

## Map Unit Description (MN)

Itasca County, Minnesota

[Data apply to the entire extent of the map unit within the survey area. Map unit and soil properties for a specific parcel of land may vary somewhat and should be determined by onsite investigation]

### 32B--Nebish very fine sandy loam, 2 to 6 percent slopes

#### Nebish

*Extent:* 85 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 2 to 6 percent

*Parent material:* loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 2e

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 2 in	very fine sandy loam	moderately rapid	0.26 to 0.35 in	5.6 to 7.3
E -- 2 to 8 in	very fine sandy loam	moderately rapid	0.65 to 1.12 in	5.6 to 7.3
B/E,Bt1-Bt3 -- 8 to 39 in	loam	moderate	4.67 to 5.91 in	5.6 to 7.8
C -- 39 to 64 in	loam	moderate	2.73 to 4.71 in	7.4 to 8.4

#### Cathro

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 32B--Nebish very fine sandy loam, 2 to 6 percent slopes

#### Talmoon

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Shooker

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 32D--Nebish fine sandy loam, 10 to 25 percent slopes

#### Nebish

*Extent:* 85 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 10 to 25 percent

*Parent material:* loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .28

*Land capability, nonirrigated:* 4e

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 3 in	fine sandy loam	moderately rapid	0.41 to 0.57 in	5.6 to 7.3
E -- 3 to 9 in	fine sandy loam	moderately rapid	0.65 to 1.12 in	5.6 to 7.3
B/E,Bt -- 9 to 29 in	loam	moderate	3.01 to 3.81 in	5.6 to 7.8
C -- 29 to 60 in	loam	moderate	3.38 to 5.83 in	7.4 to 8.4

#### Cathro

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 32D--Nebish fine sandy loam, 10 to 25 percent slopes

#### Talmoon

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Shooker

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 72--Shooker very fine sandy loam

#### Shooker

*Extent:* 85 percent of the unit

*Landform(s):* flats on moraines

*Slope gradient:* 0 to 2 percent

*Parent material:* loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .32

*Land capability, nonirrigated:* 2w

*Hydric soil:* yes

*Hydrologic group:* B/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 2 in	very fine sandy loam	moderately rapid	0.26 to 0.30 in	5.6 to 7.3
E,B/E,Btg -- 2 to 27 in	clay loam	moderate	3.72 to 4.71 in	5.6 to 7.8
Cg1,Cg2 -- 27 to 60 in	loam	moderate	3.64 to 6.28 in	7.4 to 8.4

#### Cathro

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 72--Shooker very fine sandy loam

#### Talmoon

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Nebish

*Extent:* 5 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 147--Spoooner silt loam

#### Spoooner

*Extent:* 90 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* silty lacustrine deposits

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .37

*Land capability, nonirrigated:* 2w

*Hydric soil:* yes

*Hydrologic group:* B/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 4 in	silt loam	moderate	0.79 to 0.94 in	5.6 to 7.8
E -- 4 to 9 in	silt loam	moderately rapid	0.87 to 0.97 in	5.6 to 7.8
B/E,Bt,BC -- 9 to 20 in	loam	moderate	1.87 to 2.43 in	6.1 to 7.8
Cg1-Cg3 -- 20 to 60 in	silt loam	moderate	6.76 to 8.75 in	7.4 to 8.4

#### Cathro

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 147--Spooner silt loam

#### Baudette

*Extent:* 5 percent of the unit

*Landform(s):* lake plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 158B--Zimmerman loamy fine sand, 1 to 8 percent slopes

#### Zimmerman

*Extent:* 90 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:* 1 to 8 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 4s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E --	0 to 3 in loamy fine sand	rapid	0.31 to 0.38 in	5.1 to 6.5
Bw,E',E&Bt,C -	3 to 60 in fine sand	rapid	3.40 to 5.67 in	5.1 to 7.3

#### Sago

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 158B--Zimmerman loamy fine sand, 1 to 8 percent slopes

#### Cowhorn

*Extent:* 5 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 167B--Baudette silt loam, 0 to 5 percent slopes

#### Baudette

*Extent:* 90 percent of the unit

*Landform(s):* lake plains

*Slope gradient:* 0 to 5 percent

*Parent material:* silty lacustrine deposits

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 2e

*Hydric soil:* no

*Hydrologic group:* C

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 7 in	silt loam	moderate	1.42 to 1.56 in	5.6 to 7.3
E -- 7 to 9 in	silt loam	moderate	0.28 to 0.39 in	5.6 to 7.3
B/E,Bt,BC -- 9 to 36 in	silt loam	moderate	4.55 to 6.43 in	5.6 to 7.8
C -- 36 to 60 in	silt loam	moderate	4.08 to 5.28 in	7.4 to 8.4

#### Spoooner

*Extent:* 10 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 202--Meehan loamy sand

#### Meehan

*Extent:* 90 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:* 0 to 3 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .17

*Land capability, nonirrigated:* 4w

*Hydric soil:* no

*Hydrologic group:* A/D

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	loamy sand	moderately rapid	0.12 to 0.14 in	3.5 to 7.3
E,Bw -- 1 to 35 in	loamy sand	rapid	2.03 to 3.72 in	3.5 to 6.5
C -- 35 to 60 in	coarse sand	rapid	0.50 to 1.74 in	3.5 to 7.3

#### Menahga

*Extent:* 4 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 202--Meehan loamy sand

#### Roscommon

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

#### Tawas

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 240B--Warba fine sandy loam, 1 to 8 percent slopes

#### Warba

*Extent:* 85 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 1 to 8 percent

*Parent material:* loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 2e

*Hydric soil:* no

*Hydrologic group:* C

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	fine sandy loam	moderately rapid	0.21 to 0.27 in	5.1 to 6.5
E,E/B,Bt -- 1 to 48 in	clay loam	moderately slow	7.50 to 8.90 in	5.1 to 7.3
C -- 48 to 60 in	sandy clay loam	moderate	1.89 to 2.24 in	6.6 to 8.4

#### Stuntz

*Extent:* 5 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 240B--Warba fine sandy loam, 1 to 8 percent slopes

#### Cutaway

*Extent:* 4 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Cathro

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 240B--Warba fine sandy loam, 1 to 8 percent slopes

#### Talmoon

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 240D--Warba fine sandy loam, 10 to 25 percent slopes

#### Warba

*Extent:* 90 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 10 to 25 percent

*Parent material:* loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 4e

*Hydric soil:* no

*Hydrologic group:* C

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	fine sandy loam	moderately rapid	0.21 to 0.27 in	5.1 to 6.5
E,E/B,Bt -- 1 to 42 in	clay loam	moderately slow	6.55 to 7.78 in	5.1 to 7.3
C -- 42 to 60 in	loam	moderate	2.83 to 3.37 in	6.6 to 8.4

#### Cutaway

*Extent:* 3 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 240D--Warba fine sandy loam, 10 to 25 percent slopes

#### Stuntz

*Extent:* 3 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Cathro

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 240D--Warba fine sandy loam, 10 to 25 percent slopes

#### Talmoon

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 243--Stuntz very fine sandy loam

#### Stuntz

*Extent:* 90 percent of the unit

*Landform(s):* swales on moraines

*Slope gradient:* 0 to 3 percent

*Parent material:* loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .37

*Land capability, nonirrigated:* 2w

*Hydric soil:* no

*Hydrologic group:* C/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	very fine sandy loam	moderately rapid	0.21 to 0.27 in	4.5 to 6.5
E, E/B, B/E, Bt -- 1 to 43 in	clay loam	moderately slow	6.68 to 7.93 in	5.1 to 7.8
C -- 43 to 60 in	clay loam	moderately slow	2.71 to 3.22 in	6.6 to 8.4

#### Warba

*Extent:* 4 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 243--Stuntz very fine sandy loam

#### Cathro

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Talmoon

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 268B--Cromwell fine sandy loam, 1 to 10 percent slopes

#### Cromwell

*Extent:* 90 percent of the unit  
*Landform(s):* outwash plains  
*Slope gradient:* 1 to 10 percent  
*Parent material:* sandy outwash  
*Restrictive feature(s):* greater than 60 inches  
*Flooding:* none  
*Ponding:* none  
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5  
*Wind erodibility group (WEG):* 3  
*Wind erodibility index (WEI):* 86  
*Kw factor (surface layer)* .24  
*Land capability, nonirrigated:* 3e  
*Hydric soil:* no  
*Hydrologic group:* B  
*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A --	0 to 3 in fine sandy loam	moderate	0.50 to 0.57 in	4.5 to 6.0
E,Bw,2Bw,2C -	3 to 60 in coarse sand	rapid	2.83 to 3.97 in	5.1 to 7.3

