

## NATURAL ENVIRONMENT

This section concerns environmental features of the Basin area that have a bearing on the future growth and development of the town. These include the predominant natural constraints in the Basin area— flood plains, problem soil conditions, and steep slopes.

### FLOODPLAINS

It is generally the best planning practice to avoid creating major developments in floodplains, especially if alternative locations are available. Floodplain development can interfere with the natural flow of rivers during flood events, displacing flood waters to other areas that would not have otherwise flooded. It is often more costly to properly construct buildings and roads in flood plains. Flood events can be unpredictable and development in floodplain has an increased risk of property damage and personal injury. For these reasons, in Basin where there are ample areas not subject to flooding, major development in floodplains is not advisable.

Floodplains in the Basin area were mapped by as part of the National Flood Insurance Program in 1977. However this mapping only identified floodplains outside the town limits of Basin and floodplains inside the town were not mapped. The Federal Emergency Management Agency is currently in the process of creating floodplain maps for Basin, however these are not currently available (as of November 2011).

Since 2000, the Town of Basin has participated in the National Flood Insurance Program. The program makes reduced-cost flood insurance available for properties in Basin provide the Town adopts and enforces a local floodplain management program that meets federal guidelines. Basin's program applies to new buildings or substantial modifications of existing building located within the floodplain. Any such construction project must be “flood-proofed” using specific construction techniques or be elevated to minimize the potential for flood damage. However, the program is currently hampered by the lack of accurate floodplain maps--the Town must rely on other means to determine the boundaries of the floodplain.

The 1977 floodplain maps do show floodplains just outside the town limits, as the boundaries existed in 1977. Since 1977 the Town has annexed areas that have mapped flood plains. Most notably, the Town annexed about 43 acres east of the Big Horn River on either side of Torchlight Road (Lane 42) that includes significant floodplain areas. Future development of this area would be contingent on better delineation of the floodplain and avoiding or mitigating the problems of developing in the floodplain.

Inside the Basin town limits, it is likely that areas at the very east end of B Street, possibly including Tillard Avenue are within the floodplain. North from the East B Street area, the river bank is high enough that there probably is no flood plain in town there. Immediately outside of town, the Cook Addition subdivision contains a significant amount of mapped floodplain (the subdivision is located between the river and County Road 28, at the far east end of Wyoming Avenue).

In all, there is little area in and around Basin that is or is likely to be considered as floodplains. However,

there are other water-related conditions, primarily high groundwater conditions, that will impact the future development of Basin--these are discussed next.

## **SOIL LIMITATIONS**

Soil conditions can have a significant bearing on land development. Soil condition problems can generally be overcome by building techniques. However, these add to construction costs and may not completely resolve the problems.

The USDA Natural Resources Conservation Service (NRCS) has mapped soil in Big Horn County and identified several problem soil conditions. In Basin and the surrounding area, the identified problems include soils with:

- occasional flooding
- periodic water saturation
- high shrink-swell characteristics
- shallow depths to bedrock or large stones
- shallow depth to groundwater
- steep slopes

The NRCS has rated all the soil types in the Basin area in terms of their limitations for constructing dwellings and small commercial buildings. The ratings range from "no limitations", meaning soil conditions are very favorable for construction to the other extreme, "very limited" which indicates that the soil has one or more features that are unfavorable for construction and the limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

The Master Plan map series includes a [Soil Limitations Map](#) that shows the areas with soils that have no limitations and those with very limited soils. Generally, the problem soil areas in Basin are low areas near the Big Horn River (these areas extend beyond the river floodplain), steep slope areas on the west side of town, and wet areas on the north side of town. Most of Basin where existing buildings have been constructed are generally on soils with few or no limitations for construction of dwellings and small commercial buildings. Similar areas are preferable for future development and areas with very limited soils are much less suitable.

## **STEEP SLOPES**

While much of Basin has land of low to moderate slope, there are a few areas of steep slope that are problematic for future development. The Master Plan map series includes a [Land Slope Map](#) that identifies areas with steep slopes. These steep slopes exceed 25 percent grades and would be difficult areas for extensive development. These steep areas include isolated draws and ridgelines and the hills west of town. Generally, Basin has ample land of low or moderate slope for future development and expansion of the town.