

Hydric Soils

Sherburne County, Minnesota

[This report lists only those map unit components that are rated as hydric. Dashes (---) in any column indicate that the data were not included in the database. Definitions of hydric criteria codes are included at the end of the report]

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
7A:					
Hubbard loamy sand, 0 to 2 percent slopes	Hubbard	95	Outwash plains	No	---
	Soils that have a gravelly substratum	2	---	No	---
	Duelm and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
	Till or bedrock substratum	1	---	No	---
7B:					
Hubbard loamy sand, 2 to 6 percent slopes	Hubbard	95	Outwash plains	No	---
	Soils that have a gravelly substratum	2	---	No	---
	Duelm and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
	Till substratum	1	---	No	---
7C:					
Hubbard loamy sand, 6 to 12 percent slopes	Hubbard	95	Outwash plains	No	---
	Isan and similar soils	2	Depressions	Yes	2B3, 3
	Duelm and similar soils	1	---	No	---
	Fine sand substratum	1	---	No	---
	Gravelly substratum	1	---	No	---

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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
32B:					
Nebish fine sandy loam, 2 to 6 percent slopes	Nebish	85	Moraines	No	---
	Beltrami and similar soils	5	---	No	---
	Bluffton and similar soils	4	Depressions	Yes	2B3, 3
	Talmoon and similar soils	4	Swales	Yes	2B3
	Braham and similar soils	1	---	No	---
	Sand or gravel substratum	1	---	No	---
32C:					
Nebish fine sandy loam, 6 to 12 percent slopes	Nebish	85	Moraines	No	---
	Beltrami and similar soils	5	---	No	---
	Bluffton and similar soils	5	Depressions	Yes	2B3, 3
	Talmoon and similar soils	3	Swales	Yes	2B3
	Braham and similar soils	1	---	No	---
	Sand or gravel substratum	1	---	No	---
32D:					
Nebish fine sandy loam, 12 to 18 percent slopes	Nebish	85	Moraines	No	---
	Bluffton and similar soils	7	Depressions	Yes	2B3, 3
	Talmoon and similar soils	5	Swales	Yes	2B3
	Beltrami and similar soils	1	---	No	---
	Braham and similar soils	1	---	No	---
	Sand or gravel substratum	1	---	No	---

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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
32E:					
Nebish fine sandy loam, 18 to 35 percent slopes	Nebish	85	Moraines	No	---
	Bluffton and similar soils	8	Depressions	Yes	2B3, 3
	Beltrami and similar soils	1	---	No	---
	Sand or gravel substratum	1	---	No	---
38B:					
Waukon fine sandy loam, 2 to 6 percent slopes	Waukon	90	Moraines	No	---
	Beltrami and similar soils	5	---	No	---
	Soils that have a substratum of sandy loam	3	---	No	---
	Talmoon and similar soils	2	Swales	Yes	2B3
75:					
Bluffton loam, depressional, 0 to 1 percent slopes	Bluffton, depressional	90	Depressions, Moraines	Yes	2B3, 3
	Soils that have a surface layer of muck	5	Depressions	Yes	2B3, 3
	Talmoon and similar soils	3	Swales	Yes	2B3
	Soils that have a sand or gravel substratum	2	Depressions	Yes	2B3, 3
125:					
Beltrami fine sandy loam, 0 to 3 percent slopes	Beltrami	90	Moraines	No	---
	Talmoon and similar soils	4	Swales	Yes	2B3
	Bluffton and similar soils	3	Depressions	Yes	2B3, 3
	Nebish and similar soils	2	---	No	---
	Sand or gravel substratum	1	---	No	---

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152C:					
Milaca fine sandy loam, 6 to 12 percent slopes	Milaca	95	Drumlins	No	---
	Mora and similar soils	2	---	No	---
	Soils that have a sand or gravel substratum	2	---	No	---
	Parent and similar soils	1	Swales	Yes	2B3
152E:					
Milaca fine sandy loam, 12 to 25 percent slopes	Milaca	95	Drumlins	No	---
	Soils that have a sand or gravel substratum	2	---	No	---
	Braham and similar soils	1	---	No	---
	Mora and similar soils	1	---	No	---
	Parent and similar soils	1	Swales	Yes	2B3
158A:					
Zimmerman fine sand, 0 to 3 percent slopes	Zimmerman	95	Outwash plains	No	---
	Cantlin and similar soils	2	---	No	---
	Lino and similar soils	2	---	No	---
	Isanti and similar soils	1	Depressions	Yes	2B3, 3
158B:					
Zimmerman fine sand, 3 to 6 percent slopes	Zimmerman	95	Outwash plains	No	---
	Cantlin and similar soils	2	---	No	---
	Lino and similar soils	2	---	No	---
	Isanti and similar soils	1	Depressions	Yes	2B3, 3