#### Sago

*Extent:* 3 percent of the unit  
*Landform(s):* depressions  
*Slope gradient:*  
*Parent material:*  
*Restrictive feature(s):* greater than 60 inches  
*Flooding:*  
*Ponding:*  
*Drainage class:*

*Soil loss tolerance (T factor):*  
*Wind erodibility group (WEG):*  
*Wind erodibility index (WEI):*  
*Kw factor (surface layer)*  
*Land capability, nonirrigated:*  
*Hydric soil:* yes  
*Hydrologic group:*  
*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 268B--Cromwell fine sandy loam, 1 to 10 percent slopes

#### Poorly drained sandy soils

*Extent:* 3 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Cathro

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 268B--Cromwell fine sandy loam, 1 to 10 percent slopes

#### Tawas

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 268D--Cromwell fine sandy loam, 10 to 25 percent slopes

#### Cromwell

*Extent:* 90 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:* 10 to 25 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 6e

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 3 in	fine sandy loam	moderate	0.50 to 0.57 in	4.5 to 6.0
E,Bw,2Bw,2C - 3 to 60 in	coarse sand	rapid	2.83 to 3.97 in	5.1 to 7.3

#### Tawas

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 268D--Cromwell fine sandy loam, 10 to 25 percent slopes

#### Poorly drained sandy soils

*Extent:* 3 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Cathro

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 268D--Cromwell fine sandy loam, 10 to 25 percent slopes

#### Loxley

*Extent:* 2 percent of the unit

*Landform(s):* bogs

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 458E--Menahga loamy sand, 10 to 30 percent slopes

#### Menahga

*Extent:* 95 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:* 10 to 30 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .10

*Land capability, nonirrigated:* 7s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	loamy sand	rapid	0.12 to 0.14 in	4.5 to 6.5
E,Bw,BC -- 1 to 44 in	sand	rapid	2.15 to 3.00 in	4.5 to 6.5
C -- 44 to 60 in	coarse sand	rapid	0.79 to 1.10 in	5.6 to 7.8

#### Meehan

*Extent:* 3 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 458E--Menahga loamy sand, 10 to 30 percent slopes

#### Roscommon

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 533--Loxley peat

#### Loxley

*Extent:* 95 percent of the unit

*Landform(s):* bogs

*Slope gradient:* 0 to 1 percent

*Parent material:* organic material

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 8

*Wind erodibility index (WEI):* 0

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 7w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oi,Oe1 --	0 to 12 in peat	very rapid	4.13 to 7.68 in	
Oa1,Oe2,Oa2 -	12 to 60 in muck	moderately rapid	16.81 to 21.61 in	

#### Sandwick

*Extent:* 2 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 533--Loxley peat

#### Keewatin

*Extent:* 2 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Nashwauk

*Extent:* 1 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 541--Rifle mucky peat

#### Rifle

*Extent:* 90 percent of the unit

*Landform(s):* swamps

*Slope gradient:* 0 to 1 percent

*Parent material:* herbaceous organic material

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 6w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oe1 -- 0 to 4 in	mucky peat	rapid	1.89 to 2.28 in	
Oe2-Oe5 -- 4 to 60 in	mucky peat	rapid	26.83 to 32.43 in	

#### Cowhorn

*Extent:* 3 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 541--Rifle mucky peat

#### Indus

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

#### Wawina

*Extent:* 2 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

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### 541--Rifle mucky peat

#### Taylor

*Extent:* 2 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 544--Cathro muck

#### Cathro

*Extent:* 90 percent of the unit  
*Landform(s):* depressions on moraines  
*Slope gradient:* 0 to 2 percent  
*Parent material:* organic material over loamy till  
*Restrictive feature(s):* greater than 60 inches  
*Flooding:* none  
*Ponding:* frequent  
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 1  
*Wind erodibility group (WEG):* 2  
*Wind erodibility index (WEI):* 134  
*Kw factor (surface layer)* .02  
*Land capability, nonirrigated:* 6w  
*Hydric soil:* yes  
*Hydrologic group:* B/D  
*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oa1,Oe -- 0 to 14 in	muck	moderately rapid	4.96 to 6.38 in	
Oa2 -- 14 to 39 in	muck	moderately rapid	8.68 to 11.16 in	
Cg -- 39 to 60 in	loam	moderate	2.30 to 4.59 in	

#### Stuntz

*Extent:* 2 percent of the unit  
*Landform(s):*  
*Slope gradient:*  
*Parent material:*  
*Restrictive feature(s):* greater than 60 inches  
*Flooding:*  
*Ponding:*  
*Drainage class:*

*Soil loss tolerance (T factor):*  
*Wind erodibility group (WEG):*  
*Wind erodibility index (WEI):*  
*Kw factor (surface layer)*  
*Land capability, nonirrigated:*  
*Hydric soil:* no  
*Hydrologic group:*  
*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 544--Cathro muck

#### Keewatin

*Extent:* 2 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

#### Spoooner

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 544--Cathro muck

#### Shooker

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Morph

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 549--Greenwood peat

#### Greenwood

*Extent:* 95 percent of the unit

*Landform(s):* bogs

*Slope gradient:* 0 to 1 percent

*Parent material:* herbaceous organic material

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 8

*Wind erodibility index (WEI):* 0

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 7w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oi -- 0 to 15 in	peat	very rapid	8.23 to 9.72 in	
Oe1,Oe2 -- 15 to 60 in	mucky peat	rapid	20.20 to 24.68 in	

#### Brickton

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 549--Greenwood peat

#### Indus

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

#### Cowhorn

*Extent:* 1 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 550--Dora mucky peat

#### Dora

*Extent:* 95 percent of the unit

*Landform(s):* depressions on lake plains

*Slope gradient:* 0 to 1 percent

*Parent material:* organic material over clayey glaciolacustrine deposits

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 1

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 6w

*Hydric soil:* yes

*Hydrologic group:* B/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oe -- 0 to 12 in	mucky peat	rapid	4.13 to 6.50 in	
Oa1,Oa2 -- 12 to 32 in	muck	moderately rapid	7.03 to 11.04 in	
A -- 32 to 36 in	mucky silty clay loam	moderately slow	0.71 to 0.94 in	
Cg1,Cg2,Cg3 - 36 to 60 in	silty clay	impermeable	2.40 to 4.80 in	

#### Indus

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 550--Dora mucky peat

#### Brickton

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 614--Blackhoof muck

#### Blackhoof

*Extent:* 85 percent of the unit  
*Landform(s):* depressions on moraines  
*Slope gradient:* 0 to 1 percent  
*Parent material:* organic material over loamy till  
*Restrictive feature(s):* greater than 60 inches  
*Flooding:* none  
*Ponding:* frequent  
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 1  
*Wind erodibility group (WEG):* 2  
*Wind erodibility index (WEI):* 134  
*Kw factor (surface layer)* .02  
*Land capability, nonirrigated:* 6w  
*Hydric soil:* yes  
*Hydrologic group:* C/D  
*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oa -- 0 to 8 in	muck	moderately rapid	4.33 to 5.12 in	5.1 to 6.5
A -- 8 to 11 in	loam	slow	0.50 to 0.63 in	5.1 to 6.5
Bg1-Bg3,Cg -- 11 to 60 in	loam	slow	6.83 to 8.30 in	5.1 to 7.8

#### Sandwich

*Extent:* 8 percent of the unit  
*Landform(s):* flats  
*Slope gradient:*  
*Parent material:*  
*Restrictive feature(s):* greater than 60 inches  
*Flooding:*  
*Ponding:*  
*Drainage class:*

*Soil loss tolerance (T factor):*  
*Wind erodibility group (WEG):*  
*Wind erodibility index (WEI):*  
*Kw factor (surface layer)*  
*Land capability, nonirrigated:*  
*Hydric soil:* yes  
*Hydrologic group:*  
*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 614--Blackhoof muck

#### Keewatin

*Extent:* 7 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 615--Cowhorn loamy very fine sand

#### Cowhorn

*Extent:* 90 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:* 0 to 3 percent

*Parent material:* sandy outwash over sandy and silty glaciolacustrine deposits

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .49

*Land capability, nonirrigated:* 2w

*Hydric soil:* no

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 8 in	loamy very fine sand	moderately rapid	1.26 to 1.57 in	5.1 to 6.5
Bw1-Bw4 -- 8 to 51 in	loamy very fine sand	moderately rapid	5.20 to 8.23 in	5.1 to 6.5
C -- 51 to 60 in	very fine sand	moderately rapid	1.04 to 1.65 in	6.1 to 8.4

