

Water Features
Missaukee County, Michigan

(See text for definitions of terms used in this table. Upper limit, Lower limit, and Surface water depth are in feet. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Water Table Depth			Ponding			Flooding	
			Upper limit	Lower limit	Water table kind	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft.	Ft.		Ft.				
3A: Crowell-----	A	Jan-May	2.0-3.5	> 6.0	Apparent	---	---	None	---	None
		Jun-Oct	> 6.0	> 6.0	---	---	---	None	---	None
		Nov-Dec	2.0-3.5	> 6.0	Apparent	---	---	None	---	None
5B: Emmet-----	B	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Montcalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
5C: Emmet-----	B	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Montcalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
5E: Emmet-----	B	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Montcalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
6B: Kalkaska-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
6C: Kalkaska-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
6E: Kalkaska-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
7: Lupton-----	A/D	Jan-May	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
		Jun-Aug	> 6.0	> 6.0	---	---	---	None	---	None
		Sep-Dec	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
10B: Manistee-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
10C: Manistee-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
11B: Montcalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Graycalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
11C: Montcalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Graycalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
11E: Montcalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Graycalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
12B: Nester-----	C	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
12C: Nester-----	C	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
13B:										

Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water Table Depth			Ponding			Flooding	
			Upper limit	Lower limit	Water table kind	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft.	Ft.		Ft.				
Rubicon-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
13C: Rubicon-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
13E: Rubicon-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
14A: Otisco-----	A	Jan-May	0.5-1.5	> 6.0	Apparent	---	---	None	---	None
		Jun-Oct	> 6.0	> 6.0	---	---	---	None	---	None
		Nov-Dec	0.5-1.5	> 6.0	Apparent	---	---	None	---	None
15B: East Lake-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Rubicon-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
15C: East Lake-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Rubicon-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
15E: East Lake-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Rubicon-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
16A: Au Gres-----	B	Jan-May	0.5-1.5	> 6.0	Apparent	---	---	None	---	None
		Jun-Oct	> 6.0	> 6.0	---	---	---	None	---	None
		Nov-Dec	0.5-1.5	> 6.0	Apparent	---	---	None	---	None
17: Carbondale-----	A/D	Jan-May	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
		Jun-Aug	> 6.0	> 6.0	---	---	---	None	---	None
		Sep-Dec	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
19B: Grayling-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
20: Tawas-----	A/D	Jan-May	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
		Jun-Oct	> 6.0	> 6.0	---	---	---	None	---	None
		Nov-Dec	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
22: Roscommon-----	A/D	Jan-Jun	0.0	> 6.0	Apparent	0.0-1.0	Long	Occasional	---	None
		Jul-Aug	> 6.0	> 6.0	---	---	---	None	---	None
		Sep-Dec	0.0	> 6.0	Apparent	0.0-1.0	Long	Occasional	---	None
23A: Kawkawlin Variant-----	C	Jan-May	1.0-2.0	> 6.0	Apparent	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	---	None	---	None
		Oct-Dec	1.0-2.0	> 6.0	Apparent	---	---	None	---	None
30: Brevort-----	B/D	Jan-May	0.0	> 6.0	Apparent	0.0-1.0	Long	Occasional	---	None
		Jun-Oct	> 6.0	> 6.0	---	---	---	None	---	None
		Nov-Dec	0.0	> 6.0	Apparent	0.0-1.0	Long	Occasional	---	None
34A: Gladwin-----	A	Jan-May	0.5-1.5	> 6.0	Apparent	---	---	None	---	None
		Jun-Oct	> 6.0	> 6.0	---	---	---	None	---	None
		Nov-Dec	0.5-1.5	> 6.0	Apparent	---	---	None	---	None
36B: Dighton-----	B	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water Table Depth			Ponding			Flooding	
			Upper limit	Lower limit	Water table kind	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft.	Ft.		Ft.				
37: Sims-----	D	Jan-May	0.0	1.0-2.0	Perched	0.0-1.0	Long	Occasional	---	None
		Jun-Oct	> 6.0	> 6.0	---	---	---	None	---	None
		Nov-Dec	0.0	1.0-2.0	Perched	0.0-1.0	Long	Occasional	---	None
40A: Iosco-----	B	Jan-Jun	0.5-1.5	> 6.0	Apparent	---	---	None	---	None
		Jul-Oct	> 6.0	> 6.0	---	---	---	None	---	None
		Nov-Dec	0.5-1.5	> 6.0	Apparent	---	---	None	---	None
42B: Graycalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Rubicon-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
42C: Graycalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Rubicon-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
42E: Graycalm-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Rubicon-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
46: Loxley-----	A/D	Jan-May	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	---	None	---	None
		Oct-Dec	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
50A: Kawkawlin-----	C	Jan-May	0.5-1.5	1.0-2.0	Perched	---	---	None	---	None
		Jun-Sep	> 6.0	> 6.0	---	---	---	None	---	None
		Oct-Dec	0.5-1.5	1.0-2.0	Perched	---	---	None	---	None
53: Cathro-----	A/D	Jan-Jun	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
		Jul-Oct	> 6.0	> 6.0	---	---	---	None	---	None
		Nov-Dec	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
64: Fluvaquents-----	---	Jan-Jun	0.0	> 6.0	Apparent	0.0-1.0	---	None	Long	Frequent
		Jul-Sep	> 6.0	> 6.0	---	---	---	None	Long	Frequent
		Oct-Dec	0.0	> 6.0	Apparent	0.0-1.0	---	None	Long	Frequent
Histosols-----	D	Jan-Jun	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	Long	Frequent
		Jul-Aug	> 6.0	> 6.0	---	---	---	None	---	None
		Sep	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
		Oct-Dec	0.0	> 6.0	Apparent	0.0-1.0	Very long	Frequent	Long	Frequent
65: Pits-----	---	Jan-Dec	> 6.0	> 6.0	---	---	---	---	---	---
66: Udipsamments-----	A	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
W: Water-----	---	Jan-Dec	> 6.0	> 6.0	---	---	---	---	---	---

Water Features--Continued

ENDNOTE--WATER FEATURES

This table provides estimates of various water features. The estimates are used in land use planning that involves engineering considerations

HYDROLOGIC SOIL GROUPS are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms. The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltrate rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

WATER TABLE refers to a saturated zone in the soil. The table indicates by month, depth to the top (upper limit) and base (lower limit) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

PONDING is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates surface water depth and the duration and frequency of ponding. Duration is expressed as very brief if less than 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. None means that ponding is not probable; rare that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); occasional that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and frequent that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

FLOODING is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

DURATION AND FREQUENCY are estimated. Duration is expressed as extremely brief if 0.1 hour to 4 hours, very brief if 4 hours to 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. None means that flooding is not probable; very rare that it is unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); rare that it is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 1 percent to 5 percent in any year); occasional that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 20 percent in any year); frequent that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and very frequent that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development. Also considered are local information about the extent and levels of flooding and relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.