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158C:					
Zimmerman fine sand, 6 to 12 percent slopes	Zimmerman	95	Outwash plains	No	---
	Isanti and similar soils	2	Depressions	Yes	2B3, 3
	Cantlin and similar soils	1	---	No	---
	Lino and similar soils	1	---	No	---
	Loam or sandy loam substratum	1	---	No	---
158E:					
Zimmerman fine sand, 12 to 25 percent slopes	Zimmerman	95	Outwash plains	No	---
	Lino and similar soils	3	---	No	---
	Isanti and similar soils	2	Depressions	Yes	2B3, 3
161:					
Isanti fine sandy loam, depressional, 0 to 1 percent slopes	Isanti, depressional	95	Depressions, Outwash plains	Yes	2B3, 3
	Markey and similar soils	3	Depressions	Yes	1, 3
	Lino and similar soils	2	---	No	---
162:					
Lino loamy fine sand, 0 to 2 percent slopes	Lino	95	Outwash plains	No	---
	Isanti and similar soils	2	Depressions	Yes	2B3, 3
	Cantlin and similar soils	1	---	No	---
	Gravel substratum	1	---	No	---
	Zimmerman and similar soils	1	---	No	---

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164A:					
Mora loam, 0 to 3 percent slopes	Mora	95	Drumlins	No	---
	Parent and similar soils	3	Swales	Yes	2B3
	Gravelly substratum	1	---	No	---
	Milaca and similar soils	1	---	No	---
165:					
Parent loam, 0 to 2 percent slopes	Parent	90	Flats, Interdrumlins	Yes	2B3
	Prebish and similar soils	5	Depressions	Yes	2B3, 3
	Ronneby and similar soils	3	---	No	---
	Mora and similar soils	1	---	No	---
	Sand or gravel substratum	1	Swales	Yes	2B3
166:					
Ronneby loam, 0 to 2 percent slopes	Ronneby	90	Interdrumlins	No	---
	Parent and similar soils	4	Swales	Yes	2B3
	Prebish and similar soils	3	Depressions	Yes	2B3, 3
	Mora and similar soils	2	---	No	---
	Sand or gravel substratum	1	---	No	---
169B:					
Braham loamy fine sand, 3 to 6 percent slopes	Braham	90	Moraines	No	---
	Eckvoll and similar soils	5	---	No	---
	Talmoon and similar soils	3	Swales	Yes	2B3
	Nebish and similar soils	2	---	No	---

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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
169C:					
Braham loamy fine sand, 6 to 12 percent slopes	Braham	90	Moraines	No	---
	Eckvoll and similar soils	3	---	No	---
	Nebish and similar soils	3	---	No	---
	Talmoon and similar soils	3	Swales	Yes	2B3
	Sand or gravel substratum	1	---	No	---
169D:					
Braham loamy fine sand, 12 to 18 percent slopes	Braham	90	Moraines	No	---
	Eckvoll and similar soils	4	---	No	---
	Talmoon and similar soils	3	Swales	Yes	2B3
	Nebish and similar soils	2	---	No	---
	Sand or gravel substratum	1	---	No	---
204B:					
Cushing fine sandy loam, 2 to 8 percent slopes	Cushing	90	Moraines	No	---
	Talmoon and similar soils	4	Swales	Yes	2B3
	Bluffton and similar soils	3	Depressions	Yes	2B3, 3
	Beltrami and similar soils	2	---	No	---
	Sandy substratum	1	---	No	---
204C:					
Cushing fine sandy loam, 8 to 15 percent slopes	Cushing	95	Moraines	No	---
	Bluffton and similar soils	2	Depressions	Yes	2B3, 3
	Beltrami and similar soils	1	---	No	---
	Sand or gravel substratum	1	---	No	---
	Talmoon and similar soils	1	Swales	Yes	2B3

