

Map Unit Description (MN)

Winona 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]

11B--Sogn silt loam, 1 to 6 percent slopes

Sogn

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 1 to 6 percent

Parent material: residuum

Restrictive feature(s): lithic bedrock at 4 to 20 inches

Flooding: none

Ponding: none

Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 1

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .28

Land capability, nonirrigated 7s

Hydric soil: no

Hydrologic group: D

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A1,A2 -- 0 to 19 in	silt loam	moderate	3.21 to 4.16 in	6.1 to 8.4
2R -- 19 to 23 in	unweathered bedrock	impermeable		

11D--Sogn silt loam, rocky, 6 to 30 percent slopes

Sogn, rocky

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 30 percent

Parent material: residuum

Restrictive feature(s): lithic bedrock at 4 to 20 inches

Flooding: none

Ponding: none

Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 1

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .28

Land capability, nonirrigated 7s

Hydric soil: no

Hydrologic group: D

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A1,A2 -- 0 to 15 in	silt loam	moderate	2.54 to 3.29 in	6.1 to 8.4
2R -- 15 to 19 in	unweathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

19--Chaseburg silt loam

Chaseburg, occasionally flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 2 percent

Parent material: silty slope 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): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 1

Hydric soil: no

Hydrologic group: C

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 9 in	silt loam	moderate	1.99 to 2.17 in	6.1 to 7.8
C -- 9 to 60 in	silt loam	moderate	9.14 to 11.17 in	6.1 to 7.8

Newalbin

Extent: 2 percent of the unit

Landform(s): depressions on flood plains

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

24--Kasson silt loam

Kasson

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 1 to 3 percent

Parent material: silty sediments over loamy till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

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 -- 0 to 9 in	silt loam	moderate	1.99 to 2.17 in	5.6 to 6.5
E, BE -- 9 to 17 in	silty clay loam	moderate	1.42 to 1.73 in	4.5 to 6.0
2Bt -- 17 to 60 in	loam	moderately slow	6.44 to 8.15 in	5.1 to 7.3

Tripoli

Extent: 2 percent of the unit

Landform(s): drainageways

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

25--Becker fine sandy loam

Becker, rarely flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 2 percent

Parent material: loamy alluvium over sandy alluvium

Restrictive feature(s): greater than 60 inches

Flooding: rare

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .32

Land capability, nonirrigated 2s

Hydric soil: no

Hydrologic group: A

Potential for frost action: moderate

<i>Representative soil profile:</i>		<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap --	0 to 9 in	fine sandy loam	moderately rapid	1.45 to 1.81 in	5.6 to 7.3
A1,A2,Bw1 --	9 to 36 in	sandy loam	moderately rapid	4.02 to 5.35 in	5.6 to 7.3
2Bw2 --	36 to 43 in	loamy coarse sand	rapid	0.35 to 0.71 in	6.1 to 7.8
2C --	43 to 60 in	coarse sand	rapid	0.34 to 1.19 in	6.1 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

79B--Billett fine sandy loam, 1 to 6 percent slopes

Billett

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 1 to 6 percent

Parent material: loamy outwash over sandy 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) .24

Land capability, nonirrigated 3s

Hydric soil: no

Hydrologic group: A

Potential for frost action: moderate

<i>Representative soil profile:</i>		<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap --	0 to 9 in	fine sandy loam	moderately rapid	1.27 to 1.45 in	5.6 to 7.8
E --	9 to 14 in	sandy loam	moderately rapid	0.67 to 0.77 in	5.6 to 7.8
Bt1,Bt2 --	14 to 26 in	sandy loam	moderately rapid	1.18 to 1.77 in	5.1 to 7.3
BC --	26 to 30 in	loamy sand	moderately rapid	0.20 to 0.47 in	5.6 to 7.3
C --	30 to 60 in	loamy sand	rapid	0.60 to 2.99 in	5.1 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

81B--Boone loamy fine sand, 2 to 6 percent slopes

Boone

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 2 to 6 percent

Parent material: sandstone residuum

Restrictive feature(s): paralithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: excessively drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 2

Wind erodibility index (WEI): 134

Kw factor (surface layer) .24

Land capability, nonirrigated 4s

Hydric soil: no

Hydrologic group: A

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	loamy fine sand	rapid	0.79 to 1.02 in	3.5 to 7.3
C1,C2,C3 -- 8 to 25 in	fine sand	rapid	0.35 to 1.91 in	4.5 to 6.5
Cr -- 25 to 60 in	weathered bedrock	impermeable		

81C--Boone loamy fine sand, 6 to 15 percent slopes

Boone

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 15 percent

Parent material: sandstone residuum

Restrictive feature(s): paralithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: excessively drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 2

Wind erodibility index (WEI): 134

Kw factor (surface layer) .24

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 8 in	loamy fine sand	rapid	0.79 to 1.02 in	3.5 to 7.3
C1 -- 8 to 12 in	loamy fine sand	rapid	0.12 to 0.47 in	3.5 to 7.3
C2,C3 -- 12 to 24 in	fine sand	rapid	0.24 to 1.34 in	4.5 to 6.5
Cr -- 24 to 60 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

95C--Dunbarton silt loam, rocky, 4 to 12 percent slopes

Dunbarton, rocky

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 4 to 12 percent

Parent material: loess over residuum

Restrictive feature(s): lithic bedrock at 12 to 20 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 1

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .37

Land capability, nonirrigated 4e

Hydric soil: no

Hydrologic group: D

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 7 in	silt loam	moderate	1.56 to 1.70 in	5.6 to 7.3
BE -- 7 to 10 in	silty clay loam	moderate	0.50 to 0.55 in	5.6 to 7.8
2Bt -- 10 to 18 in	clay	slow	0.74 to 1.07 in	6.6 to 7.8
R -- 18 to 22 in	unweathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

99B--Racine silt loam, 2 to 6 percent slopes

Racine

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 2 to 6 percent

Parent material: silty sediments over loamy till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 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>
A -- 0 to 5 in	silt loam	moderate	1.13 to 1.23 in	5.1 to 7.3
E, BE -- 5 to 13 in	silt loam	moderate	1.57 to 1.73 in	4.5 to 6.0
Bt1, 2Bt2, 2Bt -- 13 to 49 in	clay loam	moderate	5.37 to 6.81 in	4.5 to 6.0
2C -- 49 to 60 in	loam	moderately slow	1.10 to 1.65 in	6.6 to 8.4

Tripoli

Extent: 2 percent of the unit

Landform(s): drainageways

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

99C--Racine silt loam, 6 to 12 percent slopes

Racine

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: silty sediments over loamy till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .28

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: C

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.1 to 7.3
E, BE -- 8 to 22 in	silt loam	moderate	2.83 to 3.12 in	4.5 to 6.0
Bt1, 2Bt2, 2Bt -- 22 to 36 in	clay loam	moderate	2.07 to 2.62 in	4.5 to 6.0
2C -- 36 to 60 in	loam	moderately slow	2.40 to 3.60 in	6.6 to 8.4

103A--Seaton silt loam, 1 to 3 percent slopes

Seaton

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 1 to 3 percent

Parent material: loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 1

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE, Bt1, Bt2 -- 8 to 45 in	silt loam	moderate	7.40 to 8.14 in	4.5 to 7.3
C -- 45 to 60 in	silt loam	moderate	2.99 to 3.29 in	5.6 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

103B--Seaton silt loam, 3 to 6 percent slopes

Seaton

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 3 to 6 percent

Parent material: loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE,Bt1,Bt2 -- 8 to 46 in	silt loam	moderate	7.64 to 8.40 in	4.5 to 7.3
C -- 46 to 60 in	silt loam	moderate	2.76 to 3.03 in	5.6 to 8.4

103C--Seaton silt loam, 6 to 12 percent slopes

Seaton

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE,Bt1,Bt2 -- 8 to 39 in	silt loam	moderate	6.22 to 6.84 in	4.5 to 7.3
C -- 39 to 60 in	silt loam	moderate	4.17 to 4.59 in	5.6 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

103D--Seaton silt loam, 12 to 20 percent slopes

Seaton

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 4e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 7 in	silt loam	moderate	1.56 to 1.70 in	5.6 to 7.3
BE,Bt1,Bt2 -- 7 to 53 in	silt loam	moderate	9.21 to 10.13 in	4.5 to 7.3
C -- 53 to 60 in	silt loam	moderate	1.34 to 1.47 in	5.6 to 8.4

173F--Frontenac loam, 30 to 40 percent slopes

Frontenac

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 30 to 40 percent

Parent material: loamy colluvium over residuum

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) .20

Land capability, nonirrigated 7e

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,AB -- 0 to 15 in	loam	moderate	2.99 to 3.59 in	5.6 to 7.3
Bw1 -- 15 to 27 in	loam	moderate	2.01 to 2.60 in	5.6 to 7.3
2Bw2,2C1,2C2 -- 27 to 60 in	cobbly loam	moderately rapid	1.32 to 3.31 in	6.6 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

174D--Gale silt loam, 12 to 20 percent slopes

Gale

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loess over sandy residuum

Restrictive feature(s): paralithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

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 -- 0 to 10 in	silt loam	moderate	2.17 to 2.36 in	4.5 to 7.3
Bt1,Bt2 -- 10 to 31 in	silt loam	moderate	3.83 to 4.68 in	4.5 to 6.0
BC -- 31 to 34 in	loam	moderate	0.22 to 0.50 in	4.5 to 6.0
2C -- 34 to 37 in	sand	rapid	0.06 to 0.25 in	4.5 to 6.0
2Cr -- 37 to 60 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

176--Garwin silt loam

Garwin

Extent: 95 percent of the unit

Landform(s): drainageways

Slope gradient: 0 to 2 percent

Parent material: loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .28

Land capability, nonirrigated 2w

Hydric soil: yes

Hydrologic group: B/D

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.90 to 2.08 in	5.6 to 7.3
A1,A2,A3,AB -- 9 to 39 in	silty clay loam	moderate	5.39 to 5.98 in	6.1 to 7.3
Bg,Cg -- 39 to 60 in	silt loam	moderate	4.17 to 4.59 in	6.6 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

194--Huntsville silt loam

Huntsville, occasionally flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 2 percent

Parent material: silty 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): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .32

Land capability, nonirrigated 1

Hydric soil: no

Hydrologic group: C

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A1,A2,A3,A4 --	0 to 50 in silt loam	moderate	11.00 to 12.00 in	6.1 to 7.3
A5 --	50 to 60 in silt loam	moderate	1.18 to 2.07 in	6.1 to 7.8

Otter

Extent: 2 percent of the unit

Landform(s): depressions on flood plains

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

198C--Rollingstone silt loam, 3 to 12 percent slopes

Rollingstone

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 3 to 12 percent

Parent material: loess over clayey residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: C

