

Map Unit Description (MN)

Red Lake 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]

B109A--Bowstring and Fluvaquents soils, mlra 88, 0 to 2 percent slopes, frequently flooded

Bowstring, mlra 88, frequently flooded

Extent: 45 percent of the unit

Landform(s): swales on flood plains

Slope gradient: 0 to 1 percent

Parent material: organic material over alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

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>
Oa1-2 -- 0 to 38 in	muck	moderately rapid	13.37 to 17.19 in	
Cg -- 38 to 47 in	stratified sand to fine sandy loam	rapid	0.69 to 1.21 in	
O'a1 -- 47 to 80 in	muck	moderately rapid	11.57 to 14.88 in	

Fluvaquents, mlra 88, frequently flooded

Extent: 40 percent of the unit

Landform(s): flats on flood plains, swales on flood plains

Slope gradient: 0 to 2 percent

Parent material: alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

Ponding: frequent

Drainage class: very poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .15

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>
A -- 0 to 16 in	fine sandy loam	moderately rapid	2.58 to 3.87 in	6.6 to 7.8
Cg -- 16 to 80 in	stratified loamy sand to silt loam	rapid	2.55 to 12.76 in	6.6 to 7.8

Map Unit Description (MN)

Red Lake County, Minnesota

B200A--Garnes fine sandy loam, 0 to 3 percent slopes

Garnes

Extent: 70 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits and/or 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 1

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 6 in	fine sandy loam	moderately rapid	0.94 to 1.06 in	6.1 to 7.3
E -- 6 to 9 in	loamy fine sand	rapid	0.16 to 0.38 in	6.1 to 7.3
Bt -- 9 to 14 in	clay loam	moderate	0.87 to 1.02 in	6.6 to 7.8
Bk1-2 -- 14 to 72 in	loam	moderate	8.68 to 11.00 in	7.4 to 8.4
C -- 72 to 80 in	loam	moderate	1.18 to 1.50 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

B201A--Chilgren fine sandy loam, 0 to 2 percent slopes

Chilgren

Extent: 75 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly 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 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	fine sandy loam	moderately rapid	0.63 to 0.71 in	6.1 to 7.3
E -- 4 to 10 in	fine sandy loam	rapid	0.30 to 0.71 in	6.1 to 7.3
Btg -- 10 to 18 in	clay loam	moderate	1.41 to 1.65 in	6.1 to 7.8
Bkg1-2 -- 18 to 72 in	loam	moderate	8.09 to 10.25 in	7.4 to 8.4
Cg -- 72 to 80 in	loam	moderate	1.18 to 1.50 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

B202A--Cathro muck, depressional, mlra 88, 0 to 1 percent slopes

Cathro, depressional, mlra 88

Extent: 80 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: organic material over 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-Oa2 -- 0 to 11 in	muck	moderately rapid	3.86 to 5.29 in	
Oa3 -- 11 to 23 in	muck	moderately rapid	4.13 to 5.67 in	
Cg -- 23 to 60 in	loam	moderate	5.55 to 7.03 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

B203A--Northwood muck, depressional, mlra 88, 0 to 1 percent slopes

Northwood, depressional, mlra 88

<p><i>Extent:</i> 75 percent of the unit</p> <p><i>Landform(s):</i> depressions on lake plains</p> <p><i>Slope gradient:</i> 0 to 1 percent</p> <p><i>Parent material:</i> organic material over glaciolacustrine deposits and/or till</p> <p><i>Restrictive feature(s):</i> greater than 60 inches</p> <p><i>Flooding:</i> none</p> <p><i>Ponding:</i> frequent</p> <p><i>Drainage class:</i> very poorly drained</p>	<p><i>Soil loss tolerance (T factor):</i> 1</p> <p><i>Wind erodibility group (WEG):</i> 2</p> <p><i>Wind erodibility index (WEI):</i> 134</p> <p><i>Kw factor (surface layer)</i> .02</p> <p><i>Land capability, nonirrigated</i> 6w</p> <p><i>Hydric soil:</i> yes</p> <p><i>Hydrologic group:</i> B/D</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>
Oa -- 0 to 9 in	muck	moderately rapid	3.17 to 4.35 in	5.1 to 7.8
A -- 9 to 14 in	loamy fine sand	rapid	0.51 to 0.92 in	5.6 to 7.8
Bg1-2 -- 14 to 24 in	loamy fine sand	rapid	0.59 to 1.08 in	5.6 to 8.4
2BCkg-2Cg -- 24 to 80 in	loam	moderate	8.39 to 10.62 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

B204A--Roliss loam, mlra 88, 0 to 2 percent slopes

Roliss, mlra 88

Extent: 75 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

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>
Ap,A -- 0 to 14 in	loam	moderate	2.41 to 3.40 in	6.6 to 8.4
Bg -- 14 to 20 in	loam	moderate	0.89 to 1.12 in	7.4 to 8.4
Cg1-4 -- 20 to 80 in	loam	moderate	8.98 to 11.37 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

B205A--Berner muck, depressional, mlra 88, 0 to 1 percent slopes

Berner, depressional, mlra 88

Extent: 80 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: organic material over glaciolacustrine deposits and/or 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>
Oa1-2 -- 0 to 28 in	muck	moderately rapid	9.78 to 13.42 in	
A -- 28 to 31 in	sandy loam	moderately rapid	0.31 to 0.57 in	
Bg -- 31 to 44 in	sand	rapid	0.65 to 1.30 in	
2CBkg -- 44 to 80 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

B206A--Hamre muck, depressional, mlra 88, 0 to 1 percent slopes

Hamre, depressional, mlra 88

Extent: 80 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: organic material over 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>
Oa -- 0 to 13 in	muck	moderately rapid	4.55 to 6.24 in	5.1 to 7.8
A -- 13 to 18 in	loam	moderate	0.87 to 1.13 in	5.1 to 7.8
Bg -- 18 to 35 in	loam	moderate	2.54 to 3.22 in	6.6 to 8.4
BCg-Cg -- 35 to 80 in	loam	moderate	6.73 to 8.53 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I1A--Augsburg loam, 0 to 2 percent slopes

Augsburg

Extent: 75 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: coarse-silty glaciolacustrine deposits over clayey till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .37

Land capability, nonirrigated 2w

Hydric soil: yes

Hydrologic group: C/D

Potential for frost action: high

Representative soil profile:

		<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap --	0 to 7 in	loam	moderate	1.42 to 1.63 in	7.4 to 8.4
Ak --	7 to 11 in	loam	moderate	0.79 to 0.91 in	7.4 to 8.4
Bkg --	11 to 18 in	very fine sandy loam	moderately rapid	1.20 to 1.56 in	7.4 to 8.4
Bg1 --	18 to 33 in	loamy very fine sand	moderately rapid	2.54 to 3.29 in	7.4 to 8.4
2Bg2 --	33 to 60 in	clay	slow	2.41 to 5.09 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I2A--Augsburg very fine sandy loam, 0 to 2 percent slopes

Augsburg

Extent: 75 percent of the unit

Landform(s): swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: coarse-silty glaciolacustrine deposits over clayey glaciolacustrine deposits