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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
258B:					
Sandberg loamy coarse sand, 1 to 6 percent slopes	Sandberg	95	Stream terraces	No	---
	Soils that have a sandy substratum	3	---	No	---
	Duelm and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
258C:					
Sandberg loamy coarse sand, 6 to 12 percent slopes	Sandberg	95	Stream terraces	No	---
	Soils that have a sandy substratum	2	---	No	---
	Duelm and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
	Sandy loam substratum	1	---	No	---
258E:					
Sandberg loamy coarse sand, 12 to 35 percent slopes	Sandberg	95	Stream terraces	No	---
	Soils that have a sandy substratum	3	---	No	---
	Duelm and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
260:					
Duelm loamy sand, 0 to 2 percent slopes	Duelm	95	Outwash plains	No	---
	Isan and similar soils	2	Depressions	Yes	2B3, 3
	Bedrock or gravelly substratum	1	---	No	---
	Bushville and similar soils	1	---	No	---
	Hubbard and similar soils	1	---	No	---

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261:					
Isan sandy loam, depressional, 0 to 1 percent slopes	Isan, depressional	95	Depressions, Outwash plains	Yes	2B3, 3
	Duelm and similar soils	2	---	No	---
	Soils that have a gravelly substratum	2	Depressions	Yes	2B3, 3
	Muck surface layer	1	Depressions	Yes	2B3, 3
325:					
Prebish fine sandy loam, depressional, 0 to 1 percent slopes	Prebish, depressional	95	Depressions, Interdrumlins	Yes	2B3, 3
	Cathro and similar soils	2	Depressions	Yes	1, 3
	Parent and similar soils	2	Swales	Yes	2B3
	Sandy substratum	1	Depressions	Yes	2B3, 3
341:					
Arvilla sandy loam, 0 to 2 percent slopes	Arvilla	95	Stream terraces	No	---
	Soils that have a sandy substratum	3	---	No	---
	Isan and similar soils	2	Depressions	Yes	2B3, 3
346:					
Talmoon loam, 0 to 2 percent slopes	Talmoon	90	Moraines, Swales	Yes	2B3
	Bluffton and similar soils	6	Depressions	Yes	2B3, 3
	Beltrami and similar soils	2	---	No	---
	Soils that have a sand or gravel substratum	2	Swales	Yes	2B3

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373:					
Renshaw loam, 0 to 3 percent slopes	Renshaw	95	Stream terraces	No	---
	Duelm and similar soils	2	---	No	---
	Soils that have a sandy substratum	2	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
454B:					
Mahtomedi loamy coarse sand, 1 to 6 percent slopes	Mahtomedi	95	Moraines	No	---
	Sanburn and similar soils	3	---	No	---
	Duelm and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
454C:					
Mahtomedi loamy coarse sand, 6 to 15 percent slopes	Mahtomedi	95	Moraines	No	---
	Sanburn and similar soils	3	---	No	---
	Duelm and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
540:					
Seelyeville muck, 0 to 1 percent slopes	Seelyeville	95	Depressions	Yes	1, 3
	Cathro and similar soils	1	Depressions	Yes	1, 3
	Isan and similar soils	1	Depressions	Yes	2B3, 3
	Isanti and similar soils	1	Depressions	Yes	2B3, 3
	Markey and similar soils	1	Depressions	Yes	1, 3
	Prebish and similar soils	1	Depressions	Yes	2B3, 3

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543:					
Markey muck, 0 to 1 percent slopes	Markey	90	Depressions	Yes	1, 3
	Isanti and similar soils	5	Depressions	Yes	2B3, 3
	Isan and similar soils	2	Depressions	Yes	2B3, 3
	Seelyeville and similar soils	2	Depressions	Yes	1, 3
	Lino and similar soils	1	---	No	---
544:					
Cathro muck, 0 to 1 percent slopes	Cathro	95	Depressions	Yes	1, 3
	Bluffton and similar soils	2	Depressions	Yes	2B3, 3
	Markey and similar soils	1	Depressions	Yes	1, 3
	Prebish and similar soils	1	Depressions	Yes	2B3, 3
	Seelyeville and similar soils	1	Depressions	Yes	1, 3
565:					
Eckvoll loamy fine sand, 0 to 3 percent slopes	Eckvoll	90	Moraines	No	---
	Beltrami and similar soils	4	---	No	---
	Bluffton and similar soils	4	Depressions	Yes	2B3, 3
	Zimmerman and similar soils	2	---	No	---
567:					
Verndale sandy loam, 0 to 2 percent slopes	Verndale	95	Outwash plains	No	---
	Hubbard and similar soils	2	---	No	---
	Isan and similar soils	2	Depressions	Yes	2B3, 3
	Gravelly substratum	1	---	No	---

