



United States  
Department of  
Agriculture

In cooperation with  
Illinois Agricultural Experiment Station

Natural  
Resources  
Conservation  
Service

# Soil Survey of St. Clair County, Illinois

## Part I



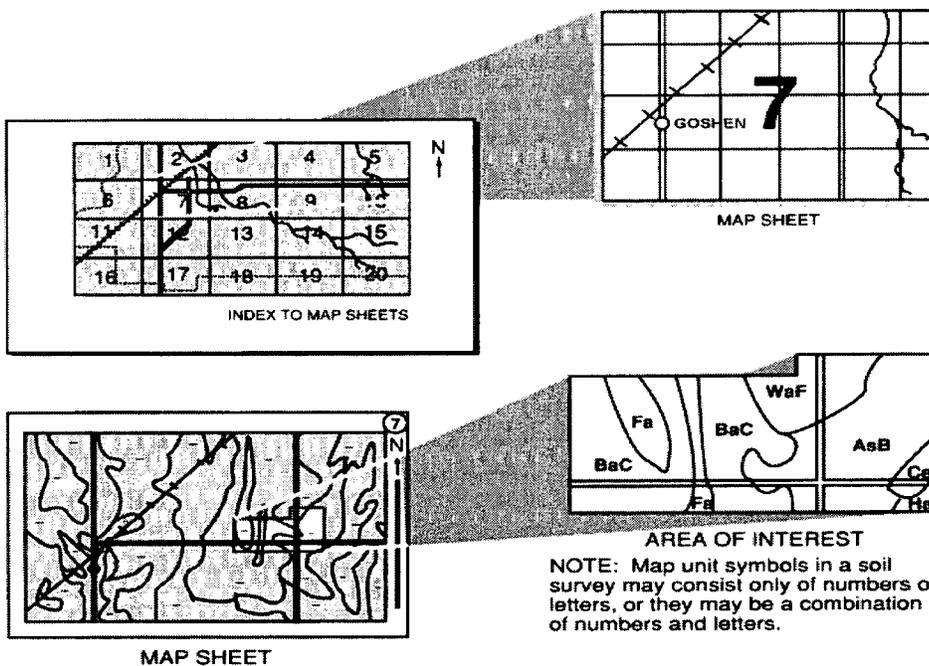


# How To Use This Soil Survey

This survey is divided into three parts. Part I includes general information about the survey area, descriptions of the detailed soil map units and soil series in the area, and a description of how the soils formed. Part II describes the use and management of the soils and the major soil properties. This part may be updated as further information about soil management becomes available. Part III includes the maps.

## Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.



To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See Contents for sections of this publication that may address your specific needs.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

---

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1995. Soil names and descriptions were approved in 1997. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1995. This survey was made cooperatively by the Natural Resources Conservation Service and the Illinois Agricultural Experiment Station. It is part of the technical assistance furnished to the St. Clair County Soil and Water Conservation District. Funding was provided by the St. Clair County Board and the Illinois Department of Agriculture.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

**Cover: A series of terraces conserve the soil on a hillside in St. Clair County.**

# Contents

---

## Part I

How to use this Soil Survey .....	i
Index to Series .....	iv
Index to Map Units .....	v
Numerical List of Map Units .....	ix
Summary of Tables .....	xiii
<b>Foreword</b> .....	xv
General Nature of the Survey Area .....	1
Physiography, Relief, and Drainage .....	1
Natural Resources .....	2
Transportation Facilities .....	2
Industry .....	2
Agriculture .....	2
Climate .....	2
How This Survey Was Made .....	2
<b>Formation and Classification of the Soils</b> .....	5
Formation of the Soils .....	5
Parent Material .....	5
Climate .....	6
Living Organisms .....	6
Relief .....	7
Time .....	7
Classification of the Soils .....	7
<b>Soil Series and Detailed Soil Map Units</b> .....	9
<b>References</b> .....	147
<b>Glossary</b> .....	149
<b>Tables</b> .....	159

## Part II

How to use this Soil Survey .....	i
Index to Series .....	iv
Index to Map Units .....	v
Numerical List of Map Units .....	ix
Summary of Tables .....	xiii

<b>Foreword</b> .....	xv
<b>Agronomy</b> .....	3
Cropland Limitations and Hazards .....	4
Crop Yield Estimates .....	5
Pasture and Hayland Interpretations .....	6
Pasture Limitations and Hazards .....	6
Land Capability Classification .....	7
Prime Farmland .....	7
Erosion Factors .....	8
Hydric Soils .....	9
Windbreaks and Environmental Plantings .....	10
<b>Forestland</b> .....	11
Forestland Management and Productivity .....	11
Woodland Ordination System .....	11
<b>Recreation</b> .....	13
<b>Wildlife Habitat</b> .....	15
Elements of Wildlife Habitat .....	15
Kinds of Wildlife Habitat .....	16
<b>Engineering</b> .....	17
Building Site Development .....	17
Sanitary Facilities .....	18
Waste Management .....	20
Construction Materials .....	20
Water Management .....	21
<b>Soil Properties</b> .....	23
Engineering Index Properties .....	23
Physical and Chemical Properties .....	24
Water Features .....	26
Soil Features .....	27
<b>References</b> .....	29
<b>Glossary</b> .....	31
<b>Tables</b> .....	41

## Part III

### Soil Maps

Issued 2000

# Index to Series

---

Alvin Series.....	10	Littleton Series.....	77
Atlas Series .....	11	Marine Series .....	79
Aviston Series.....	12	Mascoutah Series.....	81
Bartelso Series .....	14	McFain Series.....	82
Beaucoup Series .....	16	Meadowbank Series .....	84
Bethalto Series .....	18	Menfro Series .....	85
Biddle Series .....	19	Millstadt Series .....	91
Birds Series .....	21	Morristown Series.....	93
Blair Series .....	22	Nameoki Series .....	94
Blake Series .....	25	Negley Series .....	96
Bold Series .....	26	Oconee Series.....	98
Bunkum Series .....	26	Okaw Series .....	101
Caseyville Series.....	29	Orion Series.....	103
Coffeen Series.....	31	Otter Series .....	106
Colp Series.....	32	Petrolia Series .....	107
Coulterville Series.....	35	Piasa Series .....	109
Cowden Series .....	37	Pierron Series.....	111
Darmstadt Series.....	39	Raccoon Series.....	113
Darwin Series .....	41	Redbud Series.....	115
Downsouth Series .....	43	Ridgway Series.....	118
Drury Series.....	45	Rocher Series.....	119
Dupo Series.....	47	Ruma Series.....	120
Edwardsville Series .....	48	Shaffton Series .....	123
Floraville Series .....	51	Swanwick Series .....	124
Fosterburg Series .....	53	Sylvan Series.....	126
Fults Series.....	55	Tice Series.....	128
Geff Series.....	56	Ursa Series.....	130
Gorham Series .....	58	Virden Series .....	131
Grantfork Series .....	60	Wabash Series .....	133
Haynie Series .....	61	Wagner Series.....	134
Herrick Series .....	63	Wakeland Series .....	136
Hickory Series .....	65	Wakenda Series .....	137
Homen Series.....	67	Wilbur Series .....	139
Hurst Series.....	69	Winfield Series.....	140
Lakaskia Series .....	72	Worthen Series.....	143
Landes Series.....	74	Zipp Series .....	145
Lenzburg Series .....	75		

# Index to Map Units

---

8131B—Alvin fine sandy loam, 2 to 5 percent slopes, occasionally flooded .....	11
438B—Aviston silt loam, 2 to 5 percent slopes .....	13
438C2—Aviston silt loam, 5 to 10 percent slopes, eroded .....	14
466A—Bartelso silt loam, 0 to 2 percent slopes .....	15
3070L—Beaucoup silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration .....	17
8070A—Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded .....	17
90A—Bethalto silt loam, 0 to 2 percent slopes .....	19
3334L—Birds silt loam, 0 to 2 percent slopes, frequently flooded, long duration .....	22
5C2—Blair silt loam, 5 to 10 percent slopes, eroded .....	23
5C3—Blair silt loam, 5 to 10 percent slopes, severely eroded .....	24
5D3—Blair silt loam, 10 to 18 percent slopes, severely eroded .....	24
3391A—Blake silty clay loam, 0 to 2 percent slopes, frequently flooded .....	25
515C2—Bunkum silt loam, 5 to 10 percent slopes, eroded .....	27
515C3—Bunkum silty clay loam, 5 to 10 percent slopes, severely eroded .....	28
515D3—Bunkum silty clay loam, 10 to 18 percent slopes, severely eroded .....	28
897D3—Bunkum-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded .....	28
884C3—Bunkum-Coulterville silty clay loams, 5 to 10 percent slopes, severely eroded .....	29
267A—Caseyville silt loam, 0 to 2 percent slopes .....	30
267B—Caseyville silt loam, 2 to 5 percent slopes .....	31
3428A—Coffeen silt loam, 0 to 2 percent slopes, frequently flooded .....	32
8122C—Colp silty clay loam, 5 to 10 percent slopes, severely eroded, occasionally flooded .....	34
8122D—Colp silty clay loam, 10 to 18 percent slopes, severely eroded, occasionally flooded .....	34
880B2—Coulterville-Darmstadt silt loams, 2 to 5 percent slopes, eroded .....	36
878C3—Coulterville-Grantfork silty clay loams, 5 to 10 percent slopes, severely eroded .....	37
112A—Cowden silt loam, 0 to 2 percent slopes .....	39
993A—Cowden-Piasa silt loams, 0 to 2 percent slopes .....	39
2071L—Darwin-Urban land complex, 0 to 2 percent slopes, occasionally flooded, long duration .....	42
8071L—Darwin silty clay, 0 to 2 percent slopes, occasionally flooded, long duration .....	42
1071A—Darwin silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded .....	43
283B—Downsouth silt loam, 2 to 5 percent slopes .....	44
283C2—Downsouth silt loam, 5 to 10 percent slopes, eroded .....	45
75B—Drury silt loam, 2 to 5 percent slopes .....	46
536—Dumps .....	46
866—Dumps, slurry .....	47
3180A—Dupo silt loam, 0 to 2 percent slopes, frequently flooded .....	48
8180A—Dupo silt loam, 0 to 2 percent slopes, occasionally flooded .....	48
384A—Edwardsville silt loam, 0 to 2 percent slopes .....	50
384B—Edwardsville silt loam, 2 to 5 percent slopes .....	50
2384B—Edwardsville-Urban land complex, 1 to 4 percent slopes .....	50
433A—Floraville silt loam, 0 to 2 percent slopes .....	52
8646A—Fluvaquents, loamy, 0 to 2 percent slopes, occasionally flooded .....	53
3847L—Fluvaquents-Orthents complex, frequently flooded, long duration .....	53

8591A—Fults silty clay, 0 to 2 percent slopes, occasionally flooded .....	56
8432A—Geff silt loam, 0 to 2 percent slopes, occasionally flooded .....	58
8162A—Gorham silty clay loam, 0 to 2 percent slopes, occasionally flooded .....	60
3394A—Haynie silt loam, 0 to 2 percent slopes, frequently flooded .....	62
3394B—Haynie silt loam, 2 to 5 percent slopes, frequently flooded .....	62
8394A—Haynie silt loam, 0 to 2 percent slopes, occasionally flooded .....	63
46A—Herrick silt loam, 0 to 2 percent slopes.....	64
894A—Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes .....	65
8F2—Hickory silt loam, 18 to 35 percent slopes, eroded .....	67
582B—Homen silt loam, 2 to 5 percent slopes .....	68
582B2—Homen silt loam, 2 to 5 percent slopes, eroded .....	69
582C2—Homen silt loam, 5 to 10 percent slopes, eroded .....	69
8338A—Hurst silt loam, 0 to 2 percent slopes, occasionally flooded .....	71
8338B—Hurst silt loam, 2 to 5 percent slopes, eroded, occasionally flooded .....	71
8338C—Hurst silty clay loam, 5 to 10 percent slopes, eroded, occasionally flooded .....	72
8489A—Hurst silt loam, sandy substratum, 0 to 2 percent slopes, occasionally flooded.....	72
468A—Lakaskia silt loam, 0 to 2 percent slopes.....	74
8304B—Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded .....	75
871B—Lenzburg gravelly silty clay loam, 1 to 7 percent slopes, stony.....	76
871D—Lenzburg gravelly silty clay loam, 7 to 18 percent slopes, stony.....	76
871G—Lenzburg gravelly silty clay loam, 18 to 70 percent slopes, stony .....	77
825B—Lenzburg silty clay loam, acid substratum, 1 to 7 percent slopes .....	77
81A—Littleton silt loam, 0 to 2 percent slopes .....	78
517A—Marine silt loam, 0 to 2 percent slopes .....	80
517B—Marine silt loam, 2 to 5 percent slopes .....	80
385A—Mascoutah silty clay loam, 0 to 2 percent slopes .....	82
1248A—McFain silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded .....	83
8436B—Meadowbank silt loam, 2 to 5 percent slopes, occasionally flooded .....	85
79B—Menfro silt loam, 2 to 5 percent slopes.....	86
79C2—Menfro silt loam, 5 to 10 percent slopes, eroded .....	86
79C3—Menfro silt clay loam, 5 to 10 percent slopes, severely eroded.....	87
79D2—Menfro silt loam, 10 to 18 percent slopes, eroded .....	87
79D3—Menfro silty clay loam, 10 to 18 percent slopes, severely eroded .....	88
79F—Menfro silt loam, 18 to 35 percent slopes .....	88
79F3—Menfro silty clay loam, 18 to 35 percent slopes, severely eroded .....	88
79G—Menfro silt loam, 35 to 60 percent slopes .....	89
5079C—Menfro silt loam, karst, 5 to 12 percent slopes, severely eroded .....	89
5079D—Menfro silt loam, karst, 12 to 25 percent slopes, severely eroded .....	89
5079G—Menfro silt loam, karst, 25 to 60 percent slopes.....	90
2079D—Menfro-Urban land complex, 8 to 15 percent slopes.....	90
2079E—Menfro-Urban land complex, 15 to 25 percent slopes.....	90
423A—Millstadt silt loam, 0 to 2 percent slopes.....	92

---

423B—Millstadt silt loam, 2 to 5 percent slopes .....	93
821G—Morristown very stony silty clay loam, 35 to 70 percent slopes .....	94
8592A—Nameoki silty clay, 0 to 2 percent slopes, occasionally flooded .....	96
585F2—Negley loam, 18 to 35 percent slopes, eroded .....	98
113A—Oconee silt loam, 0 to 2 percent slopes .....	100
113B—Oconee silt loam, 2 to 5 percent slopes .....	100
882A—Oconee-Darmstadt-Coulterville silt loams, 0 to 2 percent slopes .....	100
882B—Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes .....	101
8084A—Okaw silt loam, 0 to 2 percent slopes, occasionally flooded .....	102
3415A—Orion silt loam, 0 to 2 percent slopes, frequently flooded .....	104
802B—Orthents, loamy, undulating .....	104
802D—Orthents, loamy, steep .....	105
826D—Orthents, silty, acid substratum, rolling .....	105
801B—Orthents, silty, undulating .....	105
801D—Orthents, silty, steep .....	106
3076A—Otter silt loam, 0 to 2 percent slopes, frequently flooded .....	107
1288A—Petrolia silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded .....	108
3288L—Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration .....	109
31A—Pierron silt loam, 0 to 2 percent slopes .....	112
864—Pits, quarries .....	112
865—Pits, gravel .....	113
109A—Raccoon silt loam, 0 to 2 percent slopes .....	114
8109A—Raccoon silt loam, 0 to 2 percent slopes, occasionally flooded .....	114
437B—Redbud silt loam, 2 to 5 percent slopes .....	116
437C2—Redbud silt loam, 5 to 10 percent slopes, eroded .....	117
906C3—Redbud-Hurst silty clay loams, 5 to 10 percent slopes, severely eroded .....	117
907D3—Redbud-Colp silty clay loams, 10 to 18 percent slopes, severely eroded .....	118
8434B—Ridgway silt loam, 2 to 5 percent slopes, occasionally flooded .....	119
3038B—Rocher loam, 2 to 5 percent slopes, frequently flooded .....	120
491B2—Ruma silty clay loam, 2 to 5 percent slopes, eroded .....	121
491C3—Ruma silty clay loam, 5 to 10 percent slopes, severely eroded .....	122
491D3—Ruma silty clay loam, 10 to 18 percent slopes, severely eroded .....	122
886F3—Ruma-Ursa silty clay loams, 18 to 35 percent slopes, severely eroded .....	122
8183A—Shaffton clay loam, 0 to 2 percent slopes, occasionally flooded .....	124
2183A—Shaffton-Urban land complex, 0 to 2 percent slopes, occasionally flooded .....	124
824B—Swanwick silty clay loam, 1 to 5 percent slopes .....	125
962F2—Sylvan-Bold silt loams, 18 to 35 percent slopes, eroded .....	127
962G—Sylvan-Bold silt loams, 35 to 60 percent slopes .....	127
8284A—Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded .....	129
8812F—Typic Hapludalfs, 18 to 35 percent slopes, occasionally flooded .....	129
533—Urban land .....	130
50A—Viriden silt loam, 0 to 2 percent slopes .....	132

---

885A—Virden-Fosterburg silt loams, 0 to 2 percent slopes .....	132
3083L—Wabash silty clay, 0 to 2 percent slopes, frequently flooded, long duration .....	134
8026A—Wagner silt loam, 0 to 2 percent slopes, occasionally flooded .....	136
3333A—Wakeland silt loam, 0 to 2 percent slopes, frequently flooded .....	137
441B—Wakenda silt loam, 2 to 5 percent slopes.....	138
441C2—Wakenda silt loam, 5 to 10 percent slopes, eroded .....	139
3336A—Wilbur silt loam, 0 to 2 percent slopes, frequently flooded .....	140
477B—Winfield silt loam, 2 to 5 percent slopes .....	141
477B2—Winfield silt loam, 2 to 5 percent slopes, eroded .....	142
477C2—Winfield silt loam, 5 to 10 percent slopes, eroded.....	142
477C3—Winfield silty clay loam, 5 to 10 percent slopes, severely eroded .....	143
2477B—Winfield-Urban land complex, 2 to 8 percent slopes .....	143
37A—Worthen silt loam, 0 to 2 percent slopes .....	144
37B—Worthen silt loam, 2 to 5 percent slopes .....	144
8524L—Zipp silty clay, 0 to 2 percent slopes, occasionally flooded, long duration.....	146

