

## Map Unit Description (MN)

Norman 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]

### Ad--Alluvial land, occasionally flooded

#### Alluvial land, occasionally flooded

*Extent:* 85 percent of the unit

*Landform(s):* flats on flood plains

*Slope gradient:* 0 to 2 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)* .20

*Land capability, nonirrigated* 2w

*Hydric soil:* no

*Hydrologic group:* C

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 13 in	clay loam	moderate	2.21 to 2.86 in	6.6 to 7.8
C -- 13 to 80 in	clay loam	moderate	9.37 to 13.39 in	7.4 to 8.4

### Af--Alluvial land, frequently flooded

#### Alluvial land, frequently flooded

*Extent:* 85 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:* very frequent

*Ponding:* frequent

*Drainage class:* poorly 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* 5w

*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>
A -- 0 to 24 in	very fine sandy loam	rapid	3.84 to 5.76 in	6.6 to 7.8
C -- 24 to 80 in	stratified loamy sand to silt loam	rapid	2.24 to 11.18 in	6.6 to 7.8

## Map Unit Description (MN)

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### Ar--Arveson loam

#### Arveson

*Extent:* 85 percent of the unit

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

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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):* 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>
Ap,A1 -- 0 to 14 in	loam	moderate	2.27 to 2.55 in	7.4 to 8.4
Cgk1,Cgk2 -- 14 to 34 in	fine sandy loam	moderately rapid	2.95 to 3.35 in	7.4 to 8.4
2Cg3..2Cg6 -- 34 to 60 in	fine sand	rapid	1.30 to 3.90 in	7.4 to 8.4

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### As--Arveson and Hamar soils, depressional

#### Arveson, depressional

*Extent:* 45 percent of the unit

*Landform(s):* depressions on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

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

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3

*Wind erodibility group (WEG):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .20

*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,A1 -- 0 to 14 in	loam	moderate	2.27 to 2.55 in	7.4 to 8.4
Cgk1,Cgk2 -- 14 to 34 in	fine sandy loam	moderately rapid	2.95 to 3.35 in	7.4 to 8.4
2Cg3..2Cg6 -- 34 to 60 in	fine sand	rapid	1.30 to 3.90 in	7.4 to 8.4

#### Hamar, depressional

*Extent:* 45 percent of the unit

*Landform(s):* depressions on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

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

*Flooding:* none

*Ponding:* frequent

*Drainage class:* 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* 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>
A1 -- 0 to 12 in	loamy fine sand	rapid	1.18 to 1.42 in	6.1 to 7.8
Bg -- 12 to 17 in	fine sand	rapid	0.31 to 0.51 in	6.6 to 8.4
Cg1..Cg5 -- 17 to 60 in	fine sand	rapid	2.57 to 4.29 in	7.4 to 8.4

## Map Unit Description (MN)

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### Aw--Augsburg and Wheatville loams

#### Augsburg

*Extent:* 45 percent of the unit

*Landform(s):* swales on lake plains

*Slope gradient:* 0 to 1 percent

*Parent material:* glaciolacustrine

*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)* .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,A1 -- 0 to 11 in	loam	moderate	2.20 to 2.54 in	7.4 to 8.4
Ckg1,Ckg2 -- 11 to 18 in	very fine sandy loam	moderately rapid	1.20 to 1.56 in	7.4 to 8.4
Cg3 -- 18 to 33 in	loamy very fine sand	moderately rapid	2.54 to 3.29 in	7.4 to 8.4
2Cg4,2Cg5 -- 33 to 62 in	silty clay	slow	2.59 to 5.46 in	7.4 to 8.4

#### Wheatville

*Extent:* 45 percent of the unit

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

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*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,Ak1 -- 0 to 11 in	loam	moderately rapid	1.98 to 2.43 in	7.4 to 8.4
Ck1..C3 -- 11 to 30 in	very fine sandy loam	moderately rapid	3.21 to 4.16 in	7.4 to 8.4
2C4 -- 30 to 60 in	clay	slow	2.69 to 5.69 in	7.4 to 7.8

## Map Unit Description (MN)

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### BaA--Barnes loam, 0 to 2 percent slopes

#### Barnes

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 0 to 2 percent

*Parent material:* 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):* 6

*Wind erodibility index (WEI):* 48

*Kw factor (surface layer)* .28

*Land capability, nonirrigated* 1

*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>
A1 -- 0 to 7 in	loam	moderate	1.28 to 1.70 in	6.1 to 7.8
B1..B3 -- 7 to 19 in	loam	moderate	1.77 to 2.24 in	6.1 to 7.8
C1,C2 -- 19 to 60 in	loam	moderate	5.73 to 7.78 in	7.4 to 8.4

### BaB--Barnes loam, 2 to 6 percent slopes

#### Barnes

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 2 to 6 percent

*Parent material:* 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):* 6

*Wind erodibility index (WEI):* 48

*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>
A1 -- 0 to 7 in	loam	moderate	1.28 to 1.70 in	6.1 to 7.8
B1..B3 -- 7 to 19 in	loam	moderate	1.77 to 2.24 in	6.1 to 7.8
C1,C2 -- 19 to 60 in	loam	moderate	5.73 to 7.78 in	7.4 to 8.4

## Map Unit Description (MN)

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### BaB2--Barnes loam, 2 to 6 percent slopes, eroded

#### Barnes, eroded

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 2 to 6 percent

*Parent material:* 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):* 6

*Wind erodibility index (WEI):* 48

*Kw factor (surface layer)* .32

*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>
A1 -- 0 to 7 in	loam	moderate	1.28 to 1.70 in	6.1 to 7.8
B1..B3 -- 7 to 19 in	loam	moderate	1.77 to 2.24 in	6.1 to 7.8
C1,C2 -- 19 to 60 in	loam	moderate	5.73 to 7.78 in	7.4 to 8.4

### BaC2--Barnes loam, 6 to 12 percent slopes, eroded

#### Barnes, eroded

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 6 to 12 percent

*Parent material:* 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):* 6

*Wind erodibility index (WEI):* 48

*Kw factor (surface layer)* .32

*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>
A1 -- 0 to 7 in	loam	moderate	1.28 to 1.70 in	6.1 to 7.8
B1..B3 -- 7 to 19 in	loam	moderate	1.77 to 2.24 in	6.1 to 7.8
C1,C2 -- 19 to 60 in	loam	moderate	5.73 to 7.78 in	7.4 to 8.4

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### BbB2--Barnes-Langhei loams, 2 to 6 percent slopes, eroded

#### Barnes, eroded

*Extent:* 65 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 2 to 6 percent

*Parent material:* 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):* 6

*Wind erodibility index (WEI):* 48

*Kw factor (surface layer)* .32

*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>
A1 -- 0 to 7 in	loam	moderate	1.28 to 1.70 in	6.1 to 7.8
B1..B3 -- 7 to 19 in	loam	moderate	1.77 to 2.24 in	6.1 to 7.8
C1,C2 -- 19 to 60 in	loam	moderate	5.73 to 7.78 in	7.4 to 8.4

#### Langhei, eroded

*Extent:* 25 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 2 to 6 percent

*Parent material:* 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):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .32

*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 6 in	loam	moderate	1.00 to 1.30 in	6.6 to 8.4
Ck1,Ck2 -- 6 to 15 in	loam	moderate	1.36 to 1.72 in	7.9 to 8.4
C3 -- 15 to 60 in	loam	moderate	6.73 to 8.53 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### BcA--Bearden silty clay loam, 0 to 2 percent slopes