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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
623A:					
Pierz sandy loam, 0 to 2 percent slopes	Pierz	95	Outwash plains	No	---
	Isan and similar soils	2	Depressions	Yes	2B3, 3
	Soils that have a thin loamy mantle	2	---	No	---
	Stonelake and similar soils	1	---	No	---
623B:					
Pierz sandy loam, 2 to 6 percent slopes	Pierz	95	Outwash plains	No	---
	Soils that have a thin loamy mantle	3	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
	Stonelake and similar soils	1	---	No	---
708:					
Rushlake coarse sand, 1 to 4 percent slopes	Rushlake	85	Beaches	No	---
	Isan and similar soils	10	Depressions	Yes	2B3, 3
	Hubbard and similar soils	5	---	No	---
730A:					
Sanburn fine sandy loam, 0 to 2 percent slopes	Sanburn	90	Outwash plains	No	---
	Soils that have a thick loamy mantle	6	---	No	---
	Isan and similar soils	2	Depressions	Yes	2B3, 3
	Moderately well drained soils	1	---	No	---
	Stonelake and similar soils	1	---	No	---

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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
730B:					
Sanburn fine sandy loam, 2 to 6 percent slopes	Sanburn	90	Outwash plains	No	---
	Soils that have a thin loamy mantle	6	---	No	---
	Cushing and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
	Moderately well drained soils	1	---	No	---
	Stonelake and similar soils	1	---	No	---
732B:					
Bushville fine sand, 2 to 6 percent slopes	Bushville	95	Drumlins	No	---
	Soils that have a thick sandy mantle	2	---	No	---
	Mora and similar soils	1	---	No	---
	Parent and similar soils	1	Swales	Yes	2B3
	Ronneby and similar soils	1	---	No	---
768:					
Mosford sandy loam, 0 to 2 percent slopes	Mosford	95	Outwash plains	No	---
	Duelm and similar soils	1	---	No	---
	Gravelly substratum	1	---	No	---
	Hubbard and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
	Sandberg and similar soils	1	---	No	---

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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
771:					
Elkriver fine sandy loam, 0 to 2 percent slopes, rarely flooded	Elkriver, rarely flooded	95	Flood plains	No	---
	Hubbard and similar soils	3	---	No	---
	Fordum and similar soils	1	Flood plains	Yes	2B3, 4
	Occasionally flooded soils	1	---	No	---
799:					
Seelyeville and Bowstring soils, 0 to 1 percent slopes, frequently flooded	Bowstring, frequently flooded	45	Flood plains	Yes	1, 4
	Seelyeville, frequently flooded	45	Flood plains	Yes	1, 4
	Fordum and similar soils	5	Flood plains	Yes	2B3, 4
	Soils that have a sand or gravel substratum	4	Flood plains	Yes	1, 4
	Winterfield and similar soils	1	---	No	---
1013:					
Pits, quarry	Pits, quarry	100	Stream terraces		---
	Isan and similar soils	3	Depressions	Yes	2B3, 3
	Soils that have sand over a bedrock substratum	3	---	No	---
	Duelm and similar soils	2	---	No	---
	Hubbard and similar soils	2	---	No	---
1015:					
Udipsamments, cut and fill land	Udipsamments, cut and fill land	100	Lake plains, Outwash plains, Stream terraces		---

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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
1016:					
Udorthents, loamy, cut and fill land	Udorthents, loamy, cut and fill land	100	Moraines		---
	Sandy sediments	5	---	No	---
	Soils that have a gravelly substratum	3	---	No	---
	Poorly drained soils	2	Swales	Yes	2B3
1028:					
Udorthents-Pits, gravel, complex	Udorthents	55	Outwash plains, Stream terraces		---
	Pits, gravel	45	Outwash plains, Stream terraces		---
	Stonelake and similar soils	8	---	No	---
	Hubbard and similar soils	3	---	No	---
	Sanburn and similar soils	3	---	No	---
	Loamy substratum	1	---	No	---
1109:					
Isanti loamy fine sand, 0 to 2 percent slopes	Isanti	90	Outwash plains, Swales	Yes	2B2
	Lino and similar soils	7	---	No	---
	Soils that have a surface layer of muck	3	Depressions	Yes	2B3, 3
1110:					
Isan sandy loam, 0 to 2 percent slopes	Isan	90	Stream terraces, Swales	Yes	2B3
	Soils that have a surface layer of muck	6	Depressions	Yes	2B3, 3
	Duelm and similar soils	4	---	No	---