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 7 in	silt loam	moderate	1.56 to 1.70 in	5.6 to 7.3
BE -- 7 to 15 in	silt loam	moderate	1.73 to 1.89 in	5.1 to 6.5
2Bt -- 15 to 60 in	clay	slow	2.69 to 4.49 in	4.5 to 5.5

198D--Rollingstone silt loam, 12 to 20 percent slopes

Rollingstone

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loess over clayey residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 4e

Hydric soil: no

Hydrologic group: C

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 5 in	silt loam	moderate	1.13 to 1.23 in	5.6 to 7.3
BE -- 5 to 10 in	silt loam	moderate	1.04 to 1.13 in	5.1 to 6.5
2Bt -- 10 to 60 in	clay	slow	4.50 to 7.00 in	4.5 to 5.5

Map Unit Description (MN)

Winona County, Minnesota

215B--Southridge silt loams, 2 to 6 percent slopes

Southridge

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 2 to 6 percent

Parent material: loess over clayey residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: C

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE,Bt1 -- 8 to 30 in	silt loam	moderate	4.41 to 4.85 in	4.5 to 6.5
2Bt2 -- 30 to 60 in	clay	slow	2.69 to 3.89 in	4.5 to 6.0

215C--Southridge silt loam, 6 to 12 percent slopes

Southridge

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over clayey residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: C

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.99 to 2.17 in	5.6 to 7.3
BE,Bt1 -- 9 to 29 in	silt loam	moderate	4.02 to 4.42 in	4.5 to 6.5
2Bt2 -- 29 to 60 in	clay	slow	2.76 to 3.99 in	4.5 to 6.0

Map Unit Description (MN)

Winona County, Minnesota

215D--Southridge silt loam, 12 to 20 percent slopes

Southridge

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loess over clayey residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

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 -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE,Bt1 -- 8 to 28 in	silt loam	moderate	4.02 to 4.42 in	4.5 to 6.5
2Bt2 -- 28 to 60 in	clay	slow	2.87 to 4.15 in	4.5 to 6.0

Map Unit Description (MN)

Winona County, Minnesota

262B--Medary silt loam, 1 to 6 percent slopes

Medary

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 1 to 6 percent

Parent material: silty alluvium

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) .43

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: D

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.99 to 2.17 in	5.1 to 6.5
BE -- 9 to 13 in	silt loam	moderately slow	0.71 to 0.87 in	4.5 to 6.0
Bt1 -- 13 to 20 in	silty clay loam	slow	0.78 to 1.42 in	4.5 to 6.0
Bt2 -- 20 to 38 in	silty clay	slow	1.59 to 2.30 in	5.1 to 7.3
Bt3,BC -- 38 to 60 in	stratified silt loam to silty clay	slow	2.65 to 4.41 in	5.1 to 7.8

Poorly drained clayey soils

Extent: 2 percent of the unit

Landform(s): depressions

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

271--Minneiska fine sandy loam, channeled

Minneiska, channeled, occasionally flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 2 percent

Parent material: loamy alluvium

Restrictive feature(s): greater than 60 inches

Flooding: occasional

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

Land capability, nonirrigated 5w

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 8 in	fine sandy loam	moderately rapid	1.18 to 1.42 in	7.4 to 8.4
C1 -- 8 to 46 in	stratified sand to silt loam	moderately rapid	4.96 to 6.87 in	7.4 to 8.4
C2 -- 46 to 60 in	stratified fine sand to loamy fine sand	rapid	0.69 to 1.10 in	7.4 to 8.4

Poorly drained sandy alluvial soils

Extent: 2 percent of the unit

Landform(s): channels on flood plains

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

283B--Plainfield sand, 1 to 6 percent slopes

Plainfield

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 1 to 6 percent

Parent material: sandy outwash

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: excessively drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 1

Wind erodibility index (WEI): 220

Kw factor (surface layer) .02

Land capability, nonirrigated 4s

Hydric soil: no

Hydrologic group: A

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	sand	rapid	0.31 to 0.71 in	5.1 to 7.3
Bw -- 8 to 31 in	sand	rapid	0.93 to 1.63 in	4.5 to 6.5
C1,C2 -- 31 to 60 in	sand	rapid	0.86 to 2.01 in	4.5 to 6.5

283C--Plainfield sand, 6 to 12 percent slopes

Plainfield

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 6 to 12 percent

Parent material: sandy outwash

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: excessively drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 1

Wind erodibility index (WEI): 220

Kw factor (surface layer) .02

Land capability, nonirrigated 6s

Hydric soil: no

Hydrologic group: A

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	sand	rapid	0.31 to 0.71 in	5.1 to 7.3
Bw -- 8 to 31 in	sand	rapid	0.93 to 1.63 in	4.5 to 6.5
C1,C2 -- 31 to 60 in	sand	rapid	0.86 to 2.01 in	4.5 to 6.5

Map Unit Description (MN)

Winona County, Minnesota

283D--Plainfield sand, 12 to 25 percent slopes

Plainfield

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 12 to 25 percent

Parent material: sandy outwash

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: excessively drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 1

Wind erodibility index (WEI): 220

Kw factor (surface layer) .02

Land capability, nonirrigated 7s

Hydric soil: no

Hydrologic group: A

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 4 in	sand	rapid	0.16 to 0.35 in	5.1 to 7.3
Bw -- 4 to 31 in	sand	rapid	1.09 to 1.90 in	4.5 to 6.5
C1,C2 -- 31 to 60 in	sand	rapid	0.86 to 2.01 in	4.5 to 6.5

283F--Plainfield sand, 25 to 50 percent slopes

Plainfield

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 25 to 50 percent

Parent material: sandy outwash

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: excessively drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 1

Wind erodibility index (WEI): 220

Kw factor (surface layer) .02

Land capability, nonirrigated 7s

Hydric soil: no

Hydrologic group: A

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 3 in	sand	rapid	0.13 to 0.28 in	5.1 to 7.3
Bw -- 3 to 34 in	sand	rapid	1.23 to 2.15 in	4.5 to 6.5
C1,C2 -- 34 to 60 in	sand	rapid	0.78 to 1.82 in	4.5 to 6.5

Map Unit Description (MN)

Winona County, Minnesota

285A--Port Byron silt loam, 1 to 3 percent slopes

Port Byron

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 1 to 3 percent

Parent material: silty loess

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 1

Hydric soil: no

Hydrologic group: B

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,A2 -- 0 to 19 in	silt loam	moderate	4.16 to 4.54 in	5.1 to 8.4
Bw1,Bw2,Bw3, -- 19 to 42 in	silt loam	moderate	4.65 to 5.11 in	5.6 to 7.3
C -- 42 to 60 in	silt loam	moderate	3.54 to 3.90 in	5.6 to 8.4

Garwin

Extent: 2 percent of the unit

Landform(s): drainageways

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

285B--Port Byron silt loam, 3 to 6 percent slopes

Port Byron

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 3 to 6 percent

Parent material: silty loess

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: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A1,A2 -- 0 to 16 in	silt loam	moderate	3.55 to 3.87 in	5.1 to 8.4
Bw1,Bw2,Bw3, -- 16 to 42 in	silt loam	moderate	5.20 to 5.72 in	5.6 to 7.3
C -- 42 to 60 in	silt loam	moderate	3.54 to 3.90 in	5.6 to 8.4

Garwin

Extent: 2 percent of the unit

Landform(s): drainageways

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

285C--Port Byron silt loam, 6 to 12 percent slopes

Port Byron

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: silty loess

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: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A1,A2 -- 0 to 13 in	silt loam	moderate	2.86 to 3.12 in	5.1 to 8.4
Bw1,Bw2,Bw3, -- 13 to 50 in	silt loam	moderate	7.40 to 8.14 in	5.6 to 7.3
C -- 50 to 60 in	silt loam	moderate	1.97 to 2.17 in	5.6 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

299B--Rockton silt loam, 1 to 6 percent slopes

Rockton

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 1 to 6 percent

Parent material: loamy sediments over residuum over limestone bedrock

Restrictive feature(s): lithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .28

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: C

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.81 to 1.99 in	5.1 to 6.5
A,Bt1 -- 9 to 22 in	loam	moderate	2.21 to 2.47 in	5.1 to 6.5
2Bt2 -- 22 to 27 in	clay	moderate	0.47 to 0.66 in	5.6 to 7.3
2R -- 27 to 31 in	weathered bedrock	impermeable		

Poorly drained soils

Extent: 2 percent of the unit

Landform(s): depressions

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

301A--Lindstrom silt loam, 1 to 3 percent slopes

Lindstrom

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 1 to 3 percent

Parent material: loess and/or silty alluvium

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) .32

Land capability, nonirrigated 1

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.81 to 1.99 in	5.6 to 7.3
A1,A2 -- 9 to 36 in	silt loam	moderate	5.89 to 6.96 in	5.6 to 7.3
Bw1,Bw2 -- 36 to 60 in	silt loam	moderate	4.80 to 5.28 in	5.6 to 7.3

301C--Lindstrom silt loam, 6 to 12 percent slopes

Lindstrom

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess and/or silty alluvium

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) .32

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.81 to 1.99 in	5.6 to 7.3
A1,A2 -- 9 to 35 in	silt loam	moderate	5.72 to 6.76 in	5.6 to 7.3
Bw1,Bw2 -- 35 to 60 in	silt loam	moderate	4.96 to 5.46 in	5.6 to 7.3

Map Unit Description (MN)

Winona County, Minnesota

301D--Lindstrom silt loam, 12 to 20 percent slopes

Lindstrom

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loess and/or silty alluvium

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) .32

Land capability, nonirrigated 4e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.81 to 1.99 in	5.6 to 7.3
A1,A2 -- 9 to 27 in	silt loam	moderate	3.90 to 4.61 in	5.6 to 7.3
Bw1,Bw2 -- 27 to 60 in	silt loam	moderate	6.61 to 7.28 in	5.6 to 7.3

322C2--Timula silt loam, 6 to 12 percent slopes, eroded

Timula, eroded

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: coarse-silty loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,Bw1,Bw2 -- 0 to 24 in	silt loam	moderate	4.80 to 5.76 in	6.1 to 7.8
BC,C -- 24 to 60 in	silt loam	moderate	6.45 to 7.17 in	7.4 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

322D2--Timula silt loam, 12 to 20 percent slopes, eroded

Timula, eroded

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: coarse-silty loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 4e

Hydric soil: no

Hydrologic group: B

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,Bw1,Bw2 --	0 to 30 in silt loam	moderate	5.98 to 7.18 in	6.1 to 7.8
BC,C --	30 to 60 in silt loam	moderate	5.39 to 5.98 in	7.4 to 8.4

Newalbin

Extent: 2 percent of the unit

Landform(s): drainageways

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

322E2--Timula silt loam, 20 to 40 percent slopes, eroded

Timula, eroded

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 20 to 40 percent

Parent material: coarse-silty loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 7e

