

# Hydric Soils

Martin 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 |
|--|-------------|---------------------|---------------------------|---------------|-----------------|
| <b>8B:</b>                                       |             |                     |                           |               |                 |
| Sparta loamy fine sand, 1 to 6 percent slopes    | Sparta      | 90                  | Outwash plains            | No            | ---             |
|  | Farrer      | 4                   | Outwash plains            | No            | ---             |
|  | Hanska      | 3                   | Drainageways              | Yes           | 2B3             |
|  | Litchfield  | 3                   | Outwash plains            | No            | ---             |
| <b>27B:</b>                                      |             |                     |                           |               |                 |
| Dickinson fine sandy loam, 1 to 6 percent slopes | Dickinson   | 90                  | Outwash plains            | No            | ---             |
|  | Clarion     | 5                   | Moraines                  | No            | ---             |
|  | Hanska      | 5                   | Drainageways              | Yes           | 2B3             |
| <b>35:</b>                                       |             |                     |                           |               |                 |
| Blue Earth mucky silty clay loam                 | Blue Earth  | 85                  | Moraines, Relict lakebeds | Yes           | 2B3, 3          |
|  | Lemond      | 10                  | Flats                     | Yes           | 2B3             |
|  | Linder      | 5                   | Outwash plains            | No            | ---             |
| <b>37B:</b>                                      |             |                     |                           |               |                 |
| Farrar fine sandy loam, 1 to 6 percent slopes    | Farrar      | 90                  | Moraines                  | No            | ---             |
|  | Estherville | 4                   | Outwash plains            | No            | ---             |
|  | Clarion     | 3                   | Moraines                  | No            | ---             |
|  | Litchfield  | 3                   | Outwash plains            | No            | ---             |
| <b>39B:</b>                                      |             |                     |                           |               |                 |
| Wadena loam, 1 to 6 percent slopes               | Wadena      | 90                  | Outwash plains            | No            | ---             |
|  | Dickinson   | 4                   | Outwash plains            | No            | ---             |
|  | Biscay      | 3                   | Drainageways              | Yes           | 2B3             |
|  | Hanska      | 3                   | Drainageways              | Yes           | 2B3             |

# Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name                   | Component   | Percent of map unit | Landform                           | Hydric rating | Hydric criteria |
|--|-------------|---------------------|------------------------------------|---------------|-----------------|
| <b>41B:</b>                                    |             |                     |                                    |               |                 |
| Estherville sandy loam, 1 to 6 percent slopes  | Estherville | 90                  | Outwash plains                     | No            | ---             |
|  | Dickinson   | 4                   | Outwash plains                     | No            | ---             |
|  | Biscay      | 3                   | Drainageways                       | Yes           | 2B3             |
|  | Hanska      | 3                   | Drainageways                       | Yes           | 2B3             |
| <b>41C:</b>                                    |             |                     |                                    |               |                 |
| Estherville sandy loam, 6 to 12 percent slopes | Estherville | 90                  | Outwash plains                     | No            | ---             |
|  | Dickinson   | 4                   | Outwash plains                     | No            | ---             |
|  | Clarion     | 3                   | Moraines                           | No            | ---             |
|  | Swanlake    | 3                   | Moraines                           | No            | ---             |
| <b>84:</b>                                     |             |                     |                                    |               |                 |
| Brownton silty clay                            | Brownton    | 90                  | Moraines, Rims                     | Yes           | 2B3             |
|  | Okoboji     | 5                   | Depressions                        | Yes           | 2B3, 3          |
|  | Waldorf     | 5                   | Drainageways                       | Yes           | 2B3             |
| <b>86:</b>                                     |             |                     |                                    |               |                 |
| Canisteo clay loam                             | Canisteo    | 90                  | Depressions, Flats, Moraines, Rims | Yes           | 2B3             |
|  | Glencoe     | 5                   | Depressions                        | Yes           | 2B3, 3          |
|  | Webster     | 5                   | Drainageways                       | Yes           | 2B3             |
| <b>94B:</b>                                    |             |                     |                                    |               |                 |
| Terril loam, 2 to 6 percent slopes             | Terril      | 90                  | Hills, Moraines                    | No            | ---             |
|  | Clarion     | 4                   | Moraines                           | No            | ---             |
|  | Swanlake    | 3                   | Moraines                           | No            | ---             |
|  | Webster     | 3                   | Drainageways                       | Yes           | 2B3             |

# Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name            | Component  | Percent of map unit | Landform           | Hydric rating | Hydric criteria |
|---|------------|---------------------|--------------------|---------------|-----------------|
| <b>96:</b>                              |            |                     |                    |               |                 |
| Collinwood silty clay                   | Collinwood | 90                  | Hills, Lake plains | No            | ---             |
|   | Truman     | 5                   | Lake plains        | No            | ---             |
|   | Waldorf    | 5                   | Drainageways       | Yes           | 2B3             |
| <b>101B:</b>                            |            |                     |                    |               |                 |
| Truman silt loam, 1 to 6 percent slopes | Truman     | 90                  | Hills, Lake plains | No            | ---             |
|   | Bold       | 4                   | Lake plains        | No            | ---             |
|   | Kingston   | 3                   | Lake plains        | No            | ---             |
|   | Madelia    | 3                   | Drainageways       | Yes           | 2B3             |
| <b>102B:</b>                            |            |                     |                    |               |                 |
| Clarion loam, 1 to 6 percent slopes     | Clarion    | 90                  | Hills, Moraines    | No            | ---             |
|   | Swanlake   | 4                   | Moraines           | No            | ---             |
|   | Storden    | 3                   | Moraines           | No            | ---             |
|   | Webster    | 3                   | Drainageways       | Yes           | 2B3             |
| <b>106B:</b>                            |            |                     |                    |               |                 |
| Lester loam, 2 to 6 percent slopes      | Lester     | 90                  | Hills, Moraines    | No            | ---             |
|   | Swanlake   | 4                   | Moraines           | No            | ---             |
|   | Nicollet   | 3                   | Moraines           | No            | ---             |
|   | Webster    | 3                   | Drainageways       | Yes           | 2B3             |
| <b>106C:</b>                            |            |                     |                    |               |                 |
| Lester loam, 6 to 12 percent slopes     | Lester     | 90                  | Hills, Moraines    | No            | ---             |
|   | Storden    | 4                   | Moraines           | No            | ---             |
|   | Nicollet   | 3                   | Moraines           | No            | ---             |
|   | Webster    | 3                   | Drainageways       | Yes           | 2B3             |

## Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name            | Component | Percent of map unit | Landform              | Hydric rating | Hydric criteria |
|---|-----------|---------------------|-----------------------|---------------|-----------------|
| 112:                                    |           |                     |                       |               |                 |
| Harp clay loam                          | Harp      | 90                  | Moraines, Rims        | Yes           | 2B3             |
|   | Glencoe   | 4                   | Depressions           | Yes           | 2B3, 3          |
|   | Crippin   | 3                   | Moraines              | No            | ---             |
|   | Okoboji   | 3                   | Depressions           | Yes           | 2B3, 3          |
| 113:                                    |           |                     |                       |               |                 |
| Webster clay loam                       | Webster   | 90                  | Flats, Moraines       | Yes           | 2B3             |
|   | Canisteo  | 5                   | Rims                  | Yes           | 2B3             |
|   | Glencoe   | 5                   | Depressions           | Yes           | 2B3, 3          |
| 114:                                    |           |                     |                       |               |                 |
| Glencoe clay loam                       | Glencoe   | 85                  | Depressions, Moraines | Yes           | 2B3, 3          |
|   | Canisteo  | 10                  | Rims                  | Yes           | 2B3             |
|   | Webster   | 5                   | Drainageways          | Yes           | 2B3             |
| 118:                                    |           |                     |                       |               |                 |
| Crippin loam                            | Crippin   | 90                  | Moraines, Rises       | No            | ---             |
|   | Swanlake  | 4                   | Moraines              | No            | ---             |
|   | Clarion   | 3                   | Moraines              | No            | ---             |
|   | Harp      | 3                   | Rims                  | Yes           | 2B3             |
| 128B:                                   |           |                     |                       |               |                 |
| Grogan silt loam, 1 to 6 percent slopes | Grogan    | 90                  | Lake plains           | No            | ---             |
|   | Clarion   | 4                   | Moraines              | No            | ---             |
|   | Madelia   | 3                   | Drainageways          | Yes           | 2B3             |
|   | Ocheyedan | 3                   | Lake plains           | No            | ---             |

# Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name    | Component  | Percent of map unit | Landform              | Hydric rating | Hydric criteria |
|---------------------------------|------------|---------------------|-----------------------|---------------|-----------------|
| 130:<br>Nicollet clay loam      | Nicollet   | 90                  | Moraines, Rises       | No            | ---             |
|                                 | Clarion    | 5                   | Moraines              | No            | ---             |
|                                 | Webster    | 5                   | Drainageways          | Yes           | 2B3             |
| 134:<br>Okoboji silty clay loam | Okoboji    | 85                  | Depressions, Moraines | Yes           | 2B3, 3          |
|                                 | Canisteo   | 5                   | Rims                  | Yes           | 2B3             |
|                                 | Harps      | 5                   | Rims                  | Yes           | 2B3             |
|                                 | Palms      | 5                   | Depressions           | Yes           | 1, 3            |
| 136:<br>Madelia silty clay loam | Madelia    | 90                  | Flats, Lake plains    | Yes           | 2B3             |
|                                 | Harps      | 5                   | Rims                  | Yes           | 2B3             |
|                                 | Kingston   | 5                   | Lake plains           | No            | ---             |
| 140:<br>Spicer silty clay loam  | Spicer     | 90                  | Flats, Lake plains    | Yes           | 2B3             |
|                                 | Kingston   | 5                   | Lake plains           | No            | ---             |
|                                 | Madelia    | 5                   | Drainageways          | Yes           | 2B3             |
| 181:<br>Litchfield sandy loam   | Litchfield | 90                  | Outwash plains        | No            | ---             |
|                                 | Dickinson  | 4                   | Outwash plains        | No            | ---             |
|                                 | Hanska     | 3                   | Drainageways          | Yes           | 2B3             |
|                                 | Lemond     | 3                   | Drainageways          | Yes           | 2B3             |
| 197:<br>Kingston silt loam      | Kingston   | 90                  | Lake plains, Rises    | No            | ---             |
|                                 | Bold       | 5                   | Lake plains           | No            | ---             |
|                                 | Madelia    | 5                   | Drainageways          | Yes           | 2B3             |

## Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name               | Component                        | Percent of map unit | Landform              | Hydric rating | Hydric criteria |
|--|----------------------------------|---------------------|-----------------------|---------------|-----------------|
| 227:                                       |                                  |                     |                       |               |                 |
| Lemond sandy loam                          | Lemond                           | 90                  | Flats, Outwash plains | Yes           | 2B3             |
|  | Hanska                           | 4                   | Drainageways          | Yes           | 2B3             |
|  | Litchfield                       | 3                   | Outwash plains        | No            | ---             |
|  | Webster                          | 3                   | Drainageways          | Yes           | 2B3             |
| 229:                                       |                                  |                     |                       |               |                 |
| Waldorf silty clay loam                    | Waldorf                          | 90                  | Flats, Lake plains    | Yes           | 2B3             |
|  | Brownton                         | 4                   | Rims                  | Yes           | 2B3             |
|  | Collinwood                       | 3                   | Lake plains           | No            | ---             |
|  | Okoboji                          | 3                   | Depressions           | Yes           | 2B3, 3          |
| 247:                                       |                                  |                     |                       |               |                 |
| Linder loam                                | Linder                           | 90                  | Outwash plains        | No            | ---             |
|  | Biscay                           | 4                   | Drainageways          | Yes           | 2B3             |
|  | Dickinson                        | 2                   | Outwash plains        | No            | ---             |
|  | Mayer                            | 2                   | Rims                  | Yes           | 2B3             |
|  | Wadena                           | 2                   | Outwash plains        | No            | ---             |
| 255:                                       |                                  |                     |                       |               |                 |
| Mayer loam                                 | Mayer                            | 90                  | Flats, Outwash plains | Yes           | 2B3             |
|  | Linder                           | 5                   | Outwash plains        | No            | ---             |
|  | Wadena                           | 5                   | Outwash plains        | No            | ---             |
| 269:                                       |                                  |                     |                       |               |                 |
| Millington clay loam, occasionally flooded | Millington, occasionally flooded | 90                  | Flood plains          | Yes           | 2B3, 3          |
|  | Coland                           | 5                   | Flood plains          | Yes           | 2B3             |
|  | Spillville                       | 5                   | Flood plains          | No            | ---             |

# Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name          | Component                        | Percent of map unit | Landform               | Hydric rating | Hydric criteria |
|---------------------------------------|----------------------------------|---------------------|------------------------|---------------|-----------------|
| <b>275B:</b>                          |                                  |                     |                        |               |                 |
| Ocheyedan loam, 1 to 5 percent slopes | Ocheyedan                        | 90                  | Hills, Moraines        | No            | ---             |
|                                       | Fostoria                         | 5                   | Moraines               | No            | ---             |
|                                       | Kingston                         | 5                   | Lake plains            | No            | ---             |
| <b>282:</b>                           |                                  |                     |                        |               |                 |
| Hanska loam                           | Hanska                           | 90                  | Flats, Outwash plains  | Yes           | 2B3             |
|                                       | Lemond                           | 5                   | Drainageways           | Yes           | 2B3             |
|                                       | Litchfield                       | 5                   | Outwash plains         | No            | ---             |
| <b>313:</b>                           |                                  |                     |                        |               |                 |
| Spillville loam, occasionally flooded | Spillville, occasionally flooded | 90                  | Flood plains           | No            | ---             |
|                                       | Linder                           | 5                   | Outwash plains         | No            | ---             |
|                                       | Millington                       | 5                   | Flood plains           | Yes           | 2B3             |
| <b>336:</b>                           |                                  |                     |                        |               |                 |
| Delft loam                            | Delft                            | 90                  | Drainageways, Moraines | Yes           | 2B3             |
|                                       | Clarion                          | 5                   | Moraines               | No            | ---             |
|                                       | Terril                           | 5                   | Moraines               | No            | ---             |
| <b>350:</b>                           |                                  |                     |                        |               |                 |
| Canisteo clay loam, depressional      | Canisteo, depressional           | 90                  | Depressions, Moraines  | Yes           | 2B3, 3          |
|                                       | Glencoe                          | 5                   | Depressions            | Yes           | 2B3, 3          |
|                                       | Harps                            | 5                   | Rims                   | Yes           | 2B3             |
| <b>392:</b>                           |                                  |                     |                        |               |                 |
| Biscay sandy clay loam                | Biscay                           | 90                  | Flats, Outwash plains  | Yes           | 2B3             |
|                                       | Lemond                           | 4                   | Drainageways           | Yes           | 2B3             |
|                                       | Linder                           | 3                   | Outwash plains         | No            | ---             |
|                                       | Wadena                           | 3                   | Outwash plains         | No            | ---             |

# Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name                       | Component                  | Percent of map unit | Landform                    | Hydric rating | Hydric criteria |
|--|----------------------------|---------------------|-----------------------------|---------------|-----------------|
| 499:<br>Hanska loam, depressional                  | Hanska, depressional       | 90                  | Depressions, Outwash plains | Yes           | 2B3, 3          |
|  | Lemond                     | 5                   | Drainageways                | Yes           | 2B3             |
|  | Litchfield                 | 5                   | Outwash plains              | No            | ---             |
| 539:<br>Palms muck                                 | Palms                      | 90                  | Depressions, Moraines       | Yes           | 1, 3            |
|  | Glencoe                    | 4                   | Depressions                 | Yes           | 2B3, 3          |
|  | Canisteo                   | 2                   | Rims                        | Yes           | 2B3             |
|  | Harps                      | 2                   | Rims                        | Yes           | 2B3             |
|  | Okoboji                    | 2                   | Depressions                 | Yes           | 2B3, 3          |
| 548:<br>Palms muck, sandy substratum               | Palms, sandy substratum    | 85                  | Depressions, Outwash plains | Yes           | 1, 3            |
|  | Blue Earth                 | 5                   | Depressions                 | Yes           | 1, 3            |
|  | Lemond                     | 5                   | Drainageways                | Yes           | 2B3             |
|  | Linder                     | 5                   | Beach ridges                | No            | ---             |
| 664:<br>Zook silty clay loam, occasionally flooded | Zook, occasionally flooded | 90                  | Flood plains                | Yes           | 2B3             |
|  | Coland                     | 5                   | Flood plains                | Yes           | 2B3, 3          |
|  | Millington                 | 5                   | Flood plains                | Yes           | 2B3, 3          |
| 818:<br>Lemond-Linder complex                      | Lemond                     | 55                  | Flats, Outwash plains       | Yes           | 2B3             |
|  | Linder                     | 25                  | Rises                       | No            | ---             |
|  | Blue Earth                 | 10                  | Depressions                 | Yes           | 1, 3            |
|  | Crippen                    | 5                   | Moraines                    | No            | ---             |
|  | Palms                      | 5                   | Depressions                 | Yes           | 1, 3            |

## Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name                            | Component      | Percent of map unit | Landform           | Hydric rating | Hydric criteria |
|---|----------------|---------------------|--------------------|---------------|-----------------|
| <b>886:</b>   |                |                     |                    |               |                 |
| Nicollet-Crippin complex                                | Nicollet       | 50                  | Moraines, Rises    | No            | ---             |
|   | Crippin        | 35                  | Moraines, Rises    | No            | ---             |
|   | Clarion        | 5                   | Moraines           | No            | ---             |
|   | Swanlake       | 5                   | Moraines           | No            | ---             |
|   | Webster        | 5                   | Drainageways       | Yes           | 2B3             |
| <b>887B:</b>  |                |                     |                    |               |                 |
| Clarion-Swanlake loams, 2 to 6 percent slopes           | Clarion        | 60                  | Hills, Moraines    | No            | ---             |
|   | Swanlake       | 25                  | Hills, Moraines    | No            | ---             |
|   | Canisteo       | 5                   | Rims               | Yes           | 2B3             |
|   | Nicollet       | 5                   | Moraines           | No            | ---             |
|   | Webster        | 5                   | Drainageways       | Yes           | 2B3             |
| <b>909C:</b>  |                |                     |                    |               |                 |
| Truman-Bold silt loams, 6 to 12 percent slopes          | Truman         | 45                  | Hills, Lake plains | No            | ---             |
|   | Bold           | 35                  | Hills, Lake plains | No            | ---             |
|   | Madelia        | 10                  | Drainageways       | Yes           | 2B3             |
|   | Kingston       | 5                   | Lake plains        | No            | ---             |
|   | Terril         | 5                   | Moraines           | No            | ---             |
| <b>909D2:</b>   |                |                     |                    |               |                 |
| Bold-Truman silt loams, 12 to 18 percent slopes, eroded | Bold, eroded   | 45                  | Hills, Lake plains | No            | ---             |
|   | Truman, eroded | 40                  | Hills, Lake plains | No            | ---             |
|   | Madelia        | 10                  | Drainageways       | Yes           | 2B3             |
|   | Terril         | 5                   | Moraines           | No            | ---             |

# Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name   | Component           | Percent of map unit | Landform        | Hydric rating | Hydric criteria |
|--|---------------------|---------------------|-----------------|---------------|-----------------|
| <b>920B:</b>   |                     |                     |                 |               |                 |
| Clarion-Estherville complex, 2 to 6 percent slopes                   | Clarion             | 50                  | Hills, Moraines | No            | ---             |
|  | Estherville         | 25                  | Hills, Moraines | No            | ---             |
|  | Swanlake            | 10                  | Moraines        | No            | ---             |
|  | Webster             | 10                  | Drainageways    | Yes           | 2B3             |
|  | Terril              | 5                   | Moraines        | No            | ---             |
| <b>920C2:</b>  |                     |                     |                 |               |                 |
| Clarion-Estherville-Storden complex, 6 to 12 percent slopes, eroded  | Clarion, eroded     | 30                  | Hills, Moraines | No            | ---             |
|  | Estherville, eroded | 20                  | Hills, Moraines | No            | ---             |
|  | Storden, eroded     | 20                  | Hills, Moraines | No            | ---             |
|  | Delft               | 10                  | Drainageways    | Yes           | 2B3             |
|  | Nicollet            | 10                  | Moraines        | No            | ---             |
|  | Terril              | 10                  | Moraines        | No            | ---             |
| <b>920D2:</b>  |                     |                     |                 |               |                 |
| Clarion-Estherville-Storden complex, 12 to 18 percent slopes, eroded | Clarion, eroded     | 30                  | Hills, Moraines | No            | ---             |
|  | Estherville, eroded | 25                  | Hills, Moraines | No            | ---             |
|  | Storden, eroded     | 20                  | Hills, Moraines | No            | ---             |
|  | Terril              | 15                  | Moraines        | No            | ---             |
|  | Delft               | 10                  | Drainageways    | Yes           | 2B3             |
| <b>921B:</b>   |                     |                     |                 |               |                 |
| Clarion-Storden loams, 2 to 6 percent slopes                         | Clarion             | 45                  | Hills, Moraines | No            | ---             |
|  | Storden             | 35                  | Hills, Moraines | No            | ---             |
|  | Nicollet            | 10                  | Moraines        | No            | ---             |
|  | Webster             | 10                  | Drainageways    | Yes           | 2B3             |

## Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name                           | Component       | Percent of map unit | Landform                           | Hydric rating | Hydric criteria |
|--|-----------------|---------------------|------------------------------------|---------------|-----------------|
| <b>921C2:</b>  |                 |                     |                                    |               |                 |
| Clarion-Storden loams, 6 to 12 percent slopes, eroded  | Clarion, eroded | 35                  | Hills, Moraines                    | No            | ---             |
|  | Storden, eroded | 30                  | Hills, Moraines                    | No            | ---             |
|  | Terril          | 15                  | Moraines                           | No            | ---             |
|  | Delft           | 10                  | Drainageways                       | Yes           | 2B3             |
|  | Nicollet        | 10                  | Moraines                           | No            | ---             |
| <b>956:</b>  |                 |                     |                                    |               |                 |
| Canisteo-Glencoe clay loams                            | Canisteo        | 60                  | Depressions, Flats, Moraines, Rims | Yes           | 2B3             |
|  | Glencoe         | 30                  | Depressions, Moraines              | Yes           | 2B3, 3          |
|  | Webster         | 4                   | Drainageways                       | Yes           | 2B3             |
|  | Crippen         | 3                   | Moraines                           | No            | ---             |
|  | Nicollet        | 3                   | Moraines                           | No            | ---             |
| <b>960D2:</b>  |                 |                     |                                    |               |                 |
| Storden-Clarion loams, 12 to 18 percent slopes, eroded | Storden, eroded | 40                  | Hills, Moraines                    | No            | ---             |
|  | Clarion, eroded | 30                  | Hills, Moraines                    | No            | ---             |
|  | Delft           | 15                  | Drainageways                       | Yes           | 2B3             |
|  | Terril          | 15                  | Moraines                           | No            | ---             |
| <b>960E:</b>   |                 |                     |                                    |               |                 |
| Storden-Clarion loams, 18 to 25 percent slopes         | Storden         | 45                  | Hills, Moraines                    | No            | ---             |
|  | Clarion         | 30                  | Hills, Moraines                    | No            | ---             |
|  | Terril          | 15                  | Moraines                           | No            | ---             |
|  | Delft           | 10                  | Drainageways                       | Yes           | 2B3             |
| <b>1029:</b>   |                 |                     |                                    |               |                 |
| Pits, gravel   | Pits, gravel    | 100                 | Outwash plains                     | Unranked      | ---             |

## Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name                             | Component                    | Percent of map unit | Landform              | Hydric rating | Hydric criteria |
|--|------------------------------|---------------------|-----------------------|---------------|-----------------|
| 1052:<br>Palms and Okoboji soils, ponded                 | Okoboji, ponded              | 50                  | Depressions, Moraines | Yes           | 2B3, 3          |
|  | Palms, ponded                | 50                  | Depressions, Moraines | Yes           | 1, 3            |
| 1090:<br>Blue Earth silt loam                            | Blue Earth                   | 85                  | Flats, Moraines       | Yes           | 2B3             |
|  | Glencoe                      | 10                  | Depressions           | Yes           | 2B3, 3          |
|  | Harps                        | 5                   | Rims                  | Yes           | 2B3             |
| 1356:<br>Water, miscellaneous                            | Water, miscellaneous         | 100                 | ---                   |               | ---             |
| 1833:<br>Coland loam, occasionally flooded               | Coland, occasionally flooded | 90                  | Flood plains          | Yes           | 2B3             |
|  | Millington                   | 4                   | Flood plains          | Yes           | 2B3             |
|  | Linder                       | 3                   | Outwash plains        | No            | ---             |
|  | Zook                         | 3                   | Flood plains          | Yes           | 2B3, 3          |
| 1834:<br>Coland loam, frequently flooded                 | Coland, frequently flooded   | 90                  | Flood plains          | Yes           | 2B3             |
|  | Millington                   | 5                   | Flood plains          | Yes           | 2B3             |
|  | Zook                         | 5                   | Flood plains          | Yes           | 2B3, 3          |
| 1852F:<br>Terril-Swanlake loams, 18 to 40 percent slopes | Terril                       | 45                  | Hills, Moraines       | No            | ---             |
|  | Swanlake                     | 25                  | Hills, Moraines       | No            | ---             |
|  | Clarion                      | 15                  | Moraines              | No            | ---             |
|  | Delft                        | 15                  | Drainageways          | Yes           | 2B3             |

# Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name                           | Component                | Percent of map unit | Landform                           | Hydric rating | Hydric criteria |
|--|--------------------------|---------------------|------------------------------------|---------------|-----------------|
| <b>1877:</b>   |                          |                     |                                    |               |                 |
| Fostoria clay loam                                     | Fostoria                 | 90                  | Moraines                           | No            | ---             |
|  | Waldorf                  | 4                   | Drainageways                       | Yes           | 2B3             |
|  | Kingston                 | 3                   | Lake plains                        | No            | ---             |
|  | Ocheyedan                | 3                   | Lake plains                        | No            | ---             |
| <b>1907:</b>   |                          |                     |                                    |               |                 |
| Lakefield silt loam                                    | Lakefield                | 90                  | Lake plains                        | No            | ---             |
|  | Madelia                  | 5                   | Drainageways                       | Yes           | 2B3             |
|  | Truman                   | 5                   | Lake plains                        | No            | ---             |
| <b>L13A:</b>   |                          |                     |                                    |               |                 |
| Klossner muck, depressional, 0 to 1 percent slopes     | Klossner, drained        | 80                  | Depressions, Moraines              | Yes           | 1               |
|  | Mineral soil, drained    | 15                  | Depressions, Moraines              | Yes           | 2B3             |
|  | Houghton, drained        | 5                   | Depressions, Moraines              | Yes           | 1               |
| <b>L83A:</b>   |                          |                     |                                    |               |                 |
| Webster clay loam, 0 to 2 percent slopes               | Webster                  | 65                  | Flats, Moraines, Swales            | Yes           | 2B3             |
|  | Glencoe, depressional    | 14                  | Depressions, Moraines              | Yes           | 2B3, 3          |
|  | Canisteo                 | 8                   | Depressions, Flats, Moraines, Rims | Yes           | 2B3             |
|  | Nicollet                 | 8                   | Flats, Moraines, Rises             | No            | ---             |
|  | Poorly drained soil      | 5                   | Flats, Moraines, Swales            | Yes           | 2B3             |
| <b>L84A:</b>   |                          |                     |                                    |               |                 |
| Glencoe clay loam, depressional, 0 to 1 percent slopes | Glencoe, depressional    | 80                  | Depressions, Moraines              | Yes           | 2B3, 3          |
|  | Very poorly drained muck | 10                  | Depressions, Moraines              | Yes           | 2B3             |
|  | Canisteo                 | 5                   | Depressions, Flats, Moraines, Rims | Yes           | 2B3             |
|  | Harps                    | 5                   | Depressions, Rims                  | Yes           | 2B3             |

## Hydric Soils

Martin County, Minnesota

| Map symbol and map unit name                                  | Component              | Percent of map unit | Landform  | Hydric rating | Hydric criteria |
|---|------------------------|---------------------|---|---------------|-----------------|
| <b>L85A:</b>  |                        |                     |   |               |                 |
| Nicollet clay loam, 1 to 3 percent slopes                     | Nicollet               | 85                  | Flats, Moraines, Rises                          | No            | ---             |
|   | Clarion                | 10                  | Hills, Moraines                                 | No            | ---             |
|   | Webster                | 5                   | Flats, Moraines, Swales                         | Yes           | 2B3             |
| <b>L107A:</b>   |                        |                     |   |               |                 |
| Canisteo-Glencoe, depressional complex, 0 to 2 percent slopes | Canisteo               | 50                  | Moraines, Rims                                  | Yes           | 2B3             |
|   | Glencoe, depressional  | 35                  | Depressions, Moraines                           | Yes           | 2B3, 3          |
|   | Harps                  | 9                   | Moraines, Rims                                  | Yes           | 2B3             |
|   | Canisteo, depressional | 3                   | Depressions, Moraines                           | Yes           | 2B3             |
|   | Crippin                | 3                   | Flats, Moraines, Rises                          | No            | ---             |
| <b>L163A:</b>   |                        |                     |   |               |                 |
| Okoboji silty clay loam, depressional, 0 to 1 percent slopes  | Okoboji, depressional  | 92                  | Lake plains, Moraines                           | Yes           | 2B3             |
|   | Canisteo               | 2                   | Depressions, Flats, Moraines, Rims              | Yes           | 2B3             |
|   | Harpster               | 2                   | Lake plains                                     | Yes           | 2B3             |
|   | Knoke, depressional    | 2                   | Lake plains                                     | Yes           | 2B3             |
|   | Prinsburg              | 2                   | Depressions, Flats, Lake plains, Moraines, Rims | Yes           | 2B3             |
| <b>W:</b>   |                        |                     |   |               |                 |
| Water   | Water                  | 100                 | ---   | Unranked      | ---             |

# 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.