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1223:					
Sandberg-Arvilla complex, 0 to 3 percent slopes	Sandberg	60	Stream terraces	No	---
	Arvilla	30	Stream terraces	No	---
	Soils that have a sandy substratum	5	---	No	---
	Soils that have a gravelly surface layer	3	---	No	---
	Duelm and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
1224:					
Hubbard-Verndale complex, 0 to 3 percent slopes	Hubbard	60	Stream terraces	No	---
	Verndale	35	Stream terraces	No	---
	Soils that have a gravelly substratum	3	---	No	---
	Duelm and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3
1231:					
Hubbard-Mosford complex, 0 to 3 percent slopes	Hubbard	60	Stream terraces	No	---
	Mosford	35	Stream terraces	No	---
	Soils that have a gravelly substratum	3	---	No	---
	Duelm and similar soils	1	---	No	---
	Isan and similar soils	1	Depressions	Yes	2B3, 3

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1253B:					
Stonelake-Sanburn complex, 1 to 6 percent slopes	Stonelake	60	Moraines	No	---
	Sanburn	30	Moraines	No	---
	Soils that have a sandy substratum	5	---	No	---
	Isan and similar soils	2	Depressions	Yes	2B3, 3
	Markey and similar soils	2	Depressions	Yes	1, 3
	Moderately well drained soils	1	---	No	---
1253C:					
Stonelake-Sanburn complex, 6 to 15 percent slopes	Stonelake	65	Outwash plains	No	---
	Sanburn	25	Outwash plains	No	---
	Soils that have a sandy substratum	5	---	No	---
	Markey	2	Outwash plains, Stream terraces	Yes	1, 3
	Braham	1	Moraines, Outwash plains	No	---
	Isan	1	Outwash plains, Stream terraces	Yes	2B3
	Nebish	1	Moraines, Outwash plains	No	---

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1253E:					
Stonelake-Sanburn complex, 15 to 40 percent slopes	Stonelake	65	Moraines	No	---
	Sanburn	25	Moraines	No	---
	Markey and similar soils	3	Depressions	Yes	1, 3
	Soils that have a sandy substratum	3	---	No	---
	Isan and similar soils	2	Depressions	Yes	2B3, 3
	Braham and similar soils	1	---	No	---
	Pierz and similar soils	1	---	No	---
1254:					
Ricelake fine sandy loam, 0 to 3 percent slopes	Ricelake	90	Outwash plains	No	---
	Isanti and similar soils	3	Depressions	Yes	2B3, 3
	Soils that have a sandy substratum	3	---	No	---
	Beltrami and similar soils	2	---	No	---
	Eckvoll and similar soils	2	---	No	---
1255:					
Elkriver fine sandy loam, 0 to 2 percent slopes, occasionally flooded	Elkriver, occasionally flooded	90	Flood plains	No	---
	Fordum and similar soils	5	Flood plains	Yes	2B3, 4
	Soils that have a gravelly substratum	2	---	No	---
	Winterfield and similar soils	2	---	No	---
	Gravelly surface texture	1	---	No	---

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1256:					
Cantlin loamy fine sand, 0 to 3 percent slopes	Cantlin	90	Outwash plains	No	---
	Lino and similar soils	4	---	No	---
	Isanti and similar soils	2	Depressions	Yes	2B3, 3
	Soils that have a sand or gravel substratum	2	---	No	---
	Zimmerman and similar soils	2	---	No	---
1257:					
Elkriver-Mosford complex, 0 to 6 percent slopes, rarely flooded	Elkriver, rarely flooded	55	Flood plains	No	---
	Mosford, rarely flooded	35	Flood plains	No	---
	Fordum and similar soils	4	Flood plains	Yes	2B3, 4
	Soils that have a sandy surface layer	4	---	No	---
	Winterfield and similar soils	2	---	No	---
1258B:					
Zimmerman fine sand, thick solum, 1 to 6 percent slopes	Zimmerman, thick solum	95	Outwash plains	No	---
	Cantlin and similar soils	2	---	No	---
	Lino and similar soils	2	---	No	---
	Isanti and similar soils	1	Depressions	Yes	2B3, 3
1258C:					
Zimmerman fine sand, thick solum, 6 to 12 percent slopes	Zimmerman, thick solum	95	Outwash plains	No	---
	Isanti and similar soils	2	Depressions	Yes	2B3, 3
	Lino and similar soils	2	---	No	---
	Cantlin and similar soils	1	---	No	---