Hydric soil: no

Hydrologic group: B

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,Bw1,Bw2 --	0 to 32 in silt loam	moderate	6.38 to 7.65 in	6.1 to 7.8
BC,C --	32 to 60 in silt loam	moderate	5.03 to 5.59 in	7.4 to 8.4

Newalbin

Extent: 2 percent of the unit

Landform(s): drainageways

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

322F--Timula silt loam, 40 to 60 percent slopes

Timula

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 40 to 60 percent

Parent material: coarse-silty loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 7e

Hydric soil: no

Hydrologic group: B

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,Bw1,Bw2 --	0 to 24 in silt loam	moderate	4.80 to 5.76 in	6.1 to 7.8
BC,C --	24 to 60 in silt loam	moderate	6.45 to 7.17 in	7.4 to 8.4

Newalbin

Extent: 2 percent of the unit

Landform(s): drainageways

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

331--Tripoli silty clay loam

Tripoli

<i>Extent:</i> 95 percent of the unit	<i>Soil loss tolerance (T factor):</i> 5
<i>Landform(s):</i> drainageways	<i>Wind erodibility group (WEG):</i> 6
<i>Slope gradient:</i> 0 to 2 percent	<i>Wind erodibility index (WEI):</i> 48
<i>Parent material:</i> silty and loamy sediments over till	<i>Kw factor (surface layer)</i> .24
<i>Restrictive feature(s):</i> greater than 60 inches	<i>Land capability, nonirrigated</i> 2w
<i>Flooding:</i> none	<i>Hydric soil:</i> yes
<i>Ponding:</i> none	<i>Hydrologic group:</i> B/D
<i>Drainage class:</i> poorly drained	<i>Potential for frost action:</i> high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A -- 0 to 16 in	silty clay loam	moderate	3.07 to 3.39 in	6.1 to 7.3
Bg1 -- 16 to 26 in	clay loam	moderate	1.67 to 1.87 in	6.6 to 7.8
2Bg2,2Bg3 -- 26 to 60 in	loam	moderate	5.76 to 6.43 in	7.4 to 8.4

369B--Waubeek silt loam, 2 to 6 percent slopes

Waubeek

<i>Extent:</i> 95 percent of the unit	<i>Soil loss tolerance (T factor):</i> 5
<i>Landform(s):</i> hills	<i>Wind erodibility group (WEG):</i> 6
<i>Slope gradient:</i> 2 to 6 percent	<i>Wind erodibility index (WEI):</i> 48
<i>Parent material:</i> loess over loamy till	<i>Kw factor (surface layer)</i> .32
<i>Restrictive feature(s):</i> greater than 60 inches	<i>Land capability, nonirrigated</i> 2e
<i>Flooding:</i> none	<i>Hydric soil:</i> no
<i>Ponding:</i> none	<i>Hydrologic group:</i> B
<i>Drainage class:</i> well drained	<i>Potential for frost action:</i> high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.90 to 2.08 in	5.6 to 7.3
BE,Bt1 -- 9 to 26 in	silty clay loam	moderate	3.05 to 3.39 in	5.1 to 6.5
2Bt2,2Bt3,2C -- 26 to 60 in	loam	moderate	5.76 to 6.43 in	5.1 to 7.3

Map Unit Description (MN)

Winona County, Minnesota

369C--Waubeek silt loam, 6 to 12 percent slopes

Waubeek

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over loamy till

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 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: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.65 to 1.81 in	5.6 to 7.3
BE,Bt1 -- 8 to 32 in	silty clay loam	moderate	4.32 to 4.80 in	5.1 to 6.5
2Bt2,2Bt3,2C -- 32 to 60 in	loam	moderate	4.75 to 5.31 in	5.1 to 7.3

388C--Seaton silt loam, valleys, 6 to 12 percent slopes

Seaton, valleys

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: fine-silty loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE,Bt1,Bt2 -- 8 to 46 in	silt loam	moderate	7.64 to 8.40 in	4.5 to 7.3
C -- 46 to 60 in	silt loam	moderate	2.76 to 3.03 in	5.6 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

388D--Seaton silt loam, valleys, 12 to 20 percent slopes

Seaton, valleys

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: fine-silty loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 4e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.99 to 2.17 in	5.6 to 7.3
BE,Bt1,Bt2 -- 9 to 50 in	silt loam	moderate	8.19 to 9.01 in	4.5 to 7.3
C -- 50 to 60 in	silt loam	moderate	1.97 to 2.17 in	5.6 to 8.4

388E--Seaton silt loam, valleys, 20 to 30 percent slopes

Seaton, valleys

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 20 to 30 percent

Parent material: fine-silty loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 6e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 6 in	silt loam	moderate	1.30 to 1.42 in	5.6 to 7.3
BE,Bt1,Bt2 -- 6 to 35 in	silt loam	moderate	5.83 to 6.41 in	4.5 to 7.3
C -- 35 to 60 in	silt loam	moderate	4.96 to 5.46 in	5.6 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

401B--Mt. Carroll silt loam, 3 to 6 percent slopes

Mt. Carroll

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 3 to 6 percent

Parent material: fine-silty loess

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) .37

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
E -- 8 to 14 in	silt loam	moderate	1.26 to 1.39 in	5.6 to 7.3
Bt1,Bt2 -- 14 to 39 in	silt loam	moderate	4.96 to 5.46 in	5.1 to 7.3
BC -- 39 to 60 in	silt loam	moderate	4.17 to 4.59 in	5.6 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

401C--Mt. Carroll silt loam, 6 to 12 percent slopes

Mt. Carroll

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: fine-silty loess

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) .37

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
E -- 8 to 14 in	silt loam	moderate	1.26 to 1.39 in	5.6 to 7.3
Bt1,Bt2 -- 14 to 30 in	silt loam	moderate	3.15 to 3.46 in	5.1 to 7.3
BC -- 30 to 60 in	silt loam	moderate	5.98 to 6.58 in	5.6 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

401D--Mt. Carroll silt loam, 12 to 20 percent slopes

Mt. Carroll

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: fine-silty loess

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) .37

Land capability, nonirrigated 4e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 7 in	silt loam	moderate	1.56 to 1.70 in	5.6 to 7.3
E -- 7 to 11 in	silt loam	moderate	0.79 to 0.87 in	5.6 to 7.3
Bt1,Bt2 -- 11 to 30 in	silt loam	moderate	3.78 to 4.16 in	5.1 to 7.3
BC -- 30 to 60 in	silt loam	moderate	5.98 to 6.58 in	5.6 to 8.4

455A--Festina silt loam, 0 to 2 percent slopes

Festina

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 0 to 2 percent

Parent material: fine-silty loess

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) .37

Land capability, nonirrigated 1

Hydric soil: no

Hydrologic group: B

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,E -- 0 to 11 in	silt loam	moderate	2.43 to 2.65 in	5.6 to 7.3
BE,Bt1,Bt2 -- 11 to 53 in	silt loam	moderate	8.43 to 9.27 in	5.1 to 6.0
BC -- 53 to 60 in	silt loam	moderate	1.34 to 1.47 in	5.1 to 6.5

Map Unit Description (MN)

Winona County, Minnesota

455B--Festina silt loam, 2 to 6 percent slopes

Festina

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 2 to 6 percent

Parent material: fine-silty loess

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) .37

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: B

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,E -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE,Bt1,Bt2 -- 8 to 48 in	silt loam	moderate	8.03 to 8.83 in	5.1 to 6.0
BC -- 48 to 60 in	silt loam	moderate	2.36 to 2.60 in	5.1 to 6.5

Garwin

Extent: 2 percent of the unit

Landform(s): drainageways, depressions

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

457E--Lacrescent channery silt loam, 20 to 45 percent slopes

Lacrescent

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 20 to 45 percent

Parent material: colluvium and/or loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 7

Wind erodibility index (WEI): 38

Kw factor (surface layer) .15

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,AB -- 0 to 8 in	channery silt loam	moderate	1.18 to 1.73 in	6.6 to 7.3
Bw,BC -- 8 to 15 in	cobbly silt loam	moderately rapid	0.43 to 0.64 in	6.6 to 7.3
C -- 15 to 60 in	extremely cobbly loam	moderately rapid	2.24 to 3.59 in	7.4 to 7.8

457G--Lacrescent silt loam, rocky, 45 to 70 percent slopes

Lacrescent, rocky

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 45 to 70 percent

Parent material: colluvium and/or loess

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): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .28

Land capability, nonirrigated 7e

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,AB -- 0 to 10 in	silt loam	moderate	1.77 to 2.36 in	6.6 to 7.3
Bw,BC -- 10 to 32 in	cobbly silt loam	moderately rapid	1.32 to 1.98 in	6.6 to 7.3
C -- 32 to 60 in	extremely cobbly loam	moderately rapid	1.40 to 2.24 in	7.4 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

468--Otter silt loam

Otter, occasionally flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 1 percent

Parent material: silty alluvium

Restrictive feature(s): greater than 60 inches

Flooding: occasional

Ponding: none

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .32

Land capability, nonirrigated 2w

Hydric soil: yes

Hydrologic group: B/D

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A1,A2,A3 -- 0 to 28 in	silt loam	moderate	6.15 to 6.71 in	6.1 to 7.8
Cg1,Cg2,Cg3 - 28 to 60 in	silt loam	moderate	5.42 to 7.02 in	6.1 to 7.8

474B--Haverhill mucky silty clay loam, 1 to 8 percent slopes

Haverhill

Extent: 95 percent of the unit

Landform(s): structural benches

Slope gradient: 1 to 8 percent

Parent material: shale over clayey residuum

Restrictive feature(s): paralithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: very poorly drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .24

Land capability, nonirrigated 5w

Hydric soil: yes

Hydrologic group: D

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A1 -- 0 to 4 in	mucky silty clay loam	moderately slow	0.63 to 0.98 in	7.4 to 7.8
A2,AB,Bg -- 4 to 30 in	clay	slow	2.34 to 4.16 in	7.4 to 7.8
Cr1,Cr2 -- 30 to 60 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

476B--Frankville silt loam, 2 to 6 percent slopes

Frankville

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 2 to 6 percent

Parent material: loess over clayey residuum

Restrictive feature(s): lithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .37

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, BE -- 0 to 12 in	silt loam	moderate	2.48 to 2.72 in	6.6 to 7.3
Bt1, Bt2 -- 12 to 24 in	silt loam	moderate	2.20 to 2.44 in	5.6 to 6.5
2Bt3 -- 24 to 34 in	clay	slow	1.18 to 1.48 in	6.1 to 7.3
2Bt4 -- 34 to 38 in	extremely flaggy clay	impermeable	0.47 to 0.59 in	4.5 to 5.5
2R -- 38 to 48 in	unweathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

476C--Frankville silt loam, 6 to 12 percent slopes

Frankville

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over clayey residuum

Restrictive feature(s): lithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .37