# Numerical List of Map Units

---

5C2—Blair silt loam, 5 to 10 percent slopes, eroded .....	23
5C3—Blair silt loam, 5 to 10 percent slopes, severely eroded .....	24
5D3—Blair silt loam, 10 to 18 percent slopes, severely eroded .....	24
8F2—Hickory silt loam, 18 to 35 percent slopes, eroded .....	67
31A—Pierron silt loam, 0 to 2 percent slopes .....	112
37A—Worthen silt loam, 0 to 2 percent slopes .....	144
37B—Worthen silt loam, 2 to 5 percent slopes .....	144
46A—Herrick silt loam, 0 to 2 percent slopes.....	64
50A—Virden silt loam, 0 to 2 percent slopes.....	132
75B—Drury silt loam, 2 to 5 percent slopes .....	46
79B—Menfro silt loam, 2 to 5 percent slopes.....	86
79C2—Menfro silt loam, 5 to 10 percent slopes, eroded .....	86
79C3—Menfro silt clay loam, 5 to 10 percent slopes, severely eroded .....	87
79D2—Menfro silt loam, 10 to 18 percent slopes, eroded .....	87
79D3—Menfro silty clay loam, 10 to 18 percent slopes, severely eroded .....	88
79F—Menfro silt loam, 18 to 35 percent slopes .....	88
79F3—Menfro silty clay loam, 18 to 35 percent slopes, severely eroded .....	88
79G—Menfro silt loam, 35 to 60 percent slopes .....	89
81A—Littleton silt loam, 0 to 2 percent slopes .....	78
90A—Bethalto silt loam, 0 to 2 percent slopes .....	19
109A—Raccoon silt loam, 0 to 2 percent slopes .....	114
113A—Oconee silt loam, 0 to 2 percent slopes .....	100
113B—Oconee silt loam, 2 to 5 percent slopes .....	100
267A—Caseyville silt loam, 0 to 2 percent slopes.....	30
267B—Caseyville silt loam, 2 to 5 percent slopes.....	31
283B—Downsouth silt loam, 2 to 5 percent slopes .....	44
283C2—Downsouth silt loam, 5 to 10 percent slopes, eroded.....	45
384A—Edwardsville silt loam, 0 to 2 percent slopes.....	50
384B—Edwardsville silt loam, 2 to 5 percent slopes.....	50
385A—Mascoutah silty clay loam, 0 to 2 percent slopes .....	82
423A—Millstadt silt loam, 0 to 2 percent slopes .....	92
423B—Millstadt silt loam, 2 to 5 percent slopes .....	93
433A—Floraville silt loam, 0 to 2 percent slopes.....	52
437B—Redbud silt loam, 2 to 5 percent slopes .....	116
437C2—Redbud silt loam, 5 to 10 percent slopes, eroded .....	117
438B—Aviston silt loam, 2 to 5 percent slopes .....	13
438C2—Aviston silt loam, 5 to 10 percent slopes, eroded.....	14
441B—Wakenda silt loam, 2 to 5 percent slopes .....	138
441C2—Wakenda silt loam, 5 to 10 percent slopes, eroded.....	139
466A—Bartelso silt loam, 0 to 2 percent slopes.....	15
468A—Lakaskia silt loam, 0 to 2 percent slopes.....	74

477B—Winfield silt loam, 2 to 5 percent slopes .....	141
477B2—Winfield silt loam, 2 to 5 percent slopes, eroded .....	142
477C2—Winfield silt loam, 5 to 10 percent slopes, eroded .....	142
477C3—Winfield silty clay loam, 5 to 10 percent slopes, severely eroded .....	143
491B2—Ruma silty clay loam, 2 to 5 percent slopes, eroded .....	121
491C3—Ruma silty clay loam, 5 to 10 percent slopes, severely eroded .....	122
491D3—Ruma silty clay loam, 10 to 18 percent slopes, severely eroded .....	122
515C2—Bunkum silt loam, 5 to 10 percent slopes, eroded .....	27
515C3—Bunkum silty clay loam, 5 to 10 percent slopes, severely eroded .....	28
515D3—Bunkum silty clay loam, 10 to 18 percent slopes, severely eroded .....	28
517A—Marine silt loam, 0 to 2 percent slopes .....	80
517B—Marine silt loam, 2 to 5 percent slopes .....	80
533—Urban land .....	130
536—Dumps .....	46
582B2—Homen silt loam, 2 to 5 percent slopes, eroded .....	68
582B—Homen silt loam, 2 to 5 percent slopes .....	69
582C2—Homen silt loam, 5 to 10 percent slopes, eroded .....	69
585F2—Negley loam, 18 to 35 percent slopes, eroded .....	98
801B—Orthents, silty, undulating .....	105
801D—Orthents, silty, steep .....	106
802B—Orthents, loamy, undulating .....	104
802D—Orthents, loamy, steep .....	105
821G—Morristown very stony silty clay loam, 35 to 70 percent slopes .....	94
824B—Swanwick silty clay loam, 1 to 5 percent slopes .....	125
825B—Lenzburg silty clay loam, acid substratum, 1 to 7 percent slopes .....	77
826D—Orthents, silty, acid substratum, rolling .....	105
864—Pits, quarries .....	112
865—Pits, gravel .....	113
866—Dumps, slurry .....	47
871B—Lenzburg gravelly silty clay loam, 1 to 7 percent slopes, stony .....	76
871D—Lenzburg gravelly silty clay loam, 7 to 18 percent slopes, stony .....	76
871G—Lenzburg gravelly silty clay loam, 18 to 70 percent slopes, stony .....	77
878C3—Coulterville-Grantfork silty clay loams, 5 to 10 percent slopes, severely eroded .....	37
880B2—Coulterville-Darmstadt silt loams, 2 to 5 percent slopes, eroded .....	36
882A—Oconee-Darmstadt-Coulterville silt loams, 0 to 2 percent slopes .....	100
882B—Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes .....	101
884C3—Bunkum-Coulterville silty clay loams, 5 to 10 percent slopes, severely eroded .....	29
885A—Viriden-Fosterburg silt loams, 0 to 2 percent slopes .....	132
886F3—Ruma-Ursa silty clay loams, 18 to 35 percent slopes, severely eroded .....	122
894A—Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes .....	65
897D3—Bunkum-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded .....	28
906C3—Redbud-Hurst silty clay loams, 5 to 10 percent slopes, severely eroded .....	117

---

907D3—Redbud-Colp silty clay loams, 10 to 18 percent slopes, severely eroded.....	118
962F2—Sylvan-Bold silt loams, 18 to 35 percent slopes, eroded .....	127
962G—Sylvan-Bold silt loams, 35 to 60 percent slopes.....	127
993A—Cowden-Piasa silt loams, 0 to 2 percent slopes.....	39
1071A—Darwin silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded .....	43
112A—Cowden silt loam, 0 to 2 percent slopes.....	39
1248A—McFain silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded .....	83
1288A—Petrolia silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded .....	108
2071L—Darwin-Urban land complex, 0 to 2 percent slopes, occasionally flooded, long duration .....	42
2079D—Menfro-Urban land complex, 8 to 15 percent slopes.....	90
2079E—Menfro-Urban land complex, 15 to 25 percent slopes.....	90
2183A—Shaffton-Urban land complex, 0 to 2 percent slopes, occasionally flooded .....	124
2384B—Edwardsville-Urban land complex, 1 to 4 percent slopes .....	50
2477B—Winfield-Urban land complex, 2 to 8 percent slopes .....	143
3038B—Rocher loam, 2 to 5 percent slopes, frequently flooded .....	120
3070L—Beaucoup silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration.....	17
3076A—Otter silt loam, 0 to 2 percent slopes, frequently flooded .....	107
3083L—Wabash silty clay, 0 to 2 percent slopes, frequently flooded, long duration .....	134
3180A—Dupo silt loam, 0 to 2 percent slopes, frequently flooded.....	48
3288L—Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration .....	109
3333A—Wakeland silt loam, 0 to 2 percent slopes, frequently flooded.....	137
3334L—Birds silt loam, 0 to 2 percent slopes, frequently flooded, long duration .....	22
3336A—Wilbur silt loam, 0 to 2 percent slopes, frequently flooded .....	140
3391A—Blake silty clay loam, 0 to 2 percent slopes, frequently flooded .....	25
3394A—Haynie silt loam, 0 to 2 percent slopes, frequently flooded .....	62
3394B—Haynie silt loam, 2 to 5 percent slopes, frequently flooded .....	62
3415A—Orion silt loam, 0 to 2 percent slopes, frequently flooded.....	104
3428A—Coffeen silt loam, 0 to 2 percent slopes, frequently flooded .....	32
3847L—Fluvaquents-Orthents complex, frequently flooded, long duration.....	53
5079C—Menfro silt loam, karst, 5 to 12 percent slopes, severely eroded .....	89
5079D—Menfro silt loam, karst, 12 to 25 percent slopes, severely eroded .....	89
5079G—Menfro silt loam, karst, 25 to 60 percent slopes.....	90
8026A—Wagner silt loam, 0 to 2 percent slopes, occasionally flooded .....	136
8070A—Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded .....	17
8071L—Darwin silty clay, 0 to 2 percent slopes, occasionally flooded, long duration .....	42
8084A—Okaw silt loam, 0 to 2 percent slopes, occasionally flooded.....	102
8109A—Raccoon silt loam, 0 to 2 percent slopes, occasionally flooded .....	114
8122C—Colp silty clay loam, 5 to 10 percent slopes, severely eroded, occasionally flooded.....	34
8122D—Colp silty clay loam, 10 to 18 percent slopes, severely eroded, occasionally flooded.....	34
8131B—Alvin fine sandy loam, 2 to 5 percent slopes, occasionally flooded.....	11
8162A—Gorham silty clay loam, 0 to 2 percent slopes, occasionally flooded.....	60
8180A—Dupo silt loam, 0 to 2 percent slopes, occasionally flooded.....	48

---

8183A—Shaffton clay loam, 0 to 2 percent slopes, occasionally flooded .....	124
8284A—Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded.....	129
8304B—Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded .....	75
8338A—Hurst silt loam, 0 to 2 percent slopes, occasionally flooded .....	71
8338B—Hurst silt loam, 2 to 5 percent slopes, eroded, occasionally flooded .....	71
8338C—Hurst silty clay loam, 5 to 10 percent slopes, eroded, occasionally flooded.....	72
8394A—Haynie silt loam, 0 to 2 percent slopes, occasionally flooded.....	63
8432A—Geff silt loam, 0 to 2 percent slopes, occasionally flooded .....	58
8434B—Ridgway silt loam, 2 to 5 percent slopes, occasionally flooded .....	119
8436B—Meadowbank silt loam, 2 to 5 percent slopes, occasionally flooded .....	85
8489A—Hurst silt loam, sandy substratum, 0 to 2 percent slopes, occasionally flooded.....	71
8524L—Zipp silty clay, 0 to 2 percent slopes, occasionally flooded, long duration .....	146
8591A—Fults silty clay, 0 to 2 percent slopes, occasionally flooded .....	56
8592A—Nameoki silty clay, 0 to 2 percent slopes, occasionally flooded.....	96
8646A—Fluvaquents, loamy, 0 to 2 percent slopes, occasionally flooded .....	53
8812F—Typic Hapludalfs, 18 to 35 percent slopes, occasionally flooded .....	129

# Summary of Tables

---

## Part I

Table 1.—Temperature and Precipitation ..... 160  
Table 2.—Freeze Dates in Spring and Fall ..... 161  
Table 3.—Growing Season ..... 161  
Table 4.—Classification of the Soils ..... 162  
Table 5.—Acreage and Proportionate Extent of the Soils ..... 164

## Part II

Table 4.—Classification of the Soils ..... 42  
Table 5.—Acreage and Proportionate Extent of the Soils ..... 44  
Table 6.—Main Cropland Limitations and Hazards ..... 46  
Table 7.—Land Capability and Yields per Acre of Crops and Pasture ..... 50  
Table 8.—Main Pasture Limitations and Hazards ..... 56  
Table 9.—Prime Farmland ..... 59  
Table 10.—Windbreaks and Environmental Plantings ..... 60  
Table 11.—Forestland Management and Productivity ..... 75  
Table 12.—Recreational Development ..... 84  
Table 13.—Wildlife Habitat ..... 94  
Table 14.—Building Site Development ..... 101  
Table 15.—Sanitary Facilities ..... 112  
Table 16.—Construction Materials ..... 123  
Table 17.—Water Management ..... 132  
Table 18.—Engineering Index Properties ..... 142  
Table 19.—Physical Properties of the Soils ..... 161  
Table 20.—Chemical Properties of the Soils ..... 172  
Table 21.—Water Features ..... 183  
Table 22.—Soil Features ..... 189



# Foreword

---

This soil survey contains information that can be used in land-planning programs in St. Clair County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

William J. Gradle  
State Conservationist  
Natural Resources Conservation Service



# Soil Survey of St. Clair County, Illinois

By Samuel J. Indorante and Randall A. Leeper, Natural Resources Conservation Service

Original Fieldwork by Dana R. Grantham, Donald B. Phillips, and Donald L. Wallace, Soil Conservation Service

Updated Fieldwork by Samuel J. Indorante, Randall A. Leeper, and William M. McCauley, Natural Resources Conservation Service

Map compilation by Randall A. Leeper and William M. McCauley, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,  
in cooperation with  
the Illinois Agricultural Experiment Station

St. Clair County is in the southwestern part of Illinois (*fig. 1*). It has an area of 431,330 acres, or about 673 square miles. It is bordered on the north by Madison County, on the east by Clinton and Washington Counties, on the south by Monroe and Randolph Counties, and on the west by the Mississippi River. St. Clair County, the first county in Illinois, was established in 1790. Its present boundaries were set in 1825. In 1990, the population of the county was 262,850 (18). Belleville, the county seat and largest city in the county, had a population of 42,200.

This soil survey updates the surveys of St. Clair County published in 1938 (11) and 1978 (19).

## General Nature of the Survey Area

This section provides general information about St. Clair County. It describes physiography, relief, and drainage; natural resources; transportation facilities; industry; agriculture; and climate.

## Physiography, Relief, and Drainage

Most soils in St. Clair County are on uplands. The uplands consist mainly of a glacial till plain that is covered by loess. The thickness of the loess ranges from about 100 feet in the western part of the county to less than 10 feet in the eastern and southeastern parts. Areas of alluvial (bottom) lands are extensive; they are along the Mississippi and Kaskaskia Rivers and Silver and Richland Creeks. Elevation ranges from about 370 feet above mean sea level where the Kaskaskia River leaves the county to about 700 feet on the uplands east

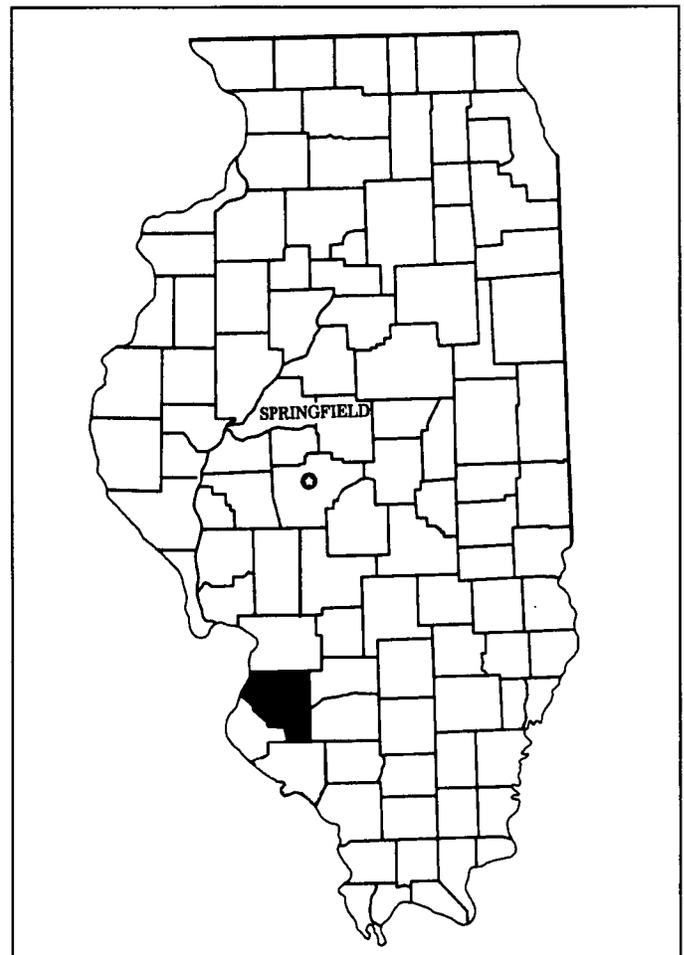


Figure 1. —Location of St. Clair County in Illinois.

of Dupo. The northwestern third of the county drains into the Mississippi River. The rest drains into the Kaskaskia River by way of Silver and Richland Creeks and other smaller tributaries.

## Natural Resources

Sources of water in the county are variable. The American Bottoms, a large part of the Mississippi River flood plain in the East St. Louis area, have an excellent source of underground water. The glacial outwash plains and alluvial areas adjacent to the Kaskaskia River have a fair to good source of underground water. In many areas of the uplands, water stored in ponds is used to supply livestock needs.

## Transportation Facilities

Transportation is well developed in the county. Interstate Highways 55, 64, 70, and 255 converge in East St. Louis. The rest of the county is served by several U.S. and State highways and is fully accessible by blacktop and gravel roads. East St. Louis and Dupo have large railroad centers. The county is served by bargelines. It also has air facilities for general air service and the large St. Louis airport is nearby. Also located in St. Clair County is Scott Air Force Base, headquarters for the Military Airlift Command.

## Industry

St. Clair County, as part of the St. Louis metropolitan area, has a variety of large industries, such as transportation complexes; manufacturers of chemicals, clothing, and shoes; processors of petroleum, steel, aluminum, and food products; and livestock marketing.

## Agriculture

Farming is a major enterprise in St. Clair County. Corn, soybeans, and wheat are the main crops. Specialty crops such as apples, peaches, and vegetables, are also grown. A small percentage of the county is woodland.

## Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Belleville in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 32.5 degrees F and the average daily minimum is 23.2 degrees. The lowest temperature on record, which occurred at Belleville on January 17, 1977, is -27 degrees. In

summer, the average temperature is 75.2 degrees and the average daily maximum temperature is 87.2 degrees. The highest recorded temperature, which occurred at Belleville on July 14, 1954, is 110 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 38.13 inches. Of this, about 21.22 inches, or about 56 percent, usually falls in April through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 8.15 inches at Belleville on June 15, 1957. Thunderstorms occur on about 46 days each year, and most occur between April and August.

The average seasonal snowfall is 17.4 inches. The greatest snow depth at any one time during the period of record was 19 inches recorded on February 12, 1982. On an average, 17 days per year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year. The heaviest 1-day snowfall on record was 14.8 inches recorded on January 31, 1982.

The average relative humidity in midafternoon is about 59 percent. Humidity is higher at night, and the average at dawn is about 83 percent. The sun shines 67 percent of the time in summer and 49 percent in winter. The prevailing wind is from the south in the summer and from the west and northwest in the winter and spring. Average windspeed is highest, 12 miles per hour, in March.

Tornadoes and severe thunderstorms strike occasionally. They are of local extent and of short duration and cause only sparse damage in narrow areas. Hailstorms sometimes occur during the warmer periods.

## How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the degree of erosion; the general pattern of drainage; and the kinds of crops and native plants. To study the soil profile, which is the sequence of natural layers, or horizons, soil scientists examine the soil with the aid of a soil probe or spade. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material

is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind or segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, soil scientists develop a concept, or model, of how the soils were formed.