Restrictive feature(s): abrupt textural change at 20 to 40

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .24

Land capability, nonirrigated 2w

Hydric soil: yes

Hydrologic group: C/D

Potential for frost action: high

Representative soil profile:

		<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap --	0 to 7 in	very fine sandy loam	moderately rapid	1.42 to 1.70 in	7.4 to 8.4
Ak --	7 to 11 in	very fine sandy loam	moderately rapid	0.79 to 0.94 in	7.4 to 8.4
Bkg --	11 to 18 in	very fine sandy loam	moderately rapid	1.20 to 1.56 in	7.4 to 8.4
Bg1 --	18 to 33 in	very fine sandy loam	moderately rapid	2.54 to 3.29 in	7.4 to 8.4
2Bg2 --	33 to 62 in	clay	slow	2.87 to 4.02 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I3A--Berner muck, 0 to 1 percent slopes

Berner

Extent: 80 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: organic material over glaciolacustrine deposits and/or 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>
Oa -- 0 to 28 in	muck	moderately rapid	9.78 to 13.42 in	
A -- 28 to 31 in	sandy loam	moderately rapid	0.31 to 0.57 in	6.1 to 7.3
Bg -- 31 to 44 in	sand	rapid	0.65 to 1.30 in	6.1 to 7.8
2CBkg -- 44 to 80 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I4A--Berner, Rosewood, and Strathcona soils, seepy, 0 to 2 percent slopes

Rosewood, seepy, depressional

Extent: 0 to 90 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits

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): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .24

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>
Ap -- 0 to 8 in	fine sandy loam	moderately rapid	1.57 to 2.36 in	7.4 to 8.4
Bkg1 -- 8 to 18 in	fine sandy loam	moderately rapid	0.92 to 1.74 in	7.4 to 8.4
Cg -- 18 to 80 in	fine sand	rapid	3.09 to 4.94 in	7.4 to 8.4

Strathcona, seepy, depressional

Extent: 0 to 90 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits over 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): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .24

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>
Ap -- 0 to 10 in	mucky fine sandy loam	rapid	1.97 to 2.95 in	7.4 to 8.4
Bkg -- 10 to 17 in	loamy fine sand	moderately rapid	0.64 to 1.20 in	7.4 to 8.4
Cg1 -- 17 to 28 in	fine sand	rapid	0.55 to 1.32 in	7.4 to 8.4
2Cg2 -- 28 to 80 in	loam	moderate	7.80 to 9.87 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I4A--Berner, Rosewood, and Strathcona soils, seepy, 0 to 2 percent slopes

Berner, seepy

<i>Extent:</i> 0 to 90 percent of the unit	<i>Soil loss tolerance (T factor):</i> 1
<i>Landform(s):</i> depressions on lake plains	<i>Wind erodibility group (WEG):</i> 2
<i>Slope gradient:</i> 0 to 1 percent	<i>Wind erodibility index (WEI):</i> 134
<i>Parent material:</i> organic material over glaciolacustrine deposits and/or till	<i>Kw factor (surface layer)</i> .02
<i>Restrictive feature(s):</i> greater than 60 inches	<i>Land capability, nonirrigated</i> 6w
<i>Flooding:</i> none	<i>Hydric soil:</i> yes
<i>Ponding:</i> frequent	<i>Hydrologic group:</i> A/D
<i>Drainage class:</i> very poorly drained	<i>Potential for frost action:</i> high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oa -- 0 to 28 in	muck	moderately rapid	9.78 to 13.42 in	
A -- 28 to 31 in	sandy loam	moderately rapid	0.31 to 0.57 in	6.1 to 7.3
Bg -- 31 to 44 in	sand	rapid	0.65 to 1.30 in	6.1 to 7.8
2CBkg -- 44 to 80 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I5A--Borup loam, 0 to 2 percent slopes

Borup

Extent: 75 percent of the unit

Landform(s): deltas on lake plains

Slope gradient: 0 to 2 percent

Parent material: coarse-silty glaciolacustrine deposits

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .24

Land capability, nonirrigated 2w

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>
Ap -- 0 to 12 in	loam	moderately rapid	2.13 to 2.60 in	7.4 to 8.4
Bkg -- 12 to 34 in	loam	moderately rapid	3.75 to 4.41 in	7.4 to 8.4
Cg -- 34 to 60 in	very fine sandy loam	rapid	3.90 to 4.94 in	7.4 to 8.4

I6A--Borup very fine sandy loam, 0 to 2 percent slopes

Borup

Extent: 75 percent of the unit

Landform(s): swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: coarse-silty glaciolacustrine deposits

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

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: 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>
Ap -- 0 to 12 in	very fine sandy loam	moderately rapid	2.36 to 2.83 in	7.4 to 8.4
Bkg -- 12 to 34 in	very fine sandy loam	moderately rapid	3.09 to 4.85 in	7.4 to 8.4
Cg -- 34 to 60 in	loamy very fine sand	rapid	2.34 to 5.72 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

17A--Bowstring-Fluvaquents complex, 0 to 2 percent slopes, frequently flooded

Bowstring, frequently flooded

Extent: 45 percent of the unit
Landform(s): swales on flood plains
Slope gradient: 0 to 1 percent
Parent material: organic material over alluvium
Restrictive feature(s): greater than 60 inches
Flooding: frequent
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>
Oa -- 0 to 38 in	muck	moderately rapid	13.37 to 17.19 in	
Cg -- 38 to 47 in	stratified sand to fine sandy loam	rapid	0.69 to 1.21 in	
O'a -- 47 to 80 in	muck	moderately rapid	11.57 to 14.88 in	

Fluvaquents, frequently flooded

Extent: 45 percent of the unit
Landform(s): flats on flood plains, swales on flood plains
Slope gradient: 0 to 2 percent
Parent material: alluvium
Restrictive feature(s): greater than 60 inches
Flooding: frequent
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
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>
A -- 0 to 16 in	fine sandy loam	moderately rapid	2.58 to 3.87 in	6.6 to 7.8
Cg -- 16 to 80 in	stratified loamy sand to silt loam	rapid	2.55 to 12.76 in	6.6 to 7.8

Map Unit Description (MN)

Red Lake County, Minnesota

I8A--Cathro muck, 0 to 1 percent slopes

Cathro

Extent: 80 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: organic material over 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 -- 0 to 11 in	muck	moderately rapid	3.86 to 5.29 in	
Oa2 -- 11 to 23 in	muck	moderately rapid	4.13 to 5.67 in	
Cg -- 23 to 60 in	loam	moderate	5.55 to 7.03 in	7.4 to 8.4

I9A--Clearwater clay, 0 to 2 percent slopes

Clearwater

Extent: 80 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4

Wind erodibility index (WEI): 86

Kw factor (surface layer) .10

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>
Ap -- 0 to 8 in	clay	slow	1.02 to 1.34 in	6.6 to 7.8
Bss -- 8 to 35 in	clay	slow	2.72 to 5.16 in	7.4 to 8.4
Cg -- 35 to 80 in	clay	slow	4.04 to 8.53 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I10A--Clearwater mucky clay loam, depressional, 0 to 1 percent slopes

