

The following table gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A restrictive layer is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. Depth to top is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as low, moderate, or high, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as low, moderate, or high. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
		In	In				
067LO: Pleasant-----	---	---	---	---	Low	High	Low
067OF: Otero-----	---	---	---	---	Low	High	Low
067OG: Otero-----	---	---	---	---	Low	High	Low
Schamber-----	---	---	---	---	Low	Moderate	Low
067SA: Satanta-----	---	---	---	---	Moderate	Low	Low
067SB: Satanta-----	---	---	---	---	Moderate	Low	Low
067TF: Valent-----	---	---	---	---	Low	Moderate	Low
067TV: Valent-----	---	---	---	---	Low	Moderate	Low
Vona-----	---	---	---	---	Low	High	Low
067UE: Ulysses-----	---	---	---	---	Moderate	Moderate	Low
Colby-----	---	---	---	---	Low	Low	Low
067VO: Vona-----	---	---	---	---	Low	High	Low
081OG: Otero-----	---	---	---	---	Low	High	Low
Schamber-----	---	---	---	---	Low	Moderate	Low
1044: Atchison-----	---	---	---	---	Moderate	High	Low
1046: Atchison-----	---	---	---	---	Moderate	High	Low
1182: Belfon-----	---	---	---	---	Moderate	High	Low
1184: Bigbow-----	---	---	---	---	Moderate	Low	Low
1185: Bigbow-----	---	---	---	---	Moderate	Low	Low
1504: Dalhart-----	---	---	---	---	Moderate	Low	Low
1505: Dalhart-----	---	---	---	---	Moderate	Low	Low
1506: Dalhart-----	---	---	---	---	Moderate	Low	Low
1558: Dalhart-----	---	---	---	---	Moderate	Low	Low
1559: Dalhart-----	---	---	---	---	Moderate	Low	Low
Eva-----	---	---	---	---	Moderate	High	Low
1670: Eva-----	---	---	---	---	Moderate	High	Low
1671: Eva-----	---	---	---	---	Moderate	High	Low
Optima-----	---	---	---	---	Low	Low	Low
1672: Eva-----	---	---	---	---	Moderate	High	Low
1723: Feterita-----	---	---	---	---	Low	High	Low
1979: Haverson-----	---	---	---	---	Moderate	High	Low
1980: Happyditch-----	---	---	---	---	Low	Low	Low
1981: Happyditch-----	---	---	---	---	Low	Low	Low
1984: Happyditch-----	---	---	---	---	Low	Low	Low
3047: Optima-----	---	---	---	---	Low	Low	Low
3048: Optima-----	---	---	---	---	Low	Low	Low
3415: Satanta-----	---	---	---	---	Moderate	Moderate	Low
3506: Shore-----	---	---	---	---	Moderate	High	Low
3725: Ulysses-----	---	---	---	---	Moderate	Moderate	Low
3969: Wagonbed-----	---	---	---	---	Moderate	High	Low
Bo: Valent-----	---	---	---	---	Low	Moderate	Low
CIR: Cimarron River--	---	---	---	---	---	---	---
Cm: Colby-----	---	---	---	---	Low	Low	Low
Da: Dalhart-----	---	---	---	---	---	Moderate	Low
Db: Dalhart-----	---	---	---	---	---	Moderate	Low
Df: Dalhart-----	---	---	---	---	---	Moderate	Low

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
		In	In				
Dx:							
Dalhart-----	---	---	---	---	---	Moderate	Low
Otero-----	---	---	---	---	Low	High	Low
Go:							
Goshen-----	---	---	---	---	Moderate	High	Low
Lf:							
Lincoln-----	---	---	---	---	---	Low	Low
Lo:							
Pleasant-----	---	---	---	---	Low	High	Low
Lp:							
Pleasant-----	---	---	---	---	Low	High	Low
Ma:							
Penden-----	---	---	---	---	Low	Moderate	Low
Mb:							
Penden-----	---	---	---	---	Low	Moderate	Low
Mx:							
Penden-----	---	---	---	---	Low	Moderate	Low
Otero-----	---	---	---	---	Low	High	Low
My:							
Manter-----	---	---	---	---	Moderate	High	Low
Ot:							
Otero-----	---	---	---	---	Low	High	Low
Ra:							
Satanta-----	---	---	---	---	Moderate	Low	Low
Rb:							
Haxtun-----	---	---	---	---	Moderate	High	Low
Rm:							
Richfield-----	---	---	---	---	Low	High	Low
Rx:							
Richfield-----	---	---	---	---	Low	High	Low
Ulysses-----	---	---	---	---	Moderate	Moderate	Low
Tf:							
Valent-----	---	---	---	---	Low	Moderate	Low
Ua:							
Ulysses-----	---	---	---	---	Moderate	Moderate	Low
Ub:							
Ulysses-----	---	---	---	---	Moderate	Moderate	Low
Ue:							
Ulysses-----	---	---	---	---	Moderate	Moderate	Low
Colby-----	---	---	---	---	Low	Low	Low
Vo:							
Vona-----	---	---	---	---	Low	High	Low
Vx:							
Vona-----	---	---	---	---	Low	High	Low
Valent-----	---	---	---	---	Low	Moderate	Low
W:							
Water-----	---	---	---	---	---	---	---