Individual soils on the landscape commonly merge into one another as their characteristics gradually change. To construct an accurate map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Fieldwork in St. Clair County consisted primarily of soil transects conducted by soil scientists. Soil transects are a systematic way to sample a specific soil type. Soil borings are taken at regular intervals. Soil scientists then record the characteristics of the soil profiles that they study. They note color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features. This information can then be used to run statistical analysis for specific soil properties. These results, along with other observations, enable the soil scientists to assign the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they

compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

Aerial photographs used in this survey were taken in 1988. Soil scientists also studied U.S. Geological Survey topographic maps enlarged to a scale of 1:12,000, ortho-photographs, and infrared photography to relate land and image features. Specific soil boundaries were drawn on the ortho-photographs. Adjustments of soil boundary lines were made to coincide with the U.S. Geological Survey topographic map contour lines and tonal patterns on aerial photographs.



# Formation and Classification of the Soils

---

This section relates the soils in the survey area to the major factors of soil formation and describes the system of soil classification.

## Formation of the Soils

Soil forms through processes that act on deposited geologic material. The factors of soil formation are the physical and mineralogical composition of the parent material; the climate in which the soil formed; the plant and animal life on and in the soil; the relief; and the length of time during which the processes of soil formation have acted on the parent material (*β*).

Climate and plant and animal life are the predominant active factors of soil formation. They act directly on the parent material, either in place or after being moved from place to place by water, wind, or glaciers, slowly changing it into a natural body that has genetically related horizons. Relief modifies soil formation and can inhibit soil formation on steeper, eroded slopes and in wet depressional or nearly level areas by controlling the moisture status of soils. Finally, time is needed for changing the parent material into a soil that has differentiated horizons.

The factors of soil formation are so closely interrelated and conditioned by each other that few generalizations can be made regarding the effects of any one factor unless the effects of the other factors are understood.

## Parent Material

Parent material is the geologic material in which a soil forms. Most of the soils of St. Clair County were derived from parent materials that are a direct or indirect result of glaciers. The parent materials in this survey area are loess, glacial till, glacial outwash, alluvium, and lacustrine deposits.

Loess, or wind-deposited silty material, is the most extensive parent material in St. Clair County. The loess ranges in thickness from more than 100 feet near the bluffs to less than 10 feet in the southeastern part of the county. Menfro and Winfield soils are examples of soils that formed in loess.

Glacial till is nonstratified drift transported and deposited directly by glacial ice with a minimum of water action. It is a mixture of particles of various sizes. The small pebbles in glacial till have sharp corners, a characteristic indicating that they have not been worn by water. The till is acid and firm and ranges from loam to clay, depending on the degree of weathering. Hickory soils are examples of soils that formed in glacial till.

Glacial outwash was deposited by running water from melting glaciers. The size of particles varies, depending on the speed of the stream that carried the material. When the water slowed down, the coarser particles were deposited. The finer particles were carried a greater distance by slower moving water. Negley soils formed in loamy outwash deposits on large ridges.

Alluvium is material deposited by streams on their flood plains. It varies in texture, depending on the speed of the water from which it was deposited. Wakeland and Birds soils formed in recent silty alluvium along the Kaskaskia River and its tributaries. Alluvial soils on the Mississippi River flood plain range from the sandy Rocher soils to the clayey Darwin soils.

Lacustrine material was deposited under still or ponded glacial meltwater. Meltwater from the Mississippi River backed up the flood plains along the Kaskaskia River and its larger tributaries to form glacial lakes. Two distinct periods of glacial lake formation occurred. Redbud and Millstadt soils, on the higher lacustrine terraces, formed in about 40 to 60 inches of loess overlying clayey lacustrine material. Hurst and Okaw soils, on the lower lake plains, formed in about 20 inches of loess or other silty material overlying clayey lacustrine material.

East of Dupo, a unique geologic condition has resulted in karst topography. The karst area is characterized by rolling hills, circular depressions called sinkholes, and caves. Typically, it has a scarcity of streams that have a continuous surface flow. The geologic features contributing to the karst formation are: the permeable loess; a thin, jointed layer of St. Louis Limestone beneath the loess; and a very thin deposit of Illinoian glacial drift. Some of the surface water flows directly into the sinkholes and then into the underground cave-stream system. The Menfro soils



Figure 2.—Water from the karst area leaves an underground cave-stream system.

that formed in the thick loess deposits dominate the karst area (*fig. 2*).

## Climate

St. Clair County has a temperate, humid continental climate. The general climate has had an important overall influence on the characteristics of the soils. However, it is essentially uniform throughout the county and has not caused any major differences among the soils.

Climate has very important effects on weathering, vegetation, and erosion. The weathering of minerals in the soil increases as temperature and rainfall increase. As water moves downward, clay is moved from the surface soil to the subsoil, where it accumulates. The water also dissolves soluble salts and leaches them downward. Climate also influences the kind and extent of plant and animal life. The climate in St. Clair County has favored prairie grass and hardwood forests. Heavy rains can harm exposed areas of soils that have been farmed. Spring rains and wind can cause extensive erosion when crop residue and trees are removed from the surface. More soil will be lost through erosion each year than is formed by natural processes. For more

information on climate, see the section “General Nature of the Survey Area.”

## Living Organisms

Soils are affected by the vegetation under which they formed. The main contribution of the vegetation and biological processes is the addition of organic matter and nitrogen to the soil. The amount of organic material in the soil depends on the kind of native plants that grew on the soil. Grasses have many fine fibrous roots that add large amounts of organic matter to the soil when they die and decay. Soils that formed under prairie vegetation, therefore, have a thick, black or dark brown surface layer. Edwardsville, Mascoutah, and Wakenda soils formed under prairie vegetation. In contrast, the soils whose native vegetation was deciduous trees have a thin, light-colored surface layer, because less organic matter is added to the soil. Caseyville, Marine, and Winfield soils formed under forest vegetation.

Bacteria, fungi, and other micro-organisms help to break down the organic matter and thus provide nutrients for plants and other soil organisms. The stability of soil aggregates, which are structural units made up of sand, silt, and clay, is affected by microbial

activity because cellular excretions from these organisms help to bind soil particles together. Stable aggregates help to maintain soil porosity and promote favorable relationships among soil, water, and air. Moreover, earthworms, crayfish, insects, and burrowing animals tend to incorporate organic matter into the soil and help to keep soils open and porous.

## Relief

Relief, which includes elevation, topography, and water table levels, largely determines the natural drainage of soils. In St. Clair County, the slopes range from 0 to 70 percent. Natural soil drainage ranges from well drained on the side slopes and ridges to very poorly drained in depressions.

Relief affects the depth to the seasonal high water table or natural drainage of the soil by influencing infiltration and runoff rates. The poorly drained Mascoutah and Virden soils occur in low lying, nearly level areas and have a water table close to the surface for most of the year. The soil pores contain water, which restricts the circulation of air in the soil. Under these conditions, iron and manganese compounds are chemically reduced. As a result, the subsoil is dull gray and mottled. In the more sloping, well drained Wakenda soils, the water table is lower and some of the rainfall runs off the surface. The soil pores contain less water and more air. The iron and manganese compounds are well oxidized. As a result, the subsoil is brown.

Nearly level, poorly drained soils, such as Mascoutah soils, are less well developed than the gently sloping, well drained Wakenda soils. Mascoutah soils have a high water table for part of the year. The wetness inhibits the removal of weathered products. In contrast, Wakenda soils are deeper to a water table. As a result, weathered products are translocated downward to a greater extent.

Local relief also influences the severity of erosion. Some erosion occurs on all sloping soils, but the hazard becomes more severe as the slope and the runoff rate increase.

## Time

The length of time needed for the formation of a soil depends on the other factors of soil formation. Soils form more rapidly and are more acid if the parent material is low in lime content. Thus, more rapidly permeable soils form more readily than more slowly permeable soils because lime and other soluble minerals are leached more quickly. Forest soils form more quickly than prairie soils because grasses are more efficient in recycling calcium and other bases from the subsoil to the surface layer. Soils in humid climates that support good growth of vegetation form more rapidly than those in dry climates.

The length of time that the parent materials have been in place determines, to a great extent, the degree of profile development. Most of the soils in St. Clair County began forming with the retreat of the last glacier about 12,500 years ago. On flood plains, however, material is deposited during each flood. This continual deposition slows development. Wakeland soils formed in alluvium and have a very weakly developed profile.

## Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 4, "Classification of the Soils," in Parts I and II of the publication shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

**ORDER.** Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

**SUBORDER.** Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquoll (*Aqu*, meaning water, plus *oll*, from Mollisol).

**GREAT GROUP.** Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Endoaquolls (*Endo*, meaning soils with endosaturation, plus *aquoll*, the suborder of the Mollisols that has an aquic moisture regime).

**SUBGROUP.** Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Endoaquolls.

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and

other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, thickness of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An

example is fine-silty, mixed, superactive, mesic Typic Endoaquolls.

**SERIES.** The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series. An example is the Beaucoup series.

# Soil Series and Detailed Soil Map Units

---

In this section, arranged in alphabetical order, each soil series recognized in the survey area is described. Each description is followed by the detailed soil map units associated with the series.

Characteristics of the soil and the material in which it formed are identified for each soil series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (16). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (15). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units on the detailed maps in Part III of this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given in Part II of this survey.

A map unit delineation on the detailed soil maps represents an area on the landscape and consists of one or more soils or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some "included" areas that belong to other taxonomic classes.

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, soils. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas,

however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, soils. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying layers, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying layers. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Aviston silt loam, 5 to 10 percent slopes, eroded, is a phase of the Aviston series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Sylvan-Bold silt loams, 18 to 35 percent slopes, eroded is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, gravel is an example.

Table 5, "Acreage and Proportionate Extent of the Soils," in Parts I and II of the manuscript gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The "Glossary" defines many of the terms used in describing the soils or miscellaneous areas.

## Alvin Series

**Taxonomic Class:** Coarse-loamy, mixed, superactive, mesic Typic Hapludalfs

### Typical Pedon for MLRA 114

Alvin fine sandy loam, gently sloping, in a cultivated field at an elevation of about 395 feet above mean sea level; about 2 miles west of Fayetteville in St. Clair County, Illinois (map sheet New Athens East/NW, IL.); approximately 300 feet west and 1,900 feet south of the northeast corner of sec. 11, T. 2 S., R. 7 W.; USGS New Athens East, IL. geographic quadrangle; lat. 38 degrees 22 minutes 28 seconds N. and long. 89 degrees 50 minutes 8 seconds W.

Ap—0 to 9 inches; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; weak very fine granular structure; very friable; many very fine and common fine roots; neutral; clear smooth boundary.

Bt1—9 to 18 inches; brown (10YR 4/3) fine sandy loam; moderate fine subangular blocky structure; very friable; many very fine and few fine roots; few very fine continuous tubular pores; common faint dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

Bt2—18 to 27 inches; brown (10YR 4/3) fine sandy loam; moderate fine subangular blocky structure; very friable; common very fine and few fine roots; few fine continuous tubular pores; common distinct dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

Bt3—27 to 38 inches; brown (7.5YR 4/4) fine sandy loam with strata of sandy clay loam in the lower part; moderate medium subangular blocky structure; friable; common very fine and few fine roots; common fine and medium continuous tubular pores; common faint dark brown (7.5YR 3/4) clay films on faces of peds and few prominent black (7.5YR 2.5/1) organic coatings lining root channels and pores; slightly acid; gradual smooth boundary.

Bt4—38 to 47 inches; brown (7.5YR 4/4) fine sandy loam; moderate medium subangular blocky structure; very friable; few very fine roots; few fine continuous tubular pores; common faint dark brown (7.5YR 3/4) clay films on faces of peds and few prominent black (7.5YR 2.5/1) organic coatings lining root channels and pores; slightly acid; clear smooth boundary.

Bt&E—47 to 65 inches; strong brown (7.5YR 4/6) fine sandy loam (Bt); occurs as many thin to thick lamellae and occupies about 60 percent of the volume; moderate medium subangular blocky structure; friable; common distinct brown (7.5YR 4/4) clay films on faces of peds; brown (7.5YR 5/4) loamy fine sand (E); weak medium subangular blocky structure; very friable; slightly acid; clear smooth boundary.

C—65 to 80 inches; light yellowish brown (10YR 6/4) fine sand; single grain; loose; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon, including lamellae:* Greater than 40 inches

Ap or A horizon:

Hue—10YR

Value—3 or 4 (6 or 7 dry)

Chroma—1 to 4

Texture—very fine sandy loam, fine sandy loam, or sandy loam, and less commonly loamy sand or loamy fine sand

E horizon, where present:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—2 to 4

Texture—very fine sandy loam, fine sandy loam, sandy loam, or loamy fine sand

Bt horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture—very fine sandy loam, fine sandy loam, sandy loam, or loam; and thin layers of sandy clay loam or clay loam are in some pedons

E&Bt or Bt&E horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—2 to 6 in the E part, and 3 to 6 in the Bt part

Texture—sandy loam, loamy sand, or sand, and the fine or very fine analogs in the E part; and sandy loam, loamy sand, or the fine or very fine analogs; or loam in the Bt part

Some pedons have a BC horizon and some pedons do not have an E&Bt or Bt&E horizon.

C horizon, where present:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture—sandy loam, loamy sand, or sand, or the fine and very fine analogs

### 8131B—Alvin fine sandy loam, 2 to 5 percent slopes, occasionally flooded

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Alvin and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Soils that have a darker surface horizon

\* Soils that contain more clay in the subsoil

*Dissimilar soils:*

\* Areas of short steep slopes on terrace risers

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

## Atlas Series

**Taxonomic Class:** Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs

#### Typical Pedon for MLRA 114

Atlas silty clay loam, on a severely eroded back slope, with a 12 percent gradient, in a cultivated field at an elevation of about 485 feet above mean sea level; about 5 miles east of Waterloo in Monroe County, Illinois; approximately 820 feet west and 400 feet south of the northeast corner of sec. 26, T. 2 S., R. 9 W.; USGS Paderborn, IL. topographic quadrangle; lat. 38 degrees 20 minutes 15 seconds N. and long. 90 degrees 2 minutes 56 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silty clay loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common very fine and few fine roots; few fine tubular pores; few fine irregular dark reddish brown (5YR 3/3) masses of iron-manganese accumulation with clear boundaries; common fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; abrupt smooth boundary.

2Bt—9 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; weak fine prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; few fine tubular pores; few faint brown (10YR 5/3) clay films on faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions and common fine prominent yellowish red (5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular dark brown (7.5YR 3/4) iron-manganese nodules with clear boundaries; about 1 percent pebbles; moderately acid; clear smooth boundary.

2Btg1—21 to 31 inches; gray (10YR 6/1) silty clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; common faint grayish brown (10YR 5/2) clay films on faces of peds and few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels and pores; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular dark reddish brown (5YR 3/3) iron-manganese nodules with clear boundaries; about 2 percent pebbles; slightly acid; clear smooth boundary.

2Btg2—31 to 41 inches; gray (10YR 6/1) silty clay; moderate medium prismatic structure parting to

moderate medium angular blocky; very firm; few very fine roots; common faint grayish brown (10YR 5/2) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) and few medium prominent reddish brown (5YR 4/4) masses of iron accumulation in the matrix; few medium rounded dark brown (7.5YR 3/2) iron-manganese concretions with sharp boundaries; about 2 percent pebbles; neutral; clear smooth boundary.

2Btg3—41 to 51 inches; gray (10YR 6/1) silty clay; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; few distinct grayish brown (10YR 5/2) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear boundaries; about 5 percent pebbles; slightly alkaline; clear smooth boundary.

2Btg4—51 to 65 inches; gray (10YR 6/1) silty clay; weak coarse prismatic structure parting to weak medium angular blocky; very firm; common distinct gray (10YR 5/1) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many medium and coarse black (10YR 2/1) iron-manganese concretions with sharp boundaries; about 5 percent pebbles; slightly alkaline; gradual smooth boundary.

2Btg5—65 to 80 inches; gray (10YR 5/1) silty clay; weak coarse prismatic structure parting to weak medium angular blocky; very firm; common distinct dark gray (10YR 4/1) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many coarse black (10YR 2/1) iron-manganese concretions with sharp boundaries; about 5 percent pebbles; slightly alkaline.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* Greater than 42 inches

*Thickness of loess or silty pedisegment:* 0 to 20 inches

Ap or A horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—1 to 4

Texture—silt loam or loam, but some severely eroded pedons are silty clay loam or clay loam

Some pedons have an E or a BE horizon.

Bt or 2Bt horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—3 or 4

Texture—clay loam, silty clay loam, silty clay, or clay

Btg or 2Btg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—clay loam, silty clay loam, silty clay, or clay

BC and C horizons, or 2BC and 2C horizons, where present:

Hue—7.5 YR, 10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 6

Texture—silty clay loam, clay loam, or loam

## Aviston Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls

#### Typical Pedon for MLRA 114

Aviston silt loam, with an east-facing slope, with a 3 percent gradient on a convex summit in a cultivated field at an elevation of about 500 feet above mean sea level; about 1 mile southwest of Addieville in Washington County, Illinois; approximately 2,540 feet north and 1,820 feet east of the southwest corner of sec. 2, T. 2 S., R. 4 W.; USGS Okawville, IL. topographic quadrangle; lat. 38 degrees 22 minutes 53 seconds N. and long. 89 degrees 30 minutes 20 seconds W.

Ap—0 to 10 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate very fine granular structure; friable; common very fine and fine roots throughout; about 18 percent clay; neutral; abrupt smooth boundary.

A—10 to 16 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine and medium subangular blocky structure parting to moderate fine granular; friable; common very fine and fine roots throughout; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; about 22 percent clay; neutral; clear smooth boundary.

Bt1—16 to 23 inches; brown (10YR 4/3) silty clay loam; moderate fine prismatic structure parting to moderate medium subangular blocky; friable; common very fine roots between peds; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; about 33 percent clay; slightly acid; clear smooth boundary.

Bt2—23 to 32 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to

moderate medium subangular blocky; friable; common very fine roots between peds; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds and few prominent very dark gray (10YR 3/1) organic coatings lining root channels; common fine faint light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 30 percent clay; slightly acid; clear smooth boundary.

Bt3—32 to 39 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots between peds; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds and few prominent very dark gray (10YR 3/1) organic coatings lining root channels; common fine faint light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 28 percent clay; slightly acid; gradual smooth boundary.

Bt4—39 to 48 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure; friable; few very fine roots between peds; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds and few prominent very dark gray (10YR 3/1) organic coatings lining root channels; common fine faint light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 28 percent clay; slightly acid; gradual smooth boundary.

Bt5—48 to 67 inches; brown (10YR 5/3) silt loam; weak medium prismatic structure; friable; few very fine roots between peds; few faint grayish brown (10YR 5/2) clay films on vertical faces of peds and very few prominent very dark gray (10YR 3/1) organic coatings lining root channels; many fine faint light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 24 percent clay; slightly acid; clear smooth boundary.

2BC—67 to 80 inches; brown (7.5YR 5/3) silt loam; weak coarse prismatic structure; friable; few distinct brown (10YR 4/3) clay films on vertical faces of peds; many medium faint pinkish gray

(7.5YR 6/2) iron depletions and many fine and medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation; about 17 percent clay; slightly acid.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 52 to more than 80 inches

*Thickness of loess:* About 60 to 80 inches

*Thickness of the mollic epipedon:* 10 to 20 inches

*Particle-size control section:* Averages 27 to 35 percent clay and less than 7 percent sand

In undisturbed areas the A horizon has value of 2 or 3 (4 or 5 dry), and chroma of 1 to 3.