#### Wawina

*Extent:* 4 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 615--Cowhorn loamy very fine sand

#### Sago

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Zimmerman

*Extent:* 3 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 616--Effie loam

#### Effie

*Extent:* 85 percent of the unit

*Landform(s):* flats on moraines

*Slope gradient:* 0 to 2 percent

*Parent material:* loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 2w

*Hydric soil:* yes

*Hydrologic group:* C/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 5 in	loam	moderate	1.02 to 1.23 in	5.6 to 7.3
B/E,Btg1-2 -- 5 to 19 in	clay loam	slow	1.65 to 2.62 in	5.1 to 8.4
Cg1,Cg2 -- 19 to 60 in	clay loam	slow	4.91 to 7.78 in	7.9 to 8.4

#### Wildwood

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 616--Effie loam

#### Dora

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Suomi

*Extent:* 5 percent of the unit

*Landform(s):* lake plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 617B--Goodland silt loam, 1 to 10 percent slopes

#### Goodland

*Extent:* 90 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 1 to 10 percent

*Parent material:* sandy and silty glaciolacustrine deposits over sandy and gravelly outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .55

*Land capability, nonirrigated:* 2e

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 3 in	silt loam	moderate	0.63 to 0.76 in	5.1 to 6.5
Bw,2E/B,2Bt -- 3 to 28 in	fine sandy loam	moderate	2.98 to 4.71 in	5.1 to 6.5
3BC -- 28 to 34 in	gravelly loamy coarse sand	moderately rapid	0.35 to 0.59 in	5.1 to 6.5
3C -- 34 to 60 in	gravelly sand	rapid	0.52 to 1.82 in	5.6 to 7.8

#### Cromwell

*Extent:* 4 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 617B--Goodland silt loam, 1 to 10 percent slopes

#### Organic soils

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Menahga

*Extent:* 3 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 618B--Itasca silt loam, 1 to 10 percent slopes

#### Itasca

*Extent:* 90 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 1 to 10 percent

*Parent material:* silty glaciolacustrine deposits over loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 2e

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 3 in	silt loam	moderate	0.69 to 0.76 in	5.1 to 6.5
Bw,E' -- 3 to 19 in	silt loam	moderate	2.68 to 3.46 in	5.1 to 6.0
2E/B,2Bt1 -- 19 to 43 in	fine sandy loam	moderate	2.64 to 4.56 in	5.6 to 7.3
2Bt2,2C -- 43 to 60 in	fine sandy loam	moderate	1.86 to 3.22 in	6.6 to 8.4

#### Shooker

*Extent:* 4 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 618B--Itasca silt loam, 1 to 10 percent slopes

#### Cathro

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

#### Talmoon

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 619--Keewatin silt loam

#### Keewatin

*Extent:* 90 percent of the unit

*Landform(s):* swales on moraines

*Slope gradient:* 0 to 3 percent

*Parent material:* loamy till

*Restrictive feature(s):* densic material at 6 to 14 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .37

*Land capability, nonirrigated:* 3w

*Hydric soil:* no

*Hydrologic group:* D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	silt loam	moderate	0.19 to 0.24 in	5.1 to 6.5
E1,E2 -- 1 to 11 in	fine sandy loam	moderate	1.38 to 1.77 in	4.5 to 6.0
E3 -- 11 to 16 in	sandy loam	slow	0.51 to 0.72 in	5.1 to 6.5
B/E,Bt1,Bt2 -- 16 to 60 in	loam	slow	3.50 to 6.12 in	5.1 to 6.5
C -- 60 to 65 in	loam	slow	0.15 to 0.51 in	6.1 to 8.4

#### Nashwauk

*Extent:* 4 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 619--Keewatin silt loam

#### Cathro

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Blackhoof

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 620B--Cutaway loamy sand, 0 to 8 percent slopes

#### Cutaway

*Extent:* 85 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 0 to 8 percent

*Parent material:* sandy outwash over loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 3s

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 4 in	loamy sand	rapid	0.39 to 0.47 in	5.1 to 6.5
Bw1-Bw3,E' -- 4 to 35 in	sand	rapid	1.87 to 3.42 in	5.1 to 6.5
2B/E,2Bt -- 35 to 51 in	clay loam	moderate	1.94 to 3.07 in	5.1 to 7.8
2BC,2C -- 51 to 60 in	loam	moderate	1.04 to 1.65 in	6.1 to 8.4

#### Sandwick

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 620B--Cutaway loamy sand, 0 to 8 percent slopes

#### Warba

*Extent:* 5 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

#### Nebish

*Extent:* 5 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 621--Morph very fine sandy loam

#### Morph

*Extent:* 85 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine deposits

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 2w

*Hydric soil:* yes

*Hydrologic group:* B/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 4 in	very fine sandy loam	moderately rapid	0.51 to 0.87 in	5.1 to 6.5
E -- 4 to 13 in	very fine sandy loam	moderate	1.00 to 1.72 in	5.1 to 6.5
B/E,Bt1,Bt2 -- 13 to 33 in	fine sandy loam	moderate	2.21 to 3.81 in	5.1 to 7.3
BC,C1,C2,C3 - 33 to 60 in	stratified loamy sand to silty clay loam	moderate	2.94 to 5.09 in	6.6 to 8.4

#### Sago

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 621--Morph very fine sandy loam

#### Rosy

*Extent:* 5 percent of the unit

*Landform(s):* lake plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Poorly drained sandy soils

*Extent:* 5 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 622B--Nashwauk fine sandy loam, 1 to 10 percent slopes

#### Nashwauk

*Extent:* 85 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 1 to 10 percent

*Parent material:* loamy till

*Restrictive feature(s):* densic material at 6 to 14 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 2e

*Hydric soil:* no

*Hydrologic group:* D

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	fine sandy loam	moderate	0.15 to 0.24 in	5.1 to 6.5
E,Bw -- 1 to 7 in	fine sandy loam	moderate	0.83 to 1.06 in	4.5 to 6.0
E',B/E -- 7 to 16 in	loam	slow	0.91 to 1.27 in	5.1 to 6.5
Bt1,Bt2,Bt3 -- 16 to 58 in	loam	slow	3.34 to 5.84 in	5.1 to 6.5
C -- 58 to 72 in	silt loam	slow	0.43 to 1.42 in	6.1 to 8.4

#### Keewatin

*Extent:* 5 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 622B--Nashwauk fine sandy loam, 1 to 10 percent slopes

#### Blackhoof

*Extent:* 4 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Cathro

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 622B--Nashwauk fine sandy loam, 1 to 10 percent slopes

#### Cutaway

*Extent:* 3 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 622E--Nashwauk fine sandy loam, 12 to 35 percent slopes

#### Nashwauk

*Extent:* 90 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 12 to 35 percent

*Parent material:* loamy till

*Restrictive feature(s):* densic material at 6 to 14 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 6e

*Hydric soil:* no

*Hydrologic group:* D

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	fine sandy loam	moderately rapid	0.15 to 0.19 in	5.1 to 6.5
E,Bw -- 1 to 12 in	fine sandy loam	moderate	1.49 to 1.91 in	4.5 to 6.0
B/E -- 12 to 16 in	fine sandy loam	slow	0.43 to 0.61 in	5.1 to 6.5
Bt1,Bt2,Bt3 -- 16 to 58 in	clay loam	slow	3.34 to 5.84 in	5.1 to 6.5
C -- 58 to 60 in	loam	slow	0.06 to 0.20 in	6.1 to 8.4

#### Blackhoof

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 622E--Nashwauk fine sandy loam, 12 to 35 percent slopes

#### Keewatin

*Extent:* 3 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

#### Cathro

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

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### 622E--Nashwauk fine sandy loam, 12 to 35 percent slopes

#### Cutaway

*Extent:* 2 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 624B--Rosy very fine sandy loam, 0 to 6 percent slopes

#### Rosy

*Extent:* 85 percent of the unit

*Landform(s):* lake plains

*Slope gradient:* 0 to 6 percent

*Parent material:* glaciolacustrine deposits

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .55

*Land capability, nonirrigated:* 2e

*Hydric soil:* no

*Hydrologic group:* C

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 9 in	very fine sandy loam	moderate	1.27 to 1.72 in	5.1 to 7.3
B/E, Bt, E&Bt -- 9 to 50 in	loam	moderate	5.73 to 7.78 in	5.1 to 7.3
C1, C2 -- 50 to 64 in	stratified sand to silty clay loam	moderate	1.52 to 2.34 in	5.6 to 8.4

