

NATURAL APPROACH TO STORMWATER

Stormwater systems have traditionally focused on collecting rainwater into networks of pipes that transport water off-site quickly to detention basins and creeks. In Brookings these systems have also included water discharged from sump pumps. These systems can be costly to maintain and have negative side effects such as stream bank erosion and contaminated streams. Over the years Brookings has worked to improve the ways it handles stormwater, but often this is done on-site through small detention basins or even underground basins. Developments constructed before the detention regulations, with a high degree of impervious surfaces, still result in an overwhelming amount of runoff, causing ponding and flooding during rain events.

Brookings, like many communities, has been trying to take a more natural approach to stormwater, by preserving natural areas that help mimic pre-development drainage patterns. In the past this has included mitigation areas to offset the wetlands lost to development. However, as the city looks to the south where water already naturally drains the focus must shift to increasing the volume of stormwater absorbed into the soil or stored in ponds.

Protecting this area allows it to continue serving its natural function which is very important. A natural system requires less costly hard infrastructure and the gradual infiltration results in less erosion and contamination in the waterways.

DEVELOPMENT SUITABILITY

Figure 3.1 identifies areas that should be preserved and/or receive special consideration during development. The map was created by overlaying various environmental features to identify those areas where development should be avoided or will result in significantly higher development costs.

Developers, the Planning Commission, City Staff, and City Council should use the development suitability map to determine if proposed developments adequately protect and preserve sensitive environmental features. In the case that a proposed development falls within an area with potential suitability issues, it should undergo a detailed environmental analysis to determine how to address environmental concerns. Specifically a geotechnical assessment to determine the impact that ground water will have on the development and surrounding developments.

Factors Used to Create Suitability Map

- **Wetlands.** Areas of poorly drained soils characterized by permanent or temporary soil saturation and occasionally standing water. Wetlands perform an important ecological function absorbing and slowing floodwaters, and providing a habitat for plants and animals. Wetlands are protected by state and federal law and must be preserved.
- **Depth to Water.** A seasonal high water table is the highest average depth of water during the wettest season. The ground water level, or water table, may be high year round or just during periods of heavy rainfall. How high the water table rises and how long it stays at that height affects the use of the soil. A water table that rises above the surface is considered ponding.
- **Floodplain.** An area susceptible to being inundated by a flood event. The 100-year floodplain indicates a 1% chance of flooding in any given year, while the 500-year floodplain indicates a 0.2% chance of flooding in any given year.
- **Soil Drainage Class.** Drainage class refers to the depth, frequency, and duration of periods of saturation or partial saturation. Seven classes of natural drainage are used in soil surveys. They range from excessively drained to very poorly drained.
- **Other Features.** Additional environmental features were considered, including slopes and land cover. Environmental features are presented separately in maps in the appendix.