Ap and A horizons:

Hue—10YR

Value—3 (5 dry)

Chroma—1 to 3

Texture—silt loam

Some pedons have an AB or a BA horizon.

Bt horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—3 to 6, 2 to 6 in the lower part

Texture—silty clay loam, but is silt loam in the lower part in some pedons

2Bt, 2BC, and 2C horizons, where present:

Hue—7.5YR, 10YR, or 2.5Y

Value—5 or 6

Chroma—1 to 4

Texture—Silt loam, but is silty clay loam in the upper part in some pedons

### 438B—Aviston silt loam, 2 to 5 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluvium

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Aviston and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

#### *Similar soils:*

- \* Soils that have a thinner dark surface horizon
- \* Areas of somewhat poorly drained and/or well drained soils
- \* Small areas with a concentration of exchangeable sodium in the subsoil

#### *Dissimilar soils:*

- \* Poorly drained Virden soils in small depressions

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 438C2—Aviston silt loam, 5 to 10 percent slopes, eroded

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

### Composition

*Aviston and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

#### *Similar soils:*

- \* Soils that have a thinner dark surface horizon
- \* Areas of well drained soils

#### *Dissimilar soils:*

- \* Wakeland soils in small upland drainageways

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## Bartelso Series

**Taxonomic Class:** Fine, mixed, superactive, mesic Aquertic Argiudolls

### Typical Pedon for MLRA 114

Bartelso silt loam, on a nearly level lake plain, in a cultivated field at an elevation of about 415 feet above mean sea level; about 2 miles southeast of Bartelso in Clinton County, Illinois; approximately 363 feet north and 2,523 feet west of the southeast corner of sec. 20, T. 1 N., R. 3 W.; USGS Beckemeyer, IL. topographic quadrangle; lat. 38 degrees 30 minutes 32 seconds N. and long. 89 degrees 27 minutes 15 seconds W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; common very fine roots; few fine continuous tubular pores; slightly acid; abrupt smooth boundary.

A—8 to 12 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium platy structure parting to moderate fine granular; friable; common very fine roots; few fine continuous tubular pores; few faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; clean silt and sand grains are evident when dry; slightly acid; abrupt smooth boundary.

Bt1—12 to 17 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common very fine and fine continuous tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct gray (10YR 5/1) iron depletions and common fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation; moderately acid; clear smooth boundary.

2Bt2—17 to 24 inches; brown (10YR 5/3) silty clay; strong medium angular blocky structure; firm; few very fine roots; few very fine and fine constricted tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common

fine distinct gray (10YR 5/1) iron depletions and common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation; moderately acid; clear smooth boundary.

2Bt3—24 to 35 inches; brown (10YR 5/3) silty clay; strong coarse angular blocky structure; very firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct gray (10YR 5/1) iron depletions and common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common fine irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; neutral; clear smooth boundary.

2Btkg1—35 to 45 inches; gray (10YR 5/1) silty clay loam; weak coarse subangular blocky structure; very firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many fine irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation and common medium rounded light gray (10YR 7/2) carbonate nodules; strongly effervescent; slightly alkaline; clear smooth boundary.

2Btkg2—45 to 62 inches; gray (10YR 5/1) silt loam; weak coarse prismatic structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds and few prominent very dark grayish brown (10YR 3/2) clay films lining root channels; many fine prominent brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; many fine and medium irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine rounded light gray (10YR 7/2) carbonate nodules; strongly effervescent; slightly alkaline; gradual smooth boundary.

2Cg—62 to 80 inches; gray (10YR 6/1) stratified silt loam and silty clay loam; massive; friable; few fine vesicular pores; few prominent very dark grayish brown (10YR 3/2) clay films lining root channels and pores; many fine and medium prominent brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; common fine irregular black (10YR 2/1) masses of iron-manganese accumulation; very slightly effervescent; slightly alkaline.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* Greater than 42 inches

*Thickness of loess:* About 10 to 30 inches

*Thickness of the mollic epipedon:* 10 to 18 inches

Ap or A horizon:

Hue—10YR

Value—3 (5 dry)

Chroma—1 or 2

Texture—silt loam, but is silty clay loam in the lower part of some pedons

Some pedons have an incipient E horizon instead of a subsurface A horizon.

Bt and/or BE horizon:

Hue—10YR or 2.5Y

Value—3 to 5

Chroma—2 or 3

Texture—silty clay loam

2Bt and/or 2Btg horizon:

Hue—10YR or 2.5Y

Value—4 or 5

Chroma—2 to 4

Texture—silty clay loam or silty clay

2Btkg horizon, where present:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—1 or 2

Texture—silt loam or silty clay loam

2BCg and/or 2Cg horizon, where present:

Hue—10YR or 2.5Y

Value—4 to 7

Chroma—1 or 2

Texture—silt loam or silty clay loam, and may be stratified

### 466A—Bartelso silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Lake Plain

*Position of Landform:* Broad Flat

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Lacustrine deposits

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Bartelso and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

#### *Similar soils:*

- \* Soils with less clay in the subsoil
- \* Areas of poorly drained and/or moderately well drained soils
- \* Soils that have a thinner dark surface horizon

#### *Dissimilar soils:*

- \* Redbud soils on higher parts of the landform

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Beaucoup Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls

### Typical Pedon for MLRA 114/115B

Beaucoup silty clay loam, nearly level, in a cultivated field at an elevation of about 395 feet above mean sea level; about 6 miles northwest of Valmeyer in Monroe County, Illinois; approximately 2,180 feet west and 2,080 feet south of the northeast corner of sec. 17, T. 2 S., R. 11 W.; USGS Valmeyer, IL.-MO. topographic quadrangle; lat. 38 degrees 21 minutes 48 seconds N. and long. 90 degrees 20 minutes 22 seconds W.

Ap—0 to 11 inches; very dark gray (10YR 3/1) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common very fine and fine roots throughout; few fine rounded black (N 2.5/0) iron-manganese nodules; neutral; abrupt smooth boundary.

AB—11 to 16 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine angular blocky structure; friable; common very fine and fine roots throughout; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation and few fine rounded black (N 2.5/0) iron-manganese nodules; neutral; clear smooth boundary.

Btg1—16 to 24 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic

structure parting to moderate fine angular blocky; friable; few very fine and fine roots along ped faces; common distinct very dark grayish brown (2.5Y 3/2) organo-clay films on faces of peds; common fine prominent reddish brown (5YR 4/4) masses of iron accumulation in the matrix; few fine irregular yellowish red (5YR 4/6) masses of iron-manganese accumulation and few fine rounded black (N 2.5/0) iron-manganese nodules; slightly alkaline; clear smooth boundary.

Btg2—24 to 35 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate fine angular blocky; friable; few very fine roots along ped faces; many distinct very dark grayish brown (2.5Y 3/2) organo-clay films on faces of peds; thin band of dark grayish brown (2.5Y 4/2) silt coatings, light brownish gray (2.5Y 6/2, dry), at 32 inches; common fine prominent dark red (2.5YR 3/6) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine rounded black (N 2.5/0) iron-manganese nodules; slightly alkaline; clear smooth boundary.

Btg3—35 to 46 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; friable; few very fine roots along ped faces; few very fine and fine tubular pores; many distinct very dark grayish brown (2.5Y 3/2) organo-clay films on faces of peds; common medium prominent brown (7.5YR 4/4) and few fine prominent dark red (2.5YR 3/6) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) and black (N 2.5/0) masses of iron-manganese accumulation; slightly alkaline; clear smooth boundary.

Btg4—46 to 64 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate fine and medium angular blocky; friable; few very fine roots along ped faces; common very fine and fine tubular pores; common distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) and few medium prominent reddish brown (5YR 4/3) masses of iron accumulation in the matrix; few medium irregular black (N 2.5/0) masses of iron-manganese accumulation; slightly alkaline; clear smooth boundary.

Cg—64 to 80 inches; stratified dark grayish brown (2.5Y 4/2) silty clay loam and silt loam; massive; friable; few fine tubular pores; common fine faint gray (10YR 5/1) iron depletions; common medium distinct brown (10YR 4/3) masses of iron accumulation in the matrix; common medium

irregular black (N 2.5/0) masses of iron-manganese accumulation; slightly alkaline.

#### MLRA Series Range in Characteristics

*Depth to the base of soil development:* 35 to 65 inches

*Thickness of the mollic epipedon:* 10 to 24 inches, and extends into the upper part of the B horizon in some pedons

*Series control section:* The upper and middle parts of the control section average 27 to 35 percent clay and average 0 to 15 percent sand. The lower part averages 10 to 30 percent clay and ranges from 5 to 40 percent sand.

*Reaction:* The control section ranges from moderately acid to slightly alkaline.

*Depth to carbonates:* Greater than 40 inches, where present

Ap horizon, and A, AB, or BA horizons, where present:

Hue—10YR or neutral

Value—2 or 3 (4 or 5 dry)

Chroma—0 to 2

Texture—silty clay loam

Btg horizon, and Bg or BCg horizons, where present:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—3 to 6

Chroma—0 to 2

Texture—silty clay loam

Cg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silty clay loam, with thick to thin strata of silt loam, loam, sandy loam, fine sandy loam, or very fine sandy loam in some pedons

### 3070L—Beaucoup silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Beaucoup and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain less clay in the subsoil
- \* Soils that have a thinner dark surface layer
- \* Areas of very poorly drained soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 8070A—Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Beaucoup and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Soils that contain more sand in the substratum
- Dissimilar soils:*
- \* Moderately well drained Haynie soils on natural levees

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section

- \* "Engineering" section
- \* "Soil Properties" section

## Bethalto Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs

### Typical Pedon for MLRA 115B

Bethalto silt loam, with an east-facing slope, with a 2 percent gradient in a cultivated field at an elevation of about 500 feet above mean sea level; about 2.5 miles northeast of Troy in Madison County, Illinois; approximately 1,060 feet north and 500 feet west of the center of sec. 35, T. 4 N., R. 7 W.; USGS Marine, IL. topographic quadrangle; lat. 38 degrees 45 minutes 15 seconds N. and long. 89 degrees 50 minutes 50 seconds W.

- Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common very fine roots; common fine tubular pores; few fine rounded black (10YR 2/1) and strong brown (7.5YR 5/6) iron-manganese nodules with sharp boundaries; about 21 percent clay; neutral; abrupt smooth boundary.
- Eg1—8 to 11 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium platy structure parting to weak fine granular; friable; few very fine roots; few fine tubular pores; common distinct gray (10YR 6/1, dry) clay depletions along pores; few fine faint brown (10YR 4/3) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) and strong brown (7.5YR 5/6) iron-manganese nodules with sharp boundaries; about 19 percent clay; neutral; clear smooth boundary.
- Eg2—11 to 15 inches; grayish brown (10YR 5/2) silt loam, light brownish gray (10YR 6/2) dry; weak thick platy structure parting to weak medium granular; friable; few very fine roots; few fine tubular pores; many distinct light gray (10YR 7/1, dry) clay depletions on faces of peds and along pores; few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine rounded black (10YR 2/1) and strong brown (7.5YR 5/6) iron-manganese nodules with sharp boundaries; about 18 percent clay; slightly acid; clear smooth boundary.
- Bt—15 to 24 inches; brown (10YR 4/3) silty clay loam; moderate fine prismatic structure parting to moderate fine and medium subangular blocky; firm; few very fine roots; few fine tubular pores; few distinct light gray (10YR 7/1, dry) clay depletions on faces of peds and along pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions and few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear boundaries; about 32 percent clay; moderately acid; clear smooth boundary.
- Btg1—24 to 36 inches; grayish brown (10YR 5/2) silty clay loam; weak fine prismatic structure parting to moderate fine and medium subangular blocky; firm; few very fine roots; few very fine tubular pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine rounded black (7.5YR 2.5/1) iron-manganese nodules with clear boundaries; about 31 percent clay; moderately acid; gradual smooth boundary.
- Btg2—36 to 48 inches; grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; few very fine tubular pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds and lining pores; many medium and coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 4/6) iron-manganese nodules with clear boundaries; about 30 percent clay; slightly acid; gradual smooth boundary.
- Btg3—48 to 62 inches; grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few very fine roots; few very fine tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds and lining pores; many medium and coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 4/6) iron-manganese nodules with clear boundaries; about 28 percent clay; slightly acid; clear smooth boundary.
- BCtg—62 to 70 inches; light brownish gray (10YR 6/2) silt loam; weak coarse angular blocky structure; friable; few fine vesicular pores; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few prominent very dark grayish brown (10YR 3/2) clay films lining root channels and filling pores; common medium and coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about

26 percent clay; slightly acid; gradual smooth boundary.

Cg—70 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few fine vesicular pores; few distinct dark grayish brown (10YR 4/2) clay films lining root channels and filling pores; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 23 percent clay; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 42 to 80 inches

*Depth to carbonates:* Greater than 5 feet, where present

*Particle-size control section:* Averages 27 to 35 percent clay and averages less than 7 percent sand

Ap or A horizon:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2

Texture—silt loam

Eg or E horizon:

Hue—10YR

Value—4 to 6 (6 or 7 dry)

Chroma—1 to 3

Texture—silt loam

BE or EB horizon, where present:

Hue—10YR

Value—4 to 6

Chroma—1 to 3

Texture—silt loam or silty clay loam

Bt or Btg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—2 to 4

Texture—typically silty clay loam, but it is silt loam in the lower part of some pedons

BCt or BCtg horizon, where present:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—2 to 4

Texture—silt loam or silty clay loam

C or Cg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—5 or 6

Chroma—1 to 4

Texture—silt loam

## 90A—Bethalto silt loam, 0 to 2 percent slopes

### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluvium

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Bethalto and similar soils:* 100 percent

*Similar soils:*

\* Soils that have a mollic epipedon

\* Areas of moderately well drained soils

\* Soils that contain more clay in the subsoil

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

## Biddle Series

**Taxonomic Class:** Fine, smectitic, mesic Aquertic Argiudolls

### Typical Pedon for MLRA 114

Biddle silt loam, from Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes; nearly level in a cultivated field at an elevation of about 475 feet above mean sea level; about 2 miles southwest of Freeburg in St. Clair County, Illinois (map sheet Freeburg SW, IL.); approximately 1,290 feet south and 1,555 east of the northwest corner of sec. 1, T. 2 S., R. 8 W.; USGS Freeburg, IL. topographic quadrangle; lat. 38 degrees 23 minutes 32 seconds N. and long. 89 degrees 56 minutes 10 seconds W.

- Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine roots; few fine rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 23 percent clay; slightly acid; abrupt smooth boundary.
- A—7 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; friable; many very fine roots; few fine rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 22 percent clay; neutral; clear smooth boundary.
- Eg—13 to 16 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium platy structure parting to weak fine granular; friable; common very fine roots; common distinct light gray (10YR 7/2, dry) clay depletions on faces of peds; few fine rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 21 percent clay; neutral; clear smooth boundary.
- Bt—16 to 25 inches; brown (10YR 4/3) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine rounded black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with sharp boundaries; about 38 percent clay; neutral; clear smooth boundary.
- Btng1—25 to 36 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 37 percent clay; slightly alkaline; clear smooth boundary.
- Btng2—36 to 46 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 34 percent clay; slightly alkaline; clear smooth boundary.
- Btng3—46 to 55 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 29 percent clay; slightly alkaline; gradual smooth boundary.
- BCtng—55 to 62 inches; grayish brown (2.5Y 5/2) silt loam; weak coarse subangular blocky structure; friable; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common fine and medium prominent brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) and dark brown (7.5YR 3/3) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 24 percent clay; slightly alkaline; gradual smooth boundary.
- Cg1—62 to 76 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (7.5YR 2.5/1) and dark brown (7.5YR 3/3) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 22 percent clay; slightly alkaline; clear smooth boundary.
- 2Cg2—76 to 99 inches; brown (7.5YR 5/2) silt loam; massive; friable; many fine and medium distinct brown (7.5YR 5/4) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) and dark brown (7.5YR 3/3) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 25 percent clay, 12 percent sand, and 1 percent pebbles; slightly alkaline.

#### MLRA Series Range in Characteristics

*Thickness of the mollic epipedon:* 10 to 18 inches

*Thickness of loess:* About 60 to 80 inches

*Depth to carbonates:* Carbonates, where present, typically occur in the B horizon, but they occur in the BCg and Cg horizons in some pedons.

Ap and A horizons:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2

Texture—silt loam

Eg horizon, where present:

Hue—10YR

Value—4 or 5  
 Chroma—1 or 2  
 Texture—silt loam

**Bt horizon:**

Hue—10YR, 2.5Y, or 5Y  
 Value—3 to 5 in the upper part, and 4 to 6 in the lower part  
 Chroma—1 to 4  
 Texture—silty clay loam or silty clay in the upper part, and silty clay loam or silt loam in the lower part

**Cg or 2Cg horizon:**

Hue—7.5YR, 10YR, 2.5Y, 5Y, or neutral  
 Value—5 or 6  
 Chroma—0 to 2  
 Texture—silt loam

**Birds Series**

**Taxonomic Class:** Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents

**Typical Pedon for MLRA 114**

Birds silt loam, nearly level in a cultivated field, at an elevation of about 445 feet above mean sea level; about 3 miles southeast of Troy in Madison County, Illinois; approximately 80 feet north and 2,000 feet west of the center of sec. 24, T. 3 N., R. 7 W.; USGS St. Jacob, IL. topographic quadrangle; lat. 38 degrees 41 minutes 37 seconds N. and long. 89 degrees 50 minutes 5 seconds W.

Ap—0 to 8 inches; dark gray (10YR 4/1) silt loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; common very fine roots; thin lenses of gray (10YR 6/1) silt grains along faces of peds; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

Cg1—8 to 13 inches; gray (5Y 5/1) silt loam; massive with weak thick platy stratification planes; friable; few very fine roots; few very fine and fine continuous tubular pores; common medium prominent dark reddish brown (5YR 3/3) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

Cg2—13 to 19 inches; stratified very dark gray (5Y 3/1) and dark gray (5Y 4/1) silt loam and silty clay loam; massive; firm; few very fine roots; common very fine and fine continuous tubular pores; common medium prominent dark reddish brown (5YR 3/4) masses of iron accumulation in the matrix; few medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; slightly acid; abrupt smooth boundary.

Cg3—19 to 39 inches; gray (5Y 6/1) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; many medium prominent yellowish red (5YR 4/6) and yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; moderately acid; clear smooth boundary.

Cg4—39 to 63 inches; variegated light brownish gray (2.5Y 6/2) and light gray (10YR 7/1) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; many medium prominent yellowish brown (10YR 5/8) and few medium prominent yellowish red (5YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear boundaries; strongly acid; gradual smooth boundary.

Cg5—63 to 78 inches; grayish brown (2.5Y 5/2) stratified silt loam and silty clay loam; massive; friable; few very fine roots; few very fine continuous tubular pores; common fine distinct light gray (10YR 7/1) iron depletions and few medium prominent yellowish brown (10YR 5/8) and strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; moderately acid; clear smooth boundary.