Land capability, nonirrigated 3e

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, BE -- 0 to 8 in	silt loam	moderate	1.65 to 1.81 in	6.6 to 7.3
Bt1, Bt2 -- 8 to 26 in	silt loam	moderate	3.26 to 3.62 in	5.6 to 6.5
2Bt3, 2Bt4 -- 26 to 36 in	clay	slow	1.18 to 1.48 in	6.1 to 7.3
2R -- 36 to 46 in	unweathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

476D--Frankville silt loam, 12 to 18 percent slopes

Frankville

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 18 percent

Parent material: loess over clayey residuum

Restrictive feature(s): lithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .37

Land capability, nonirrigated 6e

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, BE -- 0 to 7 in	silt loam	moderate	1.49 to 1.63 in	6.6 to 7.3
Bt1, Bt2 -- 7 to 25 in	silt loam	moderate	3.26 to 3.62 in	5.6 to 6.5
2Bt3, 2Bt4 -- 25 to 35 in	clay	slow	1.18 to 1.48 in	6.1 to 7.3
2R -- 35 to 45 in	unweathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

477--Littleton silt loam

Littleton

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 0 to 2 percent

Parent material: silty alluvium

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): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .32

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>
Ap -- 0 to 8 in	silt loam	moderate	1.57 to 1.89 in	5.6 to 7.8
A -- 8 to 35 in	silt loam	moderate	5.98 to 6.52 in	5.6 to 7.8
Bw,C -- 35 to 60 in	silt loam	moderate	4.96 to 5.46 in	5.6 to 7.8

Garwin

Extent: 2 percent of the unit

Landform(s): depressions

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

483--Waukee loam

Waukee, bedrock substratum

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 1 to 2 percent

Parent material: loamy alluvium over sandy 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): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .24

Land capability, nonirrigated 2s

Hydric soil: no

Hydrologic group: B

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A,Bw1,Bw2	0 to 21 in loam	moderate	4.17 to 4.59 in	5.1 to 7.3
--				
2BC,2C	-- 21 to 36 in loam	moderate	2.24 to 2.84 in	5.1 to 6.0
3Btb,3Cr	-- 36 to 60 in gravelly sand	very rapid	0.48 to 1.44 in	5.6 to 6.5

484D--Eyota fine sandy loam, 12 to 20 percent slopes

Eyota

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loamy 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): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

Land capability, nonirrigated 4e

Hydric soil: no

Hydrologic group: B

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A	-- 0 to 20 in fine sandy loam	moderately rapid	2.61 to 3.21 in	5.1 to 7.3
AB	-- 20 to 26 in loam	moderately rapid	0.71 to 0.83 in	4.5 to 6.5
Bw1	-- 26 to 48 in silt loam	moderate	4.41 to 4.85 in	4.5 to 6.5
2Bw2,2Bw3	-- 48 to 60 in fine sandy loam	rapid	0.94 to 1.65 in	6.1 to 7.3

Map Unit Description (MN)

Winona County, Minnesota

488G--Brodale cobbly loam, rocky, 45 to 70 percent slopes

Brodale, rocky

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 45 to 70 percent

Parent material: loamy colluvium and/or residuum

Restrictive feature(s): lithic bedrock at 40 to 80 inches

Flooding: none

Ponding: none

Drainage class: excessively drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .15

Land capability, nonirrigated 7s

Hydric soil: no

Hydrologic group: B

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A1 -- 0 to 7 in	cobbly loam	moderate	0.43 to 0.85 in	6.6 to 8.4
A2,C -- 7 to 60 in	very flaggy very fine sandy loam	moderately rapid	2.11 to 4.75 in	7.4 to 8.4

492B--Nasset silt loam, 3 to 6 percent slopes

Nasset

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 3 to 6 percent

Parent material: loess over residuum over limestone bedrock

Restrictive feature(s): lithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .32

Land capability, nonirrigated 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,EB -- 0 to 11 in	silt loam	moderate	2.31 to 2.54 in	5.1 to 7.3
Bt1,Bt2 -- 11 to 37 in	silt loam	moderate	4.68 to 5.20 in	5.1 to 6.5
2Bt3,2C -- 37 to 60 in	clay	slow	2.74 to 3.43 in	6.6 to 7.3

Map Unit Description (MN)

Winona County, Minnesota

492C--Nasset silt loam, 6 to 12 percent slopes

Nasset

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over residuum over limestone bedrock

Restrictive feature(s): lithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .37

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: B

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,EB -- 0 to 9 in	silt loam	moderate	1.90 to 2.08 in	5.1 to 7.3
Bt1,Bt2 -- 9 to 45 in	silt loam	moderate	6.45 to 7.17 in	5.1 to 6.5
2Bt3,2C -- 45 to 60 in	clay	slow	1.80 to 2.24 in	6.6 to 7.3

493B--Oronoco fine sandy loam, 3 to 8 percent slopes

Oronoco

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 3 to 8 percent

Parent material: loamy eolian sediments

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .24

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: 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 8 in	fine sandy loam	moderately rapid	1.18 to 1.42 in	6.1 to 7.3
E,BE,Bt1,Bt2 -- 8 to 53 in	fine sandy loam	moderate	6.79 to 8.60 in	5.6 to 7.8
Bt4 -- 53 to 60 in	silt loam	moderate	1.34 to 1.47 in	7.4 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

501B--NewGlarus silt loam, 3 to 6 percent slopes

NewGlarus

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 3 to 6 percent

Parent material: loess over residuum

Restrictive feature(s): lithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .37

Land capability, nonirrigated 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, BE -- 0 to 13 in	silt loam	moderate	2.86 to 3.12 in	6.1 to 7.3
Bt1, Bt2 -- 13 to 28 in	silty clay loam	moderate	2.69 to 3.29 in	5.6 to 7.3
2Bt3 -- 28 to 39 in	clay	slow	0.99 to 1.43 in	5.6 to 7.3
2R -- 39 to 43 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

501C--NewGlarus silt loam, 6 to 12 percent slopes

NewGlarus

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over residuum

Restrictive feature(s): lithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .37

Land capability, nonirrigated 3e

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, BE -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	6.1 to 7.3
Bt1, Bt2 -- 8 to 23 in	silty clay loam	moderate	2.69 to 3.29 in	5.6 to 7.3
2Bt3 -- 23 to 37 in	clay	slow	1.28 to 1.84 in	5.6 to 7.3
2R -- 37 to 41 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

501D--NewGlarus silt loam, 12 to 20 percent slopes

NewGlarus

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loess over residuum

Restrictive feature(s): lithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .37

Land capability, nonirrigated 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, BE -- 0 to 12 in	silt loam	moderate	2.60 to 2.83 in	6.1 to 7.3
Bt1, Bt2 -- 12 to 26 in	silty clay loam	moderate	2.55 to 3.12 in	5.6 to 7.3
2Bt3 -- 26 to 36 in	clay	slow	0.89 to 1.28 in	5.6 to 7.3
2R -- 36 to 40 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

501E--NewGlarus silt loam, rocky, 12 to 30 percent slopes

NewGlarus, rocky

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 30 percent

Parent material: loess over residuum

Restrictive feature(s): lithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .37

Land capability, nonirrigated 6e

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, BE -- 0 to 3 in	silt loam	moderate	0.69 to 0.76 in	6.1 to 7.3
Bt1, Bt2 -- 3 to 24 in	silty clay loam	moderate	3.76 to 4.59 in	5.6 to 7.3
2Bt3 -- 24 to 34 in	clay	slow	0.89 to 1.28 in	5.6 to 7.3
2R -- 34 to 38 in	weathered bedrock	impermeable		

522--Boots muck

Boots, frequently flooded, ponded

Extent: 95 percent of the unit

Landform(s): flood plains, terraces

Slope gradient: 0 to 1 percent

Parent material: herbaceous organic material over loamy till

Restrictive feature(s): greater than 60 inches

Flooding: frequent

Ponding: frequent

Drainage class: very poorly drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 2

Wind erodibility index (WEI): 134

Kw factor (surface layer) .02

Land capability, nonirrigated 8w

Hydric soil: yes

Hydrologic group: A/D

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Oa -- 0 to 8 in	muck	moderately rapid	2.76 to 3.54 in	
Oe -- 8 to 60 in	mucky peat	rapid	18.19 to 23.39 in	

Map Unit Description (MN)

Winona County, Minnesota

576--Newalbin silt loam

Newalbin, occasionally flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 1 percent

Parent material: silty alluvium

Restrictive feature(s): greater than 60 inches

Flooding: occasional

Ponding: none

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 2w

Hydric soil: yes

Hydrologic group: B/D

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A,Cg -- 0 to 7 in	silt loam	moderate	1.42 to 1.70 in	6.1 to 7.3
2Ab1,2Ab2,2C -- 7 to 28 in	stratified loamy very fine sand to silt loam	moderate	3.55 to 4.59 in	6.1 to 7.3
3Ab -- 28 to 60 in	silt loam	moderate	5.42 to 7.02 in	6.1 to 7.8

577--Newalbin silt loam, channeled

Newalbin, channeled, frequently flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 2 percent

Parent material: silty alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

Ponding: none

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 5w

Hydric soil: yes

Hydrologic group: B/D

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A,Cg -- 0 to 7 in	silt loam	moderate	1.42 to 1.70 in	6.1 to 7.3
2Ab1,2Ab2,2C -- 7 to 34 in	silt loam	moderate	4.55 to 5.89 in	6.1 to 7.3
3Ab -- 34 to 60 in	silt loam	moderate	4.42 to 5.72 in	6.1 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

578--Newalbin silt loam, very wet

Newalbin, very wet, frequently flooded, ponded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 1 percent

Parent material: silty alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

Ponding: frequent

Drainage class: very poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 7w

Hydric soil: yes

Hydrologic group: B/D

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A,Cg -- 0 to 10 in	silt loam	moderate	1.97 to 2.36 in	6.1 to 7.3
2Ab1,2Ab2,2C -- 10 to 30 in	silt loam	moderate	3.41 to 4.42 in	6.1 to 7.3
3Ab -- 30 to 60 in	silt loam	moderate	5.09 to 6.58 in	6.1 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

580B--Blackhammer-Southridge silt loams, 2 to 6 percent slopes

Blackhammer

Extent: 70 percent of the unit

Landform(s): hills

Slope gradient: 2 to 6 percent

Parent material: loess over residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
Bt1,Bt2 -- 8 to 22 in	silt loam	moderate	2.83 to 3.12 in	5.1 to 6.5
2Bt3 -- 22 to 60 in	stratified sandy loam to clay loam	moderate	3.02 to 6.05 in	5.1 to 6.0

Southridge

Extent: 15 percent of the unit

Landform(s): hills

Slope gradient: 2 to 6 percent

Parent material: loess over residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: C

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE,Bt1 -- 8 to 28 in	silt loam	moderate	4.02 to 4.42 in	4.5 to 6.5
2Bt2 -- 28 to 60 in	clay	slow	2.87 to 4.15 in	4.5 to 6.0