#### Bearden

*Extent:* 85 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* lacustrine

*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)* .32

*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,A1 -- 0 to 7 in	silty clay loam	moderately slow	1.20 to 1.63 in	7.4 to 8.4
Ak2..Ck2 -- 7 to 28 in	silt loam	moderately slow	3.34 to 4.59 in	7.4 to 8.4
C3 -- 28 to 40 in	silt loam	moderately slow	1.95 to 2.69 in	7.4 to 8.4
C4,C5 -- 40 to 60 in	silt loam	slow	3.15 to 4.33 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### BcB--Bearden silty clay loam, 2 to 6 percent slopes

#### Bearden

*Extent:* 85 percent of the unit

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

*Slope gradient:* 2 to 6 percent

*Parent material:* lacustrine

*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)* .32

*Land capability, nonirrigated* 2e

*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,A1 -- 0 to 7 in	silty clay loam	moderately slow	1.20 to 1.63 in	7.4 to 8.4
Ak2..Ck2 -- 7 to 28 in	silt loam	moderately slow	3.34 to 4.59 in	7.4 to 8.4
C3 -- 28 to 40 in	silt loam	moderately slow	1.95 to 2.69 in	7.4 to 8.4
C4,C5 -- 40 to 60 in	silt loam	slow	3.15 to 4.33 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### BcC2--Bearden silty clay loam, 2 to 8 percent slopes, eroded

#### Bearden, eroded

*Extent:* 85 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 2 to 8 percent

*Parent material:* lacustrine

*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)* .32

*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,A1 -- 0 to 7 in	silty clay loam	moderately slow	1.20 to 1.63 in	7.4 to 8.4
Ak2..Ck2 -- 7 to 28 in	silt loam	moderately slow	3.34 to 4.59 in	7.4 to 8.4
C3 -- 28 to 40 in	silt loam	moderately slow	1.95 to 2.69 in	7.4 to 8.4
C4,C5 -- 40 to 60 in	silt loam	slow	3.15 to 4.33 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Bf--Bearden-Fargo silty clay loams

#### Bearden

*Extent:* 50 percent of the unit

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

*Slope gradient:* 0 to 3 percent

*Parent material:* lacustrine

*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)* .32

*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,A1 -- 0 to 7 in	silty clay loam	moderately slow	1.20 to 1.63 in	7.4 to 8.4
Ak2..Ck2 -- 7 to 28 in	silt loam	moderately slow	3.34 to 4.59 in	7.4 to 8.4
C3 -- 28 to 40 in	silt loam	moderately slow	1.95 to 2.69 in	7.4 to 8.4
C4,C5 -- 40 to 60 in	silt loam	slow	3.15 to 4.33 in	7.4 to 8.4

#### Fargo

*Extent:* 30 percent of the unit

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

*Slope gradient:* 0 to 3 percent

*Parent material:* lacustrine

*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:* 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,A1 -- 0 to 8 in	silty clay loam	slow	1.18 to 1.42 in	6.6 to 7.8
Bg2 -- 8 to 21 in	silty clay	slow	1.82 to 2.21 in	6.6 to 8.4
Ckg1..Cg3 -- 21 to 60 in	silty clay	slow	5.46 to 6.63 in	7.9 to 8.4

## Map Unit Description (MN)

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### Bo--Borup loam, depressional

#### Borup, depressional

*Extent:* 85 percent of the unit

*Landform(s):* depressions on lake plains, depressions on lake plains, depressions on lake plains, depressions on lake plains

*Slope gradient:* 0 to 1 percent

*Parent material:* glaciolacustrine

*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)* .28

*Land capability, nonirrigated* 3w

*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,Ak1 -- 0 to 14 in	loam	moderately rapid	2.83 to 3.26 in	7.4 to 8.4
Ckg1,Ck2 -- 14 to 26 in	very fine sandy loam	moderately rapid	2.01 to 2.60 in	7.4 to 8.4
C3 -- 26 to 60 in	loamy very fine sand	rapid	2.71 to 7.45 in	7.4 to 8.4

## Map Unit Description (MN)

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### Bp--Borup and Glyndon loams

#### Borup

*Extent:* 45 percent of the unit

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

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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:* 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,Ak1 -- 0 to 14 in	loam	moderately rapid	2.83 to 3.26 in	7.4 to 8.4
Ckg1,Ck2 -- 14 to 26 in	very fine sandy loam	moderately rapid	2.01 to 2.60 in	7.4 to 8.4
C3 -- 26 to 60 in	loamy very fine sand	rapid	2.71 to 7.45 in	7.4 to 8.4

#### Glyndon

*Extent:* 45 percent of the unit

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

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .37

*Land capability, nonirrigated* 2s

*Hydric soil:* no

*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,A1 -- 0 to 11 in	loam	moderate	2.20 to 2.54 in	7.4 to 9.0
Ck1,Ck2 -- 11 to 28 in	loam	moderately rapid	2.88 to 3.72 in	7.4 to 9.0
C3,C4 -- 28 to 60 in	loamy very fine sand	moderately rapid	2.55 to 7.02 in	7.4 to 9.0

## Map Unit Description (MN)

Norman County, Minnesota

### Br--Breaks and Alluvial land

#### Alluvial land, very frequently flooded

*Extent:* 45 percent of the unit

*Landform(s):* escarpments on flood plains, flats on flood plains

*Slope gradient:* 0 to 1 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):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .28

*Land capability, nonirrigated*

*Hydric soil:* no

*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>
A -- 0 to 24 in	very fine sandy loam	rapid	3.84 to 5.76 in	6.6 to 7.8
C -- 24 to 80 in	stratified loamy sand to silt loam	rapid	2.24 to 11.18 in	6.6 to 7.8

#### Breaks, rarely flooded

*Extent:* 45 percent of the unit

*Landform(s):* flood plains

*Slope gradient:* 0 to 25 percent

*Parent material:* alluvium

*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*

*Hydric soil:*

*Hydrologic group:* B

*Potential for frost action:*

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 13 in	clay loam	moderate	2.21 to 2.86 in	6.6 to 7.8
C -- 13 to 80 in	clay loam	moderate	9.37 to 13.39 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### CaA--Cashel silty clay, 0 to 2 percent slopes

#### Cashel, occasionally flooded

*Extent:* 85 percent of the unit

*Landform(s):* rises on flood plains

*Slope gradient:* 0 to 2 percent

*Parent material:* alluvium

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

*Flooding:* occasional

*Ponding:* none

*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 4

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .20

*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>
A1 -- 0 to 7 in	silty clay	moderately slow	1.06 to 1.28 in	7.4 to 8.4
C1,C2 -- 7 to 60 in	clay	moderately slow	6.86 to 8.97 in	7.4 to 8.4

### CaC--Cashel silty clay, 2 to 8 percent slopes

#### Cashel, occasionally flooded

*Extent:* 85 percent of the unit

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

*Slope gradient:* 2 to 8 percent

*Parent material:* alluvium

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

*Flooding:* occasional

*Ponding:* none

*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 4

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .20

*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>
A1 -- 0 to 7 in	silty clay	moderately slow	1.06 to 1.28 in	7.4 to 8.4
C1,C2 -- 7 to 60 in	clay	moderately slow	6.86 to 8.97 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Cb--Cathro muck

#### Cathro

*Extent:* 85 percent of the unit

*Landform(s):* depressions on till plains

*Slope gradient:* 0 to 1 percent

*Parent material:* organic 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	
2Ab1..2Cg2 -- 23 to 60 in	sandy loam	moderate	5.55 to 7.03 in	

