

E. The General Notes that follow shall be included on any plans dealing with storm systems.

3.030 Storm Drain Construction General Notes

1. All workmanship and materials shall be in accordance with City of Stanwood standards and the most current copy of the "State of Washington Standard Specifications for Road, Bridge and Municipal Construction" (WSDOT/APWA).
2. Temporary erosion/water pollution measures shall be required in accordance with the "Puget Sound Stormwater Technical Manual."
3. Comply with all other permits and other requirements by the City of Stanwood or other governing authority or agency.
4. A preconstruction meeting shall be held with the City of Stanwood Construction/Inspection Department prior to the start of construction.
5. All storm mains and retention/detention areas shall be staked for grade and alignment by an engineering or surveying firm capable of performing such work.
6. Storm drain pipe shall meet the following requirements:
   A. Corrugated Polyethylene storm sewer pipe conforming to WSDOT/APWA standard specifications.
   B. Reinforced concrete pipe conforming to the requirements of AASHTO M 170.
   C. PVC pipe conforming to ASTM D 3034 SDR 35 or ASTM F 679 with joints and gaskets conforming to ASTM D 3212 and ASTM F 477.
   D. Ductile iron pipe conforming to the requirements of AWWA C 151, thickness class as shown on the plans.
7. Special structures, oil/water separators and outlet controls shall be installed per plans and manufacturers' recommendations.
8. All trenches located in the R.O.W. shall be backfilled with select material.
9. Provide traffic control plan(s) as required in accordance with MUTCD.
10. Call Underground Utilities at 1-800-424-5555 a minimum of 48 hours prior to any excavations.

3.040 Conveyance

Pipe: Storm drain pipe within a public right-of-way or easement shall be sized to carry the maximum anticipated runoff from the possible contributing area.

The minimum main size shall be 12 inches in diameter. Lateral lines may be 8 inches in diameter. Nothing shall preclude the City from requiring the installation of a larger-sized main if the City determines a larger size is needed to serve adjacent areas or for future service.

Channels: The City encourages the use of open vegetated channels to convey stormwater runoff when possible. Any open channels proposed to be located within public right-of-way shall require special approval from the Public Works Director.

3.050 Staking

All surveying and staking shall be performed by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work shall be licensed as a professional engineer or professional land surveyor by the State of Washington.

A preconstruction meeting shall be held with the City prior to commencing staking. All construction staking shall be inspected by the City prior to construction.

The minimum staking of storm sewer systems shall be as directed by the City Engineer as follows:

A. Stake centerline alignment every 50 feet with cut or fill to invert of pipe.

B. Stake location of all catch basins, manholes and other fixtures for grade and alignment with cut or fill to rim and invert of all pipes.

C. Grade stake or slope stake (as appropriate) at intervals, sufficient to control location, size and depth of retention/detention facilities.

3.060 Trench Excavation

Trench excavation shall be in accordance with WSDOT/APWA Standards and the Stanwood Public Works Standards Transportation Chapter.

3.070 Backfilling

Backfilling shall be in accordance with WSDOT/APWA Standards and Stanwood the Public Works Standards Transportation Chapter.

3.080 Street Patching and Restoration

Street patching and restoration shall be per WSDOT/APWA Standards, the Stanwood Public Works Standards Transportation Chapter and specific requirements of the agency with jurisdiction.