

ESD Key for MLRA 77B; High Plains, Northwestern Part								
Surface texture	calci influe	soil depth	water table	slope	elevation	Site Description	Site Name	Site Code
I. Soils Shallow less than 20 inches to rock								
A. Soils with strong calcic layer								
Gravelly loam	petrocalcic and caliche	10 inches	no	0 to 5	4300 to 5300	Site occurs on the convex position of low ridges between deeper soils and swales. The site is on nearly level to gently undulating landscapes of the uplands. Slopes range from 0 to less than 5 percent. Elevation ranges from 4,300 to 5,300 feet above sea level. Soils are well-drained and very shallow over petrocalcic layers and hard, platy caliche layers. The surface textures are gravelly loam, fine sandy loam and gravelly fine sandy loam. The textures of the subsurface layers are fine sandy loam, loam, gravelly loam and gravelly fine sandy loam. The caliche and petrocalcic layers are normally at depths less than 10 inches. Permeability is moderate above the petrocalcic and caliche layers. The available water-holding capacity is moderate to high. The effective rooting depth is 10 inches or less.	Shallow	R077BY031NM
B. Soil without calcic layer								
loams and SFL	indurated caliche	6 to 20 inches	no	0 to 9	4800 to 6100	Site occurs on nearly level to moderately sloping narrow ridge tops or on the convex portion of the landscape. Slopes are generally 0 to 9 percent. Soils that characterized this site are loams, fine sandy loams and clay loams that average less than 20 inches in depth and more than five inches in depth. The underlying materials are indurated caliche. Permeability of these soils is slow to moderate. The available water-holding capacity is low. Effective rooting depth is from 6 to 20 inches.	Very Shallow	R077BY016NM
stony loam to clay loam	no	20 inches or less	no	5 to 15	5500 to 7500	Topography is gently sloping to moderately steep, elevations of 5,500 to 7,500 feet, complex of small pockets of soil and sandstone outcrop in the form of ledges and escarpments. Slopes are usually 5 to 15 percent, well drained, shallow soils on sandstone bedrock, surface is flaggy or stony loam to clay loam. Sandstone bedrock is at depths of less than 20 inches, Rock fragments make up 5 to 35 percent of the soil profile and occupy 0 to 25 percent of the surface.	Shallow Sandstone	R077BY005NM
II. Soils Moderately Deep to Deep								
A. Soils with perched water table or subirrigated for all or part of growing season								
1. Soil Sandy at surface								
Loamy fine sand	no	60 inches or more	yes	0 to 1	2600 to 4500	site occurs along sandy stream channels and on fluvial terraces along streams and is intermittently flooded. Slopes are generally level to slightly undulating. There is usually a water table at a fairly shallow depth but the soil is not usually wet to the surface. Very deep soils are alluvial and very sandy in texture. Since these are geologically young sediments, there is no horizon development. They are very low in organic matter and low in fertility. Infiltration of moisture is rapid and storage capacity is very low.	Sandy Bottomland 12-17" PZ	R077BY700TX
2. Soil Loamy at surface								
Loamy soils with additional summer monsonal moisture, elevation approximately 4000 feet or less								
Fine sand loams	calcareous	60 inches or more	yes	0 to 2	3500 to 4600	Site occurs on valley floors and along stream flood plains. Most areas flood about once each 1 to 5 years for short duration. Slopes are nearly level to very gently sloping. The site is found along ancient drainage ways that dissect the high plains. The site may or may not be channeled. Generally, draws with large drainage areas have defined channels. This site is associated with drainages such as Carrizo Creek and Rita Blanca Creek. These are upper drainages of the Canadian River Systems. site is made up of deep, nearly level, calcareous fine sandy loams on nearly level flood plains. They formed in moderately coarse textured calcareous alluvial materials. The subsurface horizons are fine sandy loam with thin strata of darker and lighter colored loam and loamy sand. Visible calcium carbonate ranges from 0 to about 5 percent. Below this is dominantly sandy loam or loamy sand, with many thin strata of loam, sandy clay loam, and clay loam materials.	Draw 12-17" PZ	R077BY725TX