Clearwater, depressional

Extent: 85 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: 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): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .20

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>
Ap -- 0 to 8 in	mucky clay loam	moderate	1.34 to 2.36 in	6.6 to 7.8
Bss -- 8 to 35 in	clay	slow	2.72 to 5.16 in	7.4 to 8.4
Cg -- 35 to 80 in	clay	slow	4.04 to 8.53 in	7.4 to 8.4

I11A--Deerwood muck, 0 to 1 percent slopes

Deerwood

Extent: 85 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: organic material over 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: 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 10 in	muck	moderately rapid	3.44 to 4.72 in	5.6 to 7.8
A -- 10 to 12 in	loamy sand	rapid	0.18 to 0.33 in	6.1 to 8.4
Cg -- 12 to 60 in	sand	rapid	0.96 to 4.80 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I12A--Eckvoll loamy fine sand, 0 to 3 percent slopes

Eckvoll

Extent: 70 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits over 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): 2

Wind erodibility index (WEI): 134

Kw factor (surface layer) .28

Land capability, nonirrigated 3s

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>
Ap -- 0 to 9 in	loamy fine sand	rapid	0.91 to 1.09 in	6.1 to 7.3
E -- 9 to 25 in	fine sand	rapid	0.81 to 1.94 in	6.1 to 7.3
2Bt -- 25 to 32 in	sandy clay loam	moderate	1.07 to 1.20 in	6.6 to 7.8
2Bck -- 32 to 80 in	loam	moderate	7.20 to 9.13 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I13A--Espelie fine sandy loam, 0 to 2 percent slopes

Espelie

Extent: 75 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .17

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>
Ap -- 0 to 9 in	fine sandy loam	moderately rapid	1.18 to 1.63 in	6.6 to 7.3
Bw -- 9 to 24 in	fine sand	rapid	0.90 to 1.65 in	6.6 to 7.8
2Bg -- 24 to 37 in	clay	slow	1.17 to 2.47 in	7.4 to 8.4
2Cg -- 37 to 80 in	clay	slow	3.86 to 8.15 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I14B--Fairdale silt loam, 1 to 6 percent slopes, occasionally flooded

Fairdale

Extent: 85 percent of the unit

Landform(s): flood plains on river valleys

Slope gradient: 1 to 6 percent

Parent material: fine-loamy alluvium

Restrictive feature(s): greater than 60 inches

Flooding: occasional

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .28

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>
Ap -- 0 to 7 in	silt loam	moderate	1.42 to 1.70 in	7.4 to 7.8
C -- 7 to 48 in	stratified loam to silt loam	moderate	6.96 to 9.42 in	7.4 to 8.4
Ab -- 48 to 67 in	silt loam	moderate	3.40 to 4.54 in	7.4 to 7.8
C' -- 67 to 80 in	silty clay loam	moderate	2.21 to 2.99 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I14D--Fairdale silt loam, 6 to 15 percent slopes, occasionally flooded

Fairdale, occasionally flooded

Extent: 85 percent of the unit

Landform(s): rises on flood plains, stream terraces

Slope gradient: 6 to 15 percent

Parent material: alluvium

Restrictive feature(s): greater than 60 inches

Flooding: occasional

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .32

Land capability, nonirrigated 3e

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>
Ap -- 0 to 7 in	silt loam	moderate	1.42 to 1.70 in	7.4 to 7.8
C -- 7 to 48 in	stratified very fine sandy loam to silty clay loam	moderate	6.96 to 9.42 in	7.4 to 8.4
Ab -- 48 to 67 in	silty clay loam	moderate	3.40 to 4.54 in	7.4 to 7.8
C -- 67 to 80 in	stratified very fine sandy loam to silty clay loam	moderate	2.21 to 2.99 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I15A--Flaming loamy fine sand, 0 to 3 percent slopes

Flaming

Extent: 70 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: sandy 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 4s

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>
Ap -- 0 to 12 in	loamy fine sand	rapid	1.18 to 1.42 in	5.6 to 7.3
BA -- 12 to 17 in	fine sand	rapid	0.31 to 0.61 in	5.6 to 8.4
Bw -- 17 to 27 in	fine sand	rapid	0.51 to 1.23 in	5.6 to 8.4
C -- 27 to 60 in	fine sand	rapid	1.63 to 3.27 in	5.6 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I16F--Fluvaquents, frequently flooded-Hapludolls complex, 0 to 30 percent slopes

Fluvaquents, frequently flooded

Extent: 55 percent of the unit

Landform(s): flats on flood plains, swales on flood plains

Slope gradient: 0 to 2 percent

Parent material: alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

Ponding: frequent

Drainage class: very poorly drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .15

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>
A -- 0 to 16 in	fine sandy loam	moderately rapid	2.58 to 3.87 in	6.6 to 7.8
Cg -- 16 to 80 in	stratified loamy sand to silt loam	rapid	2.55 to 12.76 in	6.6 to 7.8

Hapludolls, rarely flooded

Extent: 25 percent of the unit

Landform(s): escarpments on flood plains

Slope gradient: 2 to 30 percent

Parent material: glaciolacustrine deposits and/or till

Restrictive feature(s): greater than 60 inches

Flooding: rare

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .28

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 9 in	loam	moderate	1.54 to 1.99 in	6.6 to 7.8
C -- 9 to 60 in	loam	moderate	7.11 to 11.17 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I17A--Foldahl fine sandy loam, 0 to 3 percent slopes

Foldahl

Extent: 75 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits over 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) .20

Land capability, nonirrigated 2s

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>
Ap -- 0 to 12 in	fine sandy loam	moderately rapid	1.65 to 2.13 in	6.1 to 7.8
Bw -- 12 to 30 in	fine sand	rapid	1.27 to 2.17 in	6.6 to 7.8
2Bck -- 30 to 44 in	loam	moderate	2.13 to 2.69 in	7.4 to 8.4
2C -- 44 to 80 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I18A--Foldahl loamy fine sand, 0 to 3 percent slopes

Foldahl

Extent: 75 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits over 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): 2

Wind erodibility index (WEI): 134

Kw factor (surface layer) .15

Land capability, nonirrigated 3s

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 -- 0 to 12 in	loamy fine sand	rapid	1.18 to 1.65 in	6.1 to 7.8
Bw -- 12 to 30 in	fine sand	rapid	1.27 to 2.17 in	6.6 to 7.8
2BcK -- 30 to 44 in	loam	moderate	2.13 to 2.69 in	7.4 to 8.4
2C -- 44 to 80 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I19A--Foxhome sandy loam, 0 to 3 percent slopes

Foxhome

Extent: 65 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits over 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) .15

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>
Ap -- 0 to 10 in	sandy loam	moderately rapid	1.28 to 1.48 in	6.6 to 7.8
Bw1 -- 10 to 15 in	sand	rapid	0.31 to 0.46 in	6.6 to 7.8
2Bw2 -- 15 to 23 in	very gravelly coarse sand	rapid	0.16 to 0.55 in	7.4 to 8.4
3C -- 23 to 80 in	loam	moderate	8.56 to 10.85 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I20A--Foxlake loam, 0 to 2 percent slopes

