

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed. The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (USDA, 1999) and "Keys to Soil Taxonomy" (USDA, 1998) and in the "Soil Survey Manual" (USDA, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units in the Hydric Soil Interpretations table meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1996).

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

These map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
017CS: CLIME-SOGN COMPLEX, 3 TO 25 PERCENT SLOPES	CLIME	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	DWIGHT	No	hillslope	---	---	---	---
	ZAAR	No	hillslope	---	---	---	---
017IV: IVAN SILT LOAM, OCCASIONALLY FLOODED	IVAN	No	flood plain	---	---	---	---
	KAHOLA	No	flood plain	---	---	---	---
017KA: KAHOLA SILT LOAM, OCCASIONALLY FLOODED	READING	No	terrace	---	---	---	---
	KAHOLA	No	flood plain	---	---	---	---
	IVAN	No	flood plain	---	---	---	---
041CD: CLIME-SOGN COMPLEX, 5 TO 20 PERCENT SLOPES	READING	No	terrace	---	---	---	---
	CLIME	No	hillslope	---	---	---	---
041HB: HOBBS SILT LOAM, CHANNELED	SOGN	No	hillslope	---	---	---	---
	HOBBS	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOIL (ponding)	Yes	depression, flood plain	3	NO	NO	YES
	UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO
041SC: SUTPHEN SILTY CLAY LOAM, OCCASIONALLY FLOODED	SUTPHEN	No	flood plain	---	---	---	---
079CM: CLIME COMPLEX, 6 TO 12 PERCENT SLOPES	CLIME	No	hillslope	---	---	---	---
	HOBBS	No	flood plain	---	---	---	---
	ROSEHILL	No	hillslope	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A, 2B3	YES	NO	NO
079RS: ROSEHILL SILTY CLAY, 3 TO 6 PERCENT SLOPES	ROSEHILL	No	hillslope	---	---	---	---
	CLIME	No	hillslope	---	---	---	---
	IRWIN	No	paleoterrace	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A, 2B3, 4	YES	YES	NO
113CB: CASS FINE SANDY LOAM, RARELY FLOODED	CASS	No	flood plain	---	---	---	---
	BRIDGEPORT	No	---	---	---	---	---
113ED: EDALGO SILT LOAM, 5 TO 12 PERCENT SLOPES	CARWILE	Yes	depression, paleoterrace	2A	YES	NO	NO
	EDALGO	No	hillslope	---	---	---	---
	CLIME	No	hillslope	---	---	---	---
AED: ARENTS, EARTHEN DAM	LANCASTER	No	---	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2B3	YES	NO	NO
Ca: CASS FINE SANDY LOAM, OCCASIONALLY FLOODED	ARENTS, EARTHEN DAM	Unranked	---	---	---	---	---
	CASS	No	flood plain	---	---	---	---
Ch: CHASE SILTY CLAY LOAM, OCCASIONALLY FLOODED	LANCASTER	No	hillslope	---	---	---	---
	VERDIGRIS	No	flood plain	---	---	---	---
	CHASE	No	flood plain	---	---	---	---
Cm: CLIME SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	VERDIGRIS	No	flood plain	---	---	---	---
	CLIME	No	hillslope	---	---	---	---
Cp: CLIME SILTY CLAY LOAM, 3 TO 7 PERCENT SLOPES	IRWIN	No	hillslope	---	---	---	---
	CLIME	No	hillslope	---	---	---	---
	IRWIN	No	hillslope	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Cr: CLIME STONY SILTY CLAY LOAM, 15 TO 30 PERCENT SLOPES	CLIME	No	hillslope	---	---	---	---
	SOGN TULLY	No No	hillslope hillslope	---	---	---	---
Cs: CLIME-SOGN SILTY CLAY LOAMS, 3 TO 20 PERCENT SLOPES	CLIME	No	hillslope	---	---	---	---
	SOGN LABETTE TULLY	No No No	hillslope hillslope hillslope	---	---	---	---
Dw: DWIGHT SILT LOAM, 0 TO 2 PERCENT SLOPES	DWIGHT	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
Ed: EDALGO SILTY CLAY LOAM, 3 TO 12 PERCENT SLOPES	EDALGO	No	hillslope	---	---	---	---
	HEDVILLE LANCASTER	No No	hillslope hillslope	---	---	---	---
Fc: FLORENCE SILT LOAM, 2 TO 15 PERCENT SLOPES	FLORENCE	No	hillslope	---	---	---	---
	DWIGHT LABETTE TULLY	No No No	hillslope hillslope hillslope	---	---	---	---
Go: GOESSEL SILTY CLAY, 0 TO 2 PERCENT SLOPES	GOESSEL	No	hillslope	---	---	---	---
	ROSEHILL WELLS	No No	hillslope hillslope	---	---	---	---
