

Table 12. Criteria for Evaluating Soil Limitations for Dwellings without Basements (adapted from NSSH Table 620-2).

Criteria	Limitations		
	Slight	Moderate	Severe
Texture of most limiting horizon (25-100 cm depth)	sand, loamy sand, sandy loam, loam, silt loam	clay loam, silty clay loam, sandy clay loam	silty clay, sandy clay, clay
Average rocks >7.5 cm diameter to 100 cm depth	<25%	25 – 50%	>50%
Wetness class	1, 2	3	4, 5
Depth to hard bedrock (R)	>100 cm	50 – 100 cm	<50 cm
Depth to soft bedrock (Cr)	>50 cm	<50 cm	-----
Slope	<8%	8 – 15%	>15%
Flooding/ponding	none	none	rare, occasional, frequent

PART IV. SOIL CLASSIFICATION

The reference used in this section is *Keys to Soil Taxonomy*, 11th Edition (Soil Survey Staff, 2010). Only the diagnostic horizons and features, orders, suborders, and great groups that exist or are plausible for mineral soils in the contest area of Southern High Plains are included on the scorecard. The total % organic C, base saturation, and pH will be provided at the contest sites for each horizon. Accumulation of secondary carbonates is a major morphological soil feature of our soils. Thus, stage of carbonate accumulation will be part of this contest. The stage of carbonate accumulation will be required for every horizon. Gypsum accumulation is common for some of our Aridisols. This accumulation is associated with saline lakes as well as some Permian-aged soils of the Rolling Plains east and southeast of Lubbock.

The following discussion of specific diagnostic horizons and taxa include abbreviated and summarized definitions. Complete definitions and classification keys are available in *Keys to Soil Taxonomy*, 11th Edition (Soil Survey Staff, 2010). This edition of the Keys will be used for all classification portions of this contest. It is the responsibility of each coach to familiarize contestants with the new edition. The Keys in neither total nor any part of the Keys will be allowed during the contest. However, simplified keys composed by a contestant or coach, will be allowed as part of the contest rules. Lubbock sits on the boundary between Ustic and Aridic moisture regimes. We have arbitrarily fixed certain political boundaries and soil characteristics to separate Ustic from Aridic. The attached map identifies the political boundary. All soils between Highway 84 north out of Lubbock and Highways 62 and 82 south from Lubbock and west to the New Mexico state line have the potential to have an aridic moisture regime (Figure 1.). Specifically, all sandy, loamy, and coarse loamy soils and all very shallow and shallow soils will be considered to have an aridic moisture regime. Vertisols within this area will be classified as Torrerts, unless they meet the aquic requirement for Vertisols. Vertisols outside this area will be classified as Usterts, unless they meet the aquic requirement for Vertisols.

All criteria in the Keys to Soil Taxonomy will be followed, such as the requirement of an ochric or anthropic epipedon for Aridisols.