Foxlake

Extent: 75 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .32

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>
Ap -- 0 to 10 in	loam	moderately rapid	1.97 to 2.17 in	6.6 to 7.8
A -- 10 to 19 in	loam	moderately rapid	1.81 to 1.99 in	6.6 to 7.8
Bg -- 19 to 38 in	silty clay	slow	1.74 to 3.67 in	7.4 to 8.4
Bkg -- 38 to 49 in	silty clay	slow	0.96 to 2.02 in	7.4 to 8.4
Cg -- 49 to 80 in	silty clay	slow	2.80 to 5.91 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I21A--Fram loam, 1 to 3 percent slopes

Fram

Extent: 85 percent of the unit
Landform(s): flats on till plains
Slope gradient: 1 to 3 percent
Parent material: coarse-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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
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	loam	moderate	1.42 to 1.56 in	7.4 to 8.4
Bk -- 7 to 38 in	loam	moderate	3.73 to 5.91 in	7.4 to 8.4
C -- 38 to 60 in	loam	moderate	2.38 to 4.11 in	7.4 to 8.4

I22A--Glyndon loam, 0 to 2 percent slopes

Glyndon

Extent: 75 percent of the unit
Landform(s): flats on delta plains
Slope gradient: 0 to 2 percent
Parent material: coarse-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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
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 11 in	loam	moderate	1.98 to 2.43 in	7.4 to 8.4
Bk -- 11 to 28 in	loam	moderately rapid	2.37 to 3.72 in	7.4 to 8.4
C -- 28 to 60 in	loamy very fine sand	moderately rapid	2.23 to 6.38 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I23A--Glyndon very fine sandy loam, 0 to 2 percent slopes

Glyndon

<i>Extent:</i> 75 percent of the unit	<i>Soil loss tolerance (T factor):</i> 5
<i>Landform(s):</i> deltas on lake plains	<i>Wind erodibility group (WEG):</i> 3
<i>Slope gradient:</i> 0 to 2 percent	<i>Wind erodibility index (WEI):</i> 86
<i>Parent material:</i> coarse-silty glaciolacustrine deposits	<i>Kw factor (surface layer)</i> .28
<i>Restrictive feature(s):</i> greater than 60 inches	<i>Land capability, nonirrigated</i> 2e
<i>Flooding:</i> none	<i>Hydric soil:</i> no
<i>Ponding:</i> none	<i>Hydrologic group:</i> B/D
<i>Drainage class:</i> somewhat poorly drained	<i>Potential for frost action:</i> high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 11 in	very fine sandy loam	moderate	1.98 to 2.43 in	7.4 to 8.4
Bk -- 11 to 28 in	very fine sandy loam	moderately rapid	2.37 to 3.39 in	7.4 to 8.4
C -- 28 to 60 in	loamy very fine sand	moderately rapid	2.55 to 5.74 in	7.4 to 8.4

I24A--Grimstad fine sandy loam, 0 to 3 percent slopes

Grimstad

<i>Extent:</i> 70 percent of the unit	<i>Soil loss tolerance (T factor):</i> 5
<i>Landform(s):</i> rises on lake plains	<i>Wind erodibility group (WEG):</i> 3
<i>Slope gradient:</i> 0 to 3 percent	<i>Wind erodibility index (WEI):</i> 86
<i>Parent material:</i> glaciolacustrine deposits over till	<i>Kw factor (surface layer)</i> .20
<i>Restrictive feature(s):</i> greater than 60 inches	<i>Land capability, nonirrigated</i> 2s
<i>Flooding:</i> none	<i>Hydric soil:</i> no
<i>Ponding:</i> none	<i>Hydrologic group:</i> B/D
<i>Drainage class:</i> somewhat poorly drained	<i>Potential for frost action:</i> high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	fine sandy loam	moderately rapid	1.27 to 1.63 in	7.4 to 8.4
Bk -- 9 to 22 in	loamy fine sand	rapid	1.17 to 2.21 in	7.4 to 8.4
C1 -- 22 to 28 in	fine sand	rapid	0.30 to 0.83 in	7.4 to 8.4
2C2 -- 28 to 60 in	loam	moderate	4.78 to 6.06 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I25A--Hamar loamy fine sand, 0 to 2 percent slopes

Hamar

Extent: 75 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: 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 3w

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 15 in	loamy fine sand	rapid	1.50 to 1.80 in	6.1 to 7.8
AC -- 15 to 23 in	fine sand	rapid	0.79 to 0.94 in	6.6 to 8.4
C -- 23 to 60 in	fine sand	rapid	2.22 to 2.96 in	6.6 to 8.4

I26A--Hamerly loam, 0 to 2 percent slopes

Hamerly

Extent: 75 percent of the unit

Landform(s): flats on till plains

Slope gradient: 0 to 2 percent

Parent material: fine-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): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .24

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 8 in	loam	moderate	1.42 to 1.89 in	6.6 to 8.4
Bk -- 8 to 35 in	loam	moderate	4.07 to 5.16 in	7.4 to 8.4
C -- 35 to 60 in	loam	moderate	3.47 to 4.71 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I27A--Hamre muck, 0 to 1 percent slopes

Hamre

Extent: 80 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: organic material over 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 4w

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 6.24 in	5.1 to 7.8
A -- 13 to 18 in	loam	moderate	0.87 to 1.13 in	5.1 to 7.8
Bg -- 18 to 71 in	loam	moderate	7.91 to 10.02 in	6.6 to 8.4
Cg -- 71 to 80 in	loam	moderate	1.36 to 1.72 in	7.4 to 8.4

I28A--Hangaard sandy loam, 0 to 2 percent slopes

Hangaard

Extent: 75 percent of the unit

Landform(s): flats on beach plains, swales on beach plains

Slope gradient: 0 to 2 percent

Parent material: beach deposits

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .10

Land capability, nonirrigated 4w

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>
Ap -- 0 to 10 in	sandy loam	moderately rapid	0.98 to 1.48 in	6.6 to 7.8
A -- 10 to 15 in	loamy sand	rapid	0.36 to 0.56 in	6.6 to 7.8
Cg -- 15 to 80 in	coarse sand	very rapid	1.30 to 2.60 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I29A--Hattie clay, 0 to 3 percent slopes

Hattie

Extent: 75 percent of the unit

Landform(s): escarpments on lake plains

Slope gradient: 0 to 3 percent

Parent material: 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): 4

Wind erodibility index (WEI): 86

Kw factor (surface layer) .15

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 8 in	clay	slow	1.02 to 1.34 in	7.4 to 8.4
Bkss -- 8 to 22 in	silty clay	slow	1.42 to 2.69 in	7.4 to 8.4
C -- 22 to 80 in	clay	slow	5.21 to 11.00 in	7.4 to 8.4

