



SD-FS-63
February 2015

Lateral Effects

What is the lateral effect distance?

The lateral effect distance is the distance on either side of a ditch or tile over which the water in the soil is affected by the presence of the ditch or tile within a given period of time and is effectively drained (see Figure 1, Page 2).

What requirements do I have to meet in connection with installing a new or improving an existing drainage system (ditch or tile)?

To be eligible for certain USDA Program Benefits, wetland hydrology must not be impacted by new drainage systems or by improvements to pre-December 23, 1985, drainage systems. In order to maintain the wetland hydrology, any new or improved drainage systems must be located so that the inundation or saturation periods as specified by the applicable wetland hydrology criteria are not shortened.

How close can my drainage system come to the wetlands?

The NRCS has calculated the lateral effect distances (setback distances) for all soils in South Dakota using drainage equations. When reading the Lateral Effect Tables, the depth of tile is the Installation Depth of the tile from the ground surface at the point of installation, not the effective depth below the wetland boundary (see Figure 1, Page 2).

Since water moves easily in sandy and lighter textured soils, the lateral effect distances are larger than the lateral effect distances for clayey soils. The lateral effect distances are provided by the NRCS.

There are additional wetland restrictions for tile drainage systems that have surface inlets and for wetlands that receive substantial groundwater (groundwater discharge wetlands and slope wetlands). These restrictions may

include requiring increased lateral effect distances, out-letting the tile system into the wetland, and/or allowing no tiling in the upstream or lateral land area where the groundwater is coming from unless the tiling system outlets on the upstream end of the wetland.

Why do I have to stay so far away from the wetland?

The Food Security Act requires that the hydrology of wetlands is not impacted by new drainage systems or by improvements to pre-December 23, 1985 drainage systems. New or improved drainage systems must be located so that wetland inundation or saturation periods are not shortened. When drainage systems are installed to improve crop production, the ditch or tile is sized and spaced to remove water from the root zone quickly enough to prevent crop damage, often in two or three days. That is why the lateral effect distances usually are significantly greater than the drainage design.

Figure 1 Tile and ditch drainage system lateral effect distance example.

If a tile contractor plans to install tile in an Egan soil (EeB) in Brookings County at a depth of 4 feet (ft.) from the ground surface and there is a 2 percent slope, the 4 ft depth with a 2 percent slope is used to determine that the Lateral Effect would be 70 ft. If the incorrect depth and slope is used the producer may end up with a converted wetland.

Map Symbol	Map Unit	Component	Component Percent	Lateral Effect Distances (ft.)				% Slope
				(5-inch Tile)				
				Installation Depth				
2 ft.	3 ft.	4 ft.	5 ft.					
EeB	Egan-Wentworth-Trent silty clay loams, 1 to 6 percent slopes	Egan	35	57	79	96	109	0
				44	65	82	96	1
				36	54	70	84	2
				31	46	61	74	3
				27	40	53	65	4
				24	35	47	59	5
				21	32	42	53	6

