

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				
990: Abbyville-----	---	---	---	---	Low	High	Low
991: Abbyville, rarely flooded-	---	---	---	---	Low	High	Low
Kisiwa, occasionally flooded-----	---	---	---	---	Low	High	Low
1004: Albion-----	---	---	---	---	Low	Low	Low
1011: Albion-----	---	---	---	---	Low	Low	Low
Shellabarger----	---	---	---	---	Low	Low	Moderate
1057: Aguents-----	---	---	---	---	---	High	Low
1061: Arents, Earthen Dam-----	---	---	---	---	---	---	---
1062: Arents, Landfill	---	---	---	---	---	---	---
1070: Avans-----	---	---	---	---	Low	Moderate	Moderate
1071: Avans-----	---	---	---	---	Low	Moderate	Moderate
1072: Avans-----	---	---	---	---	Low	Moderate	Moderate
1191: Blazefork-----	---	---	---	---	Low	High	Low
1192: Blazefork-----	---	---	---	---	Low	High	Low
Kaskan-----	---	---	---	---	Low	Moderate	Low
1200: Buhler-----	---	---	---	---	Low	High	Low
Blazefork-----	---	---	---	---	Low	High	Low
1324: Carway-----	---	---	---	---	Low	High	Moderate
Carbika-----	---	---	---	---	Low	Moderate	Low
1357: Carway-----	---	---	---	---	Low	High	Moderate
Dillhut-----	---	---	---	---	Low	Low	Moderate
Solvay-----	---	---	---	---	Low	High	Moderate
1359: Clark-----	---	---	---	---	Low	Moderate	Low
Ost-----	---	---	---	---	Low	Moderate	Low
1428: Crete-----	---	---	---	---	Low	Moderate	Low
1429: Crete-----	---	---	---	---	Moderate	Moderate	Low
1553: Darlow-----	---	---	---	---	Low	High	Low
Elmer-----	---	---	---	---	Low	High	Low
1554: Dillhut-----	---	---	---	---	Low	Low	Moderate
1555: Dillhut-----	---	---	---	---	Low	Low	Moderate
Plev-----	---	---	---	---	Low	High	Moderate
1556: Dillhut-----	---	---	---	---	Low	Low	Moderate
Solvay-----	---	---	---	---	Low	High	Moderate
1725: Farnum-----	---	---	---	---	Low	Moderate	Low
Funmar-----	---	---	---	---	Low	Moderate	Low
1727: Funmar-----	---	---	---	---	Low	Moderate	Low
Taver-----	---	---	---	---	Low	High	Low
1804: Geary-----	---	---	---	---	High	Low	Low
1807: Geary, Moderately Eroded-----	---	---	---	---	High	Low	Low
1985: Hayes-----	---	---	---	---	Low	Moderate	Low
1986: Hayes-----	---	---	---	---	Low	Moderate	Low
Solvay-----	---	---	---	---	Low	High	Moderate
1987: Hayes-----	---	---	---	---	Low	Moderate	Low
Turon-----	---	---	---	---	Low	Low	Moderate
2204: Jamash-----	12-15	Bedrock (paralithic)	---	Moderately cemented	None	High	Low
Piedmont-----	32-36	Bedrock (paralithic)	---	Moderately cemented	None	High	Low