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1258E:					
Zimmerman fine sand, thick solum, 12 to 35 percent slopes	Zimmerman, thick solum	95	Outwash plains	No	---
	Isanti and similar soils	3	Depressions	Yes	2B3, 3
	Cantlin and similar soils	1	---	No	---
	Lino and similar soils	1	---	No	---
1260B:					
Stonelake-Nebish complex, 2 to 6 percent slopes	Stonelake	55	Moraines	No	---
	Nebish	30	Moraines	No	---
	Beltrami and similar soils	4	---	No	---
	Talmoon and similar soils	4	Swales	Yes	2B3
	Braham and similar soils	3	---	No	---
	Soils that have a sandy substratum	3	---	No	---
	Sandy loam substratum	1	---	No	---
1260C:					
Stonelake-Nebish complex, 6 to 12 percent slopes	Stonelake	55	Moraines	No	---
	Nebish	30	Moraines	No	---
	Beltrami and similar soils	4	---	No	---
	Talmoon and similar soils	4	Swales	Yes	2B3
	Braham and similar soils	3	---	No	---
	Soils that have a sandy substratum	3	---	No	---
	Sandy loam substratum	1	---	No	---

Hydric Soils

Sherburne County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
1260E:					
Stonelake-Nebish complex, 12 to 25 percent slopes	Stonelake	60	Moraines	No	---
	Nebish	25	Moraines	No	---
	Beltrami and similar soils	4	---	No	---
	Talmoon and similar soils	4	Swales	Yes	2B3
	Braham and similar soils	3	---	No	---
	Soils that have a sandy substratum	3	---	No	---
	Sandy loam substratum	1	---	No	---
1270B:					
Milaca fine sandy loam, moderately wet, 3 to 6 percent slopes	Milaca, moderately wet	90	Drumlins	No	---
	Ronneby and similar soils	6	---	No	---
	Parent and similar soils	2	Swales	Yes	2B3
	Prebish and similar soils	2	Depressions	Yes	2B3, 3
1288:					
Seelyeville-Markey complex, ponded, 0 to 1 percent slopes	Seelyeville, ponded	60	Depressions	Yes	1, 3
	Markey, ponded	30	Depressions	Yes	1, 3
	Prebish and similar soils	6	Depressions	Yes	2B3, 3
	Isan and similar soils	2	Depressions	Yes	2B3, 3
	Isanti and similar soils	2	Depressions	Yes	2B3, 3
1356:					
Water, miscellaneous	Water, miscellaneous	100	---		---

Hydric Soils

Sherburne County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
1946: Fordum-Winterfield complex, 0 to 2 percent slopes, frequently flooded	Fordum, frequently flooded	65	Flood plains	Yes	2B3, 4
	Winterfield, frequently flooded	20	Flood plains	No	---
	Soils that have a gravelly substratum	4	Flood plains	Yes	2B3, 4
	Bowstring and similar soils	3	Flood plains	Yes	1, 4
	Seelyeville and similar soils	3	Flood plains	Yes	1, 4
	Soils that have a loamy substratum	3	Flood plains	Yes	2B3, 4
	Markey and similar soils	2	Flood plains	Yes	1, 4
W: Water	Water	100	---		---

Hydric Soils

This table lists the map unit components that are rated as hydric soils in the survey area. 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, 2002).

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 all 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, under natural conditions, 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, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2003) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time 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 are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 2002).

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

The criteria for hydric soils are represented by codes in the table (for example, 2B3). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
 - A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
 - B. are poorly drained or very poorly drained and have either:
 - 1) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
 - 2) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
 - 3) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.

References:

- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Hurt, G.W., P.M. Whited, and R.F. Pringle, editors. Version 5.0, 2002. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.
- Soil Survey Staff. 2003. Keys to soil taxonomy. 9th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.