#### Sago

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 624B--Rosy very fine sandy loam, 0 to 6 percent slopes

#### Morph

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Zimmerman

*Extent:* 5 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 625--Sandwich loamy fine sand

#### Sandwich

*Extent:* 85 percent of the unit

*Landform(s):* flats on moraines

*Slope gradient:* 0 to 2 percent

*Parent material:* sandy outwash over loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .32

*Land capability, nonirrigated:* 3w

*Hydric soil:* yes

*Hydrologic group:* C/D

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 4 in	loamy fine sand	rapid	0.31 to 0.39 in	5.1 to 6.5
Bw,E'1 -- 4 to 22 in	loamy fine sand	rapid	1.09 to 1.63 in	5.1 to 6.5
2E'2,2Btg1-2 -- 22 to 38 in	loam	moderately slow	1.57 to 2.52 in	5.6 to 7.3
2Cg -- 38 to 60 in	loam	moderately slow	0.44 to 2.20 in	6.6 to 8.4

#### Cutaway

*Extent:* 5 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 625--Sandwich loamy fine sand

#### Warba

*Extent:* 4 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

#### Organic soils

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

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### 625--Sandwich loamy fine sand

#### Nashwauk

*Extent:* 3 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 626B--Suomi silt loam, 1 to 8 percent slopes

#### Suomi

*Extent:* 90 percent of the unit

*Landform(s):* lake plains

*Slope gradient:* 1 to 8 percent

*Parent material:* silty and clayey till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 2e

*Hydric soil:* no

*Hydrologic group:* D

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 3 in	silt loam	moderate	0.63 to 0.76 in	5.1 to 7.3
E,E/B,Bt -- 3 to 36 in	clay	slow	3.27 to 6.21 in	5.1 to 7.3
C -- 36 to 60 in	clay	slow	2.64 to 4.08 in	7.4 to 8.4

#### Indus

*Extent:* 4 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

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### 626B--Suomi silt loam, 1 to 8 percent slopes

#### Effie

*Extent:* 3 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Brickton

*Extent:* 3 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 626D--Suomi loam, 10 to 25 percent slopes

#### Suomi

*Extent:* 90 percent of the unit

*Landform(s):* lake plains

*Slope gradient:* 10 to 25 percent

*Parent material:* silty and clayey till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 4e

*Hydric soil:* no

*Hydrologic group:* D

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 3 in	loam	moderate	0.63 to 0.76 in	5.1 to 7.3
E,Bt -- 3 to 33 in	clay	slow	2.99 to 5.69 in	5.1 to 7.3
C1,C2 -- 33 to 60 in	silty clay loam	slow	2.94 to 4.55 in	7.4 to 8.4

#### Indus

*Extent:* 3 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 626D--Suomi loam, 10 to 25 percent slopes

#### Brickton

*Extent:* 3 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Organic soils

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 626D--Suomi loam, 10 to 25 percent slopes

#### Effie

*Extent:* 2 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 627--Tawas muck

#### Tawas

*Extent:* 90 percent of the unit

*Landform(s):* depressions on outwash plains

*Slope gradient:* 0 to 2 percent

*Parent material:* organic material over loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 1

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 6w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oa1 -- 0 to 13 in	muck	moderately rapid	4.55 to 5.85 in	
Oa2,Oa3,Oa4 - -	muck	moderately rapid	4.35 to 8.15 in	
2Cg1,2Cg2 -- 31 to 60 in	sand	rapid	0.86 to 2.87 in	

#### Cowhorn

*Extent:* 3 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 627--Tawas muck

#### Menahga

*Extent:* 3 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

#### Meehan

*Extent:* 2 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

---

### 627--Tawas muck

#### Zimmerman

*Extent:* 2 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 628--Talmoon silt loam

#### Talmoon

*Extent:* 85 percent of the unit

*Landform(s):* depressions on moraines

*Slope gradient:* 0 to 1 percent

*Parent material:* loamy glaciolacustrine deposits over loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 3w

*Hydric soil:* yes

*Hydrologic group:* C/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 6 in	silt loam	moderate	1.18 to 1.30 in	5.1 to 7.3
E1,E2 -- 6 to 16 in	very fine sandy loam	moderate	1.33 to 2.25 in	5.1 to 7.3
Btg,BCg -- 16 to 42 in	loam	moderately slow	4.16 to 4.94 in	5.6 to 7.3
Cg -- 42 to 60 in	loam	moderately slow	2.66 to 3.37 in	7.4 to 8.4

#### Cathro

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 628--Talmoon silt loam

#### Stuntz

*Extent:* 5 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Shooker

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 629B--Wawina loamy very fine sand, 0 to 10 percent slopes

#### Wawina

*Extent:* 90 percent of the unit

*Landform(s):* lake plains

*Slope gradient:* 0 to 10 percent

*Parent material:* eolian sands

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 2s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 3 in	loamy very fine sand	moderately rapid	0.50 to 0.57 in	5.1 to 6.5
Bw,BC,C -- 3 to 65 in	very fine sand	moderately rapid	8.65 to 9.89 in	5.1 to 7.3

#### Sago

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

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### 629B--Wawina loamy very fine sand, 0 to 10 percent slopes

#### Cowhorn

*Extent:* 5 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 630--Wildwood muck

#### Wildwood

*Extent:* 85 percent of the unit  
*Landform(s):* depressions on lake plains  
*Slope gradient:* 0 to 1 percent  
*Parent material:* organic material over clayey lacustrine deposits  
*Restrictive feature(s):* greater than 60 inches  
*Flooding:* none  
*Ponding:* frequent  
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 1  
*Wind erodibility group (WEG):* 2  
*Wind erodibility index (WEI):* 134  
*Kw factor (surface layer)* .02  
  
*Land capability, nonirrigated:* 6w  
*Hydric soil:* yes  
*Hydrologic group:* C/D  
*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oa1,Oa2 -- 0 to 12 in	muck	moderately rapid	4.13 to 5.31 in	5.1 to 6.5
A,Bg -- 12 to 24 in	clay	slow	0.00 to 0.49 in	5.6 to 7.3
Cg1,Cg2 -- 24 to 60 in	clay	slow	0.00 to 1.43 in	7.4 to 8.4

#### Effie

*Extent:* 5 percent of the unit  
*Landform(s):* flats  
*Slope gradient:*  
*Parent material:*  
*Restrictive feature(s):* greater than 60 inches  
*Flooding:*  
*Ponding:*  
*Drainage class:*

*Soil loss tolerance (T factor):*  
*Wind erodibility group (WEG):*  
*Wind erodibility index (WEI):*  
*Kw factor (surface layer)*  
*Land capability, nonirrigated:*  
*Hydric soil:* yes  
*Hydrologic group:*  
*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 630--Wildwood muck

#### Brickton

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Indus

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 655--Bearville loamy sand

#### Bearville

*Extent:* 85 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* sandy outwash over clayey glaciolacustrine deposits

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .20

*Land capability, nonirrigated:* 3w

*Hydric soil:* yes

*Hydrologic group:* C/D

*Potential for frost action:* high

<i>Representative soil profile:</i>		<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A --	0 to 2 in	loamy sand	rapid	0.20 to 0.24 in	5.1 to 7.3
E1,E2 --	2 to 16 in	loamy sand	rapid	0.85 to 1.42 in	5.1 to 7.3
2Btg1 --	16 to 25 in	sandy clay loam	moderately slow	1.18 to 1.63 in	5.6 to 7.3
3Btg2,3BCg --	25 to 35 in	clay	slow	0.79 to 1.57 in	6.6 to 7.8
3Cg --	35 to 60 in	clay	impermeable	2.98 to 3.97 in	7.4 to 8.4

#### Thistledeew

*Extent:* 5 percent of the unit

*Landform(s):* lake plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>		<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 655--Bearville loamy sand

#### Indus

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Brickton

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 656B--Thistledew loamy fine sand, 0 to 6 percent slopes