I29D--Hattie clay, 6 to 18 percent slopes

Hattie

Extent: 85 percent of the unit

Landform(s): escarpments on lake plains

Slope gradient: 6 to 18 percent

Parent material: 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): 4

Wind erodibility index (WEI): 86

Kw factor (surface layer) .15

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>
Ap -- 0 to 8 in	clay	slow	1.02 to 1.34 in	7.4 to 8.4
Bkss -- 8 to 22 in	silty clay	slow	1.42 to 2.69 in	7.4 to 8.4
C -- 22 to 80 in	clay	slow	5.21 to 11.00 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I30A--Hedman loam, 0 to 2 percent slopes

Hedman

Extent: 85 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4L

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>
Ap -- 0 to 11 in	loam	moderate	2.20 to 2.43 in	6.6 to 7.8
Bkg -- 11 to 20 in	fine sandy loam	moderate	1.18 to 1.81 in	7.4 to 8.4
Cg -- 20 to 80 in	loam	moderate	7.78 to 11.97 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I31A--Hedman-Fram complex, 0 to 3 percent slopes

Hedman

Extent: 50 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4L

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>
Ap -- 0 to 11 in	loam	moderate	2.20 to 2.43 in	6.6 to 7.8
Bkg -- 11 to 20 in	fine sandy loam	moderate	1.18 to 1.81 in	7.4 to 8.4
Cg -- 20 to 80 in	loam	moderate	7.78 to 11.97 in	7.4 to 8.4

Fram

Extent: 40 percent of the unit

Landform(s): flats on till plains

Slope gradient: 0 to 3 percent

Parent material: coarse-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): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .28

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	loam	moderate	1.42 to 1.56 in	7.4 to 8.4
Bk -- 7 to 38 in	loam	moderate	3.73 to 5.91 in	7.4 to 8.4
C -- 38 to 60 in	loam	moderate	2.38 to 4.11 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I32A--Hilaire fine sandy loam, 0 to 3 percent slopes

Hilaire

Extent: 75 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .24

Land capability, nonirrigated 2s

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>
Ap -- 0 to 10 in	fine sandy loam	moderately rapid	1.28 to 1.77 in	6.6 to 7.3
Bw -- 10 to 34 in	fine sand	rapid	1.68 to 2.64 in	6.6 to 7.8
2Bk -- 34 to 80 in	clay	slow	4.15 to 8.75 in	7.4 to 8.4

I33A--Hilaire loamy fine sand, 0 to 3 percent slopes

Hilaire

Extent: 75 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 4

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: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 10 in	loamy fine sand	rapid	0.98 to 1.38 in	6.6 to 7.3
Bw -- 10 to 34 in	fine sand	rapid	1.68 to 2.64 in	6.6 to 7.8
2Bk -- 34 to 80 in	clay	slow	4.15 to 8.75 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I34A--Huot fine sandy loam, 0 to 3 percent slopes

Huot

Extent: 75 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

Land capability, nonirrigated 2s

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>
Ap -- 0 to 10 in	fine sandy loam	moderately rapid	1.28 to 1.77 in	7.4 to 8.4
Ak -- 10 to 14 in	fine sandy loam	moderately rapid	0.56 to 0.78 in	7.4 to 8.4
Bk -- 14 to 26 in	loamy fine sand	moderately rapid	1.06 to 2.01 in	7.4 to 8.4
C1 -- 26 to 34 in	fine sand	rapid	0.47 to 0.87 in	7.4 to 8.4
2C2 -- 34 to 80 in	clay	slow	4.15 to 8.75 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I35A--Karlsruhe sandy loam, 0 to 3 percent slopes

Karlsruhe

Extent: 70 percent of the unit

Landform(s): rises on beach plains

Slope gradient: 0 to 3 percent

Parent material: beach deposits

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

Land capability, nonirrigated 4e

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 11 in	sandy loam	moderately rapid	1.10 to 1.65 in	6.6 to 8.4
Bk -- 11 to 20 in	loamy sand	rapid	0.81 to 1.27 in	7.4 to 8.4
Bck -- 20 to 30 in	coarse sand	very rapid	0.20 to 0.89 in	7.4 to 8.4
C -- 30 to 60 in	coarse sand	very rapid	0.60 to 2.09 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I36A--Kittson loam, 0 to 3 percent slopes

Kittson

Extent: 70 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits over 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): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .20

Land capability, nonirrigated 1

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>
Ap -- 0 to 10 in	loam	moderate	1.97 to 2.17 in	6.6 to 7.8
Bw -- 10 to 17 in	fine sandy loam	moderate	0.85 to 1.35 in	6.6 to 7.8
2Bk -- 17 to 36 in	loam	moderate	2.83 to 3.59 in	7.4 to 8.4
2C -- 36 to 60 in	loam	moderate	3.60 to 4.56 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I37A--Kratka and Strathcona soils, depressional, 0 to 1 percent slopes.

Kratka, depressional

Extent: 0 to 90 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: glaciolacustrine deposits over 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): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .15

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>
A -- 0 to 11 in	mucky fine sandy loam	moderately rapid	2.20 to 3.31 in	6.6 to 7.8
Bg -- 11 to 18 in	loamy fine sand	rapid	0.43 to 0.78 in	5.6 to 7.8
Cg1 -- 18 to 25 in	fine sand	rapid	0.43 to 0.85 in	6.6 to 7.8
2Cg2 -- 25 to 80 in	loam	moderate	8.21 to 10.40 in	7.4 to 8.4

Strathcona, depressional

Extent: 0 to 90 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: glaciolacustrine deposits over 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): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .24

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>
Ap -- 0 to 10 in	mucky fine sandy loam	rapid	1.97 to 2.95 in	7.4 to 8.4
Bkg -- 10 to 17 in	loamy fine sand	moderately rapid	0.64 to 1.20 in	7.4 to 8.4
Cg1 -- 17 to 28 in	fine sand	rapid	0.55 to 1.32 in	7.4 to 8.4
2Cg2 -- 28 to 80 in	loam	moderate	7.80 to 9.87 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I38A--Kratka fine sandy loam, 0 to 2 percent slopes

Kratka

Extent: 70 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .17

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>
Ap -- 0 to 11 in	fine sandy loam	moderately rapid	1.76 to 1.98 in	5.6 to 7.8
Bg -- 11 to 18 in	loamy fine sand	rapid	0.43 to 0.78 in	5.6 to 7.8
Cg1 -- 18 to 25 in	fine sand	rapid	0.43 to 0.85 in	6.6 to 7.8
2Cg2 -- 25 to 80 in	loam	moderate	8.21 to 10.40 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I39A--Linveldt fine sandy loam, 0 to 3 percent slopes

Linveldt

Extent: 65 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits over 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) .20

Land capability, nonirrigated 2s

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>
Ap -- 0 to 9 in	fine sandy loam	moderately rapid	1.27 to 1.63 in	6.6 to 7.8
Bt -- 9 to 16 in	loam	moderately rapid	0.85 to 1.28 in	6.6 to 7.8
2Bw -- 16 to 29 in	sand	rapid	0.65 to 1.43 in	7.4 to 8.4
3Bk -- 29 to 45 in	loam	moderate	2.36 to 2.99 in	7.4 to 8.4
3C -- 45 to 80 in	loam	moderate	4.91 to 6.66 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I40B--Maddock loamy fine sand, 1 to 6 percent slopes

