

CHAPTER 7: DESIGN GOALS

The purpose of the information in Chapters 7 through 10 is to provide engineers, designers, technicians, inspectors, and others with a reference to City of Redmond's goals and standards for the planning and design of clearing and grading activities and stormwater management facilities.

The following design goals are applied to clearing, grading, and stormwater system designs in Redmond. Design goals are broad targets that indicate desirable outcomes, even though they may not be fully met in specific situations. Failure to completely meet a general design goal (e.g., minimize erosion and sedimentation) is not intended to constitute a deficiency subject to legal or procedural challenge. The goal must, however, be reasonably addressed in specific situations. If an alternate approach to a project's stormwater management design would provide a significantly greater achievement of a goal without significant additional cost (monetary, land use, etc.) then the alternative could be considered an alternative that is reasonable and could be required under this chapter. Specific situations can only be evaluated on a case-by-case basis.

7.1 Provide a Basic System of Drainage

The drainage system shall:

- serve all lots and site improvements that are part of or affected by the project;
- direct runoff off of and away from buildings, traveled ways, and other developed surfaces; and
- provide water quality management where appropriate.

Basic systems protect walkways, crosswalks, etc., from concentrated runoff flows (for example, by adding catch basins upslope of the walkways).

7.2 Prevent Flooding of Inhabited Buildings

Overflow and emergency runoff routes shall be provided. Floodways adjacent to defined channels should accommodate flood flows (to at least the 100-year storm from fully developed upstream conditions). Projects that are located within the floodplain shall submit a Flood Control Zone Application (Appendix H) prior to submittal of final engineering drawings.

7.3 Minimize Erosion and Sedimentation

Consider both on-site and downstream locations; many detention criteria are based on protecting streams from scour as well as from flooding.

7.4 Minimize Water Quality Degradation

Much of the newer code is focused on water quality, an evolving field that needs sound engineering applications.

7.5 Don't Mix Clean and Untreated Stormwater

Stormwater that has been treated for water quality should not be mixed with stormwater that has not been treated for quality.

7.6 Protect Water-Related Habitat

Refer to the Critical Area Code Requirements (contained in the Redmond Community Development Guide).

7.7 Maintain Recharge and Subsurface Flow Patterns

Maintaining groundwater supplies is important but do not increase recharge over natural conditions without careful hydrogeologic studies to avoid land stability problems. In areas of existing land stability concerns recharge should be reduced. Water quality is critical for recharge areas. Infiltration is limited or not permitted in Wellhead Protection Zones.

7.8 Address "Real-World" Conditions

Engineering designs should recognize that field conditions, debris, and poor maintenance/repair practices exist which need to be considered so long-term viability is possible. Maintenance access and guidelines should be included with designs.

7.9 Provide for Operation and Maintenance

Elements of the system proposed need to be capable of operating in the municipal context, have good access for maintenance and operation, and need to avoid very specialized parts, equipment, and operator qualifications whenever possible.

7.10 Proceed Based on Clear, Professional Thinking

Engineering documents submitted for approval must have clear concepts (including a narrative description if concepts are non-standard or not obvious) and design explanations, calculations, and other supporting information to show that the construction drawings implement the concepts.

7.11 Meet Standards

Designs need to: (1) comply with City regulations and standards; (2) comply with accepted legal principles; (3) apply sound engineering principles; and (4) include alternatives or adjustments to enhance aesthetics.