### Cn--Colvin silty clay loam

#### Colvin

*Extent:* 85 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* lacustrine

*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:* 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,A1 -- 0 to 10 in	silty clay loam	moderately slow	1.97 to 2.17 in	6.6 to 8.4
Ak2..Cg3 -- 10 to 30 in	silt loam	moderately slow	3.21 to 4.02 in	7.4 to 9.0
Cg4 -- 30 to 60 in	loam	moderate	4.49 to 5.98 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Co--Colvin silty clay loam, depressional

#### Colvin, depressional

*Extent:* 85 percent of the unit

*Landform(s):* depressions on lake plains

*Slope gradient:* 0 to 1 percent

*Parent material:* lacustrine

*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)* .32

*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,A1 -- 0 to 10 in	silty clay loam	moderately slow	1.97 to 2.17 in	6.6 to 8.4
Ak2..Cg3 -- 10 to 30 in	silt loam	moderate	3.21 to 4.02 in	7.4 to 8.4
Cg4 -- 30 to 60 in	loam	moderate	4.49 to 5.98 in	7.4 to 8.4

### DaB--Darnen silt loam, 1 to 4 percent slopes

#### Darnen

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 1 to 4 percent

*Parent material:* colluvium

*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):* 6

*Wind erodibility index (WEI):* 48

*Kw factor (surface layer)* .32

*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,A1 -- 0 to 24 in	silt loam	moderate	3.84 to 4.80 in	6.6 to 7.8
B2,Bk3 -- 24 to 34 in	loam	moderate	1.48 to 1.87 in	6.1 to 7.8
C -- 34 to 60 in	loam	moderate	3.64 to 4.94 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Du--Dune land

#### Dune land

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on dunes

*Slope gradient:* 1 to 6 percent

*Parent material:* eolian

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

*Flooding:* none

*Ponding:* none

*Drainage class:*

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 1

*Wind erodibility index (WEI):* 250

*Kw factor (surface layer)* .02

*Land capability, nonirrigated* 6s

*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>
C -- 0 to 60 in	fine sand	rapid	2.99 to 4.19 in	5.6 to 8.4

### FaA--Fargo silty clay loam, 0 to 1 percent slopes

#### Fargo

*Extent:* 85 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 0 to 1 percent

*Parent material:* lacustrine

*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:* 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,A1 -- 0 to 8 in	silty clay loam	slow	1.18 to 1.42 in	6.6 to 7.8
Bg2 -- 8 to 21 in	silty clay	slow	1.82 to 2.21 in	6.6 to 8.4
Ckg1..Cg3 -- 21 to 60 in	silty clay	slow	5.46 to 6.63 in	7.9 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### FaB--Fargo silty clay loam, 1 to 6 percent slopes

#### Fargo

*Extent:* 85 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 1 to 6 percent

*Parent material:* lacustrine

*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)* .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,A1 -- 0 to 8 in	silty clay loam	slow	1.18 to 1.42 in	6.6 to 7.8
Bg2 -- 8 to 21 in	silty clay	slow	1.82 to 2.21 in	6.6 to 8.4
Ckg1..Cg3 -- 21 to 60 in	silty clay	slow	5.46 to 6.63 in	7.9 to 8.4

### FcA--Fargo silty clay, 0 to 1 percent slopes

#### Fargo

*Extent:* 85 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 0 to 1 percent

*Parent material:* lacustrine

*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)* .24

*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,A1 -- 0 to 8 in	silty clay	slow	1.18 to 1.42 in	6.6 to 7.8
Bg2 -- 8 to 21 in	silty clay	slow	1.82 to 2.21 in	6.6 to 8.4
Ckg1..Cg3 -- 21 to 60 in	silty clay	slow	5.46 to 6.63 in	7.9 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### FcB--Fargo silty clay, 1 to 6 percent slopes

#### Fargo

*Extent:* 85 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 1 to 6 percent

*Parent material:* lacustrine

*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* 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,A1 -- 0 to 8 in	silty clay	slow	1.18 to 1.42 in	6.6 to 7.8
Bg2 -- 8 to 21 in	silty clay	slow	1.82 to 2.21 in	6.6 to 8.4
Ckg1..Cg3 -- 21 to 60 in	silty clay	slow	5.46 to 6.63 in	7.9 to 8.4

### Fd--Fargo silty clay, depressional

#### Fargo, depressional

*Extent:* 85 percent of the unit

*Landform(s):* depressions on lake plains, swales on lake plains

*Slope gradient:* 0 to 1 percent

*Parent material:* lacustrine

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

*Flooding:* rare

*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)* .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,A1 -- 0 to 6 in	silty clay	slow	0.89 to 1.06 in	6.6 to 7.8
Bg2 -- 6 to 38 in	silty clay	slow	4.46 to 5.42 in	6.6 to 8.4
Ckg1..Cg3 -- 38 to 60 in	silty clay	slow	3.09 to 3.75 in	7.9 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Ff--Flaming loamy fine sand, wind eroded

#### Flaming, wind eroded

*Extent:* 90 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 1 to 3 percent

*Parent material:* glaciolacustrine

*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,A3 --	0 to 12 in	loamy fine sand	rapid	1.18 to 1.42 in	5.6 to 7.3
B1..C --	12 to 60 in	fine sand	rapid	2.88 to 5.76 in	5.6 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Fh--Flaming, Hamar, and Arveson soils

#### Flaming

*Extent:* 30 percent of the unit  
*Landform(s):* rises on lake plains  
*Slope gradient:* 1 to 3 percent  
*Parent material:* glaciolacustrine  
*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,A3 -- 0 to 12 in	loamy fine sand	rapid	1.18 to 1.42 in	5.6 to 7.3
B1..C -- 12 to 60 in	fine sand	rapid	2.88 to 5.76 in	5.6 to 8.4

#### Hamar

*Extent:* 30 percent of the unit  
*Landform(s):* depressions on lake plains, swales on lake plains  
*Slope gradient:* 0 to 2 percent  
*Parent material:* glaciolacustrine  
*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)* .05  
*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>
A1 -- 0 to 12 in	loamy fine sand	rapid	1.18 to 1.54 in	6.1 to 7.8
Bg1 -- 12 to 17 in	fine sand	rapid	0.31 to 0.51 in	6.6 to 8.4
Cg1..Cg5 -- 17 to 60 in	fine sand	rapid	2.57 to 4.29 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Fh--Flaming, Hamar, and Arveson soils

#### Arveson

*Extent:* 30 percent of the unit

*Landform(s):* depressions on lake plains, flats on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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):* 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>
Ap,A1 -- 0 to 14 in	loam	moderate	2.27 to 2.55 in	7.4 to 8.4
Ckg1,Ckg2 -- 14 to 34 in	fine sandy loam	moderately rapid	2.95 to 3.35 in	7.4 to 8.4
2Cg3..2Cg6 -- 34 to 60 in	fine sand	rapid	1.30 to 3.90 in	7.4 to 8.4

### Fm--Flom silty clay loam

#### Flom

*Extent:* 85 percent of the unit

*Landform(s):* flats on till plains, swales on till 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:* 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..A3 -- 0 to 15 in	silty clay loam	moderately slow	2.69 to 3.29 in	6.1 to 7.8
Bg2 -- 15 to 20 in	clay loam	moderately slow	0.77 to 0.97 in	6.6 to 8.4
Cg1..Cg3 -- 20 to 60 in	loam	moderately slow	5.57 to 7.56 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Fv--Flom and Vallers soils, depressional

#### Flom, depressional

*Extent:* 45 percent of the unit

*Landform(s):* depressions on till 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)* .32