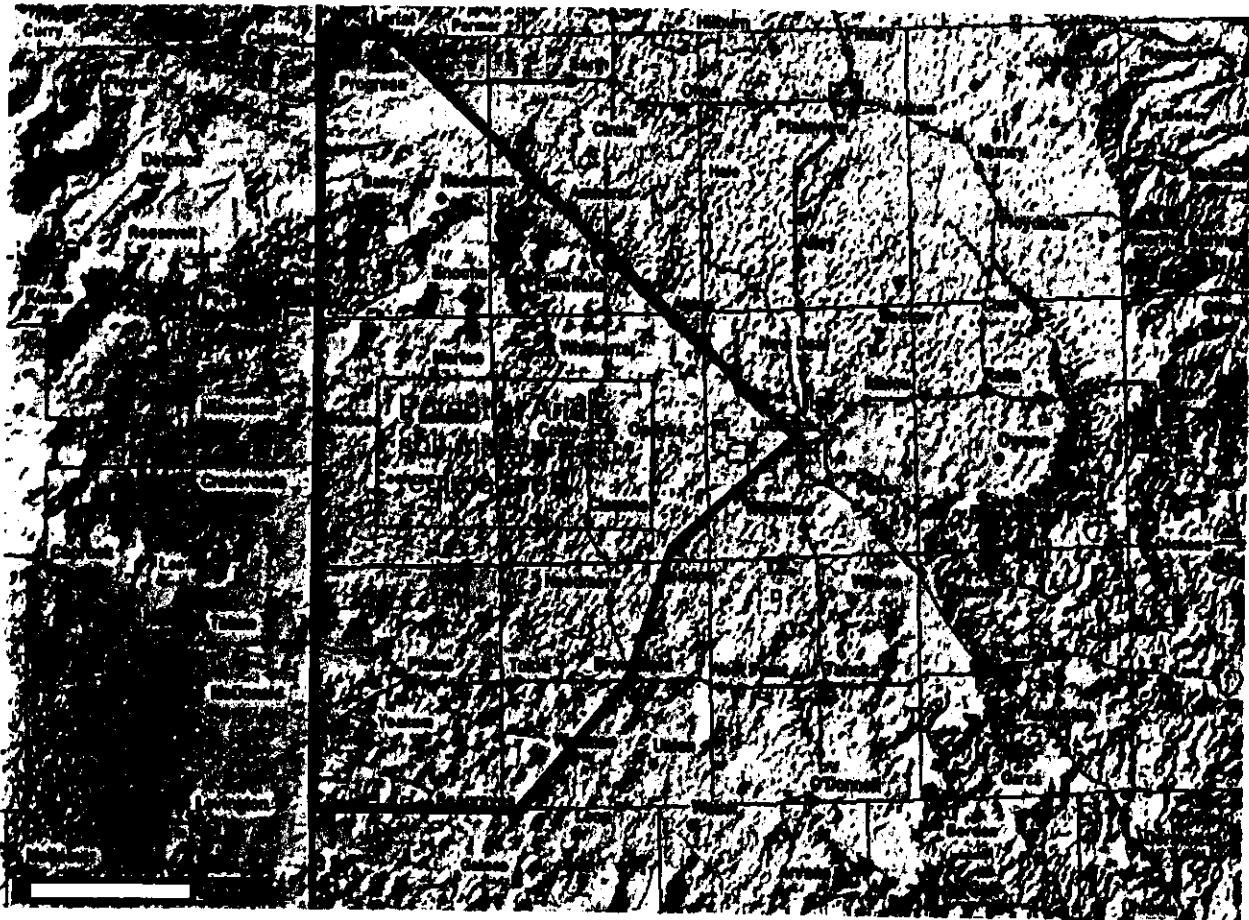


Figure 1. Potential Aridic Soil Moisture Regime Area.

Epipedons

The epipedon present at each contest site will be determined. If the moist soil meets the color, base saturation, thickness, lack of stratification, and organic carbon criteria for a mollic epipedon, it can be assumed that all other criteria for the mollic epipedon and Mollisols are met. If more than one epipedon is selected on the scorecard, no points will be awarded, even if the correct epipedon is marked.

An epipedon is a diagnostic horizon that forms at the surface. Only one epipedon can be present in mineral soils. An epipedon is not synonymous with an A horizon (e.g., a mollic epipedon may include part of the B horizon).

To avoid changes in classification due to plowing, the properties of an epipedon should be determined after the soil has been mixed to a depth of 18 cm.

- 1) Mollic – thick, dark colored horizon with high base status containing soil structure.
 - a) Structure cannot be both massive and hard when dry.
 - b) Does not contain rock structure or fine stratification in more than ½ the volume.
 - c) Color value is ≤3 moist and ≤5 dry. Chroma is ≤3 moist.
 - d) B.S. ≥ 50% by NH₄OAc sum of bases.
 - e) OC >0.6% (1% OM).
 - f) Thickness requirement
 - i) ≥ 10 cm if underlain directly by R or Cr horizon.
 - ii) ≥ 18 cm and 1/3 of the thickness between the soil surface and the upper depth of pedogenic carbonates, if pedogenic carbonates occur <75 cm below soil surface (e.g., if pedogenic carbonates occur at 60 cm, the thickness requirement = 20 cm).