HO: HOBBS SILT LOAM, OCCASIONALLY FLOODED	HOBBS	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOIL	Yes	flood plain, marsh	2B3	YES	NO	NO
	UNNAMED HYDRIC SOILS	Yes	depression, flood plain	3	NO	NO	YES
Ib: IRWIN SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	IRWIN	No	hillslope	---	---	---	---
	CLIME DWIGHT	No No	hillslope hillslope	---	---	---	---
Ic: IRWIN SILTY CLAY LOAM, 3 TO 6 PERCENT SLOPES	IRWIN	No	hillslope	---	---	---	---
	CLIME LABETTE	No No	hillslope hillslope	---	---	---	---
IV: IVAN SILT LOAM, CHANNELED	IVAN	No	flood plain	---	---	---	---
	READING	No	terrace	---	---	---	---
Kp: KIPSON SILTY CLAY LOAM, 10 TO 25 PERCENT SLOPES	KIPSON	No	hillslope	---	---	---	---
	HEDVILLE	No	hillslope	---	---	---	---
La: LABETTE SILTY CLAY LOAM, 1 TO 4 PERCENT SLOPES	LABETTE	No	hillslope	---	---	---	---
	DWIGHT SOGN	No No	hillslope hillslope	---	---	---	---
Ld: LABETTE-DWIGHT COMPLEX, 1 TO 3 PERCENT SLOPES	LABETTE	No	hillslope	---	---	---	---
	DWIGHT SOGN ROCK OUTCROP	No No ---	hillslope hillslope hillslope	---	---	---	---
Lg: LABETTE-SOGN SILTY CLAY LOAMS, 2 TO 15 PERCENT SLOPES	LABETTE	No	hillslope	---	---	---	---
	SOGN DWIGHT ROCK OUTCROP	No No ---	hillslope hillside hillslope	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Lm: LADYSMITH SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES	LADYSMITH	No	paleoterrace	---	---	---	---
	WELLS	No	hillslope	---	---	---	---
Ls: LANCASTER LOAM, 1 TO 3 PERCENT SLOPES	LANCASTER	No	hillslope	---	---	---	---
	HEDVILLE	No	hillslope	---	---	---	---
	IRWIN	No	hillslope	---	---	---	---
Lt: LANCASTER LOAM, 3 TO 7 PERCENT SLOPES	LANCASTER	No	hillslope	---	---	---	---
	EDALGO	No	hillslope	---	---	---	---
	HEDVILLE	No	hillslope	---	---	---	---
Lv: LANCASTER-HEDVILLE COMPLEX, 3 TO 20 PERCENT SLOPES	LANCASTER	No	hillslope	---	---	---	---
	HEDVILLE	No	hillslope	---	---	---	---
	CASS	No	flood plain	---	---	---	---
	EDALGO	No	hillslope	---	---	---	---
M-W: MISCELLANEOUS WATER	MISCELLANEOUS WATER	Unranked	---	---	---	---	---
Os: OSAGE SILTY CLAY, OCCASIONALLY FLOODED	OSAGE	Yes	flood plain	2B3	YES	NO	NO
	CHASE	No	flood plain	---	---	---	---
	SOLOMON	Yes	flood plain	2B3	YES	NO	NO
Pt: PITS, QUARRIES	Pits, quarries	Unranked	---	---	---	---	---
Re: READING SILT LOAM, 0 TO 2 PERCENT SLOPES, RARELY FLOODED	READING	No	stream terrace	---	---	---	---
	CHASE	No	flood plain	---	---	---	---
	WELLS	No	hillslope	---	---	---	---
Rh: ROSEHILL SILTY CLAY, 1 TO 3 PERCENT SLOPES	ROSEHILL	No	hillslope	---	---	---	---
	IRWIN	No	hillslope	---	---	---	---
So: SOGN SILTY CLAY LOAM, 0 TO 15 PERCENT SLOPES	SOGN	No	hillslope	---	---	---	---
	CLIME	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	ROCK OUTCROP	---	hillslope	---	---	---	---
TO: TOBIN SILT LOAM, OCCASIONALLY FLOODED	TOBIN	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOIL	Yes	flood plain, marsh	2B3	YES	NO	NO
	UNNAMED HYDRIC SOILS	Yes	depression, flood plain	3	NO	NO	YES
	Unamed wet soils	Yes	drainageway	4, 2B3, 2A, 3	YES	YES	YES
Tu: TULLY SILTY CLAY LOAM, 2 TO 6 PERCENT SLOPES	TULLY	No	hillslope	---	---	---	---
	CLIME	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
Vb: VERDIGRIS SILT LOAM, OCCASIONALLY FLOODED	VERDIGRIS	No	flood plain	---	---	---	---
	CHASE	No	flood plain	---	---	---	---
Vc: VERDIGRIS SILT LOAM, CHANNELED	VERDIGRIS	No	flood plain	---	---	---	---
	CHASE	No	flood plain	---	---	---	---
W: WATER	WATER	Yes	---	4, 3	NO	YES	YES
Wb: WELLS LOAM, 1 TO 3 PERCENT SLOPES	WELLS	No	hillslope	---	---	---	---
	CLIME	No	hillside	---	---	---	---
	IRWIN	No	hillside	---	---	---	---
Wc: WELLS LOAM, 3 TO 7 PERCENT SLOPES	WELLS	No	hillslope	---	---	---	---
	CLIME	No	hillslope	---	---	---	---
	IRWIN	No	hillslope	---	---	---	---