*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..A3 -- 0 to 15 in	silty clay loam	moderately slow	2.69 to 3.29 in	6.1 to 7.8
Bg2 -- 15 to 20 in	clay loam	moderately slow	0.77 to 0.97 in	6.6 to 8.4
Cg1..Cg3 -- 20 to 60 in	loam	moderately slow	5.57 to 7.56 in	7.4 to 8.4

#### Vallers, depressional

*Extent:* 45 percent of the unit

*Landform(s):* depressions on till plains

*Slope gradient:* 0 to 1 percent

*Parent material:* till

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

*Flooding:* none

*Ponding:* frequent

*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:* 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>
A1,Ak2 -- 0 to 12 in	silt loam	moderate	2.36 to 2.60 in	7.4 to 8.4
Ckg1 -- 12 to 21 in	clay loam	moderately slow	1.36 to 1.72 in	7.4 to 8.4
Cg2..Cg4 -- 21 to 60 in	loam	moderately slow	5.85 to 7.41 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### FxA--Foxhome loam, 0 to 3 percent slopes

#### Foxhome

*Extent:* 85 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 0 to 3 percent

*Parent material:* glaciolacustrine

*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)* .28

*Land capability, nonirrigated* 3s

*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>
A1,A3 -- 0 to 11 in	loam	moderate	1.43 to 1.65 in	6.6 to 7.8
B2 -- 11 to 14 in	loamy sand	rapid	0.22 to 0.38 in	6.6 to 7.8
2B3,2C1 -- 14 to 24 in	gravelly coarse sand	rapid	0.20 to 0.69 in	7.4 to 8.4
3C2 -- 24 to 60 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

### GIA--Glyndon loam, 0 to 2 percent slopes

#### Glyndon

*Extent:* 85 percent of the unit

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

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .37

*Land capability, nonirrigated* 2s

*Hydric soil:* no

*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,A1 -- 0 to 11 in	loam	moderate	2.20 to 2.54 in	7.4 to 9.0
Ck1,Ck2 -- 11 to 28 in	loam	moderately rapid	2.88 to 3.72 in	7.4 to 9.0
C3,C4 -- 28 to 60 in	loamy very fine sand	moderately rapid	2.55 to 7.02 in	7.4 to 9.0

## Map Unit Description (MN)

Norman County, Minnesota

### GIB--Glyndon loam, 2 to 6 percent slopes

#### Glyndon

*Extent:* 85 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 2 to 6 percent

*Parent material:* glaciolacustrine

*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):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .37

*Land capability, nonirrigated* 2e

*Hydric soil:* no

*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,A1 -- 0 to 11 in	loam	moderate	2.20 to 2.54 in	7.4 to 9.0
Ck1,Ck2 -- 11 to 28 in	loam	moderately rapid	2.88 to 3.72 in	7.4 to 9.0
C3,C4 -- 28 to 60 in	loamy very fine sand	moderately rapid	2.55 to 7.02 in	7.4 to 9.0

### Gn--Glyndon loam, wind eroded

#### Glyndon, wind eroded

*Extent:* 85 percent of the unit

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

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .43

*Land capability, nonirrigated* 2s

*Hydric soil:* no

*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,A1 -- 0 to 11 in	loam	moderate	2.20 to 2.54 in	7.4 to 9.0
Ck1,Ck2 -- 11 to 28 in	loam	moderately rapid	2.88 to 3.72 in	7.4 to 9.0
C3,C4 -- 28 to 60 in	loamy very fine sand	moderately rapid	2.55 to 7.02 in	7.4 to 9.0

## Map Unit Description (MN)

Norman County, Minnesota

### Gp--Gravel pits

#### Pits, gravel

*Extent:* 100 percent of the unit

*Landform(s):* outwash plains, terraces

*Slope gradient:* 0 to 45 percent

*Parent material:* outwash

*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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### Gr--Grimstad fine sandy loam

#### Grimstad

*Extent:* 85 percent of the unit

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

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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)* .20

*Land capability, nonirrigated* 2s

*Hydric soil:* no

*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	fine sandy loam	moderately rapid	1.27 to 1.63 in	7.4 to 8.4
Ck1..C3 -- 9 to 28 in	loamy fine sand	rapid	0.94 to 3.21 in	7.4 to 9.0
2C4,2C5 -- 28 to 60 in	fine sandy loam	moderate	4.78 to 6.06 in	7.4 to 9.0

## Map Unit Description (MN)

Norman County, Minnesota

### Ha--Hamar loamy fine sand

#### Hamar

*Extent:* 85 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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)* .05

*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>
A1 -- 0 to 12 in	loamy fine sand	rapid	1.18 to 1.54 in	6.1 to 7.8
Bg1 -- 12 to 17 in	fine sand	rapid	0.31 to 0.51 in	6.6 to 8.4
Cg1..Cg5 -- 17 to 60 in	fine sand	rapid	2.57 to 4.29 in	7.4 to 8.4

### HeA--Hamerly silt loam, 0 to 1 percent slopes

#### Hamerly

*Extent:* 85 percent of the unit

*Landform(s):* rises on till plains

*Slope gradient:* 0 to 1 percent

*Parent material:* 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)* .37

*Land capability, nonirrigated* 2e

*Hydric soil:* no

*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,Ak1 -- 0 to 8 in	silt loam	moderate	1.57 to 1.73 in	6.6 to 8.4
Ck1,Ck2 -- 8 to 18 in	loam	moderate	1.54 to 1.94 in	7.4 to 8.4
C3,C4 -- 18 to 60 in	loam	moderate	6.26 to 7.93 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### HeB--Hamerly silt loam, 1 to 5 percent slopes

#### Hamerly

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains, rises on till plains

*Slope gradient:* 1 to 5 percent

*Parent material:* 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)* .37

*Land capability, nonirrigated* 2e

*Hydric soil:* no

*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,Ak1 -- 0 to 8 in	silt loam	moderate	1.57 to 1.73 in	6.6 to 8.4
Ck1,Ck2 -- 8 to 18 in	loam	moderate	1.54 to 1.94 in	7.4 to 8.4
C3,C4 -- 18 to 60 in	loam	moderate	6.26 to 7.93 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Hm--Hamerly-Vallers silt loams

#### Hamerly

*Extent:* 55 percent of the unit

*Landform(s):* flats on till plains, rises on till plains

*Slope gradient:* 1 to 4 percent

*Parent material:* 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)* .37

*Land capability, nonirrigated* 2s

*Hydric soil:* no

*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,Ak1 -- 0 to 8 in	silt loam	moderate	1.57 to 1.73 in	6.6 to 8.4
Ck1,Ck2 -- 8 to 18 in	loam	moderate	1.54 to 1.94 in	7.4 to 8.4
C3,C4 -- 18 to 60 in	loam	moderate	6.26 to 7.93 in	7.4 to 8.4

#### Vallers

*Extent:* 35 percent of the unit

*Landform(s):* flats on till plains, swales on till 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)* .37

*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>
A1,Ak2 -- 0 to 12 in	silt loam	moderate	2.36 to 2.60 in	7.4 to 8.4
Ckg1 -- 12 to 21 in	loam	moderately slow	1.36 to 1.72 in	7.4 to 8.4
Cg2..Cg4 -- 21 to 60 in	loam	moderately slow	5.85 to 7.41 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Hn--Hangaard sandy loam

#### Hangaard

*Extent:* 85 percent of the unit

*Landform(s):* flats on lake plains, swales on lake 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>
A1,A3 -- 0 to 10 in	sandy loam	moderately rapid	0.98 to 1.48 in	6.6 to 7.8
2B2 -- 10 to 15 in	loamy sand	rapid	0.36 to 0.56 in	6.6 to 7.8
2Cg1..2Cg4 -- 15 to 80 in	gravelly coarse sand	very rapid	1.30 to 2.60 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Ho--Hegne-Fargo silty clays