#### Thistledew

*Extent:* 90 percent of the unit

*Landform(s):* lake plains

*Slope gradient:* 0 to 6 percent

*Parent material:* sandy outwash over clayey glaciolacustrine deposits

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 3s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 2 in	loamy fine sand	rapid	0.16 to 0.20 in	5.1 to 6.5
Bw1,Bw2,E' -- 2 to 23 in	loamy sand	rapid	1.25 to 1.88 in	5.1 to 6.5
2Bt -- 23 to 38 in	sandy clay loam	moderately slow	1.50 to 2.39 in	5.6 to 7.8
3BC,3C -- 38 to 60 in	clay	slow	1.54 to 3.09 in	6.1 to 8.4

#### Indus

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 656B--Thistledew loamy fine sand, 0 to 6 percent slopes

#### Bearville

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 797--Mooselake and Lupton mucky peats

#### Mooselake

*Extent:* 48 percent of the unit

*Landform(s):* swamps

*Slope gradient:* 0 to 1 percent

*Parent material:* herbaceous organic material

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 6w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oi -- 0 to 3 in	mucky peat	rapid	1.10 to 1.73 in	
Oe1,Oe2,Oe3 - 3 to 71 in	mucky peat	rapid	27.09 to 33.86 in	

#### Lupton

*Extent:* 48 percent of the unit

*Landform(s):* swamps

*Slope gradient:* 0 to 1 percent

*Parent material:* organic material

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 7w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oi,Oe -- 0 to 8 in	mucky peat	rapid	3.54 to 4.33 in	
Oa1,Oa2 -- 8 to 65 in	muck	moderately rapid	19.98 to 25.69 in	

## Map Unit Description (MN)

Itasca County, Minnesota

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### 797--Mooselake and Lupton mucky peats

#### Well drained soils

*Extent:* 4 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 798--Sago and Roscommon soils

#### Sago

*Extent:* 45 percent of the unit

*Landform(s):* depressions on outwash plains

*Slope gradient:* 0 to 1 percent

*Parent material:* organic material over sandy and silty glaciolacustrine deposits

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 1

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 6w

*Hydric soil:* yes

*Hydrologic group:* B/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oa -- 0 to 13 in	muck	moderately rapid	4.55 to 5.85 in	4.5 to 6.5
A,Bg1,Bg2,Cg - 13 to 60 in	stratified fine sand to silt loam	moderate	6.56 to 9.37 in	5.6 to 8.4

#### Roscommon

*Extent:* 45 percent of the unit

*Landform(s):* depressions on outwash plains

*Slope gradient:* 0 to 2 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .05

*Land capability, nonirrigated:* 6w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 6 in	mucky loamy sand	rapid	0.47 to 1.18 in	5.6 to 7.8
Cg1,Cg2,Cg3 - 6 to 60 in	sand	rapid	2.70 to 4.85 in	5.6 to 8.4

## Map Unit Description (MN)

Itasca County, Minnesota

### 798--Sago and Roscommon soils

#### Meehan

*Extent:* 3 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

#### Cowhorn

*Extent:* 3 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 798--Sago and Roscommon soils

#### Menahga

*Extent:* 2 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Zimmerman

*Extent:* 2 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 799--Seelyeville-Bowstring association

#### Seelyeville

*Extent:* 45 percent of the unit

*Landform(s):* flood plains

*Slope gradient:* 0 to 2 percent

*Parent material:* organic material

*Restrictive feature(s):* greater than 60 inches

*Flooding:* frequent

*Ponding:* none

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 6w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oa1 -- 0 to 28 in	muck	moderately rapid	9.78 to 12.58 in	
Oe,Oa2,Oa3 -- 28 to 60 in	muck	moderately rapid	11.16 to 14.35 in	

#### Bowstring

*Extent:* 45 percent of the unit

*Landform(s):* flood plains

*Slope gradient:* 0 to 1 percent

*Parent material:* organic material and/or alluvium

*Restrictive feature(s):* greater than 60 inches

*Flooding:* frequent

*Ponding:* none

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 1

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 6w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oa -- 0 to 38 in	muck	moderately rapid	13.23 to 17.01 in	
C -- 38 to 43 in	stratified sand to fine sandy loam	rapid	0.41 to 0.72 in	
Oa,Cg -- 43 to 56 in	stratified muck to mucky sand	moderately rapid	4.55 to 5.85 in	

## Map Unit Description (MN)

Itasca County, Minnesota

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### 799--Seelyeville-Bowstring association

#### Winterfield

*Extent:* 5 percent of the unit

*Landform(s):* flood plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Pengilly

*Extent:* 5 percent of the unit

*Landform(s):* flood plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 801B--Taylor and Dalbo silt loams, 0 to 6 percent slopes

#### Taylor

<p><i>Extent:</i> 43 percent of the unit</p> <p><i>Landform(s):</i> lake plains</p> <p><i>Slope gradient:</i> 0 to 6 percent</p> <p><i>Parent material:</i> silty and clayey glaciolacustrine deposits</p> <p><i>Restrictive feature(s):</i> greater than 60 inches</p> <p><i>Flooding:</i> none</p> <p><i>Ponding:</i> none</p> <p><i>Drainage class:</i> moderately well drained</p>	<p><i>Soil loss tolerance (T factor):</i> 5</p> <p><i>Wind erodibility group (WEG):</i> 6</p> <p><i>Wind erodibility index (WEI):</i> 48</p> <p><i>Kw factor (surface layer)</i> .37</p> <p><i>Land capability, nonirrigated:</i> 2e</p> <p><i>Hydric soil:</i> no</p> <p><i>Hydrologic group:</i> D</p> <p><i>Potential for frost action:</i> moderate</p>
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<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 2 in	silt loam	moderate	0.43 to 0.47 in	5.6 to 7.3
E,Bt1,Bt2,BC -- 2 to 21 in	clay	slow	1.89 to 2.65 in	5.1 to 7.8
C1,C2 -- 21 to 60 in	clay	impermeable	3.51 to 5.07 in	7.4 to 8.4

#### Dalbo

<p><i>Extent:</i> 43 percent of the unit</p> <p><i>Landform(s):</i> lake plains</p> <p><i>Slope gradient:</i> 0 to 6 percent</p> <p><i>Parent material:</i> silty and clayey glaciolacustrine deposits</p> <p><i>Restrictive feature(s):</i> greater than 60 inches</p> <p><i>Flooding:</i> none</p> <p><i>Ponding:</i> none</p> <p><i>Drainage class:</i> moderately well drained</p>	<p><i>Soil loss tolerance (T factor):</i> 5</p> <p><i>Wind erodibility group (WEG):</i> 6</p> <p><i>Wind erodibility index (WEI):</i> 48</p> <p><i>Kw factor (surface layer)</i> .32</p> <p><i>Land capability, nonirrigated:</i> 2e</p> <p><i>Hydric soil:</i> no</p> <p><i>Hydrologic group:</i> C</p> <p><i>Potential for frost action:</i> high</p>
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<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	silt loam	moderate	0.26 to 0.28 in	5.6 to 7.3
E,B/E,Bt,BC -- 1 to 35 in	clay	moderately slow	3.39 to 6.09 in	5.1 to 7.3
C -- 35 to 60 in	silty clay loam	moderate	2.48 to 4.46 in	7.4 to 8.4

## Map Unit Description (MN)

Itasca County, Minnesota

### 801B--Taylor and Dalbo silt loams, 0 to 6 percent slopes

#### Indus

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Brickton

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 801B--Taylor and Dalbo silt loams, 0 to 6 percent slopes

#### Wildwood

*Extent:* 4 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 803B--Warba-Menahga complex, 1 to 8 percent slopes

#### Warba

*Extent:* 50 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 1 to 8 percent

*Parent material:* loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 2e

*Hydric soil:* no

*Hydrologic group:* C

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	fine sandy loam	moderately rapid	0.21 to 0.27 in	5.1 to 6.5
E,E/B,Bt -- 1 to 48 in	clay loam	moderately slow	7.50 to 8.90 in	5.1 to 7.3
C -- 48 to 60 in	sandy clay loam	moderate	1.89 to 2.24 in	6.6 to 8.4

#### Menahga

*Extent:* 35 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 1 to 8 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 4s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	loamy coarse sand	rapid	0.12 to 0.14 in	4.5 to 6.5
E,Bw,BC -- 1 to 38 in	sand	rapid	2.56 to 3.30 in	4.5 to 6.5
C -- 38 to 60 in	coarse sand	rapid	1.10 to 1.54 in	5.6 to 6.5

## Map Unit Description (MN)

Itasca County, Minnesota

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### 803B--Warba-Menahga complex, 1 to 8 percent slopes

#### Talmoon

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

#### Stuntz

*Extent:* 5 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

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### 803B--Warba-Menahga complex, 1 to 8 percent slopes