Map Unit Description (MN)

Winona County, Minnesota

580B--Blackhammer-Southridge silt loams, 2 to 6 percent slopes

Very poorly drained soils

Extent: 2 percent of the unit

Landform(s): depressions

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

Representative soil profile:

Texture

Permeability

*Available water
capacity*

pH

Map Unit Description (MN)

Winona County, Minnesota

580C--Blackhammer-Southridge silt loams, 6 to 12 percent slopes

Blackhammer

Extent: 70 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.99 to 2.17 in	5.6 to 7.3
Bt1,Bt2 -- 9 to 26 in	silt loam	moderate	3.39 to 3.72 in	5.1 to 6.5
2Bt3 -- 26 to 60 in	stratified sandy loam to gravelly clay loam	moderate	2.71 to 5.42 in	5.1 to 6.0

Southridge

Extent: 15 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: C

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.99 to 2.17 in	5.6 to 7.3
BE,Bt1 -- 9 to 29 in	silt loam	moderate	4.02 to 4.42 in	4.5 to 6.5
2Bt2 -- 29 to 60 in	clay	slow	2.76 to 3.99 in	4.5 to 6.0

Map Unit Description (MN)

Winona County, Minnesota

580D--Blackhammer-Southridge silt loams, 12 to 20 percent slopes

Blackhammer

Extent: 70 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loess over residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 4e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
Bt1,Bt2 -- 8 to 25 in	silt loam	moderate	3.46 to 3.81 in	5.1 to 6.5
2Bt3 -- 25 to 60 in	stratified gravelly loam to gravelly clay loam	moderate	2.77 to 5.54 in	5.1 to 6.0

Southridge

Extent: 15 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loess over residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

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 -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE,Bt1 -- 8 to 25 in	silt loam	moderate	3.46 to 3.81 in	4.5 to 6.5
2Bt2 -- 25 to 60 in	clay	slow	3.12 to 4.50 in	4.5 to 6.0

Map Unit Description (MN)

Winona County, Minnesota

584F--Lamoille-Dorerton silt loams, 30 to 45 percent slopes

Lamoille

Extent: 45 percent of the unit

Landform(s): hills

Slope gradient: 30 to 45 percent

Parent material: loess over residuum

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) .37

Land capability, nonirrigated 7e

Hydric soil: no

Hydrologic group: C

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A,E,BE -- 0 to 12 in	silt loam	moderate	2.60 to 2.83 in	6.1 to 7.3
2Bt1,2Bt2 -- 12 to 28 in	clay	moderately slow	1.94 to 2.58 in	5.1 to 6.0
3Bt3 -- 28 to 42 in	cobbly loam	moderately slow	0.99 to 2.27 in	5.6 to 7.3
3BC,3C -- 42 to 60 in	cobbly loam	moderately rapid	1.06 to 2.13 in	7.4 to 8.4

Dorerton

Extent: 45 percent of the unit

Landform(s): hills

Slope gradient: 30 to 45 percent

Parent material: loess over colluvium

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 7e

Hydric soil: no

Hydrologic group: B

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A,E -- 0 to 8 in	silt loam	moderate	1.57 to 1.89 in	5.1 to 7.3
Bt1 -- 8 to 12 in	loam	moderate	0.67 to 0.75 in	5.1 to 7.3
2Bt2 -- 12 to 24 in	channery loam	moderate	0.98 to 1.71 in	5.6 to 7.3
2C -- 24 to 60 in	very channery loamy sand	moderately rapid	1.07 to 3.22 in	7.4 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

586C--Nodine-Rollingstone silt loams, 4 to 12 percent slopes

Nodine

Extent: 60 percent of the unit

Landform(s): hills

Slope gradient: 4 to 12 percent

Parent material: loess over residuum

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) .37

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 7 in	silt loam	moderate	1.56 to 1.70 in	5.6 to 7.3
BE,Bt1 -- 7 to 15 in	silt loam	moderate	1.73 to 1.89 in	5.1 to 6.5
2Bt2 -- 15 to 60 in	stratified loamy sand to clay	moderate	3.59 to 7.18 in	5.1 to 6.0

Rollingstone

Extent: 25 percent of the unit

Landform(s): hills

Slope gradient: 4 to 12 percent

Parent material: loess over residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: C

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 7 in	silt loam	moderate	1.56 to 1.70 in	5.6 to 7.3
BE -- 7 to 15 in	silt loam	moderate	1.73 to 1.89 in	5.1 to 6.5
2Bt -- 15 to 60 in	clay	slow	4.04 to 6.28 in	4.5 to 5.5

Map Unit Description (MN)

Winona County, Minnesota

586D--Nodine-Rollingstone silt loams, 12 to 20 percent slopes

Nodine

Extent: 60 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loess over residuum

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) .37

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	silt loam	moderate	1.30 to 1.42 in	5.6 to 7.3
BE,Bt1 -- 6 to 16 in	silt loam	moderate	2.25 to 2.46 in	5.1 to 6.5
2Bt2 -- 16 to 60 in	stratified loamy sand to clay	moderate	3.50 to 6.99 in	5.1 to 6.0

Rollingstone

Extent: 25 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loess over residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 4e

Hydric soil: no

Hydrologic group: C

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 5 in	silt loam	moderate	1.13 to 1.23 in	5.6 to 7.3
BE -- 5 to 10 in	silt loam	moderate	1.04 to 1.13 in	5.1 to 6.5
2Bt -- 10 to 60 in	clay	slow	4.50 to 7.00 in	4.5 to 5.5

Map Unit Description (MN)

Winona County, Minnesota

587B--Palsgrove silt loam, 2 to 6 percent slopes

Palsgrove

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 2 to 6 percent

Parent material: loess over residuum

Restrictive feature(s): lithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .37

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: C

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 7 in	silt loam	moderate	1.56 to 1.70 in	5.6 to 7.3
Bt1,Bt2,Bt3 -- 7 to 37 in	silty clay loam	moderate	5.39 to 5.98 in	5.1 to 7.3
2Bt4 -- 37 to 52 in	clay	slow	1.20 to 1.50 in	5.6 to 7.3
2R -- 52 to 56 in	unweathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

587C--Palsgrove silt loam, 6 to 12 percent slopes

Palsgrove

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over residuum

Restrictive feature(s): lithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .37

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.99 to 2.17 in	5.6 to 7.3
Bt1,Bt2,Bt3 -- 9 to 41 in	silty clay loam	moderate	5.74 to 6.38 in	5.1 to 7.3
2Bt4 -- 41 to 52 in	clay	slow	0.88 to 1.10 in	5.6 to 7.3
2R -- 52 to 56 in	unweathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

587D--Palsgrove silt loam, 12 to 20 percent slopes

Palsgrove

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 12 to 20 percent

Parent material: loess over residuum

Restrictive feature(s): lithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .37

Land capability, nonirrigated 4e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.99 to 2.17 in	5.6 to 7.3
Bt1,Bt2,Bt3 -- 9 to 40 in	silty clay loam	moderate	5.60 to 6.22 in	5.1 to 7.3
2Bt4 -- 40 to 48 in	clay	slow	0.63 to 0.79 in	5.6 to 7.3
2R -- 48 to 52 in	unweathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

592E--Lamoille-Elbaville silt loams, 20 to 30 percent slopes

Lamoille

Extent: 60 percent of the unit

Landform(s): hills

Slope gradient: 20 to 30 percent

Parent material: loess over residuum

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) .37

Land capability, nonirrigated 6e

Hydric soil: no

Hydrologic group: C

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A,E,BE -- 0 to 15 in	silt loam	moderate	3.29 to 3.59 in	6.1 to 7.3
2Bt1,2Bt2 -- 15 to 28 in	clay	moderately slow	1.56 to 2.08 in	5.1 to 6.0
3Bt3 -- 28 to 44 in	cobbly loam	moderately slow	1.13 to 2.58 in	5.6 to 7.3
3BC,3C -- 44 to 60 in	cobbly loam	moderately rapid	0.94 to 1.89 in	7.4 to 8.4

Elbaville

Extent: 25 percent of the unit

Landform(s): hills

Slope gradient: 20 to 30 percent

Parent material: loess over residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 7e

Hydric soil: no

Hydrologic group: C

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A,E,BE -- 0 to 9 in	silt loam	moderate	1.81 to 2.17 in	5.6 to 7.3
Bt1 -- 9 to 22 in	silty clay loam	moderately slow	2.08 to 2.47 in	5.1 to 7.3
2Bt2 -- 22 to 36 in	silty clay	moderately slow	1.79 to 2.20 in	5.6 to 7.3
3Bt3,3C -- 36 to 60 in	flaggy loamy sand	moderately rapid	1.44 to 2.40 in	7.4 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

598B--Beavercreek silt loam, 1 to 8 percent slopes, stony

Beavercreek, stony, frequently flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 1 to 8 percent

Parent material: loamy-skeletal alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

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) .37

Land capability, nonirrigated 6s

Hydric soil: no

Hydrologic group: A

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A --	0 to 8 in silt loam	moderately rapid	1.57 to 1.73 in	6.1 to 7.3
2C --	8 to 60 in stratified very cobbly sand to very cobbly silt loam	moderately rapid	2.08 to 4.16 in	6.6 to 7.8

Poorly and very poorly drained soils

Extent: 2 percent of the unit

Landform(s): depressions

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

599E--Norden silt loam, 15 to 30 percent slopes

Norden

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 15 to 30 percent

Parent material: sandstone colluvium and/or sandstone residuum

Restrictive feature(s): paralithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 6e

Hydric soil: no

Hydrologic group: C

Potential for frost action: moderate

Representative soil profile:

		<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap --	0 to 6 in	silt loam	moderate	1.18 to 1.42 in	5.1 to 7.3
BE --	6 to 15 in	loam	moderate	1.54 to 1.99 in	5.1 to 7.3
2Bt,2BC --	15 to 42 in	loam	moderate	4.07 to 5.43 in	5.1 to 7.3
2Cr --	42 to 60 in	sandy loam	moderate	1.59 to 3.37 in	4.5 to 7.3

Map Unit Description (MN)

Winona County, Minnesota

599F--Norden silt loam, 30 to 45 percent slopes

Norden

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 30 to 45 percent

Parent material: sandstone colluvium and/or sandstone residuum

Restrictive feature(s): paralithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 7e

Hydric soil: no

Hydrologic group: C

Potential for frost action: moderate

Representative soil profile:

		<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap --	0 to 6 in	silt loam	moderate	1.18 to 1.42 in	5.1 to 7.3
BE --	6 to 15 in	loam	moderate	1.54 to 1.99 in	5.1 to 7.3
2Bt1,2BC --	15 to 29 in	loam	moderate	2.13 to 2.83 in	5.1 to 7.3
2Cr --	29 to 60 in	unweathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

604--Huntsville-Beavercreek complex, channeled

Huntsville, channeled, occasionally flooded

Extent: 60 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 2 percent

Parent material: silty 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): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .32