#### Hegne

*Extent:* 50 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* lacustrine

*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)* .24

*Land capability, nonirrigated* 2w

*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>
Ap -- 0 to 10 in	silty clay	slow	1.38 to 1.67 in	7.4 to 8.4
Ckg1,Ckg2 -- 10 to 34 in	silty clay	slow	3.12 to 3.84 in	7.4 to 8.4
Cg3..Cg5 -- 34 to 50 in	clay	slow	1.45 to 2.58 in	7.4 to 8.4
Cg6 -- 50 to 80 in	silty clay	slow	2.39 to 4.19 in	7.4 to 8.4

#### Fargo

*Extent:* 30 percent of the unit

*Landform(s):* flats on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* lacustrine

*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)* .24

*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,A1 -- 0 to 8 in	silty clay	slow	1.18 to 1.42 in	6.6 to 7.8
Bg2 -- 8 to 21 in	silty clay	slow	1.82 to 2.21 in	6.6 to 8.4
Ckg1..Cg3 -- 21 to 60 in	silty clay	slow	5.46 to 6.63 in	7.9 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Hv--Hegne-Viking complex

#### Hegne

*Extent:* 50 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* lacustrine

*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* 2w

*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>
Ap -- 0 to 10 in	silty clay	slow	1.38 to 1.67 in	7.4 to 8.4
Ckg1,Ckg2 -- 10 to 34 in	silty clay	slow	3.12 to 3.84 in	7.4 to 8.4
Cg3..Cg5 -- 34 to 50 in	clay	slow	1.45 to 2.58 in	7.4 to 8.4
Cg6 -- 50 to 80 in	silty clay	slow	2.39 to 4.19 in	7.4 to 8.4

#### Viking

*Extent:* 30 percent of the unit

*Landform(s):* swales on lake plains

*Slope gradient:* 0 to 3 percent

*Parent material:* glaciolacustrine

*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)* .20

*Land capability, nonirrigated* 2w

*Hydric soil:* yes

*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,A1 -- 0 to 7 in	silty clay	moderately slow	0.92 to 1.20 in	6.6 to 7.8
Bg2,Bg3 -- 7 to 18 in	clay	very slow	1.10 to 2.09 in	7.4 to 8.4
Cg -- 18 to 60 in	clay	very slow	3.76 to 7.93 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### INT--Water, intermittent

#### Water, intermittent

*Extent:* 100 percent of the unit

*Landform(s):*

*Slope gradient:*

*Parent material:*

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

*Flooding:* none

*Ponding:* none

*Drainage class:*

*Soil loss tolerance (T factor):*

*Wind erodibility group (WEG):* 8

*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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### KsA--Kittson loam, 0 to 2 percent slopes

#### Kittson

*Extent:* 85 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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)* .28

*Land capability, nonirrigated* 1

*Hydric soil:* no

*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>
A1 -- 0 to 10 in	loam	moderate	1.97 to 2.17 in	6.6 to 7.8
B2 -- 10 to 17 in	loam	moderate	1.20 to 1.35 in	6.6 to 7.8
C1 -- 17 to 36 in	loam	moderate	2.83 to 3.59 in	7.4 to 8.4
C2,C3 -- 36 to 60 in	loam	moderate	3.36 to 4.56 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### KsC--Kittson loam, 2 to 8 percent slopes

#### Kittson

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on lake plains, rises on lake plains

*Slope gradient:* 2 to 8 percent

*Parent material:* glaciolacustrine

*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)* .28

*Land capability, nonirrigated* 2e

*Hydric soil:* no

*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>
A1 -- 0 to 10 in	loam	moderate	1.97 to 2.17 in	6.6 to 7.8
B2 -- 10 to 17 in	loam	moderate	1.20 to 1.35 in	6.6 to 7.8
C1 -- 17 to 36 in	loam	moderate	2.83 to 3.59 in	7.4 to 8.4
C2,C3 -- 36 to 60 in	loam	moderate	3.36 to 4.56 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### KtA--Kittson loam, uplands, 0 to 1 percent slopes

#### Kittson, uplands

*Extent:* 85 percent of the unit

*Landform(s):* rises on till plains

*Slope gradient:* 0 to 1 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)* .28

*Land capability, nonirrigated* 1

*Hydric soil:* no

*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>
A1 -- 0 to 10 in	loam	moderate	1.97 to 2.17 in	6.6 to 7.8
B2 -- 10 to 17 in	loam	moderate	1.20 to 1.35 in	6.6 to 7.8
C1 -- 17 to 36 in	loam	moderate	2.83 to 3.59 in	7.4 to 8.4
C2,C3 -- 36 to 60 in	loam	moderate	3.36 to 4.56 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### KtB--Kittson loam, uplands, 1 to 5 percent slopes

#### Kittson, uplands

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains, rises on till plains

*Slope gradient:* 1 to 5 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)* .28

*Land capability, nonirrigated* 2e

*Hydric soil:* no

*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>
A1 -- 0 to 10 in	loam	moderate	1.97 to 2.17 in	6.6 to 7.8
B2 -- 10 to 17 in	loam	moderate	1.20 to 1.35 in	6.6 to 7.8
C1 -- 17 to 36 in	loam	moderate	2.83 to 3.59 in	7.4 to 8.4
C2,C3 -- 36 to 60 in	loam	moderate	3.36 to 4.56 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### LbC2--Langhei-Barnes loams, 6 to 12 percent slopes, eroded

#### Langhei, eroded

*Extent:* 50 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 6 to 12 percent

*Parent material:* 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):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .32

*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 6 in	loam	moderate	1.00 to 1.30 in	6.6 to 8.4
Ck1,Ck2 -- 6 to 15 in	loam	moderate	1.36 to 1.72 in	7.9 to 8.4
C3 -- 15 to 60 in	loam	moderate	6.73 to 8.53 in	7.4 to 8.4

#### Barnes, eroded

*Extent:* 40 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 6 to 12 percent

*Parent material:* 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):* 6

*Wind erodibility index (WEI):* 48

*Kw factor (surface layer)* .28

*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>
A1 -- 0 to 7 in	loam	moderate	1.28 to 1.70 in	6.1 to 7.8
B1..B3 -- 7 to 19 in	loam	moderate	1.77 to 2.24 in	6.1 to 7.8
C1,C2 -- 19 to 60 in	loam	moderate	5.73 to 7.78 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### LbD2--Langhei-Barnes loams, 12 to 18 percent slopes, eroded

#### Langhei, eroded

*Extent:* 55 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 12 to 18 percent

*Parent material:* 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):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .32

*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>
Ap -- 0 to 6 in	loam	moderate	1.00 to 1.30 in	6.6 to 8.4
Ck1,Ck2 -- 6 to 15 in	loam	moderate	1.36 to 1.72 in	7.9 to 8.4
C3 -- 15 to 60 in	loam	moderate	6.73 to 8.53 in	7.4 to 8.4

#### Barnes, eroded

*Extent:* 35 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 12 to 18 percent

*Parent material:* 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):* 6

*Wind erodibility index (WEI):* 48

*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>
A1 -- 0 to 7 in	loam	moderate	1.28 to 1.70 in	6.1 to 7.8
B1..B3 -- 7 to 19 in	loam	moderate	1.77 to 2.24 in	6.1 to 7.8
C1,C2 -- 19 to 60 in	loam	moderate	5.73 to 7.78 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### LbE--Langhei-Barnes loams, 18 to 30 percent slopes

#### Langhei

*Extent:* 60 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 18 to 30 percent