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				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Wd: WELLS CLAY LOAM, 3 TO 7 PERCENT SLOPES, ERODED	WELLS	No	hillslope	---	---	---	---
	IRWIN	No	hillslope	---	---	---	---
	LANCASTER	No	hillslope	---	---	---	---

FOOTNOTE: There may be small areas of included soils or miscellaneous areas that are significant to use and management of the soil; yet are too small to delineate on the soil map at the map's original scale. These may be designated as spot symbols and are defined in the published Soil Survey Report or the USDA-NRCS Technical Guide, Part II.
Areas mapped as water or any map unit that contains one of the following conventional symbols is considered a hydric soil map unit: marshes or swamps; wet spots; depressions; streams, lakes and ponds.

1. All Histosols except Folists, or
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Aquisalids, Pachic subgroups, or Cumulic subgroups that are:
 - a. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or
 - b. poorly drained or very poorly drained and have either:
 - (1) water table equal to 0.0 ft during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in), or for other soils
 - (2) water table at less than or equal to 0.5 ft from the surface during the growing season if permeability is equal to or greater than 6.0 in/hour (h) in all layers within 20 in, or
 - (3) water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 in, or
3. Soils that are frequently ponded for long duration or very long duration during the growing season, or
4. Soils that are frequently flooded for long duration or very long duration during the growing season.