#### Sandwich

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 803D--Warba-Menahga complex, 10 to 25 percent slopes

#### Warba

*Extent:* 50 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 10 to 25 percent

*Parent material:* loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 4e

*Hydric soil:* no

*Hydrologic group:* C

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	fine sandy loam	moderately rapid	0.21 to 0.27 in	5.1 to 6.5
E,E/B,Bt -- 1 to 48 in	clay loam	moderately slow	7.50 to 8.90 in	5.1 to 7.3
C -- 48 to 60 in	sandy clay loam	moderate	1.89 to 2.24 in	6.6 to 8.4

#### Menahga

*Extent:* 40 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 10 to 25 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 6s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	loamy coarse sand	rapid	0.12 to 0.14 in	4.5 to 6.5
E,Bw,BC -- 1 to 38 in	sand	rapid	2.56 to 3.30 in	4.5 to 6.5
C -- 38 to 60 in	coarse sand	rapid	1.10 to 1.54 in	5.6 to 6.5

## Map Unit Description (MN)

Itasca County, Minnesota

### 803D--Warba-Menahga complex, 10 to 25 percent slopes

#### Stuntz

*Extent:* 4 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Cathro

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 803D--Warba-Menahga complex, 10 to 25 percent slopes

#### Talmoon

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 844F--Mahtomedi and Emmert soils, 12 to 50 percent slopes

#### Mahtomedi

*Extent:* 43 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:* 12 to 45 percent

*Parent material:* sandy and gravelly outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .10

*Land capability, nonirrigated:* 7s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 3 in	loamy sand	rapid	0.31 to 0.38 in	5.1 to 6.5
Bw1 -- 3 to 7 in	coarse sand	rapid	0.24 to 0.31 in	5.1 to 6.5
Bw2,Bw3 -- 7 to 33 in	gravelly sand	rapid	1.30 to 1.82 in	5.1 to 6.5
C1,C2 -- 33 to 60 in	gravelly sand	rapid	1.07 to 2.41 in	5.1 to 7.8

#### Emmert

*Extent:* 43 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:* 12 to 50 percent

*Parent material:* sandy and gravelly outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .05

*Land capability, nonirrigated:* 7s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	gravelly loamy coarse sand	very rapid	0.07 to 0.12 in	5.1 to 6.5
E,Bw,BC,C -- 1 to 60 in	very gravelly coarse sand	very rapid	1.17 to 2.35 in	5.1 to 7.3

## Map Unit Description (MN)

Itasca County, Minnesota

### 844F--Mahtomedi and Emmert soils, 12 to 50 percent slopes

#### Roscommon

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Meehan

*Extent:* 5 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 844F--Mahtomedi and Emmert soils, 12 to 50 percent slopes

#### Organic soils

*Extent:* 4 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 866B--Menahga-Itasca complex, 1 to 10 percent slopes

#### Menahga

*Extent:* 55 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 1 to 10 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .10

*Land capability, nonirrigated:* 4s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	loamy sand	rapid	0.12 to 0.14 in	4.5 to 6.5
E,Bw,BC -- 1 to 38 in	sand	rapid	2.56 to 3.30 in	4.5 to 6.5
C -- 38 to 60 in	coarse sand	rapid	1.10 to 1.54 in	5.6 to 6.5

#### Itasca

*Extent:* 35 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 1 to 10 percent

*Parent material:* silty glaciolacustrine deposits over loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .49

*Land capability, nonirrigated:* 2e

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 3 in	silt loam	moderate	0.69 to 0.76 in	5.1 to 6.5
Bw,E' -- 3 to 19 in	silt loam	moderate	2.68 to 3.46 in	5.1 to 6.0
2E/B,2Bt1 -- 19 to 55 in	fine sandy loam	moderate	3.98 to 6.88 in	5.6 to 7.3
2Bt2,2C -- 55 to 60 in	fine sandy loam	moderate	0.52 to 0.90 in	6.6 to 8.4

## Map Unit Description (MN)

Itasca County, Minnesota

### 866B--Menahga-Itasca complex, 1 to 10 percent slopes

#### Talmoon

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Roscommon

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 866B--Menahga-Itasca complex, 1 to 10 percent slopes

#### Cathro

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Sandwick

*Extent:* 2 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 866B--Menahga-Itasca complex, 1 to 10 percent slopes

#### Meehan

*Extent:* 2 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 866E--Menahga-Itasca complex, 10 to 25 percent slopes

#### Menahga

*Extent:* 60 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 10 to 25 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .10

*Land capability, nonirrigated:* 6s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	loamy sand	rapid	0.12 to 0.14 in	4.5 to 6.5
E,Bw,BC -- 1 to 33 in	sand	rapid	2.23 to 2.87 in	4.5 to 6.5
C -- 33 to 60 in	coarse sand	rapid	1.34 to 1.87 in	5.6 to 6.5

#### Itasca

*Extent:* 30 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 10 to 25 percent

*Parent material:* silty glaciolacustrine deposits over loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .49

*Land capability, nonirrigated:* 4e

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 3 in	silt loam	moderate	0.69 to 0.76 in	5.1 to 6.5
Bw,E' -- 3 to 19 in	silt loam	moderate	2.68 to 3.46 in	5.1 to 6.0
2E/B,2Bt1 -- 19 to 55 in	fine sandy loam	moderate	3.98 to 6.88 in	5.6 to 7.3
2Bt2,2C -- 55 to 60 in	fine sandy loam	moderate	0.52 to 0.90 in	6.6 to 8.4

## Map Unit Description (MN)

Itasca County, Minnesota

### 866E--Menahga-Itasca complex, 10 to 25 percent slopes

#### Cathro

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

#### Meehan

*Extent:* 3 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 866E--Menahga-Itasca complex, 10 to 25 percent slopes

#### Talmoon

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Roscommon

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 867B--Menahga and Graycalm soils, 0 to 8 percent slopes

#### Menahga

*Extent:* 48 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:* 0 to 8 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 4s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	loamy coarse sand	rapid	0.12 to 0.14 in	4.5 to 6.5
E,Bw,BC -- 1 to 38 in	sand	rapid	1.83 to 2.56 in	4.5 to 6.5
C -- 38 to 60 in	coarse sand	rapid	1.10 to 1.54 in	5.6 to 7.8

#### Graycalm

*Extent:* 48 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:* 0 to 8 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .10

*Land capability, nonirrigated:* 4s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	loamy sand	rapid	0.07 to 0.14 in	3.5 to 6.5
E,Bw1,Bw2 -- 1 to 17 in	loamy sand	rapid	0.79 to 1.57 in	3.5 to 7.3
E'1,E'2,E&Bt -- 17 to 58 in	sand	rapid	1.64 to 3.69 in	3.5 to 7.3
C -- 58 to 72 in	sand	rapid	0.57 to 0.85 in	3.5 to 8.4

## Map Unit Description (MN)

Itasca County, Minnesota

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### 867B--Menahga and Graycalm soils, 0 to 8 percent slopes

#### Meehan

*Extent:* 2 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Tawas

*Extent:* 1 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 867B--Menahga and Graycalm soils, 0 to 8 percent slopes

#### Roscommon

*Extent:* 1 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 868B--Mahtomedi and Graycalm soils, 1 to 10 percent slopes

#### Mahtomedi

*Extent:* 48 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:* 1 to 10 percent

*Parent material:* sandy and gravelly outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .10

*Land capability, nonirrigated:* 4s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 4 in	loamy coarse sand	rapid	0.39 to 0.47 in	5.1 to 6.5
Bw1,Bw2,Bw3 - -	gravelly sand	rapid	1.50 to 2.09 in	5.1 to 6.5
C -- 34 to 60 in	gravelly sand	rapid	1.04 to 2.34 in	5.1 to 7.8

#### Graycalm

*Extent:* 48 percent of the unit

*Landform(s):* outwash plains

*Slope gradient:* 1 to 10 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .10

*Land capability, nonirrigated:* 4s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	loamy sand	rapid	0.07 to 0.14 in	3.5 to 6.5
E,Bw1,Bw2 --	loamy sand	rapid	0.79 to 1.57 in	3.5 to 7.3
E'1,E'2,E&Bt --	sand	rapid	1.64 to 3.69 in	3.5 to 7.3
C -- 58 to 60 in	sand	rapid	0.08 to 0.12 in	3.5 to 8.4

## Map Unit Description (MN)

Itasca County, Minnesota

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### 868B--Mahtomedi and Graycalm soils, 1 to 10 percent slopes