Land capability, nonirrigated 2w

Hydric soil: no

Hydrologic group: B

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,A2,A3,A4 --	0 to 46 in silt loam	moderate	10.13 to 11.06 in	6.1 to 7.3
A5 --	46 to 60 in silt loam	moderate	1.65 to 2.89 in	6.1 to 7.8

Beavercreek, channeled, frequently flooded

Extent: 25 percent of the unit

Landform(s): flood plains

Slope gradient: 1 to 2 percent

Parent material: loamy-skeletal alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

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) .10

Land capability, nonirrigated 5w

Hydric soil: no

Hydrologic group: A

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A --	0 to 10 in cobbly fine sandy loam	moderately rapid	1.48 to 1.97 in	6.1 to 7.3
2C --	10 to 60 in stratified very cobbly sand to very cobbly silt loam	moderately rapid	2.00 to 4.00 in	6.6 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

604--Huntsville-Beavercreek complex, channeled

Newalbin

Extent: 5 percent of the unit

Landform(s): channels

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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606--Shiloh silt loam, ponded

Shiloh, frequently flooded, ponded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 1 percent

Parent material: silty alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

Ponding: frequent

Drainage class: very poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .28

Land capability, nonirrigated 8w

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 -- 0 to 12 in	silt loam	moderate	2.60 to 2.83 in	6.1 to 7.3
A2,Bg -- 12 to 60 in	silty clay	moderately slow	4.32 to 8.65 in	6.1 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

815F--Elbaville-Seaton silt loams, 30 to 45 percent slopes

Elbaville

Extent: 60 percent of the unit

Landform(s): hills

Slope gradient: 30 to 45 percent

Parent material: loess over loamy-skeletal sediments

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 7e

Hydric soil: no

Hydrologic group: C

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A,E,BE -- 0 to 15 in	silt loam	moderate	2.99 to 3.59 in	5.6 to 7.3
Bt1 -- 15 to 26 in	silty clay loam	moderately slow	1.76 to 2.09 in	5.1 to 7.3
2Bt2 -- 26 to 35 in	silty clay	moderately slow	1.18 to 1.45 in	5.6 to 7.3
3Bt3 -- 35 to 52 in	flaggy silty clay loam	moderate	2.03 to 2.37 in	6.6 to 7.8
3C -- 52 to 60 in	flaggy loamy sand	moderately rapid	0.47 to 0.79 in	7.4 to 7.8

Seaton

Extent: 30 percent of the unit

Landform(s): hills

Slope gradient: 30 to 45 percent

Parent material: fine-silty loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 7e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE,Bt1,Bt2 -- 8 to 48 in	silt loam	moderate	8.03 to 8.83 in	4.5 to 7.3
C -- 48 to 60 in	silt loam	moderate	2.36 to 2.60 in	5.6 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

826B--Gale-Blackhammer silt loams, 2 to 6 percent slopes

Gale

Extent: 50 percent of the unit

Landform(s): hills

Slope gradient: 2 to 6 percent

Parent material: loess over sandy residuum

Restrictive feature(s): paralithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: C

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.99 to 2.17 in	4.5 to 7.3
Bt1,Bt2,BC -- 9 to 30 in	silt loam	moderate	3.76 to 4.59 in	4.5 to 6.0
2C -- 30 to 36 in	sand	rapid	0.12 to 0.47 in	4.5 to 6.0
2Cr -- 36 to 60 in	weathered bedrock	impermeable		

Blackhammer

Extent: 25 percent of the unit

Landform(s): hills

Slope gradient: 2 to 6 percent

Parent material: loess over residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 7 in	silt loam	moderate	1.56 to 1.70 in	5.6 to 7.3
Bt1,Bt2 -- 7 to 27 in	silt loam	moderate	3.94 to 4.33 in	5.1 to 6.5
2Bt3 -- 27 to 60 in	stratified sandy loam to gravelly sandy clay	moderate	2.65 to 5.29 in	5.1 to 6.0

Map Unit Description (MN)

Winona County, Minnesota

826C--Gale-Blackhammer silt loams, 6 to 12 percent slopes

Gale

Extent: 50 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over sandy residuum

Restrictive feature(s): paralithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: C

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	4.5 to 7.3
Bt1,Bt2,BC -- 8 to 32 in	silt loam	moderate	4.32 to 5.28 in	4.5 to 6.0
2C -- 32 to 38 in	sand	rapid	0.12 to 0.47 in	4.5 to 6.0
2Cr -- 38 to 60 in	weathered bedrock	impermeable		

Blackhammer

Extent: 25 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 9 in	silt loam	moderate	1.99 to 2.17 in	5.6 to 7.3
Bt1,Bt2 -- 9 to 26 in	silt loam	moderate	3.39 to 3.72 in	5.1 to 6.5
2Bt3 -- 26 to 60 in	stratified sandy loam to gravelly sandy clay	moderate	2.71 to 5.42 in	5.1 to 6.0

Map Unit Description (MN)

Winona County, Minnesota

829C--Seaton-Gale silt loams, 6 to 12 percent slopes

Seaton

Extent: 65 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: fine-silty loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: B

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE,Bt1,Bt2 -- 8 to 43 in	silt loam	moderate	7.01 to 7.71 in	4.5 to 7.3
C -- 43 to 60 in	silt loam	moderate	3.39 to 3.72 in	5.6 to 8.4

Gale

Extent: 30 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over sandy residuum

Restrictive feature(s): paralithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: C

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	4.5 to 7.3
Bt1,Bt2,BC -- 8 to 32 in	silt loam	moderate	4.32 to 5.28 in	4.5 to 6.0
2C -- 32 to 36 in	loam	moderate	0.31 to 0.71 in	4.5 to 6.0
2Cr -- 36 to 60 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

829C--Seaton-Gale silt loams, 6 to 12 percent slopes

Poorly drained soils

Extent: 2 percent of the unit

Landform(s): depressions

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

Representative soil profile:

Texture

Permeability

*Available water
capacity*

pH

Map Unit Description (MN)

Winona County, Minnesota

830D--Eleva-Seaton complex, 12 to 30 percent slopes

Eleva

<i>Extent:</i> 45 percent of the unit	<i>Soil loss tolerance (T factor):</i> 3
<i>Landform(s):</i> hills	<i>Wind erodibility group (WEG):</i> 6
<i>Slope gradient:</i> 12 to 30 percent	<i>Wind erodibility index (WEI):</i> 48
<i>Parent material:</i> loamy residuum	<i>Kw factor (surface layer)</i> .20
<i>Restrictive feature(s):</i> paralithic bedrock at 20 to 40 inches	<i>Land capability, nonirrigated</i> 6s
<i>Flooding:</i> none	<i>Hydric soil:</i> no
<i>Ponding:</i> none	<i>Hydrologic group:</i> C
<i>Drainage class:</i> somewhat excessively drained	<i>Potential for frost action:</i> moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 5 in	cobbly silt loam	moderate	0.61 to 1.02 in	5.1 to 7.3
E -- 5 to 9 in	cobbly sandy loam	moderate	0.47 to 0.79 in	5.1 to 6.0
Bt1,Bt2 -- 9 to 22 in	cobbly fine sandy loam	moderately rapid	1.56 to 1.82 in	5.1 to 6.0
BC -- 22 to 26 in	channery loamy fine sand	rapid	0.16 to 0.35 in	5.1 to 6.5
Cr -- 26 to 60 in	weathered bedrock	impermeable		

Seaton

<i>Extent:</i> 45 percent of the unit	<i>Soil loss tolerance (T factor):</i> 5
<i>Landform(s):</i> hills	<i>Wind erodibility group (WEG):</i> 5
<i>Slope gradient:</i> 12 to 30 percent	<i>Wind erodibility index (WEI):</i> 56
<i>Parent material:</i> fine-silty loess	<i>Kw factor (surface layer)</i> .43
<i>Restrictive feature(s):</i> greater than 60 inches	<i>Land capability, nonirrigated</i> 6e
<i>Flooding:</i> none	<i>Hydric soil:</i> no
<i>Ponding:</i> none	<i>Hydrologic group:</i> B
<i>Drainage class:</i> well drained	<i>Potential for frost action:</i> high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
BE,Bt1,Bt2 -- 8 to 60 in	silt loam	moderate	10.39 to 11.43 in	4.5 to 7.3

Map Unit Description (MN)

Winona County, Minnesota

831F--Spinks-Boone-Sogn complex, rocky, 15 to 60 percent slopes

Spinks, rocky

Extent: 45 percent of the unit

Landform(s): hills

Slope gradient: 15 to 40 percent

Parent material: sandstone and/or sandy colluvium

Restrictive feature(s): paralithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 2

Wind erodibility index (WEI): 134

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>
Ap -- 0 to 3 in	loamy fine sand	rapid	0.31 to 0.41 in	5.6 to 7.3
E1,E2 -- 3 to 28 in	loamy fine sand	rapid	1.49 to 2.73 in	5.1 to 6.0
E&Bt -- 28 to 43 in	stratified sand to sandy loam	moderately rapid	0.75 to 1.50 in	5.1 to 6.0
2Cr -- 43 to 47 in	weathered bedrock	impermeable		

Boone, rocky

Extent: 15 percent of the unit

Landform(s): hills

Slope gradient: 15 to 60 percent

Parent material: sandstone residuum

Restrictive feature(s): paralithic bedrock at 20 to 40 inches

Flooding: none

Ponding: none

Drainage class: excessively drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

Land capability, nonirrigated 7s

Hydric soil: no

Hydrologic group: B

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 7 in	fine sandy loam	moderately rapid	1.13 to 1.28 in	3.5 to 7.3
C1,C2 -- 7 to 10 in	fine sand	rapid	0.08 to 0.33 in	3.5 to 7.3
C3 -- 10 to 13 in	fine sand	rapid	0.06 to 0.35 in	4.5 to 6.5
Cr -- 13 to 60 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

831F--Spinks-Boone-Sogn complex, rocky, 15 to 60 percent slopes

Sogn, rocky

Extent: 15 percent of the unit

Landform(s): hills

Slope gradient: 15 to 45 percent

Parent material: residuum

Restrictive feature(s): lithic bedrock at 4 to 20 inches

Flooding: none

Ponding: none

Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 1

Wind erodibility group (WEG): 7

Wind erodibility index (WEI): 38

Kw factor (surface layer) .20

Land capability, nonirrigated 7s

Hydric soil: no

Hydrologic group: D

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A1,A2,2C -- 0 to 20 in	flaggy silt loam	moderate	3.01 to 4.02 in	6.1 to 8.4
2R -- 20 to 24 in	unweathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