*Parent material:* 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):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .32

*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>
A -- 0 to 6 in	loam	moderate	1.00 to 1.30 in	6.6 to 8.4
Ck1,Ck2 -- 6 to 15 in	loam	moderate	1.36 to 1.72 in	7.9 to 8.4
C3 -- 15 to 60 in	loam	moderate	6.73 to 8.53 in	7.4 to 8.4

#### Barnes

*Extent:* 30 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 18 to 25 percent

*Parent material:* 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):* 6

*Wind erodibility index (WEI):* 48

*Kw factor (surface layer)* .28

*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>
A1 -- 0 to 7 in	loam	moderate	1.28 to 1.70 in	6.1 to 7.8
B1..B3 -- 7 to 19 in	loam	moderate	1.77 to 2.24 in	6.1 to 7.8
C1,C2 -- 19 to 60 in	loam	moderate	5.73 to 7.78 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### 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:* 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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### MaA--Maddock loamy fine sand, 0 to 2 percent slopes

#### Maddock

*Extent:* 90 percent of the unit

*Landform(s):* rises on till plains

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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* 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>
Ap,A1 -- 0 to 10 in	loamy fine sand	rapid	0.98 to 1.18 in	6.6 to 7.8
B2..C3 -- 10 to 60 in	fine sand	rapid	2.50 to 5.00 in	6.6 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### MaC--Maddock loamy fine sand, 2 to 8 percent slopes

#### Maddock

*Extent:* 90 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 2 to 8 percent

*Parent material:* glaciolacustrine

*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* 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>
Ap,A1 -- 0 to 10 in	loamy fine sand	rapid	0.98 to 1.18 in	6.6 to 7.8
B2..C3 -- 10 to 60 in	fine sand	rapid	2.50 to 5.00 in	6.6 to 8.4

### Me--Markey muck

#### Markey

*Extent:* 85 percent of the unit

*Landform(s):* depressions on lake plains

*Slope gradient:* 0 to 1 percent

*Parent material:* organic over glaciolacustrine

*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..Oa3 -- 0 to 32 in	muck	moderately rapid	11.16 to 15.31 in	
2C1,2C2 -- 32 to 60 in	fine sand	rapid	0.84 to 2.80 in	

## Map Unit Description (MN)

Norman County, Minnesota

### Mh--Marsh

#### Marsh

*Extent:* 100 percent of the unit  
*Landform(s):* depressions on till plains  
*Slope gradient:* 0 to 1 percent  
*Parent material:* glaciolacustrine  
*Restrictive feature(s):* greater than 60 inches  
*Flooding:* none  
*Ponding:* frequent  
*Drainage class:* very poorly drained

*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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### Mm--Mavie loam

#### Mavie

*Extent:* 85 percent of the unit  
*Landform(s):* flats on lake plains  
*Slope gradient:* 0 to 2 percent  
*Parent material:* glaciolacustrine  
*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* 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>
A1,Ak2 -- 0 to 7 in	loam	moderate	1.13 to 1.28 in	7.4 to 8.4
2Ckg1 -- 7 to 14 in	loam	moderate	0.85 to 1.35 in	7.9 to 8.4
2Cg2 -- 14 to 30 in	very gravelly sand	rapid	0.47 to 0.94 in	7.4 to 8.4
3Cg3 -- 30 to 60 in	loam	moderate	4.49 to 5.69 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### PB--Pits, borrow

#### Pits, borrow

*Extent:* 100 percent of the unit

*Landform(s):* lake plains, till plains

*Slope gradient:* 0 to 45 percent

*Parent material:* till

*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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### Po--Poppleton loamy fine sand

#### Poppleton

*Extent:* 90 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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)* .10

*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,A2 -- 0 to 6 in	loamy fine sand	rapid	0.59 to 0.77 in	5.6 to 7.3
B1..Cg -- 6 to 60 in	fine sand	rapid	3.78 to 4.85 in	6.1 to 7.8

## Map Unit Description (MN)

Norman County, Minnesota

### Rc--Rockwell fine sandy loam

#### Rockwell

*Extent:* 85 percent of the unit

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

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*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>
A1 -- 0 to 9 in	fine sandy loam	moderately rapid	1.18 to 1.63 in	7.4 to 8.4
Ck1 -- 9 to 19 in	loam	moderately rapid	0.89 to 1.67 in	7.9 to 8.4
2C2,2C3 -- 19 to 27 in	fine sand	rapid	0.39 to 0.94 in	7.4 to 7.8
3C4 -- 27 to 60 in	loam	moderate	4.96 to 6.28 in	7.4 to 7.8

## Map Unit Description (MN)

Norman County, Minnesota

### Rk--Rockwell and Kratka soils, depressional

#### Rockwell, depressional

*Extent:* 45 percent of the unit

*Landform(s):* depressions on lake plains

*Slope gradient:* 0 to 1 percent

*Parent material:* glaciolacustrine

*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)* .17

*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>
A1 -- 0 to 9 in	fine sandy loam	moderately rapid	1.18 to 1.63 in	7.4 to 8.4
Ck1 -- 9 to 19 in	loam	moderately rapid	0.89 to 1.67 in	7.9 to 8.4
2C2,2C3 -- 19 to 27 in	fine sand	rapid	0.39 to 0.94 in	7.4 to 7.8
3C4 -- 27 to 60 in	loam	moderate	4.96 to 6.28 in	7.4 to 7.8

#### Kratka, depressional

*Extent:* 45 percent of the unit

*Landform(s):* depressions on lake plains

*Slope gradient:* 0 to 1 percent

*Parent material:* glaciolacustrine

*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)* .10

*Land capability, nonirrigated* 6w

*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>
A1,A3 -- 0 to 11 in	loamy fine sand	rapid	1.76 to 1.98 in	6.6 to 7.8
Bg2..Cg2 -- 11 to 25 in	loamy fine sand	rapid	0.85 to 1.70 in	6.6 to 7.8
2Cg3 -- 25 to 60 in	loam	moderate	5.20 to 6.58 in	6.1 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Ro--Roliss loam

#### Roliss

*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)* .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>
A1,A3 -- 0 to 11 in	loam	moderate	1.87 to 2.65 in	6.6 to 8.4
Bg2 -- 11 to 16 in	loam	moderate	0.77 to 0.97 in	7.4 to 8.4
C1 -- 16 to 24 in	loam	moderate	1.18 to 1.50 in	7.4 to 8.4
C2 -- 24 to 60 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Rs--Roliss loam, depressional

#### Roliss, 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):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .28

*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>
A1,A3 -- 0 to 11 in	loam	moderate	2.20 to 2.76 in	6.6 to 8.4
Bg2 -- 11 to 16 in	loam	moderately slow	0.77 to 0.97 in	7.4 to 8.4
C1 -- 16 to 24 in	loam	moderate	1.18 to 1.50 in	7.4 to 8.4
C2 -- 24 to 60 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

### Ru--Rondeau muck

#### Rondeau

*Extent:* 85 percent of the unit

*Landform(s):* depressions on till plains

*Slope gradient:* 0 to 1 percent

*Parent material:* organic over glaciolacustrine

*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..Oa3 -- 0 to 44 in	muck	moderately rapid	15.43 to 21.17 in	
Lca1..Lca2 -- 44 to 60 in	marl	slow	3.15 to 3.46 in	

## Map Unit Description (MN)

Norman County, Minnesota

### Sc--Seelyeville muck

#### Seelyeville

*Extent:* 85 percent of the unit

*Landform(s):* depressions on till plains

*Slope gradient:* 0 to 1 percent

*Parent material:* organic

*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,Oa3 -- 10 to 60 in	muck	moderately rapid	17.50 to 24.00 in	