#### Meehan

*Extent:* 2 percent of the unit

*Landform(s):* swales

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Tawas

*Extent:* 1 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 868B--Mahtomedi and Graycalm soils, 1 to 10 percent slopes

#### Roscommon

*Extent:* 1 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 869--Lobo and Waskish peats

#### Lobo

*Extent:* 50 percent of the unit

*Landform(s):* bogs

*Slope gradient:* 0 to 1 percent

*Parent material:* mossy organic material

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 8

*Wind erodibility index (WEI):* 0

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 7w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oi -- 0 to 44 in	peat	very rapid	24.25 to 28.66 in	
Oe -- 44 to 60 in	mucky peat	rapid	7.09 to 8.66 in	

#### Waskish

*Extent:* 50 percent of the unit

*Landform(s):* bogs

*Slope gradient:* 0 to 2 percent

*Parent material:* mossy organic material

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 8

*Wind erodibility index (WEI):* 0

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 7w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oi -- 0 to 60 in	peat	very rapid	32.91 to 38.90 in	

## Map Unit Description (MN)

Itasca County, Minnesota

### 870C--Itasca-Goodland silt loams, 2 to 12 percent slopes

#### Itasca

*Extent:* 55 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 2 to 12 percent

*Parent material:* silty glaciolacustrine deposits over loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 3e

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 3 in	silt loam	moderate	0.69 to 0.76 in	5.1 to 6.5
Bw,E' -- 3 to 19 in	silt loam	moderate	2.68 to 3.46 in	5.1 to 6.0
2E/B,2Bt1 -- 19 to 55 in	fine sandy loam	moderate	3.98 to 6.88 in	5.6 to 7.3
2Bt2,2C -- 55 to 60 in	fine sandy loam	moderate	0.52 to 0.90 in	6.6 to 8.4

#### Goodland

*Extent:* 30 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 2 to 12 percent

*Parent material:* sandy and silty glaciolacustrine deposits over sandy and gravelly outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .55

*Land capability, nonirrigated:* 3e

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 3 in	silt loam	moderate	0.63 to 0.76 in	5.1 to 6.5
Bw,2E/B,2Bt -- 3 to 28 in	fine sandy loam	moderate	2.98 to 4.71 in	5.1 to 6.5
3BC -- 28 to 34 in	gravelly loamy coarse sand	moderately rapid	0.35 to 0.59 in	5.1 to 6.5
3C -- 34 to 60 in	gravelly sand	rapid	0.52 to 1.82 in	5.6 to 7.8

## Map Unit Description (MN)

Itasca County, Minnesota

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### 870C--Itasca-Goodland silt loams, 2 to 12 percent slopes

#### Cathro

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Talmoon

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 870C--Itasca-Goodland silt loams, 2 to 12 percent slopes

#### Shooker

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 870E--Itasca-Goodland silt loams, 12 to 25 percent slopes

#### Itasca

*Extent:* 50 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 12 to 25 percent

*Parent material:* silty glaciolacustrine deposits over loamy till

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 6e

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 3 in	silt loam	moderate	0.69 to 0.76 in	5.1 to 6.5
Bw,E' -- 3 to 19 in	silt loam	moderate	2.68 to 3.46 in	5.1 to 6.0
2E/B,2Bt1 -- 19 to 55 in	fine sandy loam	moderate	3.98 to 6.88 in	5.6 to 7.3
2Bt2,2C -- 55 to 60 in	fine sandy loam	moderate	0.52 to 0.90 in	6.6 to 8.4

#### Goodland

*Extent:* 40 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 12 to 25 percent

*Parent material:* sandy and silty glaciolacustrine deposits over sandy and gravelly outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .55

*Land capability, nonirrigated:* 6e

*Hydric soil:* no

*Hydrologic group:* B

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
E -- 0 to 3 in	silt loam	moderate	0.63 to 0.76 in	5.1 to 6.5
Bw,2E/B,2Bt -- 3 to 28 in	fine sandy loam	moderate	2.98 to 4.71 in	5.1 to 6.5
3BC -- 28 to 34 in	gravelly loamy coarse sand	moderately rapid	0.35 to 0.59 in	5.1 to 6.5
3C -- 34 to 60 in	gravelly sand	rapid	0.52 to 1.82 in	5.6 to 7.8

## Map Unit Description (MN)

Itasca County, Minnesota

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### 870E--Itasca-Goodland silt loams, 12 to 25 percent slopes

#### Shooker

*Extent:* 4 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Cathro

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 870E--Itasca-Goodland silt loams, 12 to 25 percent slopes

#### Talmoon

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 871--Indus and Brickton soils

#### Indus

*Extent:* 43 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* clayey lacustrine deposits

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 4

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 3w

*Hydric soil:* yes

*Hydrologic group:* D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 3 in	clay	moderately slow	0.41 to 0.54 in	5.1 to 7.3
Eg -- 3 to 6 in	loam	moderately slow	0.52 to 0.63 in	5.1 to 7.3
B/E,Btg,BCg -- 6 to 29 in	clay	impermeable	2.79 to 3.72 in	5.6 to 8.4
Cg1,Cg2 -- 29 to 60 in	clay	impermeable	3.07 to 4.30 in	7.4 to 8.4

#### Brickton

*Extent:* 43 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* clayey lacustrine deposits

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 6

*Wind erodibility index (WEI):* 48

*Kw factor (surface layer)* .28

*Land capability, nonirrigated:* 2w

*Hydric soil:* yes

*Hydrologic group:* C/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 4 in	silt loam	moderate	0.87 to 0.94 in	5.6 to 7.3
E -- 4 to 10 in	silt loam	moderate	0.94 to 1.18 in	5.6 to 7.3
Btg,BC -- 10 to 25 in	silty clay	moderately slow	2.46 to 2.92 in	5.1 to 7.8
Cg1,Cg2 -- 25 to 60 in	clay	moderately slow	5.54 to 7.62 in	7.4 to 8.4

## Map Unit Description (MN)

Itasca County, Minnesota

### 871--Indus and Brickton soils

#### Dora

*Extent:* 4 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Dalbo

*Extent:* 4 percent of the unit

*Landform(s):* lake plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 871--Indus and Brickton soils

#### Wildwood

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Taylor

*Extent:* 3 percent of the unit

*Landform(s):* lake plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 872--Pengilly-Winterfield association

#### Pengilly

*Extent:* 60 percent of the unit

*Landform(s):* flood plains

*Slope gradient:* 0 to 2 percent

*Parent material:* alluvium

*Restrictive feature(s):* greater than 60 inches

*Flooding:* frequent

*Ponding:* none

*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 7w

*Hydric soil:* yes

*Hydrologic group:* B/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 4 in	very fine sandy loam	moderately rapid	0.51 to 0.87 in	5.6 to 7.3
C1,C2 -- 4 to 60 in	stratified loamy very fine sand to silt loam	moderate	6.71 to 11.18 in	6.1 to 8.4

#### Winterfield

*Extent:* 25 percent of the unit

*Landform(s):* flood plains

*Slope gradient:* 0 to 2 percent

*Parent material:* alluvium

*Restrictive feature(s):* greater than 60 inches

*Flooding:* frequent

*Ponding:* none

*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .10

*Land capability, nonirrigated:* 7w

*Hydric soil:* no

*Hydrologic group:* A/D

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 3 in	loamy fine sand	rapid	0.31 to 0.38 in	5.6 to 7.8
C1 -- 3 to 14 in	loamy fine sand	rapid	0.66 to 1.21 in	5.6 to 7.8
C2,C3,C4 -- 14 to 60 in	sand	rapid	1.83 to 4.57 in	5.6 to 8.4

## Map Unit Description (MN)

Itasca County, Minnesota

### 872--Pengilly-Winterfield association

#### Sago

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Cathro

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 872--Pengilly-Winterfield association

#### Bowstring

*Extent:* 5 percent of the unit

*Landform(s):* flood plains

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 995--Borosaprists, depressional

#### Borosaprists, depressional

*Extent:* 85 percent of the unit

*Landform(s):* bogs

*Slope gradient:* 0 to 1 percent

*Parent material:* organic material

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 6w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:* high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oa1 -- 0 to 28 in	muck	moderately rapid	9.78 to 12.58 in	
Oe,Oa2,Oa3 -- 28 to 60 in	muck	moderately rapid	11.16 to 14.35 in	

#### Poorly drained soils

*Extent:* 8 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 995--Borosaprists, depressional