Maddock

Extent: 75 percent of the unit

Landform(s): dunes on lake plains

Slope gradient: 1 to 6 percent

Parent material: sandy outwash

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) .20

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 10 in	loamy fine sand	rapid	0.98 to 1.18 in	6.6 to 7.8
Bw -- 10 to 14 in	fine sand	rapid	0.26 to 0.56 in	6.1 to 8.4
C -- 14 to 60 in	fine sand	rapid	2.28 to 5.48 in	6.1 to 8.4

I40F--Maddock loamy fine sand, 12 to 30 percent slopes

Maddock

Extent: 90 percent of the unit

Landform(s): hills on sand plains, ridges on sand plains

Slope gradient: 12 to 30 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) .17

Land capability, nonirrigated 7e

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 10 in	loamy fine sand	rapid	0.98 to 1.18 in	6.6 to 7.8
Bw -- 10 to 14 in	fine sand	rapid	0.26 to 0.56 in	6.6 to 7.8
C -- 14 to 60 in	fine sand	rapid	2.28 to 5.48 in	6.6 to 7.8

Map Unit Description (MN)

Red Lake County, Minnesota

I41A--Markey muck, 0 to 1 percent slopes

Markey

Extent: 80 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: organic material over 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: 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 32 in	muck	moderately rapid	11.16 to 14.35 in	
Cg -- 32 to 60 in	fine sand	rapid	0.84 to 2.80 in	5.6 to 8.4

I42A--Markey muck, ponded, 0 to 1 percent slopes

Markey, ponded

Extent: 85 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: organic material over 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): 8

Wind erodibility index (WEI): 0

Kw factor (surface layer) .02

Land capability, nonirrigated 8w

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 32 in	muck	moderately rapid	11.16 to 14.35 in	6.1 to 7.8
Cg -- 32 to 60 in	fine sand	rapid	0.84 to 2.24 in	

Map Unit Description (MN)

Red Lake County, Minnesota

I43A--Mavie fine sandy loam, 0 to 2 percent slopes

Mavie

Extent: 70 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

Land capability, nonirrigated 3w

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>
Ap -- 0 to 12 in	fine sandy loam	moderately rapid	1.89 to 2.13 in	7.4 to 8.4
Bk -- 12 to 18 in	sandy loam	moderate	0.76 to 1.20 in	7.9 to 8.4
2C1 -- 18 to 39 in	very gravelly coarse sand	rapid	0.63 to 1.25 in	7.4 to 8.4
3C2 -- 39 to 80 in	loam	moderate	6.14 to 7.78 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I44A--Newfolden loam, 0 to 3 percent slopes

Newfolden

Extent: 75 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: 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) .37

Land capability, nonirrigated 2s

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>
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	6.6 to 7.3
Bt -- 7 to 16 in	clay	slow	0.91 to 1.72 in	6.6 to 7.3
2Bk -- 16 to 36 in	clay loam	moderate	2.95 to 3.74 in	7.4 to 8.4
2CBk -- 36 to 80 in	loam	moderate	6.61 to 8.38 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I45A--Northwood muck, 0 to 1 percent slopes

Northwood

Extent: 75 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: organic material over glaciolacustrine deposits and/or 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>
Oa -- 0 to 9 in	muck	moderately rapid	3.17 to 4.35 in	5.1 to 7.8
A -- 9 to 14 in	loamy fine sand	rapid	0.51 to 0.92 in	5.6 to 7.8
Bg -- 14 to 24 in	fine sand	rapid	0.59 to 1.08 in	5.6 to 8.4
2BCkg -- 24 to 80 in	loam	moderate	8.39 to 10.62 in	7.4 to 8.4

I46A--Pits, gravel and sand

Pits

Extent: 85 percent of the unit

Landform(s): beach ridges, beach plains, lake plains

Slope gradient:

Parent material: beach deposits

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)

Red Lake County, Minnesota

I47A--Poppleton fine sand, 0 to 2 percent slopes

Poppleton

Extent: 75 percent of the unit

Landform(s): rises 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: moderately well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 1

Wind erodibility index (WEI): 250

Kw factor (surface layer) .02

Land capability, nonirrigated 4s

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>
Ap -- 0 to 6 in	fine sand	rapid	0.35 to 0.53 in	5.6 to 7.3
E -- 6 to 9 in	fine sand	rapid	0.16 to 0.22 in	6.1 to 7.8
Bw -- 9 to 40 in	fine sand	rapid	1.56 to 2.18 in	6.1 to 7.8
C -- 40 to 60 in	fine sand	rapid	0.98 to 1.38 in	6.1 to 7.8

Map Unit Description (MN)

Red Lake County, Minnesota

I48A--Radium loamy sand, 0 to 3 percent slopes

Radium

Extent: 75 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: beach 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) .20

Land capability, nonirrigated 4s

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>
Ap -- 0 to 14 in	loamy sand	rapid	0.85 to 1.70 in	6.1 to 7.8
Bw -- 14 to 33 in	sand	rapid	0.57 to 1.51 in	6.6 to 8.4
C1 -- 33 to 43 in	gravelly coarse sand	very rapid	0.20 to 0.49 in	7.4 to 8.4
C2 -- 43 to 80 in	sand	rapid	1.11 to 3.33 in	7.4 to 8.4

I49A--Rauville silty clay loam, 0 to 2 percent slopes

Rauville

Extent: 80 percent of the unit

Landform(s): oxbows on flood plains

Slope gradient: 0 to 2 percent

Parent material: alluvium

Restrictive feature(s): greater than 60 inches

Flooding: very frequent

Ponding: frequent

Drainage class: very poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .24

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>
A -- 0 to 27 in	silty clay loam	moderate	4.89 to 6.79 in	7.4 to 8.4
Cg -- 27 to 45 in	silty clay loam	moderate	3.01 to 3.90 in	7.4 to 8.4
2Cg -- 45 to 60 in	stratified gravelly loamy sand to clay loam	rapid	0.60 to 2.99 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I50A--Reiner fine sandy loam, 0 to 3 percent slopes

Reiner

Extent: 70 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: 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) .20

Land capability, nonirrigated 1

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>
Ap -- 0 to 7 in	fine sandy loam	moderately rapid	1.13 to 1.28 in	6.6 to 7.3
Bt -- 7 to 17 in	clay loam	moderate	1.48 to 1.87 in	6.6 to 7.3
Bw -- 17 to 21 in	loam	moderate	0.59 to 0.75 in	7.4 to 8.4
Bk -- 21 to 35 in	loam	moderate	2.13 to 2.69 in	7.4 to 8.4
C -- 35 to 80 in	loam	moderate	6.73 to 8.53 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I51A--Reiner loamy fine sand, 0 to 3 percent slopes

Reiner

Extent: 65 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: 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): 2

Wind erodibility index (WEI): 134

Kw factor (surface layer) .24

Land capability, nonirrigated 2s

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>
Ap -- 0 to 7 in	loamy fine sand	rapid	0.71 to 0.92 in	6.6 to 7.3
Bt -- 7 to 17 in	clay loam	moderate	1.48 to 1.87 in	6.6 to 7.3
Bw -- 17 to 21 in	loam	moderate	0.59 to 0.75 in	7.4 to 8.4
Bk -- 21 to 35 in	loam	moderate	2.13 to 2.69 in	7.4 to 8.4
C -- 35 to 80 in	loam	moderate	6.73 to 8.53 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I52A--Reis-Clearwater complex, 0 to 2 percent slopes

