

ESD Key for MLRA 77C; Southern High Plains, Southern Part								
surface layer	calcic	soil depth	water table	slope	elevation	Site Description	Site Name	Site Code
I. Upland soils without perched water table or subirrigated for all or part of growing season								
Soils with calcic layers present or carbonates throughout								
Soils Shallow								
gravelly loam	caliche	shallow	no	0 to 5	2000 to 5300	site is classified as an upland. It occurs on nearly level to gently sloping plains, typically adjacent to escarpments, along relict drainageways, and summit positions of knolls and interfluves. Soils are very shallow to shallow with caliche fragments throughout. The caliche beds in which the site occurs may be fairly soft or may be indurated. The site is generally located in the upper Ogallala formation and often occurs immediately above the hard caliche outcrops of the high plains escarpment; and in the erosional slopes just below. soils on this site are very shallow, well drained, calcareous, gravelly soils. They commonly have light colored, gravelly loam surfaces over thick beds of caliche. Caliche may be soft, or petrocalcic horizons (indurated caliche) may be present. Permeability of the surface layer and soft caliche is very slow to moderate. Petrocalcic horizons are impermeable. Available water holding capacity is very low and the inherent fertility is low. Plant growth and production is restricted by shallow depth and the presence of calcium carbonates.	Very Shallow 16-21" PZ	R077CY037TX
loamy fine sand	yes	shallow to moderately deep	no	0 to 5	3550 to 4330	This site occurs on nearly level to gently undulating landscapes on upland plains. Slopes range from 0 to 5 percent but are usually less than 3 percent. Steeper microslopes may occur where wind blowing of unprotected surface soils has formed low hummocks around shrubs. Hummocks are less than two feet high. Direction of slope varies and is not significant. Elevation ranges from 3,550 to 4,300 feet above sea level. These are well drained, moderately deep to deep soils overlying calcic and petrocalcic layers. The surface textures are typically loamy fine sand with some fine sand. The textures of the subsurface layers which occur at depths of less than 20 inches, are sandy clay loam, fine sandy loam and loam. The depth to the petrocalcic layer ranges from 25 to 40 inches and the depth to the calcic layer ranges from 33 to 60 inches. Permeability is moderate to moderately rapid above the calcic layers. The available water-holding capacity is moderate. The effective rooting depth is about 40 inches.	Sandy Plains	R077CY056NM
Soils moderately deep to deep								
Soils have calcic horizon within perennial plants rooting depth								
loam to clay loam	calcic horizon	deep	no	0 to 12	2400 to 4600	site occurs as nearly level to strongly sloping plains, slightly concave plains associated with playa lake basins, slightly convex playa terraces, and adjacent to draws or escarpments. It is an upland plains site with slopes ranging from nearly level to strongly sloping. soils have disseminated secondary calcium carbonates present throughout the soil profile. Some have argillic subsurface horizons and all have calcic horizons. Subsurface carbonates are in the form of films, threads, concretions, masses, and nodules.	Limy Upland 16-21" PZ	R077CY028TX
Soils do not have calcic horizon within perennial plants rooting depth								
loamy	clacareous	deep	no	3 to 12	2600 to 4400	site consists of very deep, gently sloping to strongly sloping calcareous loamy soils with light colored surfaces and moderately permeable clay loam to sandy clay loam subsoils. Slopes dominantly range from 3 to 12 percent, (1) Convex, linear, and curvilinear dunes on the leeward (eastern) margin of playa or salt lake basins to nearly level to very gently sloping playa terraces and (2) Interdunes within dune complexes on the leeward side of playa basins or salinas. soils are calcareous (limy) throughout and the water holding capacity is moderate to low. The high calcium carbonate content limits the plant community to tolerant plant species. Plant roots will easily penetrate the soil if not severely compacted. Fertility is low these soils have a moderate permeability rate.	High Lime 16-21" PZ	R077CY026TX
Soils without calcic layers present or carbonates throughout								
Loamy Fine Sand and fine Sand Surface, slopes 5 percent or less, uplands and shallow swales.								