Loamy soils without additional summer monsonal moisture, elevation approximately 4000 feet or more								
loamy to clayey	no	30 to 60 inches	yes	0 to 3	4300 to 7500	Topography is lower lying drainageways, playa lakes, or other depressional areas. Slopes generally range from 0 to 3 percent, deep, moderately and well drained loam to clayey soils,	Swales	R077BY007NM
Loamy soils with moderately alkaline and moderately saline subsurface								
silty clay loam to loam to clay	no	60 inches or more	yes	0 to 5	3000 to 6000	site is on slightly depressional to gently sloping broad flood plains located between the natural channel and the more steeply sloping parts of the adjacent alluvial fans. Elevation ranges from 3,000 to 6,000 feet above sea level. Slopes range from 0 to 5 percent but are usually less than 3 percent. Soil is deep and well drained. The surface texture is silty clay loam, clay loam or clay. They are moderately alkaline and moderately to strongly saline. Permeability is very slow. The available water-holding capacity is high. Effective rooting depth is 60 inches or more.	Saline	R077BY058NM
Loamy soils with fluctuating water table 1 to 4 feet below the surface for most of the growing season								
silty clay loam to loamy fine sand	no	60 inches or more	yes	0 to 4	4300 to 5900	Topography is nearly level to gently sloping bottoms and fans. The soils frequently have a fluctuating water table at a depth of 1 to 4 feet. The site receives water from the surrounding sites either as shallow groundwater or surface runoff. Slopes are concave and range from 0 to 4 percent. Soils moderately deep to deep, slightly saline and poorly drained. The texture of the surface layer is silty clay loam to loamy fine sand. The permeability is moderate to slow. The effective rooting depth is 40 to 60 inches. These soils have a fluctuating water table at depths of 1 to 4 feet much of the growing season.	Meadows	R077BY008NM
B. Soils without perched water table or not subirrigated for all or part of growing season								
1. Soils with significant gravel at the surface								

Surface texture	calci influe	soil depth	water table	slope	elevation	Site Description	Site Name	Site Code
silt loam, loam, clay loam	no	20 to 60 inches	no	0 to 9	4000 to 5000	Site is on nearly level to undulating plains. Elevation ranges from approximately 4,000 to 5,000 feet above sea level. Slopes range from 0 to 9 percent. moderately deep and deep, well drained soils on uplands and alluvial fans. The surface layers are silt loam, loam or clay loam. The subsoil and substratum ranges in texture from sandy loam through clay loam. The surface runoff is medium. The permeability is slow to moderately rapid. Infiltration rate is medium to moderately slow. Available water-holding capacity is high. Effective rooting depth is 20 to 60 inches or more.	Gravelly Loam	R077BY026NM
sand or loamy sand	no	60 inches or more	no	1 to 25	4800 to 7200	Topography is convex terraces along the tops of ridges and on slopes between low ridges. Slopes are convex and range from 1 to 25 percent. Soils of the site are deep and excessively drained. The surface layer is sand or loamy sand about 4 to 7 inches thick. The underlying layer of sand extends to a depth of 60 inches or more. The soils have rapid permeability. The available water-holding capacity is low.	Gravelly	R077BY009NM
2. Soils loamy at the surface								
a. Soils calcareous and/or limey throughout								
i. High lime content soils with additional summer monsonal moisture, elevation approximately 4000 feet or less								
loam	calcium carbonate s/ calcic horizon	20 to 80 inches	no	0 to 12	3000 to 4700	Site occurs as nearly level to strongly sloping plains and adjacent to draws or escarpments, very deep to moderately deep, loamy soils that 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. They are moderate in fertility, have a low level of water storage capacity, moderate infiltration rate, and exhibit low to medium runoff depending on slope and vegetative cover.	Limy Upland 12-17" PZ	R077BY016TX
ii. High lime content soils without additional summer monsonal moisture, elevation approximately 4000 feet or more, site commonly occurs on the leeward side of playa lakes and sideslopes of draws								