2Btgb—78 to 90 inches; dark gray (2.5Y 4/1) silty clay loam; moderate fine prismatic structure parting to weak fine and medium angular blocky; firm; few very fine and fine vesicular and tubular pores; common distinct very dark gray (2.5Y 3/1) organo-clay films on vertical faces of peds and few prominent dark reddish brown (5YR 2.5/2) iron-manganese coatings lining root channels and pores; few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (5YR 2.5/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; slightly acid.

**MLRA Series Range in Characteristics**

*Thickness of the solum:* 5 to 30 inches

*Particle-size control section:* Averages 18 to 27 percent clay and less than 15 percent fine or coarser sand

*Reaction:* Birds soils typically are moderately acid to slightly alkaline to depths greater than 40 inches, but some pedons have subhorizons that are strongly acid.

**Ap, A, or ACg horizons:**

Hue—10YR, 2.5Y, or 5Y  
 Value—4 to 6 (6 or 7 dry)

Chroma—1 or 2  
Texture—silt loam

Cg horizons to a depth of 40 inches:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 7

Chroma—1 or 2

Texture—silt loam, and some pedons contain thin strata of silty clay loam

Cg horizons below a depth of 40 inches:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 7

Chroma—1 or 2

Texture—dominantly silt loam, but some pedons contain strata of silty clay loam, clay loam, loam, or sandy loam

### **3334L—Birds silt loam, 0 to 2 percent slopes, frequently flooded, long duration**

#### **Setting**

*Landform:* Flood Plain

#### **Soil Properties and Qualities**

*Drainage:* Poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### **Composition**

*Birds and similar soils:* 100 percent

*Similar soils:*

- \* Soils that have a dark surface layer
- \* Soils that contain more clay in the upper part
- \* Areas of somewhat poorly drained soils

#### **Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## **Blair Series**

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

#### **Typical Pedon for MLRA 114**

Blair silt loam, on a severely eroded northeast-facing slope of 14 percent, in a cultivated field at an elevation of about 485 feet above mean sea level; about 7 miles north and 4.5 miles east of Pinckneyville in Perry County, Illinois; approximately 1,280 feet north and 700 feet west of the center of sec. 15, T. 4 S., R. 2 W; USGS Todds Mill, IL. topographic quadrangle; lat. 38 degrees 10 minutes 55 seconds N. and long. 89 degrees 18 minutes 30 seconds W.

Ap—0 to 5 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate coarse angular clods parting to weak fine subangular blocky structure; firm; few faint brown (10YR 4/3) organic coatings on faces of peds; few fine grayish brown (10YR 5/2) peds of silty clay loam; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 3 percent sand; slightly acid; abrupt smooth boundary.

Bt1—5 to 12 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; friable; few distinct very dark grayish brown (10YR 3/2) organic coatings and common distinct brown (10YR 4/3) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 14 percent sand and one percent fine pebbles; very strongly acid; clear smooth boundary.

Bt2—12 to 20 inches; grayish brown (10YR 5/2) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 15 percent sand; very strongly acid; gradual smooth boundary.

Bt3—20 to 30 inches; dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) silt loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few distinct dark gray (10YR 4/1) clay films on faces of peds; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; 18 percent sand and 2 percent fine and medium pebbles; strongly acid; clear smooth boundary.

Bt4—30 to 36 inches; light brownish gray (10YR 6/2) silt loam; weak medium prismatic structure parting

to weak medium subangular blocky; friable; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium faint grayish brown (10YR 5/2) iron depletions and many medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine black (10YR 2.5/0) iron-manganese nodules; 20 percent sand and 2 percent fine and medium pebbles; slightly acid; clear smooth boundary.

Btg—36 to 47 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few faint grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; 15 percent sand and one percent fine and medium pebbles; neutral; clear smooth boundary.

BCg—47 to 55 inches; gray (10YR 6/1) silt loam; weak coarse prismatic structure; friable; few fine faint gray (10YR 5/1) iron depletions and many coarse prominent yellowish red (5YR 4/6) and few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 22 percent sand and one percent fine and medium pebbles; neutral; gradual smooth boundary.

Cg—55 to 71 inches; gray (5Y 6/1) silt loam; massive; friable; few fine faint gray (5Y 5/1) iron depletions and common coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 20 percent sand and 2 percent fine and medium pebbles; neutral; clear smooth boundary.

2Btgb—71 to 80 inches; gray (5Y 6/1) clay loam; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; common distinct dark gray (5Y 4/1) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; about 5 percent fine and medium pebbles; slightly alkaline.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* More than 40 inches

*Thickness of loess:* 0 to 20 inches

*Particle-size control section:* Averages 25 to 35 percent clay, 10 to 25 percent sand, and less than 10 percent gravel. Typically about one-third to one-half of the sand is very fine.

Ap or A horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 to 4

Texture—silt loam or loam, but includes silty clay loam or clay loam in some severely eroded pedons

E horizon, where present:

Hue—10YR

Value—4 to 6

Chroma—2 to 4

Texture—silt loam or loam

Bt horizon:

Hue—10YR

Value—4 to 6

Chroma—2 to 4

Texture—silty clay loam, silt loam, clay loam, or loam

Btg horizon:

Hue—10YR, 2.5Y, or less commonly 5Y

Value—4 to 6

Chroma—1 or 2

Texture—Same as for Bt

Some pedons have a 2Btg horizon in the lower part formed in accretion gley or in till that contains a strongly developed paleosol.

BCg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 or 2

Texture—silt loam, loam, silty clay loam, or clay loam

Cg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 or 2

Texture—silt loam or loam

Some pedons have buried horizons of older soils below a BCg or Cg horizon.

### 5C2—Blair silt loam, 5 to 10 percent slopes, eroded

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Pedisediment

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

**Composition**

*Blair and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Areas that are severely eroded
- \* Soils with a thicker loess cap
- \* Soils with a paleosol at depths less than 20 inches

*Dissimilar soils:*

- \* Darmstadt soils that have a natric horizon
- \* Wakeland soils in small upland drainageways

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**5C3—Blair silt loam, 5 to 10 percent slopes, severely eroded****Setting**

*Landform:* Till Plain

*Position on Landform:* Side Slope

**Soil Properties and Qualities**

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Pedisediment

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Blair and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Areas that are less eroded
- \* Areas with a thicker loess cap
- \* Soils with a paleosol at depths less than 20 inches

*Dissimilar soils:*

- \* Darmstadt soils that have a natric horizon
- \* Wakeland soils in small upland drainageways

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**5D3—Blair silt loam, 10 to 18 percent slopes, severely eroded****Setting**

*Landform:* Till Plain

*Position on Landform:* Side Slope

**Soil Properties and Qualities**

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Pedisediment

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Blair and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Areas that are less eroded
- \* Areas with a thicker loess cap
- \* Soils with a paleosol at depths less than 20 inches

*Dissimilar soils:*

- \* Darmstadt soils that have a natric horizon
- \* Well drained Hickory soils
- \* Wakeland soils in small upland drainageways

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## Blake Series

**Taxonomic Class:** Fine-silty, mixed, superactive, calcareous, mesic Aquic Udifluvents

### Typical Pedon for MLRA 115B

Blake silty clay loam, in a cultivated field, at an elevation of about 365 feet above mean sea level; about 1 mile south of Rockwood in Randolph County, Illinois; approximately 3,295 feet south and 897 feet west of the northeast corner of partial sec. 18, T. 8 S., R. 5 W.; USGS Rockwood, IL-MO. topographic quadrangle; lat. 37 degrees 49 minutes 50 seconds N. and long. 89 degrees 41 minutes 40 seconds W.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine granular structure in the upper part; massive and moderate fine angular blocky in the lower part; firm; slightly alkaline; clear smooth boundary.

C1—6 to 15 inches; stratified very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; thin bedding planes; firm; few fine faint grayish brown (10YR 5/2) iron depletions; slightly effervescent; slightly alkaline; clear smooth boundary.

C2—15 to 20 inches; stratified dark grayish brown (10YR 4/2) silty clay loam and brown (10YR 5/3) silt loam; moderately thick bedding planes; firm; very dark gray (10YR 3/1) faces of peds and worm casts; common medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly effervescent; slightly alkaline; abrupt smooth boundary.

C3—20 to 33 inches; stratified brown (10YR 4/3) silt loam and very dark grayish brown (10YR 3/2) silty clay loam; massive; friable; many fine pores; common worm casts; common medium faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly effervescent; slightly alkaline; abrupt smooth boundary.

C4—33 to 60 inches; stratified brown (10YR 5/3) and dark grayish brown (10YR 4/2) silt loam, loam, and very fine sandy loam; massive; very friable; many medium and coarse faint pale brown (10YR 6/3) masses of iron accumulation in the matrix; strongly effervescent; slightly alkaline.

### MLRA Series Range in Characteristics

*Thickness of the solum:* Less than 10 inches

*Depth to carbonates:* These soils contain carbonates throughout the series control section, but the Ap or A horizon is noncalcareous in some pedons.

Ap or A horizon:

Hue—10YR or 2.5Y

Value—3 or 4 (5 or 6 dry)

Chroma—1 or 2

Texture—silty clay loam or silt loam

C horizon, upper part:

Hue—10YR or 2.5Y

Value—3 or 4

Chroma—1 to 4

Texture—silty clay loam or silt loam

C horizon, lower part:

Hue—10YR or 2.5Y

Value—4 or 5

Chroma—2 or 3

Texture—silt loam, loam, or very fine sandy loam averaging less than 15 percent sand coarser than very fine

In some pedons there is as much as 12 inches of loamy very fine sand below a depth of 40 inches. In some pedons, very thin darkened layers are present. Thin discontinuous strata of finer textured material are in some pedons.

## 3391A—Blake silty clay loam, 0 to 2 percent slopes, frequently flooded

### Setting

*Landform:* Flood Plain

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Blake and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Soils that contain more clay in the surface layer

\* Soils that contain more sand throughout

*Dissimilar soils:*

\* Small areas of well drained Rocher soils on natural levees

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### Bold Series

**Taxonomic Class:** Coarse-silty, mixed, superactive, calcareous, mesic Typic Udorthents

#### Typical Pedon for MLRA 115B

Bold silt loam, in a wooded area, of Sylvan-Bold silt loams, 20 to 30 percent slopes; about 1 mile southwest of the Southern Illinois University, Edwardsville campus in Madison County, Illinois; approximately 1,716 feet west and 1,270 feet south of the northeast corner of sec. 20, T. 4 N., R. 8 W.; USGS Wood River, IL. topographic quadrangle; lat. 38 degrees 47 minutes 10 seconds N. and long. 90 degrees 00 minutes 31 seconds W.

A—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; slightly effervescent; slightly alkaline; clear smooth boundary.

AC—5 to 12 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular and weak fine subangular blocky structure; friable; common dark brown (10YR 3/3) fillings along root channels; slightly effervescent; slightly alkaline; clear smooth boundary.

C—12 to 60 inches; yellowish brown (10YR 5/4) silt loam; massive; very friable; strongly effervescent; moderately alkaline.

#### MLRA Series Range in Characteristics

*Thickness of the solum:* 3 to 12 inches

*Thickness of loess:* More than 6 feet

*Particle-size control section:* Contains between 12 and 18 percent clay and less than 10 percent total sand

*Depth to carbonates:* It commonly is calcareous throughout. Pedons which do not have carbonates in the upper 10 inches are not excluded.

Ap or A horizon:

Hue—10YR

Value—4 to 6 for the Ap horizon, and 3 or 4 for the A horizon

Chroma—2 to 6 for the Ap horizon, and 1 to 4 for the A horizon

Texture—silt loam

Some pedons have an AC horizon

C horizon:

Hue—10YR

Value—4 to 7

Chroma—2 to 8

Texture—silt loam

### Bunkum Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

#### Typical Pedon for MLRA 114

Bunkum silty clay loam, on a west-facing, severely eroded back slope, with a gradient of 9 percent; in a cultivated field at an elevation of about 510 feet above mean sea level; about 1 mile west of Smithton in St. Clair County, Illinois (map sheet Millstadt SE, IL.); approximately 1,740 feet south and 160 feet east of the center of sec. 29, T. 1 S., R. 8 W.; USGS Millstadt, IL. topographic quadrangle; lat. 38 degrees 24 minutes 47 seconds N. and long. 90 degrees 00 minutes 37 seconds W.

Ap—0 to 8 inches; mixed brown (10YR 4/3) and yellowish brown (10YR 5/4) silty clay loam, pale brown (10YR 6/3) dry; moderate very fine subangular blocky structure; friable; many very fine roots; common fine and medium constricted tubular pores; common fine rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 30 percent clay; neutral; abrupt smooth boundary.

Bt1—8 to 16 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; few fine constricted tubular pores; common distinct brown (10YR 5/3) clay films on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 34 percent clay; slightly acid; clear smooth boundary.

Bt2—16 to 26 inches; yellowish brown (10YR 5/4) silty clay loam; weak fine prismatic structure parting to weak fine and medium subangular blocky; firm; common very fine roots; few very fine constricted tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and

common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 31 percent clay; slightly acid; clear smooth boundary.

**Btg1**—26 to 32 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to weak medium angular blocky; firm; few very fine roots; few fine and medium constricted tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine distinct light olive brown (2.5Y 5/4) and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 28 percent clay; moderately acid; clear smooth boundary.

**Btg2**—32 to 40 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse angular blocky structure; friable; few very fine roots; few fine and medium constricted tubular pores; few prominent dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common medium and coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 26 percent clay; moderately acid; gradual smooth boundary.

**CBg**—40 to 58 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few very fine roots; few fine and medium constricted tubular pores; few prominent dark grayish brown (10YR 4/2) clay films on vertical cleavage planes; few medium and coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 21 percent clay; slightly acid; abrupt smooth boundary.

**2CB**—58 to 82 inches; brown (7.5YR 5/4) silt loam; massive; friable; few fine and medium constricted tubular pores; few fine distinct pinkish gray (7.5YR 6/2) iron depletions in the matrix; few medium rounded very dark brown (7.5YR 2.5/3) iron-manganese concretions with clear strong brown (7.5YR 4/6) boundaries; about 25 percent clay and 8 percent sand; slightly acid.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 24 to 60 inches

*Thickness of loess:* Typically 24 to about 60 inches

Ap horizon, and A and E horizons, where present:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 to 4

Texture—silt loam or silty clay loam

Bt and Btg horizons:

Hue—10YR, 2.5Y, or less commonly 5Y

Value—4 to 6

Chroma—1 to 4

Texture—silty clay loam or silt loam

BCg and CBg horizons:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 or 2

Texture—silt loam

2CB horizon, and 2C horizon, where present:

Hue—7.5YR, 10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 or 2

Texture—silt loam

### 515C2—Bunkum silt loam, 5 to 10 percent slopes, eroded

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Bunkum and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Soils that have a thicker loess mantle

\* Soils that contain more clay in the subsoil

\* Areas of moderately well drained soils

*Dissimilar soils:*

- \* Wakeland soils in small upland drainageways

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**515C3—Bunkum silty clay loam, 5 to 10 percent slopes, severely eroded****Setting**

*Landform:* Till Plain

*Position on Landform:* Side Slope

**Soil Properties and Qualities**

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Bunkum and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Soils that have a thinner loess mantle
- \* Soils that contain more clay in the subsoil
- \* Areas of moderately well drained soils

*Dissimilar soils:*

- \* Wakeland soils in small upland drainageways

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**515D3—Bunkum silty clay loam, 10 to 18 percent slopes, severely eroded****Setting**

*Landform:* Till Plain

*Position on Landform:* Side Slope

**Soil Properties and Qualities**

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Bunkum and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Soils that have a thinner loess mantle
- \* Soils that contain more clay in the subsoil
- \* Areas of moderately well drained soils

*Dissimilar soils:*

- \* Wakeland soils in upland drainageways

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**897D3—Bunkum-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded****Setting**

*Landform:* Till Plain

*Position on Landform:* Side Slope

**Soil Properties and Qualities**

*Drainage:* Somewhat poorly drained

*Dominant parent material:*

- \* Bunkum—Loess
- \* Atlas—Till

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Bunkum and similar soils:* 50 percent

*Atlas and similar soils:* 40 percent

*Dissimilar soils:* 10 percent

#### *Similar soils:*

- \* Areas of moderately eroded soils
- \* Soils that contain a concentration of exchangeable sodium in the subsoil

#### *Dissimilar soils:*

- \* Well drained Hickory soils

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## **884C3—Bunkum-Coulterville silty clay loams, 5 to 10 percent slopes, severely eroded**

### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Bunkum and similar soils:* 50 percent

*Coulterville and similar soils:* 40 percent

*Dissimilar soils:* 10 percent

#### *Similar soils:*

- \* Soils that have a paleosol in the subsoil
- \* Areas of less sloping soils
- \* Areas of moderately well drained soils

*Dissimilar soils:* Wakeland soils in small upland drainageways

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## **Caseyville Series**

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs

### Typical Pedon for MLRA 115B

Caseyville silt loam, nearly level in a cultivated field, at an elevation of about 580 feet above mean sea level; about 3 miles northwest of Millstadt in St. Clair County, Illinois (map sheet Millstadt NW, IL.); approximately 105 feet south and 180 feet west of the northeast corner of sec. 32, T. 1 N., R. 9 W.; USGS Millstadt, IL. topographic quadrangle; lat. 38 degrees 29 minutes 53 seconds N. and long. 90 degrees 6 minutes 40 seconds W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; many very fine and few fine roots; few fine rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 21 percent clay; neutral; clear smooth boundary.

Eg—7 to 12 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak medium platy structure parting to weak fine subangular blocky; friable; common very fine and few fine roots; few fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 20 percent clay; moderately acid; clear smooth boundary.

BE—12 to 16 inches; brown (10YR 5/3) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; common distinct very pale brown (10YR 8/2, dry) clay depletions on

faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 28 percent clay; moderately acid; clear smooth boundary.

Bt1—16 to 23 inches; brown (10YR 4/3) silty clay loam; strong medium angular blocky structure; firm; common very fine roots; few distinct very pale brown (10YR 8/2, dry) clay depletions on faces of peds in the upper part; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 32 percent clay; strongly acid; clear smooth boundary.

Bt2—23 to 36 inches; brown (10YR 5/3) silty clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; common very fine roots primarily along vertical faces of peds; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint grayish brown (10YR 5/2) iron depletions and common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 31 percent clay; strongly acid; gradual smooth boundary.

Bt3—36 to 54 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots primarily along vertical faces of peds; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; moderately acid; clear smooth boundary.

BCtg—54 to 62 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium prismatic structure; friable; few very fine roots; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 24 percent clay; slightly acid; gradual smooth boundary.

CBg—62 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; very few distinct dark grayish brown (10YR 4/2) clay films lining root channels; common fine and medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 20 percent clay; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 40 to 76 inches

*Depth to carbonates:* More than 60 inches, where present

*Thickness of loess:* More than 80 inches

*Particle-size control section:* Averages 27 to 35 percent clay and less than 7 percent sand

Ap horizon:

Hue—10YR

Value—4 to 6 (6 or 7 dry)

Chroma—1 or 2

Texture—silt loam

Undisturbed areas have A horizons 2 to 5 inches in thickness with a color value of 3.