832F--Lacrescent-Rock outcrop complex, 30 to 45 percent slopes

Lacrescent

Extent: 65 percent of the unit

Landform(s): hills

Slope gradient: 30 to 45 percent

Parent material: colluvium and/or loess

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): 7

Wind erodibility index (WEI): 38

Kw factor (surface layer) .10

Land capability, nonirrigated 7e

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,AB -- 0 to 13 in	cobbly loam	moderate	1.95 to 2.86 in	6.6 to 7.3
Bw,BC -- 13 to 28 in	cobbly silt loam	moderately rapid	0.90 to 1.35 in	6.6 to 7.3
C -- 28 to 60 in	extremely cobbly loam	moderately rapid	1.59 to 2.55 in	7.4 to 7.8

Rock outcrop

Extent: 25 percent of the unit

Landform(s): hills

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil:

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

832G--Lacrescent-Rock outcrop complex, 45 to 70 percent slopes

Lacrescent

Extent: 75 percent of the unit

Landform(s): hills

Slope gradient: 45 to 70 percent

Parent material: colluvium and/or loess

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 2

Wind erodibility group (WEG): 7

Wind erodibility index (WEI): 38

Kw factor (surface layer) .10

Land capability, nonirrigated 7e

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,AB -- 0 to 14 in	cobbly loam	moderate	2.13 to 3.12 in	6.6 to 7.3
Bw,BC,C -- 14 to 60 in	extremely cobbly loam	moderately rapid	2.28 to 3.65 in	7.4 to 7.8

Rock outcrop

Extent: 15 percent of the unit

Landform(s): hills

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil:

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

839--Urban land-Minneopa complex

Urban land, occasionally flooded

Extent: 60 percent of the unit

Landform(s): terraces

Slope gradient:

Parent material: variable soil material

Restrictive feature(s): greater than 60 inches

Flooding: occasional

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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Minneopa, occasionally flooded

Extent: 35 percent of the unit

Landform(s): terraces

Slope gradient: 0 to 2 percent

Parent material: loamy alluvium over sandy alluvium

Restrictive feature(s): greater than 60 inches

Flooding: occasional

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .15

Land capability, nonirrigated 3s

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 16 in	sandy loam	moderately rapid	2.10 to 2.42 in	5.6 to 7.3
A2 -- 16 to 24 in	sandy loam	moderately rapid	0.55 to 0.87 in	6.1 to 7.3
Bw,C -- 24 to 60 in	loamy sand	rapid	1.43 to 3.22 in	6.1 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

840--Urban land-Finchford complex

Urban land

Extent: 60 percent of the unit

Landform(s): terraces

Slope gradient:

Parent material: variable soil 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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Finchford

Extent: 30 percent of the unit

Landform(s): terraces

Slope gradient: 0 to 2 percent

Parent material: loamy alluvium over sandy alluvium

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) .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>
A1 -- 0 to 8 in	sandy loam	rapid	0.79 to 0.94 in	6.1 to 7.3
A2,A3,AB -- 8 to 33 in	sand	very rapid	1.01 to 1.51 in	5.1 to 6.5
Bw,C -- 33 to 60 in	gravelly sand	very rapid	0.54 to 1.07 in	5.1 to 7.3

Map Unit Description (MN)

Winona County, Minnesota

898F--Bellechester-Brodale complex, rocky, 15 to 60 percent slopes

Bellechester, rocky

Extent: 60 percent of the unit

Landform(s): hills

Slope gradient: 15 to 50 percent

Parent material: sandy colluvium and/or residuum

Restrictive feature(s): paralithic bedrock at 40 to 70 inches

Flooding: none

Ponding: none

Drainage class: excessively drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 2

Wind erodibility index (WEI): 134

Kw factor (surface layer) .10

Land capability, nonirrigated 7s

Hydric soil: no

Hydrologic group: A

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A -- 0 to 22 in	loamy fine sand	rapid	2.20 to 3.09 in	6.1 to 8.4
BA,Bw1,Bw2,C -- 22 to 54 in	sand	rapid	1.28 to 2.55 in	6.6 to 8.4
2Cr -- 54 to 60 in	weathered bedrock	impermeable		

Brodale, rocky

Extent: 30 percent of the unit

Landform(s): hills

Slope gradient: 15 to 60 percent

Parent material: loamy colluvium and/or residuum

Restrictive feature(s): lithic bedrock at 40 to 80 inches

Flooding: none

Ponding: none

Drainage class: excessively drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .15

Land capability, nonirrigated 7s

Hydric soil: no

Hydrologic group: B

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A1 -- 0 to 10 in	flaggy loam	moderate	0.59 to 1.18 in	6.6 to 8.4
A2 -- 10 to 34 in	very flaggy very fine sandy loam	moderately rapid	0.96 to 2.16 in	7.4 to 8.4
C -- 34 to 38 in	unweathered bedrock	moderately rapid	0.16 to 0.35 in	7.4 to 8.4

Map Unit Description (MN)

Winona County, Minnesota

1002--Fluvaquents, channeled

Fluvaquents, channeled, frequently flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 1 percent

Parent material: alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

Ponding: none

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 8w

Hydric soil: yes

Hydrologic group:

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
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1010--Riverwash

Riverwash, frequently flooded

Extent: 100 percent of the unit

Landform(s): flood plains

Slope gradient:

Parent material: alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

Ponding: none

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil:

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

1013--Pits, quarries

Pits, quarries

Extent: 100 percent of the unit

Landform(s): structural benches

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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1015--Psamments, fill

Psamments, fill

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 0 to 10 percent

Parent material: outwash

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: excessively drained

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: no

Hydrologic group:

Potential for frost action: none

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

Winona County, Minnesota

1016--Udorthents, loamy

Udorthents, loamy

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 0 to 10 percent

Parent material: variable soil material

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated 6s

Hydric soil: no

Hydrologic group:

Potential for frost action: moderate

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

1029--Pits, gravel

Pits, gravel

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient:

Parent material: outwash

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>

Map Unit Description (MN)

Winona County, Minnesota

1822B--Abscota variant sand, 1 to 6 percent slopes

Abscota, variant, occasionally flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 1 to 6 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): 1

Wind erodibility index (WEI): 220

Kw factor (surface layer) .02

Land capability, nonirrigated 3s

Hydric soil: no

Hydrologic group: A

Potential for frost action: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
C1,C2,C3 --	0 to 50 in sand	rapid	3.50 to 5.00 in	6.6 to 7.8
Ab,Bwb --	50 to 60 in sr to sand to silt loam	rapid	0.69 to 0.98 in	6.6 to 7.8

Poorly drained soils

Extent: 2 percent of the unit

Landform(s): depressions

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

1830--Eitzen silt loam

Eitzen, occasionally flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 1 to 2 percent

Parent material: silty alluvium

Restrictive feature(s): greater than 60 inches

Flooding: occasional

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) .37

Land capability, nonirrigated 2w

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>
C -- 0 to 28 in	silt loam	moderate	6.15 to 6.71 in	5.6 to 7.3
Ab -- 28 to 47 in	silt loam	moderate	3.78 to 4.16 in	5.1 to 6.5
Btb -- 47 to 60 in	silt loam	moderate	2.34 to 2.60 in	5.1 to 6.0

1857--Eitzen silt loam, channeled

Eitzen, channeled, occasionally flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 1 to 3 percent

Parent material: silty alluvium

Restrictive feature(s): greater than 60 inches

Flooding: occasional

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) .37

Land capability, nonirrigated 5w

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>
C -- 0 to 28 in	silt loam	moderate	6.15 to 6.71 in	5.6 to 7.3
Ab -- 28 to 47 in	silt loam	moderate	3.78 to 4.16 in	5.1 to 6.5
Btb -- 47 to 60 in	silt loam	moderate	2.34 to 2.60 in	5.1 to 6.0

Map Unit Description (MN)

Winona County, Minnesota

1860--Comfrey silt loam, channeled

Comfrey, channeled, frequently flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 2 percent

Parent material: alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

Ponding: none

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .28

Land capability, nonirrigated 6w

Hydric soil: yes

Hydrologic group: B/D

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A1 -- 0 to 12 in	silt loam	moderate	2.36 to 2.83 in	6.6 to 7.8
A2,A3 -- 12 to 60 in	clay loam	moderate	7.69 to 9.61 in	6.6 to 7.8

1861--Chaseburg silt loam, channeled

Chaseburg, channeled, frequently flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 4 percent

Parent material: silty slope alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 5

Wind erodibility index (WEI): 56

Kw factor (surface layer) .43

Land capability, nonirrigated 1

Hydric soil: no

Hydrologic group: C

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A -- 0 to 7 in	silt loam	moderate	1.56 to 1.70 in	6.1 to 7.8
C -- 7 to 60 in	stratified very fine sandy loam to silt loam	moderate	9.50 to 11.61 in	6.1 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

1893B--Beavercreek variant loam, 1 to 6 percent slopes

Beavercreek, variant, occasionally flooded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 1 to 6 percent

Parent material: loamy-skeletal alluvium

Restrictive feature(s): greater than 60 inches

Flooding: occasional

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) .24

Land capability, nonirrigated 3e

Hydric soil: no

Hydrologic group: C

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,A2 -- 0 to 19 in	loam	moderate	3.40 to 4.16 in	6.1 to 7.3
A3,2A4 -- 19 to 32 in	loam	moderate	1.95 to 2.21 in	6.1 to 7.3
2AC,2C -- 32 to 60 in	cobbly fine sandy loam	moderately rapid	1.68 to 3.35 in	6.6 to 7.8

Map Unit Description (MN)

Winona County, Minnesota

1936--Hoopeston sandy loam, bedrock substratum

Hoopeston, bedrock substratum

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 0 to 2 percent

Parent material: loamy alluvium over sandy outwash

Restrictive feature(s): paralithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .10

Land capability, nonirrigated 2s

Hydric soil: no

Hydrologic group: A/D

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A -- 0 to 13 in	sandy loam	moderately rapid	1.69 to 1.95 in	6.1 to 7.3
Bw1,Bw2 -- 13 to 30 in	sandy loam	moderately rapid	2.03 to 2.37 in	5.1 to 6.5
Bw3,C1 -- 30 to 40 in	loamy sand	rapid	0.82 to 1.02 in	5.1 to 6.5
C2 -- 40 to 45 in	stratified sand to clay	moderate	0.14 to 0.38 in	5.1 to 7.3
2Cr -- 45 to 60 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

1937--Lawler loam, bedrock substratum

Lawler, bedrock substratum

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 0 to 2 percent

Parent material: loamy sediments over sandy and gravelly outwash

Restrictive feature(s): paralithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .20

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,A -- 0 to 12 in	loam	moderate	2.36 to 2.60 in	5.6 to 7.3
BA,Bt,BC -- 12 to 35 in	loam	moderate	3.72 to 4.41 in	5.6 to 6.5
2C1,2C2 -- 35 to 52 in	loamy sand	very rapid	0.85 to 1.69 in	5.6 to 6.5
3Cr -- 52 to 56 in	weathered bedrock	impermeable		