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
2205:		In	In				
Jamash-----	12-15	Bedrock (paralithic)	---	Moderately cemented	None	High	Low
Piedmont-----	32-36	Bedrock (paralithic)	---	Moderately cemented	None	High	Low
2206:							
Jamash-----	12-15	Bedrock (paralithic)	---	Moderately cemented	None	High	Low
Piedmont-----	32-36	Bedrock (paralithic)	---	Moderately cemented	None	High	Low
2207:							
Jamash-----	12-15	Bedrock (paralithic)	---	Moderately cemented	None	High	Low
2381:							
Kanza-----	---	---	---	---	Low	High	Moderate
Ninnescah-----	---	---	---	---	Low	High	Low
2390:							
Kaskan-----	---	---	---	---	Low	Moderate	Low
2391:							
Kaskan-----	---	---	---	---	Low	High	Moderate
2395:							
Kisiwa-----	---	---	---	---	Low	High	Low
2509:							
Ladysmith-----	---	---	---	---	Moderate	High	Low
2556:							
Langdon-----	---	---	---	---	Low	Low	Low
2587:							
Imano-----	---	---	---	---	Low	High	Low
2588:							
Longford, Moderately Eroded-----	---	---	---	---	Moderate	High	Low
2812:							
Mahone-----	---	---	---	---	Low	Low	Low
2948:							
Nalim-----	---	---	---	---	Low	Moderate	Low
2949:							
Naron, Moderately Eroded-----	---	---	---	---	Low	Low	Low
2950:							
Naron, Moderately Eroded-----	---	---	---	---	Low	Low	Low
2951:							
Nash-----	25-32	Bedrock (paralithic)	---	---	None	Low	Low
2952:							
Nash-----	25-32	Bedrock (paralithic)	---	---	None	Low	Low
Lucien-----	12-16	Bedrock (paralithic)	---	---	None	Moderate	Low
2953:							
Nash, Moderately Eroded-----	25-32	Bedrock (paralithic)	---	---	None	Low	Low
Lucien-----	12-16	Bedrock (paralithic)	---	---	None	Moderate	Low
2955:							
Nickerson-----	---	---	---	---	Low	Moderate	Low
2956:							
Nickerson-----	---	---	---	---	Low	Moderate	Low
2957:							
Nickerson-----	---	---	---	---	Low	Moderate	Low
Punkin-----	---	---	---	---	Low	High	Low
2958:							
Ninnescah-----	---	---	---	---	Low	High	Low
2959:							
Ninnescah, saline-----	---	---	---	---	Low	High	Low
3051:							
Ost-----	---	---	---	---	Low	Moderate	Low
3052:							
Ost-----	---	---	---	---	Low	Moderate	Low
Clark-----	---	---	---	---	Low	Moderate	Low
3170:							
Penalosa-----	---	---	---	---	Low	High	Low
3171:							
Penalosa-----	---	---	---	---	Low	High	Low
3180:							
Pratt-----	---	---	---	---	Low	Low	Moderate
3181:							
Pratt-----	---	---	---	---	Low	Low	Moderate
Turon-----	---	---	---	---	Low	Low	Moderate
3190:							
Punkin-----	---	---	---	---	Low	High	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				
3191:							
Punkin-----	---	---	---	---	Low	High	Low
Taver-----	---	---	---	---	Low	High	Low
3403:							
Sand Pit-----	---	---	---	---	---	---	---
3469:							
Smolan-----	---	---	---	---	Moderate	Moderate	Low
3510:							
Saltcreek-----	---	---	---	---	Low	Moderate	Low
Funmar-----	---	---	---	---	Low	Moderate	Low
Farnum-----	---	---	---	---	Low	Moderate	Low
3511:							
Saltcreek-----	---	---	---	---	Low	Moderate	Low
Naron, sandy substratum-----	---	---	---	---	Low	Low	Low
3512:							
Saltcreek-----	---	---	---	---	Low	Moderate	Low
Naron-----	---	---	---	---	Low	Low	Low
3520:							
Saxman-----	---	---	---	---	Low	Low	High
3530:							
Shellabarger, Eroded-----	---	---	---	---	Low	Low	Moderate
Albion-----	---	---	---	---	Low	Low	Low
3531:							
Shellabarger, Moderately Eroded-----	---	---	---	---	Low	Low	Moderate
Nalim-----	---	---	---	---	Low	Moderate	Low
3532:							
Shellabarger----	---	---	---	---	Low	Low	Moderate
3533:							
Shellabarger----	---	---	---	---	Low	Low	Moderate
3534:							
Shellabarger----	---	---	---	---	Low	Low	Moderate
3535:							
Shellabarger----	---	---	---	---	Low	Low	Moderate
Nalim-----	---	---	---	---	Low	Moderate	Low
3540:							
Solvay-----	---	---	---	---	Low	High	Moderate
3550:							
Spelvin-----	---	---	---	---	Low	Low	Moderate
3639:							
Taver-----	---	---	---	---	Low	High	Low
3640:							
Tivin-----	---	---	---	---	Low	Low	Low
3641:							
Tivin-----	---	---	---	---	Low	Low	Low
Dillhut-----	---	---	---	---	Low	Low	Moderate
3642:							
Tivin-----	---	---	---	---	Low	Low	Low
Willowbrook, occasionally flooded-----	---	---	---	---	Low	Moderate	Moderate
3643:							
Tobin-----	---	---	---	---	Moderate	Low	Low
3644:							
Turon-----	---	---	---	---	Low	Low	Moderate
Carway-----	---	---	---	---	Low	High	Moderate
3760:							
Urban Land, Protected-----	---	---	---	---	---	---	---
Blazefork, Protected-----	---	---	---	---	Low	High	Low
Kaskan, Protected-----	---	---	---	---	Low	Moderate	Low
3762:							
Urban Land-----	---	---	---	---	---	---	---
Darlow-----	---	---	---	---	Low	High	Low
Elmer-----	---	---	---	---	Low	High	Low
3763:							
Urban Land, Protected-----	---	---	---	---	---	---	---
Imano, Protected	---	---	---	---	Low	High	Low
3764:							
Urban Land, Protected-----	---	---	---	---	---	---	---
Mahone, Protected-----	---	---	---	---	Low	Low	Low
3765:							
Urban Land-----	---	---	---	---	---	---	---
Saltcreek-----	---	---	---	---	Low	Moderate	Low
Naron-----	---	---	---	---	Low	Low	Low

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
3766:		In	In				
Urban Land, Protected-----	---	---	---	---	---	---	---
Saxman, Protected-----	---	---	---	---	Low	Low	High
3767:							
Urban Land, Protected-----	---	---	---	---	---	---	---
Willowbrook, Protected-----	---	---	---	---	Low	Moderate	Moderate
3768:							
Urban Land, Protected-----	---	---	---	---	---	---	---
Yaggy, Protected	---	---	---	---	Low	High	Low
3900:							
Warnut-----	---	---	---	---	Low	High	Moderate
3926:							
Water-----	---	---	---	---	Low	---	---
3966:							
Willowbrook-----	---	---	---	---	Low	Moderate	Moderate
4004:							
Yaggy-----	---	---	---	---	Low	High	Low
4005:							
Yaggy-----	---	---	---	---	Low	High	Low
Saxman-----	---	---	---	---	Low	Low	High
4110:							
Zellmont-----	20-39	Bedrock (paralithic)	---	Moderately cemented	Low	Low	Moderate
Poxmash-----	48-53	Bedrock (paralithic)	---	---	Low	Low	Low