Eg or E horizon:

Hue—10YR

Value—4 to 6 (6 or 7 dry)

Chroma—2, and less commonly chroma of 1 to 3

Texture—silt loam

Some pedons have an EB horizon.

Bt horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 to 4

Texture—dominantly silty clay loam, but is silt loam in the lower part of some pedons

Some pedons have a BC horizon

CBg, Cg or C horizon:

Hue—7.5YR, 10YR, 2.5Y, or 5Y

Value—5 or 6

Chroma—1 to 4

Texture—silt loam

### 267A—Caseyville silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluve

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Caseyville and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain more clay in the subsoil
- \* Areas of poorly drained soils
- \* Areas of moderately well drained soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### 267B—Caseyville silt loam, 2 to 5 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluvium

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Caseyville and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain more clay in the subsoil

\* Areas of poorly drained soils

\* Areas of moderately well drained soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### Coffeen Series

**Taxonomic Class:** Coarse-silty, mixed, superactive, mesic Fluvaquentic Hapludolls

#### Typical Pedon for MLRA 114

Coffeen silt loam, nearly level in a cultivated field, at an elevation of about 390 feet above mean sea level; about 0.5 mile southeast of Modoc in Randolph County; Illinois State Plane Coordinates 503,200 feet north and 538,150 feet east (Illinois West Zone), T. 5 S., R. 8 W.; USGS Prairie du Rocher, IL.- MO. topographic quadrangle; lat. 38 degrees 2 minutes 55 seconds N. and long. 90 degrees 2 minutes 5 seconds W.

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; slightly acid; abrupt smooth boundary.

Bw—10 to 21 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; slightly acid; clear smooth boundary.

Bg1—21 to 26 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure; friable; few medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Bg2—26 to 33 inches; grayish brown (10YR 5/2) silt loam; moderate medium subangular blocky structure; friable; dark grayish brown (10YR 4/2) coatings on faces of peds; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Bg3—33 to 39 inches; grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; common fine prominent strong brown

(7.5YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

BCg—39 to 47 inches; light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure and massive; friable; common fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly acid; gradual smooth boundary.

Cg—47 to 60 inches; gray (10YR 6/1) silt loam; massive; friable; many fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly acid.

#### MLRA Series Range in Characteristics

*Depth to the base of soil development:* Commonly 30 to 50 inches but ranges to 64 inches

*Thickness of the mollic epipedon:* 10 to 18 inches

*Depth to buried soil:* Below a depth of 50 inches, where present

*Particle-size control section:* Averages 12 to 18 percent clay

A horizon:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 to 3

Texture—silt loam

Some pedons have an AB horizon

B horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 or 3

Texture—silt loam

C horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 7

Chroma—1 to 3

Texture—silt loam, or is stratified silt loam, loam, or sandy loam

### 3428A—Coffeen silt loam, 0 to 2 percent slopes, frequently flooded

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this

section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Coffeen and similar soils:* 100 percent

*Similar soils:*

\* Soils that have a light-colored surface layer

\* Soils that contain more clay throughout

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Agronomy” section

\* “Forestland Management and Productivity” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

### Colp Series

**Taxonomic Class:** Fine, smectitic, mesic Aquertic Chromic Hapludalfs

#### Typical Pedon for MLRA 114

Colp silt loam, nearly level in a cultivated field, at an elevation of about 420 feet above mean sea level; about 4 miles south and 2 miles east of Hecker in Monroe County, Illinois; approximately 1,095 feet east and 110 feet north of the center of sec. 27, T. 3 S., R. 8 W.; USGS Red Bud, IL. topographic quadrangle; lat. 38 degrees 14 minutes 38 seconds N. and long. 89 degrees 58 minutes 2 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; common very fine roots; few fine continuous tubular pores; few fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; 21 percent clay; neutral; abrupt smooth boundary.

E—8 to 12 inches; light brownish gray (10YR 6/2) silt loam, very pale brown (10YR 8/2) dry; weak fine subangular blocky structure parting to moderate fine granular; friable; few very fine roots; few very fine continuous tubular pores; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; 19 percent clay; moderately acid; abrupt smooth boundary.

- 2Bt1—12 to 17 inches; yellowish brown (10YR 5/4) silty clay; weak fine prismatic structure parting to moderate fine angular blocky; firm; few very fine roots; common prominent very pale brown (10YR 8/2, dry) clay depletions on faces of peds; many faint brown (10YR 5/3) clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; 46 percent clay; very strongly acid; clear smooth boundary.
- 2Bt2—17 to 23 inches; yellowish brown (10YR 5/4) silty clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; many faint brown (10YR 5/3) clay films on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; 48 percent clay; very strongly acid; gradual smooth boundary.
- 2Bt3—23 to 30 inches; yellowish brown (10YR 5/4) silty clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; common faint brown (10YR 5/3) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; 47 percent clay; very strongly acid; gradual smooth boundary.
- 2Bt4—30 to 37 inches; yellowish brown (10YR 5/4) clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; common faint brown (10YR 5/3) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; 61 percent clay; very strongly acid; clear smooth boundary.
- 2Bt5—37 to 48 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; common distinct grayish brown (10YR 5/2) clay films on faces of peds; few prominent black (N 2.5/0) iron-manganese coatings lining root channels; common medium faint light brownish gray (10YR 6/2) iron depletions and many medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; 37 percent clay; very strongly acid; abrupt smooth boundary.
- 2Btg1—48 to 55 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; friable; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds and lining root channels; few prominent black (N 2.5/0) iron-manganese coats lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries on vertical faces of peds; 36 percent clay; moderately acid; abrupt smooth boundary.
- 2Btg2—55 to 70 inches; light brownish gray (2.5Y 6/2) silty clay; weak medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds and lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries on vertical faces of peds; 43 percent clay; moderately acid; clear smooth boundary.
- 2BCtkg—70 to 80 inches; grayish brown (2.5Y 5/2) silty clay; weak medium prismatic structure parting to moderate fine and medium angular blocky; very firm; common distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; common prominent reddish brown (5YR 4/4) iron-manganese coatings lining channels and pores; few fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; common fine and medium irregular white (10YR 8/1) carbonate nodules with sharp boundaries; slightly effervescent in the matrix; slightly alkaline.

#### MLRA Series Range in Characteristics

- Depth to the base of the argillic horizon:* More than 50 inches
- Thickness of loess or other silty material:* 0 to 20 inches
- Particle-size control section:* Averages 35 to 50 percent clay and less than 15 percent sand, but some subhorizons contain 50 to about 60 percent clay
- Depth to carbonates:* In the lower part of the argillic horizon in some pedons and typically in the C horizon

Ap or A horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry), and 3 for some thin A horizons

Chroma—1 to 4

Texture—silt loam, but includes silty clay loam in some eroded pedons

E horizon, where present:

Hue—10YR

Value—5 or 6 (6 to 8 dry)

Chroma—2 to 4

Texture—silt loam

Some pedons have a thin silt loam or silty clay loam BE horizon or Bt horizon formed in the upper silty material.

2Bt horizon:

Hue—10YR, and less commonly 7.5YR or 2.5Y

Value—4 to 6

Chroma—3 to 6

Texture—silty clay loam or silty clay, but some subhorizons are clay or clay loam, and some pedons contain thin strata of silt loam, loam, or fine sandy loam in the lower part

2Btg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 or 2

Texture—same as the 2Bt horizon

The 2BCtkg, 2BC or 2BCg horizon has colors and textures similar to those for the 2Bt or 2Btg horizon

2C or 2Cg horizon, where present:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—1 to 8

Texture—silty clay loam or silty clay, and is stratified in some pedons

### **8122C—Colp silty clay loam, 5 to 10 percent slopes, severely eroded, occasionally flooded**

#### **Setting**

*Landform:* Lake Plain

*Position on Landform:* Side slope

#### **Soil Properties and Qualities**

*Drainage:* Moderately well drained

*Dominant parent material:* Lacustrine deposits

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this

section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### **Composition**

*Colp and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Areas of somewhat poorly drained soils

\* Areas of moderately eroded soils

*Dissimilar soils:*

\* Petrolia soils in drainageways

#### **Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Agronomy” section

\* “Forestland Management and Productivity” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

### **8122D—Colp silty clay loam, 10 to 18 percent slopes, severely eroded, occasionally flooded**

#### **Setting**

*Landform:* Lake Plain

*Position on Landform:* Sideslope

#### **Soil Properties and Qualities**

*Drainage:* Moderately well drained

*Dominant parent material:* Lacustrine deposits

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### **Composition**

*Colp and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Areas of well drained soils

\* Areas of moderately eroded soils

*Dissimilar soils:*

\* Petrolia soils in drainageways

## Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## Coulterville Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs

### Typical Pedon for MLRA 114

Coulterville silt loam, on an eroded southeast-facing concave slope, of 3 percent in a cultivated field at an elevation of about 467 feet above mean sea level; about 0.5 mile southwest of Hecker, in Monroe County, Illinois (map sheet Paderborn SE, IL.); approximately 1,320 feet west and 2,100 feet north of the southeast corner of sec. 5, T. 3 S., R. 8 W.; USGS Paderborn, IL. topographic quadrangle; lat. 38 degrees 18 minutes 2 seconds N. and long. 90 degrees 00 minutes 11 seconds W.

Ap—0 to 7 inches; mixed dark grayish brown (10YR 4/2) and brown (10YR 4/3) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common very fine and few fine roots; few fine rounded yellowish red (5YR 5/8) masses of iron-manganese accumulation and common fine rounded very dark gray (7.5YR 3/1) iron-manganese nodules; 2 percent exchangeable sodium; 19 percent clay; moderately acid; abrupt smooth boundary.

Btn—7 to 11 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; friable; common very fine and few fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few fine rounded yellowish red (5YR 5/8) masses of iron-manganese accumulation and few fine rounded very dark gray (7.5YR 3/1) iron-manganese nodules; 5 percent exchangeable sodium; 36 percent clay; neutral; clear smooth boundary.

Btng1—11 to 15 inches; gray (5Y 6/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; common very fine and few fine roots; common distinct dark grayish brown (10YR 4/2) clay films

on faces of peds; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few fine rounded yellowish red (5YR 5/8) masses of iron-manganese accumulation and common fine rounded very dark gray (7.5YR 3/1) iron-manganese nodules; 9 percent exchangeable sodium; 32 percent clay; neutral; clear smooth boundary.

Btng2—15 to 23 inches; gray (5Y 6/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots; common faint light gray (10YR 7/1, dry) clay depletions on faces of peds, common distinct grayish brown (10YR 5/2) clay films on faces of peds, and few distinct very dark grayish brown (10YR 3/2) clay films in root channels; common medium prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; common fine and medium rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation and common fine rounded black (10YR 2/1) iron-manganese nodules; very dark grayish brown (10YR 3/2) vertical krotovinas; 12 percent exchangeable sodium; 29 percent clay; slightly effervescent throughout; moderately alkaline; clear smooth boundary.

Btkng1—23 to 28 inches; gray (5Y 5/1) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; common faint light gray (10YR 7/1, dry) clay depletions on faces of peds, few faint grayish brown (10YR 5/2) clay films on faces of peds, and few distinct very dark grayish brown (10YR 3/2) clay films in root channels; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common medium irregular strong brown (7.5YR 4/6) iron-manganese nodules and few medium irregular carbonate nodules; 14 percent exchangeable sodium; 24 percent clay; slightly effervescent; moderately alkaline; clear smooth boundary.

Btkng2—28 to 33 inches; light olive gray (5Y 6/2) silt loam; weak medium subangular blocky structure; friable; few very fine roots; common faint light gray (10YR 7/1, dry) clay depletions on faces of peds, few faint grayish brown (10YR 5/2) clay films on faces of peds, and few prominent black (10YR 2/1) iron-manganese stains on faces of peds; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular dark brown (7.5YR 3/3) masses of iron-manganese accumulation and few medium irregular carbonate nodules; 10 percent exchangeable sodium; 24 percent clay; slightly effervescent; moderately alkaline; clear smooth boundary.

**Btkn**—33 to 39 inches; olive (5Y 5/3) silt loam; weak medium subangular blocky structure; friable; few faint grayish brown (10YR 5/2) clay films on faces of peds; common medium distinct light brownish gray (2.5Y 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many medium irregular dark brown (7.5YR 3/2) masses of iron-manganese accumulation and few medium irregular carbonate nodules; 8 percent exchangeable sodium; 21 percent clay; slightly effervescent; moderately alkaline; clear smooth boundary.

**BCkn**—39 to 56 inches; brown (10YR 5/3) silt loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few prominent black (10YR 2/1) manganese stains on vertical faces of peds and in root channels; common prominent white (10YR 8/1) carbonate coatings on vertical faces of peds; common medium distinct light brownish gray (2.5Y 6/2) iron depletions and common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular dark brown (7.5YR 3/2) masses of iron-manganese accumulation; 6 percent exchangeable sodium; 19 percent clay; slightly effervescent; moderately alkaline; clear smooth boundary.

**Ckn**—56 to 68 inches; brown (10YR 5/3) silt loam; massive; friable; few prominent white (10YR 8/1) carbonate coatings along faces of cleavage planes; common medium prominent strong brown (7.5YR 4/6) and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules; 5 percent exchangeable sodium; 16 percent clay; slightly effervescent; moderately alkaline; gradual smooth boundary.

**2C**—68 to 83 inches; brown (7.5YR 5/4) silt loam; massive; friable; few fine tubular pores; common medium prominent light brownish gray (2.5Y 6/2) iron depletions and common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few fine rounded dark brown (7.5YR 3/3) masses of iron-manganese accumulation; about 10 percent sand; slightly alkaline.

#### **MLRA Series Range in Characteristics**

*Depth to the base of the argillic horizon:* 35 to 70 inches

*Depth to carbonates:* In the middle to lower parts of the argillic and in strata below the argillic horizon, but are not everywhere present

**Ap or A horizon:**

Hue—10YR  
Value—3 or 4 (5 or 6 dry)  
Chroma—2 or 3  
Texture—silt loam

**E horizon, where present:**

Hue—10YR  
Value—4 to 6  
Chroma—2 or 3  
Texture—silt loam

**Bt horizon:**

Hue—10YR, 2.5Y, or 5Y  
Value—4 to 6  
Chroma—1 to 4  
Texture—dominantly silty clay loam, but includes silt loam or silty clay in some subhorizons

Some pedons have a 2Bt or 2BC horizon formed in loamy material with a low content of sand

**BC horizon:**

Hue—10YR, 2.5Y, or 5Y  
Value—5 or 6  
Chroma—1 to 3  
Texture—silt loam or silty clay loam

**C or 2C horizon:**

Hue—7.5YR, 10YR, 2.5Y, or 5Y  
Value—5 to 7  
Chroma—1 to 4  
Texture—silt loam, loam, or silty clay loam

Some pedons have a C horizon that is underlain by buried horizons of older horizons. These horizons are commonly silt loam, loam, silty clay loam, or clay loam.

### **880B2—Coulterville-Darmstadt silt loams, 2 to 5 percent slopes, eroded**

#### **Setting**

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### **Soil Properties and Qualities**

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Coulterville and similar soils:* 50 percent  
*Darmstadt and similar soils:* 40 percent  
*Dissimilar soils:* 10 percent

#### *Similar soils:*

- \* Areas of severely eroded soils
- \* Soils that do not contain a concentration of exchangeable sodium in the subsoil

#### *Dissimilar soils:*

- \* Oconee soils that do not have a natric horizon

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### **878C3—Coulterville-Grantfork silty clay loams, 5 to 10 percent slopes, severely eroded**

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:*

- \* Coulterville—Loess
- \* Grantfork—Pedisediment

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Coulterville and similar soils:* 50 percent  
*Grantfork and similar soils:* 40 percent  
*Dissimilar soils:* 10 percent

#### *Similar soils:*

- \* Soils that have a natric horizon
- \* Areas of moderately eroded soils

#### *Dissimilar soils:*

- \* Wakeland soils in small upland drainageways

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### Cowden Series

**Taxonomic Class:** Fine, smectitic, mesic Vertic Albaqualfs

#### Typical Pedon for MLRA 114

Cowden silt loam, nearly level in a cultivated field, at an elevation of about 665 feet above mean sea level; about 2 miles northwest of Butler in Montgomery County, Illinois; approximately 1,980 feet west and 30 feet north of the southeast corner of sec. 8, T. 9 N., R. 4 W.; USGS Butler, IL. topographic quadrangle; lat. 39 degrees 13 minutes 55 seconds N. and long. 89 degrees 33 minutes 18 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine granular structure; friable; common very fine and few fine roots; few fine continuous tubular pores; few fine irregular dark brown (10YR 3/3) masses of iron-manganese accumulation; moderately acid; abrupt smooth boundary.

Eg1—8 to 14 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; weak medium platy structure parting to weak fine subangular blocky; friable; few very fine roots; common fine and medium tubular and vesicular pores; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds and filling pores; few fine irregular dark brown (10YR 3/3) masses of iron-manganese accumulation; moderately acid; clear smooth boundary.

Eg2—14 to 19 inches; gray (10YR 5/1) silt loam, light gray (10YR 7/1) dry; weak medium platy structure parting to weak fine subangular blocky; friable; few very fine roots; common fine and medium continuous tubular pores; common fine faint grayish brown (10YR 5/2) masses of iron accumulation in the matrix; common fine irregular dark brown (10YR 3/3) masses of iron-manganese accumulation; strongly acid; abrupt smooth boundary.

Btg1—19 to 26 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine and medium prismatic structure parting to moderate medium angular and

subangular blocky; firm; common very fine roots; few fine continuous tubular pores; common distinct light gray (10YR 7/1, dry) clay depletions on faces of peds in the upper 2 inches; many prominent very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/4 and 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; strongly acid; clear smooth boundary.

Btg2—26 to 43 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium and coarse angular blocky; firm; few very fine roots; many prominent very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) and dark reddish brown (5YR 3/4) iron-manganese nodules with sharp boundaries; moderately acid; gradual smooth boundary.

Btg3—43 to 50 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse angular blocky structure; firm; few very fine roots; few fine vesicular and tubular pores; few prominent black (10YR 2/1) organic coatings lining root channels and pores; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few medium and coarse irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; slightly acid; gradual smooth boundary.

BCg—50 to 58 inches; gray (10YR 6/1) silt loam; weak medium and coarse angular blocky structure; friable; few very fine roots; few fine vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and pores; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common coarse prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; neutral; clear smooth boundary.

Cg—58 to 69 inches; grayish brown (10YR 5/2) silt loam; massive, friable; few fine and medium vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and pores; many medium and coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (5YR 2.5/1) iron-

manganese nodules with diffuse yellowish red (5YR 5/6) boundaries; about 8 percent sand; neutral; clear smooth boundary.

2Btgb—69 to 80 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine and medium prismatic structure parting to weak medium angular blocky, firm; common medium and coarse vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium and coarse irregular black (5YR 2.5/1) and yellowish red (5YR 4/6) iron-manganese nodules with clear boundaries; about 15 percent sand and 2 percent pebbles; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 40 to 74 inches

*Thickness of loess:* 55 to about 80 inches

*Particle-size control section:* Averages 35 to 42 percent clay. Some pedons have one or more thin subhorizons that have as much as 45 percent clay.