Marshan

Extent: 2 percent of the unit

Landform(s): depressions

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

1951A--Flagler sandy loam, bedrock substratum, 0 to 2 percent slopes

Flagler, bedrock substratum

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 0 to 2 percent

Parent material: alluvium over limestone

Restrictive feature(s): lithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: somewhat excessively 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: moderate

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A -- 0 to 14 in	sandy loam	moderately rapid	1.84 to 2.83 in	6.1 to 7.3
Bw1,Bw2 -- 14 to 28 in	sandy loam	moderately rapid	1.65 to 1.93 in	5.1 to 6.5
2BC,2C1 -- 28 to 40 in	loamy sand	very rapid	0.98 to 1.34 in	5.6 to 7.3
2C2 -- 40 to 49 in	loamy sand	moderately rapid	0.52 to 1.30 in	5.6 to 7.3
3Bwb -- 49 to 51 in	loam	moderate	0.14 to 0.24 in	5.6 to 7.3
3R -- 51 to 60 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

1951B--Flagler sandy loam, bedrock substratum. 2 to 6 percent slopes

Flagler, bedrock substratum

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 2 to 6 percent

Parent material: alluvium over limestone

Restrictive feature(s): lithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: somewhat excessively 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: 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,A -- 0 to 8 in	sandy loam	moderately rapid	1.02 to 1.57 in	6.1 to 7.3
Bw1,Bw2 -- 8 to 11 in	sandy loam	moderately rapid	0.38 to 0.44 in	5.1 to 6.5
2BC,2C1,2C2 - 11 to 34 in	loamy sand	very rapid	1.83 to 2.51 in	5.6 to 7.3
-				
3Bwb -- 34 to 52 in	loam	moderate	1.09 to 1.81 in	5.6 to 7.3
3R -- 52 to 56 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

1952B--Keltner silt loam, 3 to 6 percent slopes

Keltner

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 3 to 6 percent

Parent material: loess over residuum

Restrictive feature(s): paralithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

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>
A1,A2 -- 0 to 13 in	silt loam	moderate	2.86 to 3.12 in	5.6 to 7.3
Bt1 -- 13 to 28 in	silt loam	moderate	3.29 to 3.59 in	5.6 to 7.3
Bt2 -- 28 to 35 in	silty clay loam	moderate	1.28 to 1.42 in	5.6 to 7.3
2Bt3,2BC -- 35 to 51 in	silty clay	slow	0.65 to 0.97 in	6.6 to 8.4
2Cr -- 51 to 60 in	weathered bedrock	impermeable		

Haverhill

Extent: 2 percent of the unit

Landform(s): seeps on benches

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

1952C--Keltner silt loam, 6 to 12 percent slopes

Keltner

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 12 percent

Parent material: loess over residuum

Restrictive feature(s): paralithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: moderately well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .32

Land capability, nonirrigated 3e

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,A2,A3 -- 0 to 20 in	silt loam	moderate	4.42 to 4.82 in	5.6 to 7.3
Bt1 -- 20 to 27 in	silt loam	moderate	1.56 to 1.70 in	5.6 to 7.3
Bt2 -- 27 to 35 in	silty clay loam	moderate	1.42 to 1.57 in	5.6 to 7.3
2Bt3,2BC -- 35 to 47 in	silty clay	slow	0.47 to 0.71 in	6.6 to 8.4
2Cr -- 47 to 60 in	weathered bedrock	impermeable		

Haverhill

Extent: 2 percent of the unit

Landform(s): seeps on benches

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

1953--Marshan silt loam, loamy substratum

Marshan, loamy substratum

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 0 to 2 percent

Parent material: loamy sediments over sandy and gravelly outwash

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .28

Land capability, nonirrigated 2w

Hydric soil: yes

Hydrologic group: B/D

Potential for frost action: high

Representative soil profile:

	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,AB -- 0 to 17 in	silt loam	moderate	3.39 to 4.06 in	5.6 to 7.3
Bg1,Bg2 -- 17 to 36 in	loam	moderate	3.21 to 4.16 in	5.6 to 6.5
2Cg1 -- 36 to 56 in	stratified sand to loamy sand	rapid	0.80 to 2.01 in	5.6 to 6.5
3Cg2 -- 56 to 60 in	stratified sand to clay	moderate	0.16 to 0.39 in	5.6 to 7.3

Map Unit Description (MN)

Winona County, Minnesota

1954B--Spinks loamy fine sand, bedrock substratum, 1 to 6 percent slopes

Spinks, bedrock substratum

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 1 to 6 percent

Parent material: sandstone and/or sandy colluvium

Restrictive feature(s): paralithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 2

Wind erodibility index (WEI): 134

Kw factor (surface layer) .15

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>
Ap -- 0 to 9 in	loamy fine sand	rapid	0.91 to 1.18 in	5.6 to 7.3
E1,E2 -- 9 to 30 in	loamy fine sand	rapid	1.25 to 2.30 in	5.1 to 6.0
E&Bt -- 30 to 54 in	stratified sand to sandy loam	moderately rapid	1.20 to 2.40 in	5.1 to 6.0
2Cr -- 54 to 58 in	weathered bedrock	impermeable		

Poorly drained soils

Extent: 2 percent of the unit

Landform(s): depressions

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil: yes

Hydrologic group:

Potential for frost action:

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

Winona County, Minnesota

1954C--Spinks loamy fine sand, bedrock substratum, 6 to 15 percent slopes

Spinks, bedrock substratum

Extent: 95 percent of the unit

Landform(s): hills

Slope gradient: 6 to 15 percent

Parent material: sandstone and/or sandy colluvium

Restrictive feature(s): paralithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 2

Wind erodibility index (WEI): 134

Kw factor (surface layer) .15

Land capability, nonirrigated 6e

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 7 in	loamy fine sand	rapid	0.71 to 0.92 in	5.6 to 7.3
E1,E2 --	7 to 51 in	loamy fine sand	rapid	2.65 to 4.85 in	5.1 to 6.0
E&Bt --	51 to 55 in	stratified sand to sandy loam	moderately rapid	0.20 to 0.39 in	5.1 to 6.0
2Cr --	55 to 59 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

1955A--Waukee loam, bedrock substratum, 0 to 2 percent slopes

Waukee, bedrock substratum

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 0 to 2 percent

Parent material: loamy alluvium over sandy outwash

Restrictive feature(s): paralithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .24

Land capability, nonirrigated 2s

Hydric soil: no

Hydrologic group: B

Potential for frost action: low

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A -- 0 to 12 in	loam	moderate	2.36 to 2.60 in	5.6 to 7.3
Bw1,Bw2 -- 12 to 24 in	loam	moderate	1.83 to 2.32 in	5.1 to 6.0
2BC -- 24 to 30 in	gravelly sandy loam	moderately rapid	0.71 to 1.06 in	5.1 to 6.5
2C -- 30 to 42 in	loamy sand	very rapid	0.24 to 0.73 in	5.6 to 6.5
3Btb -- 42 to 48 in	clay loam	moderate	0.41 to 0.71 in	5.6 to 7.3
3Cr -- 48 to 52 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

1955B--Waukee loam, bedrock substratum, 2 to 6 percent slopes

Waukee, bedrock substratum

Extent: 95 percent of the unit

Landform(s): terraces

Slope gradient: 2 to 6 percent

Parent material: loamy alluvium over sandy outwash

Restrictive feature(s): paralithic bedrock at 40 to 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .24

Land capability, nonirrigated 2e

Hydric soil: no

Hydrologic group: B

Potential for frost action: low

Representative soil profile:

		<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap,A --	0 to 12 in	loam	moderate	2.36 to 2.60 in	5.6 to 7.3
Bw1,Bw2 --	12 to 24 in	loam	moderate	1.83 to 2.32 in	5.1 to 6.0
2BC --	24 to 30 in	gravelly sandy loam	moderately rapid	0.71 to 1.06 in	5.1 to 6.5
2C --	30 to 42 in	loamy sand	very rapid	0.24 to 0.73 in	5.6 to 6.5
3Btb --	42 to 48 in	clay loam	moderate	0.41 to 0.71 in	5.6 to 7.3
3Cr --	48 to 52 in	weathered bedrock	impermeable		

Map Unit Description (MN)

Winona County, Minnesota

1960B--Haverhill variant, clay loam, 1 to 8 percent slopes

Haverhill, variant

Extent: 95 percent of the unit

Landform(s): structural benches

Slope gradient: 1 to 8 percent

Parent material: shale over clayey residuum

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: poorly drained

Soil loss tolerance (T factor): 5

Wind erodibility group (WEG): 6

Wind erodibility index (WEI): 48

Kw factor (surface layer) .24

Land capability, nonirrigated 4w

Hydric soil: yes

Hydrologic group: C/D

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
Ap -- 0 to 8 in	clay loam	moderate	1.42 to 1.57 in	6.1 to 7.3
2Bt1,2Bt2 -- 8 to 18 in	clay	slow	0.82 to 1.23 in	5.6 to 7.3
2C1,2C2 -- 18 to 60 in	clay	slow	2.50 to 4.17 in	7.4 to 8.4

1990--Otter mucky silt loam, very wet

Otter, very wet, frequently flooded, ponded

Extent: 95 percent of the unit

Landform(s): flood plains

Slope gradient: 0 to 1 percent

Parent material: silty alluvium

Restrictive feature(s): greater than 60 inches

Flooding: frequent

Ponding: frequent

Drainage class: poorly 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 7w

Hydric soil: yes

Hydrologic group: B/D

Potential for frost action: high

<i>Representative soil profile:</i>	<i>Texture</i>	<i>Permeability</i>	<i>Available water capacity</i>	<i>pH</i>
A1,A2 -- 0 to 16 in	mucky silt loam	moderate	3.55 to 3.87 in	6.1 to 7.8
A3 -- 16 to 30 in	silt loam	moderate	2.34 to 3.03 in	6.1 to 7.8
Cg1,Cg2,Cg3 - 30 to 60 in	silt loam	moderate	4.49 to 5.98 in	6.1 to 8.4

Map Unit Description (MN)

Winona 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:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil:

Hydrologic group:

Potential for frost action:

Representative soil profile:

Texture

Permeability

*Available water
capacity*

pH

W--Water

Water

Extent: 100 percent of the unit

Landform(s):

Slope gradient:

Parent material:

Restrictive feature(s): greater than 60 inches

Flooding:

Ponding:

Drainage class:

Soil loss tolerance (T factor):

Wind erodibility group (WEG):

Wind erodibility index (WEI):

Kw factor (surface layer)

Land capability, nonirrigated

Hydric soil:

Hydrologic group:

Potential for frost action:

Representative soil profile:

Texture

Permeability

*Available water
capacity*

pH

This report provides a semitabular listing of some soil and site properties and interpretations that are valuable in communicating the concept of a map unit. The report also provides easy access to the commonly used conservation planning information in one place. The major soil components in each map unit are displayed. Minor components may be displayed if they are included in the database and are selected at the time the report is generated.