loam to fine sandy loam	calcium carbonate s/ calcic horizon	60 inches or more	no	0 to 9	4800 to 5800	Topography is nearly level to sloping uplands. This site commonly occurs on the leeward side of playa lakes and may in effect be a large low dune formed by deposition of wind blown material from the lake floor. Slopes range from 0 to 9 percent. The soils of this site are deep, well drained and are calcareous on the surface and throughout their profile. The surface layer is loam, sandy loam or fine sandy loam 6 to 8 inches thick. The subsurface is clay loam or loam. The permeability is moderate to moderately rapid. The available water-holding capacity is moderate. Effective rooting depth is 60 inches with some limitations for depth below 20 inches due to dense lime. The calcium content of these soils has a direct effect on the kinds and amounts of vegetation produced.	High Lime	R077BY011NM
iii. High lime content soils with additional summer monsonal moisture, elevation approximately 4000 feet or less, site commonly occurs on the leeward side of playa lakes and sideslope of draws								
loam to fine sandy loam	calcium carbonate s/ calcic horizon	60 inches or more	no	1 to 3	2,600 feet to 4,400	Site is situated on gently sloping to moderately sloping calcareous loamy soils with light colored surfaces and moderately permeable loam to clay loam subsoils. They are limey throughout, take water readily with high available plant water. The water holding capacity is moderate to low. These sites usually occur on the eastern side of ancient playa lakes large basins and on the side slopes of some of the major draws. These sites formed in clayey, calcareous, moderately alkaline water-deposited sediments as low benches surrounding large enclosed basins or playas. The high lime content limits the plant community to tolerant plant species. The elevation ranges from 2,600 feet to 4,400 feet above sea level. Slopes range from 1 to 3 percent. soils formed in silty and very fine sandy material that is quite uniformly high in calcium carbonate with local areas high in soluble salts as well. The regolith consists of fine textured, calcareous, moderately alkaline water-deposited sediments. Moderate to well drained. Permeability is very slow to moderate.	High Lime 12-17" PZ	R077BY722TX
b. Soil is as pockets between sandstone outcrops								
silty clay loam	salt effected	60 inches or more	no	5 to 15	5,500 to 7,500 feet	Site is on gently sloping to moderately steep canyon walls, hillsides and mesa tops at elevations of 5,500 to 7,500 feet above sea level. The landscape is a complex of small pockets of soil and sandstone outcrop with slopes 5 to 15 percent, soils in this site are deep. They are moderately well drained to well drained and have medium to slow runoff. The surface textures range from silty clay loam and saline silty clay loam. The substratum is clay loam and clay. These soils have slow to very slow permeability. The available water-holding capacity is high. These soils are affected by salt.	Salt Flats	R077BY019NM
c. Loamy site above about 4000 feet elevation								
loam to clay loam	no	20 to 60 inches	no	0 to 9	4300 to 5100	site occurs on level to gently undulating plains of the High Plains. Elevations range from 4,300 to 5,100 feet above sea level. Slopes range from 0 to 9 percent. Soils are moderately deep to deep, well-drained soils. The surface layers are loams 8 to 12 inches on a loam or clay loam subsurface. These soils have moderate to moderately slow permeability. Runoff is medium. Available water-holding capacity is high. Effective rooting depth is 20 to more than 60 inches.	Loamy	R077BY033NM
d. Loamy site below about 4000 feet elevation								
loam to clay loam	no	60 inches or more	no	0 to 5	3000 to 4100	site occurs on nearly level to gently sloping plains. Surface runoff is negligible to low, depending on slope, which is usually less than 3 percent. Very deep soils are part of the Blackwater Draw geologic formation. Slopes dominantly range from 0 to 5 percent. They are moderate in fertility, have a moderate level of water storage capacity, have a moderate infiltration rate, and generally exhibit low runoff depending on slope and vegetative cover.	Deep Hardland 12-17" PZ	R077BY014TX
e. Loamy site with Calcic horizon at 20 inches.								