Reis

Extent: 55 percent of the unit

Landform(s): flats on lake plains, rises on lake plains

Slope gradient: 0 to 2 percent

Parent material: 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): 4

Wind erodibility index (WEI): 86

Kw factor (surface layer) .15

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>
Ap -- 0 to 9 in	clay	slow	1.18 to 1.54 in	7.4 to 8.4
A/Bk -- 9 to 17 in	clay	slow	1.02 to 1.34 in	7.4 to 8.4
Bkss -- 17 to 33 in	clay	slow	2.10 to 2.74 in	7.4 to 8.4
Bkg -- 33 to 42 in	clay	slow	0.91 to 1.45 in	7.4 to 8.4
Cg -- 42 to 60 in	clay	slow	1.59 to 3.37 in	7.4 to 8.4
C -- 60 to 80 in	clay	slow	1.81 to 3.81 in	7.4 to 8.4

Clearwater

Extent: 30 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4

Wind erodibility index (WEI): 86

Kw factor (surface layer) .10

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>
Ap -- 0 to 8 in	clay	slow	1.02 to 1.34 in	6.6 to 7.8
Bss -- 8 to 35 in	clay	slow	2.72 to 5.16 in	7.4 to 8.4
Cg -- 35 to 80 in	clay	slow	4.04 to 8.53 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I53A--Roliss loam, 0 to 2 percent slopes

Roliss

Extent: 75 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

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>
Ap -- 0 to 9 in	loam	moderate	1.54 to 2.17 in	6.6 to 8.4
A -- 9 to 14 in	loam	moderate	0.87 to 1.23 in	6.6 to 8.4
Bg -- 14 to 20 in	loam	moderate	0.89 to 1.12 in	7.4 to 8.4
Cg -- 20 to 80 in	loam	moderate	8.98 to 11.37 in	7.4 to 8.4

I54A--Roliss loam, depressional, 0 to 1 percent slopes

Roliss, depressional

Extent: 80 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: 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): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

Land capability, nonirrigated 3w

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 14 in	loam	moderate	2.83 to 3.54 in	6.6 to 8.4
Bg -- 14 to 20 in	loam	moderate	0.89 to 1.12 in	7.4 to 8.4
Cg -- 20 to 80 in	loam	moderate	8.98 to 11.37 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I55A--Rosewood fine sandy loam, 0 to 2 percent slopes

Rosewood

Extent: 75 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly 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 3w

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>
Ap -- 0 to 8 in	fine sandy loam	moderately rapid	1.26 to 1.42 in	7.4 to 8.4
Bkg -- 8 to 18 in	fine sandy loam	moderately rapid	0.92 to 1.74 in	7.4 to 8.4
Cg -- 18 to 80 in	fine sand	rapid	3.09 to 4.94 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I56A--Rosewood-Venlo complex, 0 to 1 percent slopes

Rosewood

Extent: 50 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly 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 3w

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>
Ap -- 0 to 8 in	fine sandy loam	moderately rapid	1.26 to 1.42 in	7.4 to 8.4
Bkg -- 8 to 18 in	fine sandy loam	moderately rapid	0.92 to 1.74 in	7.4 to 8.4
Cg -- 18 to 80 in	fine sand	rapid	3.09 to 4.94 in	7.4 to 8.4

Venlo

Extent: 40 percent of the unit

Landform(s): depressions on delta plains, depressions on sandhills

Slope gradient: 0 to 1 percent

Parent material: sandy eolian deposits and/or sandy glaciolacustrine deposits

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): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

Land capability, nonirrigated 3w

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 13 in	fine sandy loam	rapid	2.08 to 2.34 in	6.1 to 7.3
Cg -- 13 to 60 in	fine sand	rapid	2.34 to 5.62 in	6.6 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I57B--Sandberg-Radium complex, 1 to 6 percent slopes

Sandberg

<p><i>Extent:</i> 50 percent of the unit</p> <p><i>Landform(s):</i> beach ridges on lake plains</p> <p><i>Slope gradient:</i> 1 to 6 percent</p> <p><i>Parent material:</i> beach 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> excessively drained</p>	<p><i>Soil loss tolerance (T factor):</i> 5</p> <p><i>Wind erodibility group (WEG):</i> 2</p> <p><i>Wind erodibility index (WEI):</i> 134</p> <p><i>Kw factor (surface layer)</i> .15</p> <p><i>Land capability, nonirrigated</i> 4s</p> <p><i>Hydric soil:</i> no</p> <p><i>Hydrologic group:</i> A</p> <p><i>Potential for frost action:</i> low</p>
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<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	loamy sand	rapid	0.79 to 0.94 in	5.6 to 7.8
A -- 8 to 12 in	loamy sand	rapid	0.39 to 0.47 in	5.6 to 7.8
Bw -- 12 to 19 in	gravelly loamy coarse sand	rapid	0.21 to 0.71 in	6.1 to 7.8
Bk -- 19 to 29 in	gravelly coarse sand	very rapid	0.20 to 0.61 in	7.4 to 8.4
C -- 29 to 80 in	gravelly coarse sand	very rapid	1.02 to 2.03 in	7.4 to 8.4

Radium

<p><i>Extent:</i> 25 percent of the unit</p> <p><i>Landform(s):</i> beach ridges on lake plains</p> <p><i>Slope gradient:</i> 1 to 3 percent</p> <p><i>Parent material:</i> beach 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> 2</p> <p><i>Wind erodibility index (WEI):</i> 134</p> <p><i>Kw factor (surface layer)</i> .20</p> <p><i>Land capability, nonirrigated</i> 4s</p> <p><i>Hydric soil:</i> no</p> <p><i>Hydrologic group:</i> A</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>
Ap -- 0 to 14 in	loamy sand	rapid	0.85 to 1.70 in	6.1 to 7.8
Bw -- 14 to 33 in	sand	rapid	0.57 to 1.51 in	6.6 to 8.4
C1 -- 33 to 43 in	very gravelly coarse sand	very rapid	0.20 to 0.49 in	7.4 to 8.4
C2 -- 43 to 80 in	sand	rapid	1.11 to 3.33 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I58A--Seelyeville muck, 0 to 1 percent slopes.