#### Well drained soils

*Extent:* 7 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

### 1031--Histosols, ponded

#### Histosols, ponded

*Extent:* 95 percent of the unit

*Landform(s):* swamps

*Slope gradient:* 0 to 1 percent

*Parent material:* herbaceous organic material over sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 1

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .02

*Land capability, nonirrigated:* 8w

*Hydric soil:* yes

*Hydrologic group:* A/D

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oe -- 0 to 40 in	mucky peat	rapid	14.06 to 18.07 in	
Cg -- 40 to 60 in	fine sand	rapid	1.18 to 1.38 in	

## Map Unit Description (MN)

Itasca County, Minnesota

### 1033--Aquents, sandy

#### Aquents, sandy

*Extent:* 85 percent of the unit

*Landform(s):* beaches

*Slope gradient:* 0 to 1 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* unranked

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Very poorly drained mineral soils

*Extent:* 8 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 1033--Aquents, sandy

#### Excessively drained soils

*Extent:* 7 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

### 1041--Pits, mine

#### Pits, mine

*Extent:* 100 percent of the unit

*Landform(s):*

*Slope gradient:* 0 to 50 percent

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:*

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

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### 1042--Dumps, mine

#### Dumps, mine

*Extent:* 100 percent of the unit

*Landform(s):*

*Slope gradient:* 0 to 50 percent

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:*

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 1043C--Udorthents, nearly level to rolling

#### Udorthents, nearly level to rolling

*Extent:* 90 percent of the unit

*Landform(s):*

*Slope gradient:* 2 to 12 percent

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 6s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A,C --	0 to 80 in loam	moderately rapid	6.39 to 11.19 in	6.6 to 9.0

#### Itasca

*Extent:* 5 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 1043C--Udorthents, nearly level to rolling

#### Blackhoof

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Cathro

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 1043F--Udorthents, very steep

#### Udorthents, very steep

*Extent:* 90 percent of the unit

*Landform(s):*

*Slope gradient:* 30 to 50 percent

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .43

*Land capability, nonirrigated:* 6s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A,C --	0 to 80 in loam	moderately rapid	6.39 to 11.19 in	6.6 to 9.0

#### Itasca

*Extent:* 5 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>

## Map Unit Description (MN)

Itasca County, Minnesota

### 1043F--Udorthents, very steep

#### Blackhoof

*Extent:* 3 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Cathro

*Extent:* 2 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 1044--Slickens

#### Slickens

*Extent:* 100 percent of the unit

*Landform(s):*

*Slope gradient:* 0 to 8 percent

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:*

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 1826B--Nashwauk-Menahga complex, 1 to 10 percent slopes

#### Nashwauk

*Extent:* 55 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 1 to 10 percent

*Parent material:* loamy till

*Restrictive feature(s):* densic material at 6 to 14 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 3e

*Hydric soil:* no

*Hydrologic group:* D

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	fine sandy loam	moderate	0.10 to 0.16 in	5.1 to 6.5
E,Bw -- 1 to 7 in	fine sandy loam	moderate	0.88 to 1.13 in	4.5 to 6.0
E',B/E -- 7 to 10 in	fine sandy loam	slow	0.28 to 0.39 in	5.1 to 6.5
Bt -- 10 to 52 in	loam	slow	3.37 to 5.90 in	5.1 to 6.5
C -- 52 to 60 in	silt loam	slow	0.24 to 0.79 in	6.1 to 8.4

#### Menahga

*Extent:* 30 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 1 to 10 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .10

*Land capability, nonirrigated:* 4s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	loamy sand	rapid	0.12 to 0.14 in	4.5 to 6.5
E,Bw,BC -- 1 to 38 in	sand	rapid	2.56 to 3.30 in	4.5 to 6.5
C -- 38 to 60 in	coarse sand	rapid	1.10 to 1.54 in	5.6 to 6.5

## Map Unit Description (MN)

Itasca County, Minnesota

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### 1826B--Nashwauk-Menahga complex, 1 to 10 percent slopes

#### Roscommon

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Cathro

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 1826B--Nashwauk-Menahga complex, 1 to 10 percent slopes

#### Blackhoof

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### 1826D--Nashwauk-Menahga complex, 10 to 25 percent slopes

#### Nashwauk

*Extent:* 45 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 10 to 25 percent

*Parent material:* loamy till

*Restrictive feature(s):* densic material at 6 to 14 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 4e

*Hydric soil:* no

*Hydrologic group:* D

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 3 in	fine sandy loam	moderately rapid	0.41 to 0.50 in	5.1 to 6.5
E,Bw -- 3 to 4 in	fine sandy loam	moderate	0.11 to 0.14 in	4.5 to 6.0
E',B/E -- 4 to 12 in	fine sandy loam	slow	0.79 to 1.10 in	5.1 to 6.5
Bt -- 12 to 58 in	clay loam	slow	3.69 to 6.45 in	5.1 to 6.5
C -- 58 to 60 in	loam	slow	0.06 to 0.20 in	6.1 to 8.4

#### Menahga

*Extent:* 40 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 10 to 25 percent

*Parent material:* sandy outwash

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 2

*Wind erodibility index (WEI):* 134

*Kw factor (surface layer)* .10

*Land capability, nonirrigated:* 6s

*Hydric soil:* no

*Hydrologic group:* A

*Potential for frost action:* low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	loamy sand	rapid	0.12 to 0.14 in	4.5 to 6.5
E,Bw,BC -- 1 to 38 in	sand	rapid	2.56 to 3.30 in	4.5 to 6.5
C -- 38 to 60 in	coarse sand	rapid	1.10 to 1.54 in	5.6 to 6.5

## Map Unit Description (MN)

Itasca County, Minnesota

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### 1826D--Nashwauk-Menahga complex, 10 to 25 percent slopes

#### Roscommon

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Blackhoof

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 1826D--Nashwauk-Menahga complex, 10 to 25 percent slopes

#### Sandwick

*Extent:* 5 percent of the unit

*Landform(s):* flats

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

*Representative soil profile:*

*Texture*

*Permeability*

*Available water  
capacity*

*pH*

## Map Unit Description (MN)

Itasca County, Minnesota

### 1883D--Nashwauk-Rock outcrop complex, 6 to 25 percent slopes

#### Nashwauk

*Extent:* 55 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 6 to 25 percent

*Parent material:* loamy till

*Restrictive feature(s):* densic material at 6 to 14 inches

*Flooding:* none

*Ponding:* none

*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2

*Wind erodibility group (WEG):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*Land capability, nonirrigated:* 4e

*Hydric soil:* no

*Hydrologic group:* D

*Potential for frost action:* moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 1 in	fine sandy loam	moderately rapid	0.10 to 0.13 in	5.1 to 6.5
E,Bw -- 1 to 7 in	fine sandy loam	moderate	0.88 to 1.13 in	4.5 to 6.0
E',B/E -- 7 to 16 in	loam	slow	0.91 to 1.27 in	5.1 to 6.5
Bt -- 16 to 58 in	loam	slow	3.34 to 5.84 in	5.1 to 6.5
C -- 58 to 60 in	silt loam	slow	0.06 to 0.20 in	6.1 to 8.4

#### Rock outcrop

*Extent:* 30 percent of the unit

*Landform(s):* moraines

*Slope gradient:* 6 to 25 percent

*Parent material:* igneous, metamorphic and sedimentary rock

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* none

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:*

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 1883D--Nashwauk-Rock outcrop complex, 6 to 25 percent slopes

#### Cathro

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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#### Blackhoof

*Extent:* 5 percent of the unit

*Landform(s):* depressions

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* yes

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

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### 1883D--Nashwauk-Rock outcrop complex, 6 to 25 percent slopes

#### Cutaway

*Extent:* 5 percent of the unit

*Landform(s):* moraines

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:* no

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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### M-W--Water, miscellaneous

#### Water, miscellaneous

*Extent:* 100 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:*

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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## Map Unit Description (MN)

Itasca County, Minnesota

### W--Water

#### Water

*Extent:* 100 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

*Restrictive feature(s):* greater than 60 inches

*Flooding:*

*Ponding:*

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):*

*Wind erodibility index (WEI):*

*Kw factor (surface layer)*

*Land capability, nonirrigated:*

*Hydric soil:*

*Hydrologic group:*

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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This report provides a semitabular listing of some soil and site properties and interpretations that are valuable in communicating the concept of a map unit. The report also provides easy access to the commonly used conservation planning information in one place. The major soil components in each map unit are displayed. Minor components may be displayed if they are included in the database and are selected at the time the report is generated.