### SdA--Sioux sandy loam, 0 to 2 percent slopes

#### Sioux

*Extent:* 90 percent of the unit

*Landform(s):* ridges on lake plains, rises on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* beach deposits

*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):* 3

*Wind erodibility index (WEI):* 86

*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>
Ap -- 0 to 5 in	sandy loam	moderately rapid	0.51 to 0.61 in	6.6 to 8.4
AC -- 5 to 8 in	gravelly loamy sand	moderately rapid	0.28 to 0.33 in	7.4 to 8.4
2C1..2C3 -- 8 to 60 in	very gravelly coarse sand	very rapid	1.04 to 2.08 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### SdB--Sioux sandy loam, 2 to 6 percent slopes

#### Sioux

*Extent:* 90 percent of the unit

*Landform(s):* ridges on lake plains

*Slope gradient:* 2 to 6 percent

*Parent material:* beach deposits

*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):* 3

*Wind erodibility index (WEI):* 86

*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>
Ap -- 0 to 5 in	sandy loam	moderately rapid	0.51 to 0.61 in	6.6 to 8.4
AC -- 5 to 8 in	gravelly loamy sand	moderately rapid	0.28 to 0.33 in	7.4 to 8.4
2C1..2C3 -- 8 to 60 in	very gravelly coarse sand	very rapid	1.04 to 2.08 in	7.4 to 8.4

### SgA--Sioux gravelly sandy loam, 0 to 2 percent slopes

#### Sioux

*Extent:* 90 percent of the unit

*Landform(s):* ridges on lake plains, rises on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* beach deposits

*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):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .05

*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>
Ap -- 0 to 5 in	gravelly sandy loam	moderately rapid	0.46 to 0.61 in	6.6 to 8.4
AC -- 5 to 8 in	gravelly loamy sand	moderately rapid	0.25 to 0.33 in	7.4 to 8.4
2C1..2C3 -- 8 to 60 in	very gravelly coarse sand	very rapid	1.04 to 2.08 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### SgC--Sioux gravelly sandy loam, 2 to 8 percent slopes

#### Sioux

*Extent:* 90 percent of the unit

*Landform(s):* ridges on lake plains

*Slope gradient:* 2 to 8 percent

*Parent material:* beach deposits

*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):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .05

*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>
Ap -- 0 to 5 in	gravelly sandy loam	moderately rapid	0.46 to 0.61 in	6.6 to 8.4
AC -- 5 to 8 in	gravelly loamy sand	moderately rapid	0.25 to 0.33 in	7.4 to 8.4
2C1..2C3 -- 8 to 60 in	very gravelly coarse sand	very rapid	1.04 to 2.08 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### SmE--Sioux and Maddock soils, 12 to 36 percent slopes

#### Sioux

*Extent:* 45 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 12 to 36 percent

*Parent material:* beach deposits

*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):* 5

*Wind erodibility index (WEI):* 56

*Kw factor (surface layer)* .05

*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>
A1 -- 0 to 5 in	gravelly sandy loam	moderately rapid	0.46 to 0.61 in	6.6 to 8.4
AC -- 5 to 8 in	gravelly loamy sand	moderately rapid	0.25 to 0.33 in	7.4 to 8.4
2C1..2C3 -- 8 to 60 in	very gravelly coarse sand	very rapid	1.04 to 2.08 in	7.4 to 8.4

#### Maddock

*Extent:* 45 percent of the unit

*Landform(s):* hillslopes on till plains, ridges on till plains

*Slope gradient:* 12 to 36 percent

*Parent material:* glaciolacustrine

*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)* .15

*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>
A1 -- 0 to 10 in	fine sandy loam	rapid	0.98 to 1.18 in	6.6 to 7.8
B2..C3 -- 10 to 60 in	loamy fine sand	rapid	2.50 to 5.00 in	6.6 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### SnA--Sverdrup fine sandy loam, 0 to 2 percent slopes

#### Sverdrup

*Extent:* 85 percent of the unit

*Landform(s):* rises on till plains

*Slope gradient:* 0 to 2 percent

*Parent material:* 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):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .10

*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>
A1,A3 -- 0 to 12 in	fine sandy loam	moderately rapid	1.54 to 1.77 in	6.1 to 7.3
B2,B3 -- 12 to 24 in	sandy loam	moderately rapid	0.98 to 1.71 in	6.1 to 7.8
C1,C2 -- 24 to 60 in	fine sand	rapid	0.72 to 2.15 in	7.4 to 8.4

### SnC--Sverdrup fine sandy loam, 2 to 8 percent slopes

#### Sverdrup

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 2 to 8 percent

*Parent material:* 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):* 3

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .10

*Land capability, nonirrigated* 3e

*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>
A1,A3 -- 0 to 12 in	fine sandy loam	moderately rapid	1.54 to 1.77 in	6.1 to 7.3
B2,B3 -- 12 to 24 in	sandy loam	moderately rapid	0.98 to 1.71 in	6.1 to 7.8
C1,C2 -- 24 to 60 in	fine sand	rapid	0.72 to 2.15 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### SwA--Swenoda fine sandy loam, 0 to 2 percent slopes

#### Swenoda

*Extent:* 85 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* outwash and lacustrine

*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)* .10

*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,A3 -- 0 to 15 in	fine sandy loam	moderately rapid	1.65 to 2.54 in	6.1 to 7.3
B1..C2 -- 15 to 29 in	loamy fine sand	moderately rapid	1.56 to 2.41 in	6.6 to 7.8
2C3 -- 29 to 60 in	silty clay loam	moderate	5.22 to 6.14 in	7.4 to 8.4

### SwC--Swenoda fine sandy loam, 2 to 8 percent slopes

#### Swenoda

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on lake plains, rises on lake plains

*Slope gradient:* 2 to 8 percent

*Parent material:* outwash and lacustrine

*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)* .10

*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,A3 -- 0 to 15 in	fine sandy loam	moderately rapid	1.65 to 2.54 in	6.1 to 7.3
B1..C2 -- 15 to 29 in	loamy fine sand	moderately rapid	1.56 to 2.41 in	6.6 to 7.8
2C3 -- 29 to 60 in	silty clay loam	moderate	5.22 to 6.14 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Sy--Syrene sandy loam

#### Syrene

*Extent:* 85 percent of the unit

*Landform(s):* flats on lake plains, swales on lake 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:* 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>
A1 -- 0 to 9 in	sandy loam	moderately rapid	1.18 to 1.36 in	7.4 to 8.4
Ckg1 -- 9 to 17 in	sandy loam	moderately rapid	0.94 to 1.50 in	7.9 to 8.4
2Ckg2...2Cg4 -- 17 to 60 in	gravelly coarse sand	rapid	0.86 to 1.72 in	7.4 to 8.4

### To--Towner loamy fine sand

#### Towner

*Extent:* 85 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 1 to 3 percent

*Parent material:* glaciolacustrine

*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)* .17

*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>
A1,A2 -- 0 to 6 in	loamy fine sand	rapid	0.47 to 0.71 in	6.6 to 7.8
B2..C2 -- 6 to 29 in	fine sand	rapid	1.39 to 3.02 in	6.6 to 7.8
2C3,2C4 -- 29 to 60 in	loam	moderate	4.30 to 6.76 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### UIA--Ulen fine sandy loam, 0 to 2 percent slopes

#### Ulen

*Extent:* 85 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciolacustrine

*Restrictive feature(s):* greater than 60 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)* .15