Ap horizon:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2

Texture—silt loam

Eg horizon:

Hue—10YR

Value—4 to 6 (6 or 7 dry)

Chroma—1 or 2

Texture—silt loam

Some pedons have a B/Eg horizon less than 3 inches in thickness

Btg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 or 2

Texture—typically silty clay loam, but some subhorizons are silty clay, and the lower part is silt loam in some pedons

Cg horizon and BCg horizon, where present:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silt loam

2Cg and/or 2Ab or 2Bb horizon, where present:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—2 to 6

Chroma—0 to 2

Texture—silt loam, loam, silty clay loam, or clay loam

### 112A—Cowden silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluve

#### Soil Properties and Qualities

*Drainage:* Poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Cowden and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Soils that are somewhat poorly drained
- \* Soils with a light-colored surface horizon
- \* Soils that do not have an abrupt textural change

*Dissimilar soils:*

- \* Piasa soils that have a natric horizon
- \* Small areas of depressional soils that remain wet for periods that extend into the growing season

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 993A—Cowden-Piasa silt loams, 0 to 2 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluve

#### Soil Properties and Qualities

*Drainage:* Poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Cowden and similar soils:* 50 percent

*Piasa and similar soils:* 40 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Areas of somewhat poorly drained soils

*Dissimilar soils:*

- \* Small areas of depressional soils that remain wet for periods that extend into the growing season

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### Darmstadt Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Albic Natraqualfs

#### Typical Pedon for MLRA 114

Darmstadt silt loam, on a nearly level summit, in a cultivated field at an elevation of about 470 feet above mean sea level; about 2 miles south of Smithton in St. Clair County, Illinois (map sheet Freeburg SW, IL.); approximately 1,202 feet west and 84 feet south of the northeast corner of sec. 9, T. 2 S., R. 8 W.; USGS Freeburg, IL. topographic quadrangle; lat. 38 degrees 22 minutes 52 seconds N. and long. 89 degrees 59 minutes 7 seconds W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak thick platy structure parting to weak very fine granular; friable; many very fine roots; few fine continuous tubular pores; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp

boundaries; 1 percent exchangeable sodium; neutral; abrupt smooth boundary.

E—8 to 11 inches; light brownish gray (10YR 6/2) and grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak thick platy structure parting to weak fine subangular blocky; friable; common very fine roots; few fine constricted tubular pores; many fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; 4 percent exchangeable sodium; neutral; abrupt smooth boundary.

Btn1—11 to 16 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; firm; many very fine roots; few faint grayish brown (10YR 5/2) clay films on faces of peds; common medium faint grayish brown (10YR 5/2) iron depletions and common medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; and few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; 7 percent exchangeable sodium; very strongly acid; gradual smooth boundary.

Btn2—16 to 21 inches; pale brown (10YR 6/3) silty clay loam; moderate medium prismatic structure parting to strong medium angular blocky; firm; common very fine roots; common distinct gray (10YR 5/1) clay films on faces of peds; many fine faint grayish brown (10YR 5/2) iron depletions, and many fine distinct brownish yellow (10YR 6/6) and many fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; 12 percent exchangeable sodium; moderately acid; gradual smooth boundary.

Btn3—21 to 27 inches; pale brown (10YR 6/3) and light brownish gray (10YR 6/2) silty clay loam; moderate coarse prismatic structure; firm; few very fine roots; few distinct gray (10YR 5/1) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; 17 percent exchangeable sodium; slightly acid; gradual smooth boundary.

Btng1—27 to 35 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse prismatic structure; firm; few very fine roots; common fine vesicular

pores; few distinct gray (10YR 5/1) clay films on vertical faces of peds and few distinct black (10YR 2/1) and very dark gray (10YR 3/1) clay films lining root channels and pores; few medium faint dark gray (10YR 4/1) iron depletions, and few medium distinct dark yellowish brown (10YR 4/4) and light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; common coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; 20 percent exchangeable sodium; neutral; clear smooth boundary.

Btng2—35 to 39 inches; light gray (10YR 7/1) silty clay loam; weak coarse prismatic structure; friable; few very fine roots; few very fine vesicular pores; few distinct gray (10YR 5/1) clay films on vertical faces of peds; few coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium irregular black (7.5YR 2.5/1) and common coarse irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; 25 percent exchangeable sodium; slightly alkaline; abrupt smooth boundary.

Cng1—39 to 44 inches; light gray (10YR 7/1) silt loam; massive; friable; few very fine roots; few very fine vesicular pores; many coarse prominent yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; few medium irregular white (10YR 8/1) carbonate nodules; 25 percent exchangeable sodium; slightly effervescent; slightly alkaline; abrupt smooth boundary.

Cng2—44 to 62 inches; light gray (10YR 7/1) silt loam; massive; friable; few fine tubular and vesicular pores; few distinct very dark grayish brown (10YR 3/2) clay films lining root channels and pores; many coarse prominent yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation in the matrix; few medium irregular black (7.5YR 2.5/1) and many medium and coarse irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 25 percent exchangeable sodium; slightly effervescent; moderately alkaline; gradual smooth boundary.

Cng3—62 to 80 inches; light gray (10YR 7/1) silt loam; massive; friable; few distinct very dark grayish brown (10YR 3/2) clay films lining root channels; many coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) and common medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; moderately alkaline.

**MLRA Series Range in Characteristics**

*Depth to the base of the natric horizon:* Typically 35 to 50 inches, but ranges from 30 to 60 inches

*Particle-size control section:* Averages 27 to 35 percent clay and less than 10 percent sand. The maximum clay content in any subhorizon is 42 percent.

Ap horizon:

Hue—10YR

Value—3 to 5 (5 or 6 dry)

Chroma—2 or 3

Texture—silt loam, but includes silty clay loam in some severely eroded pedons

E horizon:

Hue—10YR

Value—5 or 6

Chroma—2

Texture—silt loam

In some eroded areas the E horizon has been mixed into the Ap horizon.

Btn and Btn<sub>g</sub> horizons:

Hue—10YR or 2.5Y

Value—4 to 7

Chroma—2 to 6

Texture—dominantly silty clay loam, but may have thin subhorizons of silty clay, and grades to silt loam in the lower part in some pedons

Some pedons have a Bg, BC, 2Bt, 2Bg, or 2BC horizon in the lower part of the solum.

Cng or Cg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—5 to 7

Chroma—1 or 2

Texture—silt loam

Some pedons have 2Ab, 2Btb, and/or 2C horizons below a depth of 45 inches.

**Darwin Series**

**Taxonomic Class:** Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls

**Typical Pedon for MLRA 115B**

Darwin silty clay, on a nearly level flood plain, in a cultivated field at an elevation of about 423 feet above mean sea level; about 1 mile east of Mitchell in Madison County, Illinois; approximately 1,280 feet north and 60 feet east of the southwest corner of sec. 25, T. 4 N., R. 9 W.; USGS Wood River, IL.-MO. topographic quadrangle; lat. 38 degrees 45 minutes 52 seconds N. and long. 90 degrees 3 minutes 24 seconds W.

Ap1—0 to 3 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; moderate medium granular structure; firm; many very fine and few fine roots; neutral; abrupt smooth boundary.

Ap2—3 to 10 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; strong fine and medium angular blocky structure; very firm; common very fine and few fine roots; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; neutral; abrupt smooth boundary.

AB—10 to 16 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; moderate fine and medium angular blocky structure; very firm; common very fine and few fine roots; common faint very dark gray (10YR 3/1) pressure faces on faces of peds; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

Bg1—16 to 28 inches; dark gray (2.5Y 4/1) silty clay; weak medium prismatic structure parting to moderate fine and medium angular blocky; very firm; common very fine and few fine roots; many faint dark gray (2.5Y 4/1) pressure faces on faces of peds; common fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

Bg2—28 to 40 inches; dark gray (2.5Y 4/1) silty clay; moderate medium prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots; many distinct dark gray (2.5Y 4/1) pressure faces on faces of peds; few fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

Bg3—40 to 52 inches; dark gray (5Y 4/1) silty clay; moderate medium prismatic structure parting to moderate fine and medium angular blocky; very firm; few very fine roots; many distinct dark gray (5Y 4/1) pressure faces on faces of peds; common fine prominent yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

Bg4—52 to 62 inches; dark gray (5Y 4/1) silty clay; moderate coarse prismatic structure parting to moderate medium and coarse angular blocky; very firm; few very fine roots; many distinct dark gray (5Y 4/1) pressure faces on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR

4/6) masses of iron-manganese accumulation; neutral; gradual smooth boundary.

BCg—62 to 69 inches; gray (5Y 5/1) silty clay loam; weak coarse prismatic structure; firm; few very fine roots; common distinct very dark gray (2.5Y 3/1) organo-clay films on vertical faces of peds; common medium prominent yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; neutral; clear smooth boundary.

Cg—69 to 80 inches; olive gray (5Y 5/2) silty clay loam; friable; few prominent very dark gray (2.5Y 3/1) organo-clay films lining root channels and filling vesicular pores; many medium and coarse prominent yellowish brown (10YR 5/6) and common fine and medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of soil development:* 40 to more than 60 inches

*Thickness of the mollic epipedon:* 10 to 24 inches

*Depth to carbonates:* Some pedons contain carbonates in the lower part of the Bg horizon and in the Cg horizon.

A horizon:

Hue—10YR, 2.5Y, or neutral

Value—2 or 3 (4 or 5 dry)

Chroma—0 to 2

Texture—typically silty clay, but the range includes silty clay loam and clay

Bg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—3 to 6

Chroma—0 to 2

Texture—typically silty clay, but some pedons contain subhorizons of clay, and some pedons have subhorizons in the lower part that are silty clay loam

Cg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—typically silty clay loam, silty clay, or clay, but some pedons contain subhorizons of silt loam, and some pedons are stratified

### 2071L—Darwin-Urban land complex, 0 to 2 percent slopes, occasionally flooded, long duration

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Darwin and similar soils:* 50 percent

*Urban land:* 40 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Areas of somewhat poorly drained soils

\* Soils that contain more sand throughout

*Dissimilar soils:*

\* Well drained Landes soils on natural levees

*Urban land:*

\* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

### 8071L—Darwin silty clay, 0 to 2 percent slopes, occasionally flooded, long duration

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Drainage:* Poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Darwin and similar soils:* 100 percent

#### *Similar soils:*

- \* Soils that contain less clay in the subsoil
- \* Soils that have a thinner dark surface layer
- \* Soils that contain more sand in the substratum

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## 1071A—Darwin silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded

### Setting

*Landform:* Flood Plain

### Soil Properties and Qualities

*Drainage:* Very poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Darwin, undrained and similar soils:* 100 percent

#### *Similar soils:*

- \* Soils with a thinner dark surface layer
- \* Soils that contain carbonates
- \* Soils that contain more sand in the substratum
- \* Soils that contain more or less clay in the subsoil

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Downsouth Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

### Typical Pedon for MLRA 115B

Downsouth silt loam, on a northwest-facing 3 percent slope, on a convex summit in a cultivated field at an elevation of about 560 feet above mean sea level; about 1 mile south of Belleville along State Route 15 in St. Clair County, Illinois (map sheet French Village SE, IL.); approximately 600 feet south and 550 feet east of the northwest corner of sec. 19, T. 1 N., R. 8 W.; USGS French Village, IL. topographic quadrangle; lat. 38 degrees 31 minutes 30 seconds N. and long. 90 degrees 2 minutes 4 seconds W.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine roots; few fine and medium continuous tubular pores; about 20 percent clay; neutral; abrupt smooth boundary.

E—9 to 13 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate thick platy structure parting to moderate medium granular; friable; common very fine roots; common fine and medium continuous tubular pores; few distinct light gray (10YR 7/2, dry) clay depletions and common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; about 22 percent clay; slightly acid; clear smooth boundary.

Bt1—13 to 26 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine prismatic structure parting to strong fine subangular blocky; firm; common very fine roots; common fine and medium constricted tubular pores; few distinct light gray (10YR 7/2, dry) clay depletions and many distinct dark brown (10YR 3/3) clay films on faces of peds; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 32 percent clay; moderately acid; clear smooth boundary.

Bt2—26 to 38 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure

parting to moderate fine and medium subangular blocky; firm; common very fine roots; few very fine and fine constricted tubular pores; many distinct dark brown (10YR 3/3) clay films on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 30 percent clay; slightly acid; gradual smooth boundary.

Bt3—38 to 57 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; few very fine roots; few very fine and fine constricted tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions and many fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 28 percent clay; slightly acid; gradual smooth boundary.

BCt—57 to 65 inches; brown (10YR 5/3) silt loam; weak medium and coarse subangular blocky structure; friable; few very fine roots; few very fine and fine tubular and vesicular pores; few distinct brown (10YR 4/3) clay films on faces of peds and lining root channels and pores; many fine and medium faint light grayish brown (10YR 6/2) iron depletions and common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 26 percent clay; neutral; gradual smooth boundary.

CB—65 to 96 inches; pale brown (10YR 6/3) silt loam; massive; friable; few very fine roots; many very fine to medium tubular and vesicular pores; few distinct brown (10YR 4/3) clay films lining small root channels and pores and very few prominent very dark grayish brown (10YR 3/2) organo-clay films lining large root channels and pores; common fine and medium faint light grayish brown (10YR 6/2) iron depletions and many fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 20 percent clay; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 42 to 70 inches

*Thickness of loess:* 80 inches or more

*Particle-size control section:* Averages 27 to 35 percent clay and sand content is less than 7 percent in all parts

*Depth to carbonates:* Below 60 inches, where present

Ap horizon:

Hue—10YR

Value—3 (5 dry)

Chroma—2 or 3

Texture—silt loam

In undisturbed areas the A horizon has color value of 2 or 3 (4 or 5 dry) and chroma of 1 or 2.

E horizon, where present:

Hue—10YR

Value—4 or 5

Chroma—2 or 3

Texture—silt loam

Some pedons have an EB or BE horizon.

Bt and BC horizons:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—3 to 6 (2 to 6 in the lower part)

Texture—typically silty clay loam, but the lower part is silt loam in some pedons

CB or C horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—5 or 6

Chroma—1 to 4

Texture—silt loam

### 283B—Downsouth silt loam, 2 to 5 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluve

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit,

such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

### Composition

*Downsouth and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

#### *Similar soils:*

- \* Areas of somewhat poorly and/or well drained soils
- \* Soils that have a mollic epipedon
- \* Areas that are moderately eroded

#### *Dissimilar soils:*

- \* Small areas of poorly drained soils

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## 283C2—Downsouth silt loam, 5 to 10 percent slopes, eroded

### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

### Composition

*Downsouth and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

#### *Similar soils:*

- \* Areas that are more or less eroded
- \* Areas of well drained soils

#### *Dissimilar soils:*

- \* Wakeland soils in small upland drainageways

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## Drury Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Dystric Eutrochrepts

### Typical Pedon for MLRA 115B

Drury silt loam, gently sloping in a cultivated field, at an elevation of about 465 feet above mean sea level; about 3 miles west of Maeystown in Monroe County, Illinois; approximately 2,380 feet southeast of intersection of Bluff Road and railroad crossing and 820 feet northeast of railroad tracks, parcel S. 701, C. 495, T. 3 S., R. 11 W.; USGS Selma, IL. topographic quadrangle; lat. 38 degrees 13 minutes 52 seconds N. and long. 90 degrees 16 minutes 54 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common very fine and few fine roots; few fine continuous tubular pores; neutral; abrupt smooth boundary.

Bw1—7 to 12 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; friable; few very fine and fine roots; few medium continuous tubular pores; many faint dark brown (10YR 3/3) organo-clay films on faces of peds and lining vertical tubular pores; neutral; clear smooth boundary.

Bw2—12 to 19 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine prismatic structure parting to moderate fine subangular blocky; friable; few very fine and fine roots; common fine continuous tubular pores; common faint dark brown (10YR 3/3) organo-clay films on faces of peds and lining vertical tubular pores; neutral; gradual smooth boundary.

Bw3—19 to 26 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium prismatic structure parting to moderate fine and medium subangular blocky; friable; few very fine and fine roots; common fine continuous tubular pores; common faint dark brown (10YR 3/3) organo-clay films on faces of peds and lining vertical tubular pores; neutral; gradual smooth boundary.

Bw4—26 to 36 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine and fine roots; common fine continuous tubular pores; few faint dark brown (10YR 3/3) organo-clay films on faces of peds and lining vertical tubular pores; neutral; gradual smooth boundary.

Bw5—36 to 43 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium prismatic structure parting to weak medium subangular blocky; very friable; few very fine roots; common fine continuous tubular pores; few faint dark brown (10YR 3/3) organo-clay films on faces of peds and lining vertical tubular pores; neutral; gradual smooth boundary.

C1—43 to 70 inches; dark yellowish brown (10YR 4/4) silt loam; massive; very friable; few very fine and fine continuous tubular pores; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) masses of iron-manganese accumulation; neutral; gradual smooth boundary.

C2—70 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; massive; friable; few very fine continuous pores; few fine rounded black (N 2.5/0) masses of iron-manganese accumulation; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of soil development:* Typically 30 to 40 inches, but ranges from 26 to 45 inches

*Particle-size control section:* Averages 18 to 25 percent clay

*Depth to carbonates:* Some pedons contain carbonates below a depth of 40 inches

Ap or A horizon:

Hue—10YR

Value—3 or 4 (5 or 6 dry)

Chroma—2 to 4

Texture—silt loam or silt

E horizon, where present:

Hue—10YR

Value—4 or 5

Chroma—3 or 4

Texture—silt loam or silt

Bw horizon:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—3 to 6 in the upper part, and 2 to 6 in the lower part

Texture—silt loam

C horizon:

Hue—10YR

Value—3 to 6

Chroma—2 to 4

Texture—silt loam - Some pedons show evidence of stratification, most commonly below a depth of 45 inches. Strata are loam, silt loam, and very fine sandy loam.

Some pedons contain buried horizons that commonly are below a depth of 50 inches.

### 75B—Drury silt loam, 2 to 5 percent slopes

#### Setting

*Landform:* Alluvial Fan

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Slope alluvium

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Drury and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils with a dark surface layer

\* Soils that contain carbonates

\* Areas with more or less slope

*Dissimilar soils:*

\* Wakeland soils in small drainageways

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

### 536—Dumps

#### Composition

*Dumps:* 85 percent

*Dissimilar soils:* 15 percent

**Dumps:**

\*Areas of piles of industrial refuse, mine spoil and slag

**Dissimilar soils:**

\* Small areas of Orthents, silty or Orthents, loamy, in border areas that have been cut and filled

\*Lenzburg and Morrystown soils in adjacent strip mines

**866—Dumps, slurry****Composition**

*Dumps, slurry:* 90 percent

*Dissimilar soils:* 10 percent

**Dumps, slurry:**

\* Areas of refuse material that has settled out from slurry derived from coal preparation plants

**Dissimilar soils:**

\* Small levees constructed from earthfill to contain the slurry

**Dupo Series**

**Taxonomic Class:** Coarse-silty over clayey, mixed over smectitic, superactive, nonacid, mesic Aquic Udifluvents

**Typical Pedon for MLRA 114/115B**

Dupo silt loam, nearly level in a cultivated field, at an elevation of about 390 feet above mean sea level; about 2.5 miles west of Modoc in Randolph County; Illinois State Plane Coordinates 506,150 feet north and 526,600 feet east (Illinois West Zone), T. 5 S., R. 9 W.; USGS Prairie Du Rocher, IL.-MO. topographic quadrangle; lat. 38 degrees 3 minutes 20 seconds N. and long. 90 degrees 4 minutes 28 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; many very fine and fine roots; few very fine continuous tubular pores; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly alkaline; abrupt smooth boundary.