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loamy fine sand	no	deep	no	0 to 5	2300 to 5300	upland site is well drained and composed of nearly level to undulating gently sloping plains, concave plains in broad, shallow basins and swales, and adjacent to natural drainage ways. Elevations generally range from 2300 to 5300 feet. Surface textures range from loamy fine sands to fine sands with slopes ranging from 0 to 5 percent and runoff is negligible to very low. Sandy site is made up of moderately deep to very deep, nearly level to gently sloping, noncalcareous loamy fine sands on uplands and shallow swales. This site was formed from loamy eolian sediments. Slopes range from 0 to 5 percent and elevation ranges from 2,300 to 5,300 feet. These soils are moderately well to well drained and permeability is moderate to slow.	Sandy 16-21" PZ	R077CY035TX
Fine Sandy Loam surface, slopes 5 percent or less, uplands and in shallow playas or depressions and swales.								
sandy loam	no	deep	no	0 to 5	2500 to 4700	site is moderately deep to very deep, moderately well to well drained and composed of nearly level to gently sloping plains, concave plains in broad, shallow basins and swales, and adjacent to natural drains. Elevations generally range from 2,500 to 4,700 feet. Surface textures are fine sandy loams with slopes ranging from 0 to 5 percent and runoff is negligible to medium. site is made up of moderately deep to very deep, nearly level to gently sloping, noncalcareous fine sandy loams on uplands and in shallow playas or depressions and swales. This site was formed from loamy eolian sediments or wind-altered lacustrine sediments. Slopes range from 0 to 5 percent and elevation ranges from 2,500 to 4,700 feet. These soils are moderately well to well drained and permeability is moderate to moderately slow.	Sandy Loam 16-21" PZ	R077CY036TX
Fine Sand and Loamy Fine Sand Surface, slopes 2 percent or less, nearly level to gently undulating plains.								
fine sand	no	deep	no	0 to 5	3550 to 4330	Site occurs on nearly level to gently undulating plains. Slopes range from 0 to 5 percent but are usually less than 2 percent. Direction of slope varies and is not significant. Elevation ranges from 3,550 to 4,330 feet above sea level. These are deep, well drained soils. The surface textures are fine sand and loamy fine sand. The texture of the subsurface layers is sandy clay loam which, occurs at depths of 20 to 40 inches. Permeability is moderate. The available water-holding capacity is low. The effective rooting depth is about 50 inches. The surface soils, if unprotected by plant cover and organic residues, become wind-blown, and low hummocks are formed.	Loamy Sand	R077CY052NM
Fine Sand and Loamy Fine Sand Surface, slopes 0 to 5 percent or less, Duned ridges, little structure								
fine sand	no	deep	no	0 to 5	3300to 4800	This site is an upland with very sandy, undulating to hilly topography and consists of very deep, excessively drained, rapidly permeable eolian deposits. The soils are on duned ridges on convex uplands and sideslopes or plains. Due to the sandy nature of the material, very little runoff is generated and since these soils generally occur on the highest positions on the landscape, no runoff is received from other sites. The soils for the Sand Hills ecological site have undulating to rolling, deep fine sands with high water infiltration rates and low water storage capacity. The soils have no structure and no well defined horizons; however, some soils may contain lamellae of generally finer textured material which may affect infiltration. Fertility is very low but plant available water is high.	Sand Hills 16-21" PZ	R077CY034TX
Loam and clay loam Surface, slopes 0 to 5 percent or less, moderately alkaline, Deep to Very Deep, nearly level to moderately sloping upland plateau.								
loam and clay loam	no	very deep	no	0 to 5	2800 to 4500	This site occurs on the large nearly level to moderately sloping upland plateau formed in moderately alkaline windblown loess deposits. The elevation ranges from 2,800 feet to 4,500 feet above sea level. Slopes range from 0 to 5 percent. This site consists of very deep, well drained, moderately permeable soils that formed in loam and clay loam loess deposits. These are very well developed soils on old stable landforms and are moderately alkaline throughout. The soils have dark colored loam or clay loam surfaces and clay loam subsurface layers. Permeability is moderate, and available water holding capacity is moderate to high. The fertility of these soils is high and the root zone is easily penetrated by plant roots so the production capacity is high	Deep Hardland 16-21" PZ	R077CY022TX
II. Soils with perched water table or subirrigated for all or part of growing season								
Soils without strong saline soil water influence								

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surface layer	calic	soil depth	water table	slope	elevation	Site Description	Site Name	Site Code
loamy	calcareous	deep	yes	0 to 2	2600 to 4300	site occurs as valley floors and along stream flood plains. It receives flooding occasionally. Slopes are nearly level to very gently sloping. The site is found along drainages that dissect the high plains. The site may or may not be channeled. Generally speaking, draws with large drainage areas have defined channels. This site is associated with drainages such as Palo Duro Creek, Coldwater Creek, Hannas Draw, Palo Duro Draw, Tierra Blanca Creek, upper Mulberry Creek, and upper McClellan Creek. These are upper drainages of the Canadian and Red River Systems. site consists of deep, well drained, calcareous, alluvial soils on nearly level to gently sloping flood plains and valley floors. This site is not frequently flooded but flooding does occur occasionally during major rainfall events. The soils have dark colored loam or clay loam surfaces and clay loam subsurface layers. Permeability is moderate, and available water holding capacity is medium to high.	Draw 16-21" PZ	R077CY023TX
loamey or clay loam	calcareous	deep	yes	0 to 2	2600 to 4300	site occurs as valley floors and along stream flood plains. It receives flooding occasionally. Slopes are nearly level to very gently sloping. The site is found along drainages that dissect the high plains. The site may or may not be channeled. site consists of deep, well drained, calcareous, alluvial soils on nearly level to gently sloping flood plains and valley floors. This site is not frequently flooded but flooding does occur occasionally during major rainfall events. The soils have dark colored loam or clay loam surfaces and clay loam subsurface layers. Permeability is moderate, and available water holding capacity is medium to high.	Playa 16-21" PZ	R077CY027TX
Strong saline water influence								
silty clay	no	deep	yes	0 to 3	2700 to 4300	These nearly level soils are in broad shallow, relatively linear relict valleys and drainage ways, and associated saline basins. Slope ranges from 0 to 3 percent. Elevation is 2700 to 4300 feet. This site rarely floods for very brief periods of time but can frequently pond for brief periods. The water table occurs at a depth of 0 to 80 inches during the fall through spring months during most years. Landform: Broad, shallow, relatively linear relict valleys and drainage ways and linear to slightly concave benches of saline basins. ecological site consists of very deep, very poorly to well drained, very slowly permeable to moderately rapidly permeable soils that formed in loamy eolian and alluvial sediments and valley fill.	Wet Saline 16-21" PZ	R077CY689TX