*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,Ak1 -- 0 to 15 in	fine sandy loam	moderately rapid	1.50 to 1.80 in	7.4 to 8.4
Ck1,Ck2 -- 15 to 32 in	loamy fine sand	rapid	1.52 to 2.88 in	7.9 to 8.4
C3,C4 -- 32 to 60 in	fine sand	rapid	1.40 to 2.24 in	7.4 to 8.4
C5 -- 60 to 80 in	fine sand	moderate	1.00 to 1.61 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Un--Ulen fine sandy loam, wind eroded

#### Ulen, wind eroded

*Extent:* 85 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 0 to 3 percent

*Parent material:* glaciolacustrine

*Restrictive feature(s):* greater than 60 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)* .15

*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,Ak1 -- 0 to 15 in	fine sandy loam	moderately rapid	1.50 to 1.80 in	7.4 to 8.4
Ck1,Ck2 -- 15 to 32 in	loamy fine sand	rapid	1.52 to 2.03 in	7.9 to 8.4
C3,C4 -- 32 to 60 in	fine sand	rapid	1.40 to 2.24 in	7.4 to 8.4
C5 -- 60 to 80 in	fine sand	moderate	1.00 to 1.61 in	7.4 to 8.4

### Va--Vallars silt loam

#### Vallars

*Extent:* 85 percent of the unit

*Landform(s):* flats on till plains, swales on till 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)* .37

*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>
A1,Ak2 -- 0 to 12 in	silt loam	moderate	2.36 to 2.60 in	7.4 to 8.4
Ckg1 -- 12 to 21 in	loam	moderately slow	1.36 to 1.72 in	7.4 to 8.4
Cg2..Cg4 -- 21 to 60 in	loam	moderately slow	5.85 to 7.41 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### Vd--Vallers silt loam, depressional

#### Vallers, depressional

*Extent:* 85 percent of the unit

*Landform(s):* depressions on till 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)* .37

*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>
A1,Ak2 -- 0 to 11 in	silt loam	moderate	2.20 to 2.43 in	6.6 to 8.4
Ckg1 -- 11 to 16 in	loam	moderately slow	0.77 to 0.97 in	7.4 to 8.4
Cg2,Cg3 -- 16 to 24 in	clay loam	moderate	1.18 to 1.50 in	7.4 to 8.4
Cg4 -- 24 to 60 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

### Vk--Viking clay loam

#### Viking

*Extent:* 85 percent of the unit

*Landform(s):* flats 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:* 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,A1 -- 0 to 7 in	clay loam	very slow	0.92 to 1.20 in	6.6 to 7.8
Bg2,Bg3 -- 7 to 18 in	clay	very slow	1.10 to 2.09 in	7.4 to 8.4
Cg -- 18 to 60 in	clay	very slow	3.76 to 7.93 in	7.4 to 8.4

## Map Unit Description (MN)

Norman 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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### WaA--Wahpeton silty clay, 0 to 2 percent slopes

#### Wahpeton

*Extent:* 85 percent of the unit

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

*Slope gradient:* 0 to 2 percent

*Parent material:* lacustrine

*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):* 4

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .10

*Land capability, nonirrigated* 2s

*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..A2 -- 0 to 23 in	silty clay	moderate	3.20 to 4.11 in	6.1 to 7.8
B2..C -- 23 to 60 in	clay	moderate	4.81 to 6.29 in	6.6 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### WaB--Wahpeton silty clay, 2 to 6 percent slopes

#### Wahpeton

*Extent:* 85 percent of the unit

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

*Slope gradient:* 2 to 6 percent

*Parent material:* lacustrine

*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):* 4

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .10

*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..A2 -- 0 to 23 in	silty clay	moderate	3.20 to 4.11 in	6.1 to 7.8
B2..C -- 23 to 60 in	clay	moderate	4.81 to 6.29 in	6.6 to 8.4

### WaC--Wahpeton silty clay, 6 to 12 percent slopes

#### Wahpeton

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on flood plains, stream terraces

*Slope gradient:* 6 to 12 percent

*Parent material:* lacustrine

*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):* 4

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .10

*Land capability, nonirrigated* 4e

*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..A2 -- 0 to 23 in	silty clay	moderate	3.20 to 4.11 in	6.1 to 7.8
B2..C -- 23 to 60 in	clay	moderate	4.81 to 6.29 in	6.6 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### WkA--Waukon loam, 0 to 2 percent slopes

#### Waukon

*Extent:* 85 percent of the unit

*Landform(s):* rises on till plains

*Slope gradient:* 0 to 2 percent

*Parent material:* 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)* .28

*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>
A1,A2 -- 0 to 9 in	loam	moderate	1.81 to 2.17 in	6.1 to 7.3
Bt1,Bt2 -- 9 to 24 in	sandy clay loam	moderate	2.24 to 2.84 in	6.1 to 8.4
Ck1,C2 -- 24 to 60 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

### WkB--Waukon loam, 2 to 6 percent slopes

#### Waukon

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 2 to 6 percent

*Parent material:* 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)* .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>
A1,A2 -- 0 to 9 in	loam	moderate	1.81 to 2.17 in	6.1 to 7.3
Bt1,Bt2 -- 9 to 24 in	sandy clay loam	moderate	2.24 to 2.84 in	6.1 to 8.4
Ck1,C2 -- 24 to 60 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### WkB2--Waukon loam, 2 to 6 percent slopes, eroded

#### Waukon, eroded

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 2 to 6 percent

*Parent material:* 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)* .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>
A1,A2 -- 0 to 9 in	loam	moderate	1.81 to 2.17 in	6.1 to 7.3
Bt1,Bt2 -- 9 to 24 in	sandy clay loam	moderate	2.24 to 2.84 in	6.1 to 8.4
Ck1,C2 -- 24 to 60 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

### WkC--Waukon loam, 6 to 12 percent slopes

#### Waukon

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 6 to 12 percent

*Parent material:* 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)* .28

*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>
A1,A2 -- 0 to 9 in	loam	moderate	1.81 to 2.17 in	6.1 to 7.3
Bt1,Bt2 -- 9 to 24 in	sandy clay loam	moderate	2.24 to 2.84 in	6.1 to 8.4
Ck1,C2 -- 24 to 60 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

## Map Unit Description (MN)

Norman County, Minnesota

### WkD--Waukon loam, 12 to 18 percent slopes

#### Waukon

*Extent:* 85 percent of the unit

*Landform(s):* hillslopes on till plains

*Slope gradient:* 12 to 18 percent

*Parent material:* 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)* .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>
A1,A2 -- 0 to 9 in	loam	moderate	1.81 to 2.17 in	6.1 to 7.3
Bt1,Bt2 -- 9 to 24 in	sandy clay loam	moderate	2.24 to 2.84 in	6.1 to 8.4
Ck1,C2 -- 24 to 60 in	loam	moderate	5.37 to 6.81 in	7.4 to 8.4

### Wm--Wheatville loam

#### Wheatville

*Extent:* 85 percent of the unit

*Landform(s):* rises on lake plains

*Slope gradient:* 0 to 3 percent

*Parent material:* glaciolacustrine

*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):* 4L

*Wind erodibility index (WEI):* 86

*Kw factor (surface layer)* .24

*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,Ak1 -- 0 to 11 in	loam	moderately rapid	1.98 to 2.43 in	7.4 to 8.4
Ck1..C3 -- 11 to 30 in	very fine sandy loam	moderately rapid	3.21 to 4.16 in	7.4 to 8.4
2C4 -- 30 to 60 in	clay	slow	2.69 to 5.69 in	7.4 to 7.8

## Map Unit Description (MN)

Norman County, Minnesota

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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.