SOIL SERIES DESCRIPTIONS

BLOUNT SERIES

The Blount series consists of very deep, somewhat poorly drained soils that are moderately deep or deep to dense till.

GEOGRAPHIC SETTING

Blount soils are on wave-worked till plains, till plains, and near-shore zones (relict) of Wisconsinan age. Slope gradients are commonly 1 to 3 percent but range from 0 to 6 percent. The soils formed in silty clay loam or clay loam till. Some areas have a mantle of loess or other silty material as much as 46 cm (18 inches) thick. Mean annual precipitation ranges from 737 to 1067 mm (29 to 42 inches). Mean annual temperature ranges from 7.2 to 12.8 degrees C (45 to 55 degrees F). Frost-free period is 130 to 182 days. Elevation is 183 to 457 meters (600 to 1500 feet) above mean sea level.

DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY

Somewhat poorly drained. Depth to the top of an intermittent perched high water table ranges from 15 to 61 cm (0.5 to 2.0 feet) in normal years. Potential for surface runoff is low to high. Saturated hydraulic conductivity is moderately low. Permeability is slow.

USE AND VEGETATION

Almost all areas of Blount soils are cultivated. Corn, soybeans, small grain, and meadow are the principal crops. Native vegetation is hardwood forest.

TYPICAL PEDON

Blount silt loam, on a northwest-facing, concave, 1 percent slope in a cultivated field at an elevation of 264 meters (867 feet) above mean sea level. (Colors are for moist soil unless otherwise stated.)

Ap--0 to 18 cm (7 inches); dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; common roots; 3 percent gravel; slightly acid; abrupt smooth boundary. [13 to 25 cm (5 to 10 inches) thick]

Btg--18 to 30 cm (7 to 12 inches); grayish brown (10YR 5/2) silt clay; moderate medium subangular blocky structure; firm; common roots; common distinct dark grayish brown (10YR 4/2) clay films on surfaces of peds; common distinct light gray (10YR 7/1) (dry) clay depletions on vertical surfaces of peds; many distinct yellowish brown (10YR 5/4) masses of oxidized iron with clear boundaries in the matrix; 3 percent gravel; strongly acid; clear wavy boundary.

Bt--30 to 58 cm (12 to 23 inches); dark yellowish brown (10YR 4/4) clay; weak fine and medium prismatic structure parting to moderate medium subangular blocky; firm; few roots; many distinct grayish
brown (10YR 5/2) clay films on faces of peds; many distinct dark grayish brown (10YR 4/2) iron depletions with clear boundaries in the matrix; common prominent gray (10YR 5/1) iron depletions with clear boundaries and distinct yellowish brown (10YR 5/6) masses of oxidized iron with diffuse boundaries in the matrix; 4 percent gravel; slightly acid; clear wavy boundary. [Combined thickness of the Btg and/or Bt horizons is 30 to 89 cm (12 to 35 inches).]

**BCtg**--58 to 76 cm (23 to 30 inches); grayish brown (10YR 5/2) silty clay loam; weak medium subangular blocky structure; firm; few faint dark grayish brown (10YR 4/2) clay films on vertical surfaces of peds; few distinct light gray (10YR 7/2) calcium carbonate coatings on vertical surfaces of peds; many distinct dark yellowish brown (10YR 4/4) and common prominent yellowish brown (10YR 5/6) masses of oxidized iron with clear boundaries in the matrix; 8 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary. [0 to 46 cm (18 inches) thick]

**CBd**--76 to 107 cm (30 to 42 inches); brown (10YR 4/3) clay loam; weak medium platy structure; very firm; common distinct white (10YR 8/1) calcium carbonate coatings on surfaces; common faint grayish brown (10YR 5/2) iron depletions with diffuse boundaries in the matrix; 10 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary. [0 to 41 cm (16 inches) thick]

**Cd1**--107 to 137 cm (42 to 54 inches); brown (10YR 5/3) clay loam; massive; very firm; common distinct light gray (10YR 7/1) calcium carbonate coatings on surfaces; few distinct dark gray (10YR 4/1) iron depletions with diffuse boundaries in the matrix; 10 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.

**Cd2**--137 to 203 cm (54 to 80 inches); brown (10YR 4/3) clay loam; massive; very firm; 10 percent gravel; strongly effervescent; moderately

**RANGE IN CHARACTERISTICS**

Depth to the base of the argilllic horizon: 51 to 114 cm (20 to 45 inches).
Depth to carbonates: 48 to 102 cm (19 to 40 inches).
Depth to densic contact: greater than 76 cm (30 inches).
Particle-size control section: averages 35 to 45 percent clay.
Rock fragments: predominantly igneous, limestone, and dolomite gravel.
The Houghton series consists of very deep, very poorly drained soils formed in herbaceous organic materials more than 130 cm (51 inches) thick in depressions on lake plains, outwash plains, ground moraines, end moraines, and floodplains.

**GEOGRAPHIC SETTING**

Houghton soils are in closed depressions on lake plains, outwash plains, ground moraines, end moraines, and flood plains. Slope gradients are less than 2 percent. Houghton soils formed in herbaceous organic materials more than 130 cm (51 inches) thick. Mean annual precipitation ranges from 762 to 1067 mm (30 to 42 inches). Mean annual temperature ranges from 8.9 to 11.7 degrees C (48 to 53 degrees F).

**DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY**

Very poorly drained. Depth to the seasonal high water table ranges from 61 cm (2 feet) above the surface in ponded phases to 30 cm (1 foot) below the surface between September and June in normal years. Potential for surface runoff is very slow or ponded. Saturated hydraulic conductivity is moderately high or high. Permeability is moderately slow to moderately rapid.

**USE AND VEGETATION**

A considerable area of these soils is used for cropland or pasture. Common crops are onions, lettuce, potatoes, celery, radishes, carrots, mint, and some corn. Native vegetation is primarily of marsh grasses, sedges, reeds, buttonbush, and cattails, with some water-tolerant trees near the margins of the bogs.

**TYPICAL PEDON**

Houghton muck, on a level area in a cultivated field. (Colors are for moist soils unless otherwise stated.)

*Oa*1--0 to 23 cm (9 inches); black (N 2.5/) broken face and rubbed muck (sapric material); about 5 percent fiber, a trace rubbed; weak coarse subangular blocky structure; neutral [pH 7.0 in KCl]; abrupt smooth boundary.

*Oa*2--23 to 33 cm (9 to 13 inches); black (N 2.5/) broken face, very dark brown (7.5YR 2/2) rubbed muck (sapric material); about 5 percent fiber, a trace rubbed; weak medium granular structure; neutral [pH 7.0 in KCl]; abrupt smooth boundary.

*Oa*3--33 to 61 cm (13 to 24 inches); dark reddish brown (5YR 3/2) broken face, dark reddish brown (5YR 2/2) rubbed muck (sapric material); about 15 percent fiber, less than 5 percent rubbed; massive, breaking to thick platy fragments; neutral [pH 7.0 KCl]; abrupt smooth boundary.

*Oa*4--61 to 81 cm (24 to 32 inches); black (5YR 2/1) broken face and rubbed muck (sapric material); about 10 percent fiber, a trace...
rubbed; massive; about 1 percent woody fragments; neutral [pH 7.0 in KCl]; clear wavy boundary.

**Oa5**--81 to 122 cm (32 to 48 inches); dark reddish brown (5YR 2/2) broken face, black (5YR 2/1) rubbed muck (Sapric material); about 20 percent fiber, less than 10 percent rubbed; massive, breaking to thick platy fragments; neutral [pH 7.0 in KCl]; abrupt smooth boundary.

**Oa6**--122 to 203 cm (48 to 80 inches); dark reddish brown (5YR 2/2) broken face and rubbed muck (sapric material); about 10 percent fiber, less than 10 percent rubbed; massive; slightly sticky; about 15 percent mineral soil; neutral [pH 7.0 in KCl].

**RANGE IN CHARACTERISTICS**

Thickness of the organic material: more than 130 cm (51 inches).
Organic fibers: derived primarily from herbaceous plants, but some layers contain as much as 30 percent woody material.
Woody fragment content: averages less than 15 percent by volume in the control section.
Reaction: very strongly acid to slightly alkaline throughout.
METAMORA SERIES

The Metamora series consists of very deep, somewhat poorly drained soils formed in loamy glaciofluvial or lacustrine deposits and the underlying loamy till on lake plains, near-shore zones (relict), till plains, and low moraines.

GEOGRAPHIC SETTING

Metamora soils are on lake plains, near-shore zones (relict), till plains, and low moraines. Slope ranges from 0 to 6 percent. The Metamora soils formed in loamy glaciofluvial or lacustrine deposits and the underlying loamy till. Mean annual precipitation ranges from 711 to 1016 mm (28 to 40 inches). Mean annual temperature ranges from 6.7 to 9.6 degrees C (44 to 49 degrees F).

DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY

Somewhat poorly drained. Depth to the top of an apparent seasonal high water table ranges from 15 to 46 cm (6 to 18 inches) between March and May and in October and November in normal years. Potential for surface runoff is very low to medium. Saturated hydraulic conductivity is high in the A and Bg horizons and moderately high in the 2Bt and 2C horizons. Permeability is moderately rapid in the A and Bg horizons and moderate or moderately slow in the 2Bt and 2C horizons.

USE AND VEGETATION

The greater part is under cultivation to corn, soybeans, small grain, or forest. A few areas are used for vegetable production. A smaller part is in permanent pasture and hay. Native vegetation is forests of American elm, white ash, hickory, American basswood, and red maple.

TYPICAL PEDON

Metamora sandy loam, on a southwest-facing, 2 percent slope in a cultivated field. (Colors are for moist soil unless otherwise stated.)