Seelyeville

Extent: 90 percent of the unit

Landform(s): depressions on lake plains

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 10 in	muck	moderately rapid	3.44 to 4.72 in	
Oa2 -- 10 to 80 in	muck	moderately rapid	24.53 to 33.64 in	

I59A--Smiley loam, 0 to 2 percent slopes

Smiley

Extent: 65 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

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: 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>
Ap -- 0 to 12 in	loam	moderate	2.36 to 2.83 in	6.6 to 7.8
Btg -- 12 to 19 in	clay loam	moderate	1.06 to 1.35 in	6.6 to 8.4
Bkg -- 19 to 42 in	loam	moderate	3.48 to 4.41 in	7.4 to 8.4
Cg -- 42 to 80 in	loam	moderate	5.67 to 7.18 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I60A--Smiley mucky loam, depressional, 0 to 1 percent slopes

Smiley, depressional

Extent: 80 percent of the unit

Landform(s): depressions on lake plains

Slope gradient: 0 to 1 percent

Parent material: 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): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .28

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>
Ap -- 0 to 12 in	mucky loam	moderate	2.36 to 3.54 in	6.6 to 7.8
Btg -- 12 to 19 in	clay loam	moderate	1.06 to 1.35 in	6.6 to 8.4
Bkg -- 19 to 42 in	loam	moderate	3.48 to 4.41 in	7.4 to 8.4
Cg -- 42 to 80 in	loam	moderate	5.67 to 7.18 in	7.4 to 8.4

I61A--Strandquist loam, 0 to 2 percent slopes

Strandquist

Extent: 70 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .28

Land capability, nonirrigated 3w

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>
Ap -- 0 to 10 in	loam	moderately rapid	1.97 to 2.17 in	6.6 to 8.4
2Bg -- 10 to 20 in	very gravelly sand	rapid	0.20 to 0.72 in	7.4 to 8.4
3BCg -- 20 to 60 in	loam	moderate	5.96 to 7.56 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I62A--Syrene sandy loam, 0 to 2 percent slopes

Syrene

Extent: 70 percent of the unit

Landform(s): flats on beach plains, swales on beach plains

Slope gradient: 0 to 2 percent

Parent material: beach deposits

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .10

Land capability, nonirrigated 4w

Hydric soil: yes

Hydrologic group: B/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>
Ap -- 0 to 9 in	sandy loam	moderate	1.18 to 1.36 in	7.4 to 8.4
Bkg1 -- 9 to 17 in	sandy loam	moderately rapid	0.94 to 1.50 in	7.9 to 8.4
2Bkg2 -- 17 to 27 in	stratified gravelly coarse sand to loamy fine sand	rapid	0.20 to 0.41 in	7.4 to 8.4
2Cg -- 27 to 60 in	stratified gravelly coarse sand to loamy fine sand	rapid	0.65 to 1.31 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I63A--Thiefriever fine sandy loam, 0 to 2 percent slopes

Thiefriever

Extent: 70 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .17

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>
Ap -- 0 to 12 in	fine sandy loam	moderately rapid	1.54 to 2.13 in	7.4 to 8.4
Bkg -- 12 to 23 in	loamy fine sand	moderately rapid	0.99 to 1.87 in	7.4 to 8.4
Cg1 -- 23 to 32 in	fine sand	rapid	0.54 to 1.00 in	7.4 to 8.4
2Cg -- 32 to 80 in	clay	slow	4.32 to 9.13 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I64A--Ulen fine sandy loam, 0 to 3 percent slopes

Ulen

Extent: 70 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

Land capability, nonirrigated 3s

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>
Ap -- 0 to 9 in	fine sandy loam	rapid	1.27 to 1.63 in	7.4 to 8.4
Ak -- 9 to 13 in	loamy fine sand	rapid	0.31 to 0.67 in	7.4 to 8.4
Bk -- 13 to 42 in	loamy fine sand	rapid	1.46 to 3.79 in	7.9 to 8.4
Cg -- 42 to 60 in	fine sand	rapid	0.89 to 1.42 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I65A--Ulen loamy fine sand, 0 to 3 percent slopes

Ulen

Extent: 70 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: 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) .17

Land capability, nonirrigated 3s

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>
Ap -- 0 to 9 in	loamy fine sand	rapid	0.81 to 1.18 in	7.4 to 8.4
Ak -- 9 to 13 in	loamy fine sand	rapid	0.28 to 0.51 in	7.4 to 8.4
Bk -- 13 to 42 in	loamy fine sand	rapid	1.46 to 3.79 in	7.9 to 8.4
Cg -- 42 to 60 in	fine sand	rapid	0.89 to 1.42 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I66A--Vallers loam, 0 to 2 percent slopes

Vallers

Extent: 75 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .28

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>
Ap -- 0 to 9 in	loam	moderate	1.63 to 1.99 in	6.6 to 8.4
Bkg -- 9 to 22 in	clay loam	moderately slow	1.82 to 2.60 in	7.4 to 8.4
Bkyg -- 22 to 44 in	clay loam	moderately slow	3.09 to 4.41 in	7.4 to 8.4
BCyg -- 44 to 60 in	clay loam	moderately slow	2.05 to 2.99 in	7.4 to 8.4

I67A--Wheatville loam, 0 to 3 percent slopes

Wheatville

Extent: 70 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .43

Land capability, nonirrigated 2s

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>
Ap -- 0 to 9 in	loam	moderate	1.81 to 2.08 in	7.4 to 8.4
Bk -- 9 to 31 in	very fine sandy loam	moderately rapid	3.75 to 4.85 in	7.4 to 8.4
2C -- 31 to 80 in	clay	slow	4.39 to 9.28 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I68A--Wheatville very fine sandy loam, 0 to 3 percent slopes

Wheatville

Extent: 70 percent of the unit

Landform(s): rises on lake plains

Slope gradient: 0 to 3 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .37

Land capability, nonirrigated 2s

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>
Ap -- 0 to 9 in	very fine sandy loam	moderate	1.63 to 1.99 in	7.4 to 8.4
Bk -- 9 to 31 in	very fine sandy loam	moderately rapid	3.75 to 4.85 in	7.4 to 8.4
2C -- 31 to 80 in	clay	slow	4.39 to 9.28 in	7.4 to 8.4

I69A--Wyandotte clay loam, 0 to 2 percent slopes

Wyandotte

Extent: 65 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .24

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>
Ap -- 0 to 8 in	clay loam	moderate	1.10 to 1.50 in	7.4 to 7.8
Bk -- 8 to 15 in	sandy clay loam	moderate	0.99 to 1.28 in	7.9 to 8.4
2C -- 15 to 34 in	very gravelly loamy coarse sand	rapid	0.38 to 1.32 in	7.4 to 8.4
3Cg -- 34 to 60 in	clay	slow	2.34 to 4.94 in	7.4 to 8.4

Map Unit Description (MN)

Red Lake County, Minnesota

I70A--Strathcona fine sandy loam, 0 to 2 percent slopes

Strathcona

Extent: 70 percent of the unit

Landform(s): flats on lake plains, swales on lake plains

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine deposits over till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: occasional

Drainage class: poorly 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 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>
Ap -- 0 to 10 in	fine sandy loam	rapid	1.28 to 1.77 in	7.4 to 8.4
Bkg -- 10 to 17 in	fine sandy loam	moderately rapid	0.64 to 1.20 in	7.4 to 8.4
Cg1 -- 17 to 28 in	fine sand	rapid	0.55 to 1.32 in	7.4 to 8.4
2Cg2 -- 28 to 80 in	loam	moderate	7.80 to 9.87 in	7.4 to 8.4

M-W--Miscellaneous water

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)

Red Lake 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:

Representative soil profile:

Texture

Permeability

*Available water
capacity*

pH

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.