Surface texture	calci influe	soil depth	water table	slope	elevation	Site Description	Site Name	Site Code
loamy fine sand, clay loam, loam	calci horizon	60 inches or more	no	0 to 8	4300 to 6200	site occurs on nearly level to undulating areas and the landscape is hummocky. Elevation ranges from 4,300 feet to 6,200 feet above sea level. Slopes are usually from 0 to 8 percent. soils of this site are deep, and well drained. The surface textures are fine sand or loamy fine sand from 8 to 20 inches thick. The texture of the argillic subsoil is sandy clay loam or fine sandy loam. In some soils, a calcic horizon occurs at a depth of 12 to 20 inches. The soils have a moderately rapid to moderate permeability. The available water-holding capacity is moderate to high. The plant-soil-air-water relationship is good. Effective rooting depth is 60 inches or more.	Deep Loamy Plains	R077BY034NM
3. Soils sandy at the surface								
a. Deep sandy soils, elevation approximately 4500 feet or less, site has significant additional summer monsonal moisture from convection storms.								
loamy fine sand	no	60 inches or more	no	1 to 3	3000 to 4500	12-17" PZ site occurs on nearly level to undulating plains. elevation is 3000 4500 feet, Deep sandy soils, Slopes dominantly range from 1 to 3 percent. They are low in fertility, have a low water storage capacity, have a high infiltration rate, and exhibit very little runoff.	Sandy 12-17" PZ	R077BY658TX
Fine Sand	no	60 inches or more	no	3 to 15	4000 to 4650	Upland site with very sandy, undulating to strongly rolling 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. site has 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. Fertility is very low but plant available water is high.	Sand Hills 12-17" PZ	R077BY020TX
Sandy Loam	no	60 inches or more	no	1 to 3	3000 to 4500	Site occurs on nearly level to gently sloping plains. 3000 4500 feet elevation, very deep sandy soils Slopes dominantly range from 1 to 3 percent. They are low in fertility, have a low water storage capacity, have a high infiltration rate	Sandy Loam 12-17" PZ	R077BY021TX
b. Deep sandy soils, elevation approximately 4500 feet or more, site does not have significant additional summer monsonal moisture from convection								
Sandy Loam	no	60 inches or more	no	0 to 5	4700 to 6000	site occurs on level to undulating areas at elevations ranging from 4,700 to 6,000 feet above sea level. Slopes are 0 to 5 percent. soils of this site are deep and well drained. The surface layer is fine sandy loam about 6 to 14 inches thick. The subsoil is medium and moderately fine textured. These soils have a moderate to moderately rapid permeability and moderate available water-holding capacity. Effective rooting depth is 20 inches or more.	High Sandy Loam	R077BY035NM
Calcic horizon at 20 inches.								
Loamy fine sand	calci horizon at 20 to 40 inches	42 inches or more	no	0 to 9	3600 to 4800 feet	site occurs on level to gently undulating sloping eolian and alluvial sediments on the uplands. Characteristically, the landscape is hummocky. Elevation ranges from 3,600 to 4,800 feet above sea level. Slope ranges from 0 to 9 percent. soils of this site are deep and well drained. The surface textures are fine sandy or loamy fine sand from 10 to 36 inches thick. The textures of the argillic subsoil are sandy clay loam, fine sandy loam or loamy fine sand. In some soils, a calcic horizon occurs at a depth of 20 to 40 inches. The soils have moderately rapid or moderate permeability. The available water-holding capacity is moderate to high.	Sandy Plains	R077BY028NM