Ap--0 to 23 cm (9 inches); very dark grayish brown (10YR 3/2) sandy loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary. [15 to 23 cm (6 to 9 inches) thick]

Eg--23 to 33 cm (9 to 13 inches); light brownish gray (10YR 6/2) sandy loam; weak coarse granular structure; friable; many fine roots; common medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; about 3 percent gravel; slightly acid; clear wavy boundary. [0 to 15 cm (6 inches) thick]

Bg--33 to 71 cm (13 to 28 inches); grayish brown (10YR 5/2) sandy loam; weak medium subangular blocky structure; friable; common fine roots; many medium prominent brownish yellow (10YR 6/8) masses of oxidized iron (50 percent of the color); about 3 percent gravel; neutral; clear wavy boundary. [8 to 61 cm (3 to 24 inches) thick]
**2Btg**--71 to 91 cm (28 to 36 inches); grayish brown (10YR 5/2) clay loam; moderate medium subangular blocky structure; firm; few fine roots; clay films on faces of peds; many medium prominent yellowish brown (10YR 5/8) masses of oxidized iron; about 5 percent gravel; neutral; abrupt wavy boundary. [15 to 41 cm (6 to 16 inches) thick]

**2Cc**--91 to 152 cm (36 to 60 inches); grayish brown (10YR 5/2) loam; massive; firm; common medium prominent yellowish brown (10YR 5/8) masses of oxidized iron; about 5 percent gravel; slightly effervescent; slightly alkaline.

**RANGE IN CHARACTERISTICS**

Thickness of the solum: 46 to 102 cm (18 to 40 inches).
Depth to carbonates: 46 to 102 cm (18 to 40 inches).
Rock fragment content: 0 to 10 percent gravel throughout; 0 to 3 percent cobbles in the 2Bt and 2C horizons.
Reaction: strongly acid to neutral in the upper part of the solum and slightly acid or neutral in the lower part.
MORLEY SERIES

The Morley series consists of very deep, moderately well drained soils that are moderately deep to dense till.

GEOGRAPHIC SETTING

Morley soils are on till plains and moraines of Wisconsinan age. Slope ranges from 1 to 18 percent. Morley soils formed in as much as 46 cm (18 inches) of loess and in the underlying clay loam or silty clay loam till. Mean annual precipitation ranges from 762 to 1016 mm (30 to 40 inches). Mean annual temperature ranges from 6.7 to 11.1 degrees C (44 to 52 degrees F). Frost-free period is 130 to 180 days. Elevation is 177 to 466 meters (580 to 1,530 feet) above mean sea level.

DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY

Moderately well drained. Depth to the top of an intermittent perched high water table ranges from 61 to 107 cm (2 to 3.5 feet) between January and April in normal years. Potential for surface runoff is low to very high. Saturated hydraulic conductivity is moderately high or moderately low in the solum and low in the substratum. Permeability is moderate to slow in the solum and very slow in the substratum.

USE AND VEGETATION

Most areas are used to grow corn, soybeans, and small grain. Some areas are used for hay and pasture, and a few areas are used for woodland. Native vegetation is mixed deciduous hardwood forest.

TYPICAL PEDON

Morley silty clay loam, on a convex, 9 percent slope in a cultivated field at an elevation of 259 meters (850 feet) above mean sea level. (Colors are for moist soil unless otherwise stated.)

Ap--0 to 23 cm (0 to 9 inches); 80 percent dark grayish brown (10YR 4/2) and 20 percent dark yellowish brown (10YR 4/4) silty clay loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common fine roots; 1 percent gravel; moderately acid; abrupt smooth boundary. [8 to 30 cm (3 to 12 inches) thick]

Bt1--23 to 43 cm (9 to 17 inches); dark yellowish brown (10YR 4/4) clay; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; common fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; few distinct grayish brown (10YR 5/2) silt coatings on faces of peds; 1 percent gravel; very strongly acid; clear smooth boundary.

Bt2--43 to 51 cm (17 to 20 inches); yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; firm; few fine
roots; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 5 percent gravel; strongly effervescent; slightly alkaline; clear wavy boundary. [Combined thickness of the Bt horizon is 30 to 76 cm (12 to 30 inches).]

**Cd1**--74 to 91 cm (29 to 36 inches); yellowish brown (10YR 5/4) clay loam; weak very coarse prismatic structure parting to weak very thick platy; very firm; very few distinct dark grayish brown (10YR 4/2) clay films and common distinct light gray (10YR 7/2) carbonate coatings on vertical faces of cracks; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 9 percent gravel; strongly effervescent; moderately alkaline. [13 to 38 cm (5 to 15 inches) thick].

**Cd2**--91 to 203 cm (36 to 80 inches); yellowish brown (10YR 5/4) clay loam; weak very coarse prismatic structure; very firm; few distinct light gray (10YR 7/2) carbonate coatings on vertical faces of cracks; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 9 percent gravel; strongly effervescent; moderately alkaline.

**RANGE IN CHARACTERISTICS**

Depth to the base of the argillie horizon: 51 to 102 cm (20 to 40 inches).
Depth to carbonates: 51 to 102 cm (20 to 40 inches).
Depth to densic contact: 51 to 102 cm (20 to 40 inches).
Thickness of the loess: 0 to 46 cm (0 to 18 inches).
Particle-size control section: averages 35 to 50 percent clay, 15 to 25 percent sand, and 1 to 5 percent rock fragments.

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**The above information was condensed from the Official Soil Series Descriptions available from the USDA Natural Resources Conservation Service:**