C1—9 to 17 inches; brown (10YR 5/3) silt loam; massive; very friable; common very fine and fine roots; few very fine continuous tubular pores; common fine faint grayish brown (10YR 5/2) iron depletions and common fine faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly alkaline; clear smooth boundary.

C2—17 to 25 inches; brown (10YR 5/3) silt loam; massive; very friable; common very fine and fine roots; common very fine and fine continuous

tubular pores; common very dark grayish brown (10YR 3/2) worm casts; many medium faint grayish brown (10YR 5/2) iron depletions and many medium faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; neutral; abrupt smooth boundary.

2Ab1—25 to 39 inches; very dark gray (10YR 3/1) silty clay; moderate medium prismatic structure parting to strong fine angular blocky; very firm; few very fine and fine roots; common fine constricted tubular pores; common distinct dark yellowish brown (10YR 4/4) clay depletions on vertical faces of prisms; common fine distinct dark yellowish brown (10YR 4/4) and common medium prominent yellowish red (5YR 4/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

2Ab2—39 to 59 inches; very dark gray (10YR 3/1) silty clay; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm; few very fine and fine roots; few fine and medium constricted tubular pores; few faint dark yellowish brown (10YR 4/4) clay depletions on vertical faces of prisms; common faint very dark gray (10YR 3/1) pressure faces on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) and few medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; neutral; gradual smooth boundary.

2Bgb—59 to 75 inches; dark gray (10YR 4/1) silty clay; weak coarse prismatic structure; very firm; few very fine and fine roots; common distinct dark gray (10YR 4/1) pressure faces on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly alkaline; gradual smooth boundary.

2Cg—75 to 95 inches; gray (2.5Y 5/1) clay; massive; very firm; common shiny dark gray (2.5Y 4/1) nonintersecting slickensides; common fine medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral.

**MLRA Series Range in Characteristics**

*Depth to the 2Ab horizon:* 20 to 40 inches

*Reaction of the soil:* Neutral or slightly acid, but ranges from moderately acid to slightly alkaline in some layers of some pedons

Ap or A horizon:

Hue—10YR

Value—4 or 5, (6 or 7 dry) and some undisturbed pedons have strata with a color value of 3 (5 dry)

Chroma—1 to 3

Texture—silt loam, and is stratified in many undisturbed pedons

C horizon:

Hue—10YR

Value—4 to 6

Chroma—1 to 3

Texture—dominantly silt loam, and is stratified with thin lenses of other textures in some pedons

2Ab horizon:

Hue—10YR or neutral, and redoximorphic concentrations that have a hue redder than 10YR occur in some pedons

Value—2 to 4

Chroma—0 or 2

Texture—silty clay, clay, or silty clay loam

2Bgb and 2Cg horizons, where present:

Hue—10YR or more yellow hue

Value—3 to 6

Chroma—1 or 2, and redoximorphic features with higher chroma and redder hues

Texture—silty clay, clay, or silty clay loam

### 3180A—Dupo silt loam, 0 to 2 percent slopes, frequently flooded

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Dupo and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain more clay in the recent alluvium
- \* Soils that contain carbonates in the recent alluvium
- \* Soils that have the dark buried soil below a depth of 40 inches

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 8180A—Dupo silt loam, 0 to 2 percent slopes, occasionally flooded

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Dupo and similar soils:* 100 percent

*Similar soils:*

- \* Soils that have a dark buried soil below a depth of 40 inches
- \* Soils that contain more clay in the recent alluvium
- \* Soils that contain carbonates in the recent alluvium

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## Edwardsville Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Aquic Argiudolls

#### Typical Pedon for MLRA 115B

Edwardsville silt loam, gently sloping in a cultivated field, at an elevation of about 525 feet above mean sea level; about 1 mile east of Bethalto in Madison County, Illinois; approximately 700 feet north and 1,640 feet east of the southwest corner of sec. 5, T. 5 N., R. 8 W.; USGS Bethalto, IL. topographic quadrangle; lat. 38

degrees 54 minutes 30 seconds N. and long. 90 degrees 00 minutes 54 seconds W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; friable; common very fine roots; about 23 percent clay; neutral; abrupt smooth boundary.

A—8 to 15 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate very fine and fine subangular blocky structure parting to moderate fine granular; friable; common very fine roots; about 24 percent clay; neutral; clear smooth boundary.

Bt—15 to 20 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine and medium subangular blocky structure; friable; common very fine roots; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) and few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; neutral; clear smooth boundary.

Btg1—20 to 27 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) and common fine and medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 32 percent clay; slightly acid; clear smooth boundary.

Btg2—27 to 37 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots; few distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) and common fine and medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; slightly acid; clear smooth boundary.

Btg3—37 to 49 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few very fine roots; few faint dark grayish brown (10YR 4/2) clay films on faces of peds and few distinct very dark grayish brown (10YR 3/2) organo-clay films lining root channels; many fine

and medium prominent yellowish brown (10YR 5/6) and common fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 28 percent clay; neutral; clear smooth boundary.

BCg—49 to 57 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium prismatic structure; friable; few very fine roots; few distinct very dark grayish brown (10YR 3/2) and dark grayish brown (10YR 4/2) organo-clay films lining root channels; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 25 percent clay; neutral; gradual smooth boundary.

CBg—57 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few distinct dark grayish brown (10YR 4/2) organo-clay films lining root channels; few fine prominent yellowish brown (10YR 5/6) masses iron accumulation in the matrix; common medium and coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 22 percent clay; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 42 to 70 inches

*Depth to carbonates:* More than 60 inches, where present

*Thickness of loess:* 80 inches or more

*Thickness of the mollic epipedon:* 12 to 24 inches, and extends into the upper part of the B horizon in some pedons

Ap or A horizon:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2

Texture—silt loam, but it is silty clay loam in the lower part of the A horizon in some pedons.

Some pedons have an AB or a BA horizon.

Bt or BC horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 to 4

Texture—silty clay loam or silt loam

C horizon:

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—1 to 4

Texture—silt loam

### 384A—Edwardsville silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluvium

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Edwardsville and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Soils that contain more clay in the subsoil
- \* Areas of poorly drained and/or moderately well drained soils
- \* Soils with a thinner dark surface layer

*Dissimilar soils:*

- \* Well drained Wakenda soils on higher summits

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### 384B—Edwardsville silt loam, 2 to 5 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluvium

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Edwardsville and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Soils that contain more clay in the subsoil
- \* Soils with a thinner dark surface layer
- \* Areas of moderately well drained soils

*Dissimilar soils:*

- \* Areas of well drained Wakenda soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### 2384B—Edwardsville-Urban land complex, 1 to 4 percent slopes

#### Setting

*Landform:*

- \* Edwardsville—Till Plain
- \* Urban land—Till Plain

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Edwardsville and similar soils:* 50 percent

*Urban land:* 40 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Areas of poorly drained soils
- \* Soils that do not have a mollic epipedon

*Dissimilar soils:*

\* Areas of well drained Wakenda soils

*Urban land:*

\* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

## Floraville Series

**Taxonomic Class:** Fine, smectitic, mesic Chromic Vertic Albaqualfs

### Typical Pedon for MLRA 114

Floraville silt loam, slightly depressional, on a loess-covered lake terrace tread, in a cultivated field, at an elevation of about 420 feet above mean sea level; about 5 miles southeast of Mascoutah in St. Clair County, Illinois (map sheet Venedy NW, IL.); approximately 2,500 feet west and 2,600 feet north of the southeast corner of sec. 14, T. 1 S., R. 6 W.; USGS Venedy, IL. topographic quadrangle; lat. 38 degrees 26 minutes 40 seconds N. and long. 89 degrees 43 minutes 54 seconds W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; many very fine roots throughout; common medium and coarse constricted tubular pores; common fine and medium rounded very dark brown (7.5YR 2.5/2) iron-manganese nodules with sharp boundaries; about 17 percent clay; neutral; abrupt smooth boundary.

Eg—9 to 18 inches; light brownish gray (10YR 6/2) silt loam, light gray (10YR 7/2) dry; moderate medium platy structure parting to weak fine granular; friable; common very fine roots throughout; few fine and medium constricted tubular pores; few distinct light gray (10YR 7/2, dry) clay depletions on faces of peds; common fine and medium rounded very dark brown (7.5YR 2.5/2) iron-manganese nodules with sharp boundaries; about 16 percent clay; slightly acid; abrupt smooth boundary.

Btg1—18 to 23 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots

throughout; few fine constricted tubular pores; common distinct light gray (10YR 7/2, dry) clay depletions on faces of peds; many faint grayish brown (10YR 5/2) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded dark reddish brown (5YR 3/4) iron-manganese nodules with clear boundaries; about 33 percent clay; strongly acid; clear smooth boundary.

Btg2—23 to 31 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate fine and medium angular blocky structure; firm; few very fine roots between peds; few fine constricted tubular pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular dark reddish brown (5YR 3/4) iron-manganese nodules with clear boundaries; about 39 percent clay; very strongly acid; gradual smooth boundary.

Btg3—31 to 39 inches; grayish brown (2.5Y 5/2) silty clay loam; weak fine prismatic structure parting to moderate fine and medium angular blocky; firm; few very fine roots between peds; few fine constricted tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular dark reddish brown (5YR 3/4) and strong brown (7.5YR 5/6) iron-manganese nodules with clear boundaries; about 38 percent clay; very strongly acid; clear smooth boundary.

Btg4—39 to 44 inches; variegated light brownish gray (2.5Y 6/2) and yellowish brown (10YR 5/6) silty clay loam; weak fine prismatic structure parting to weak medium angular blocky; firm; few very fine roots between peds; few fine constricted tubular pores; few faint dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct brown (10YR 5/3) masses of iron accumulation in the matrix; common fine and medium irregular dark reddish brown (5YR 3/3) and strong brown (7.5YR 4/6) iron-manganese nodules with clear boundaries; about 34 percent clay; strongly acid; clear smooth boundary.

2Btg5—44 to 49 inches; olive gray (5Y 5/2) silty clay; weak medium prismatic structure parting to weak medium angular blocky; very firm; few very fine roots between peds; few fine vesicular pores; few faint dark grayish brown (2.5Y 4/2) clay films on faces of peds and few prominent black (N 2.5/0) iron-manganese coatings in channels and pores; common fine distinct light olive brown (2.5Y 5/3) masses of iron accumulation in the matrix; many

fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 44 percent clay; moderately acid; clear smooth boundary.

2Btg6—49 to 62 inches; light olive gray (5Y 6/2) silty clay loam; weak medium prismatic structure; firm; few very fine roots between pedes; few fine vesicular pores; few faint dark grayish brown (2.5Y 4/2) clay films on faces of pedes and few prominent black (N 2.5/0) iron-manganese coatings in channels and pores; common fine distinct light olive brown (2.5Y 5/3) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 33 percent clay; slightly acid; clear smooth boundary.

2Btg7—62 to 70 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure; firm; few very fine roots between pedes; few fine vesicular pores; few distinct dark grayish brown (2.5Y 4/2) clay films on vertical faces of pedes and very few prominent black (N 2.5/0) iron-manganese oxide coatings in channels and pores; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 38 percent clay; slightly acid; abrupt smooth boundary.

3BCg—70 to 78 inches; variegated light brownish gray (10YR 6/2) and yellowish brown (10YR 5/8) silt loam; weak fine prismatic structure; friable; few very fine roots between pedes; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of pedes and very few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 26 percent clay; neutral; clear smooth boundary.

3CBg—78 to 94 inches; light brownish gray (10YR 6/2) silt loam; massive; friable; few very fine roots throughout; very few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 25 percent clay; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 60 to more than 80 inches

*Thickness of loess:* Typically 36 to about 70 inches

*Depth to carbonates:* Below 48 inches, where present

Ap horizon:  
Hue—10YR  
Value—4 or 5 (6 or 7 dry)  
Chroma—1 or 2  
Texture—silt loam

Some undisturbed pedons have a thin A horizon with a color value of 3.

Eg horizon:  
Hue—10YR or 2.5Y  
Value—5 or 6 (6 to 8 dry)  
Chroma—1 or 2  
Texture—silt loam or silt

Btg horizon:  
Hue—10YR, 2.5Y, or 5Y  
Value—4 to 6  
Chroma—1 or 2  
Texture—silty clay loam or silty clay

2Btg horizon:  
Hue—10YR, 2.5Y, 5Y, or neutral  
Value—4 to 7  
Chroma—0 to 2  
Texture—stratified clay, silty clay, silty clay loam, and silt loam

2BCg, 2Cg, 3BCg, 3CBg, or 3Cg horizons, where present:  
Hue—7.5YR, 10YR, 2.5Y, 5Y, or neutral  
Value—4 to 7  
Chroma—0 to 2  
Texture—typically silt loam, but is silty clay loam or silty clay in some pedons

### 433A—Floraville silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Lake Terrace  
*Position on Landform:* Tread

#### Soil Properties and Qualities

*Drainage:* Poorly drained  
*Dominant parent material:* Loess overlying lacustrine deposits  
*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

**Composition**

*Floraville and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Soils that contain less clay in the subsoil
- \* Soils that do not have an abrupt textural change
- \* Areas of somewhat poorly drained soils

*Dissimilar soils:*

- \* Moderately well drained Redbud soils on high landform positions

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**8646A—Fluvaquents, loamy, 0 to 2 percent slopes, occasionally flooded****Setting**

*Landform:* Flood Plain

**Soil Properties and Qualities**

*Drainage:* Poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Fluvaquents, loamy and similar soils:* 100 percent

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**3847L—Fluvaquents-Orthents complex, frequently flooded, long duration****Setting***Landform:*

- \* Fluvaquents—Flood Plain
- \* Orthents—Flood Plain

**Soil Properties and Qualities***Drainage:*

- \* Fluvaquents—Poorly drained
- \* Orthents—Well drained

*Dominant parent material:*

- \* Fluvaquents—Alluvium
- \* Orthents—Alluvium

*Flooding frequency:*

- \* Fluvaquents—Frequent
- \* Orthents—None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Fluvaquents and similar soils:* 50 percent

*Orthents and similar soils:* 40 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Soils that have more clay or more sand throughout the soil profile
- \* Soils that are somewhat poorly drained

*Dissimilar soils:*

- \* Soils that are very poorly drained or soils that are ponded or flooded for very long durations
- \* Areas of open channels, ditches or water

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**Fosterburg Series**

**Taxonomic Class:** Fine, smectitic, mesic Vertic Argiaquolls

### Typical Pedon for MLRA 114

Fosterburg silt loam, from a Virden-Fosterburg silt loams, 0 to 2 percent slopes, map unit - slightly depressional in a cultivated field at an elevation of about 510 feet above mean sea level; about 2.5 miles southeast of Summerville in St. Clair County, Illinois (map sheet Trenton NW, IL.); approximately 125 feet south and 2,500 west of the northeast corner of sec. 36, T. 2 N., R. 6 W.; USGS Trenton, IL. topographic quadrangle; lat. 38 degrees 34 minutes 55 seconds N. and long. 89 degrees 42 minutes 22 seconds W.

Ap—0 to 8 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure parting to strong fine granular; friable; many very fine roots; few fine rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 25 percent clay; neutral; clear smooth boundary.

A—8 to 13 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; weak fine angular and subangular blocky structure; friable; many very fine roots; few fine rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 26 percent clay; neutral; clear smooth boundary.

BA—13 to 20 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium subangular blocky structure; firm; common very fine roots; many faint black (10YR 2/1) organic coatings on faces of peds; few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; neutral; clear smooth boundary.

Btkng1—20 to 29 inches; dark gray (2.5Y 4/1) silty clay loam; moderate fine prismatic structure parting to moderate fine and medium angular blocky; firm; common very fine roots; many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; common fine irregular white (10YR 8/1 dry) masses of carbonate accumulation and common medium irregular light brownish gray (10YR 6/2) carbonate concretions with clear white (10YR 8/1 dry) boundaries; about 38 percent clay; slightly effervescent; slightly alkaline; gradual smooth boundary.

Btkng2—29 to 41 inches; dark gray (2.5Y 4/1) silty clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine and

medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; few fine irregular white (10YR 8/1, dry) masses of carbonate accumulation and few medium irregular light brownish gray (10YR 6/2) carbonate concretions with clear white (10YR 8/1, dry) boundaries; about 37 percent clay; slightly effervescent; slightly alkaline; gradual smooth boundary.

Btg1—41 to 50 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 34 percent clay; neutral; gradual smooth boundary.

Btg2—50 to 62 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to weak coarse subangular blocky; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 30 percent clay; neutral; gradual smooth boundary.

BCtg—62 to 71 inches; olive gray (5Y 5/2) silt loam; weak medium prismatic structure; friable; few very fine roots; few distinct dark grayish brown (2.5Y 4/2) clay films on vertical faces of peds; many medium prominent strong brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (N 2.5/0) iron-manganese nodules with diffuse strong brown (7.5YR 5/6) boundaries; about 26 percent clay; neutral; gradual smooth boundary.

Cg—71 to 86 inches; light olive gray (5Y 6/2) silt loam; massive; friable; few distinct very dark gray (2.5Y 3/1) organo-clay coatings lining root channels; common fine and medium prominent reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; few medium irregular black (N 2.5/0) iron-manganese nodules with diffuse strong brown (7.5YR 5/6) boundaries; about 22 percent clay; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of soil development:* 40 to 72 inches

*Depth to carbonates:* Carbonates, where present, typically occur in the B horizon, but they occur in the BCg and Cg horizons in some pedons.

*Thickness of loess:* About 80 inches or more

*Thickness of the mollic epipedon:* 10 to 24 inches, and extends into the B horizon in some pedons

Ap and A horizons:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—2 or 3 (3 or 4 dry)

Chroma—0 or 1

Texture—silt loam or silty clay loam

Some pedons contain an AB horizon.

B horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—3 to 5 in the upper part and 4 to 6 in the lower part

Chroma—0 to 2

Texture—silty clay loam or silty clay in the upper part and silty clay loam or silt loam in the lower part

Some pedons have a BCg horizon.

Cg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—5 or 6

Chroma—0 to 2

Texture—silt loam

## Fults Series

**Taxonomic Class:** Fine, smectitic, mesic Vertic Endoaquolls

### Typical Pedon for MLRA 115B

Fults silty clay, with a slope of 1 percent on a slightly undulating flood plain, in a cultivated field at an elevation of about 385 feet above mean sea level; about 2.5 miles northwest of Chalfin Bridge in Monroe County, Illinois; approximately 390 feet south and 120 feet west of the northeast corner of sec. 4, T. 4 S., R. 11 W.; USGS Selma IL.-MO. topographic quadrangle; lat. 38 degrees 13 minutes 23 seconds N. and long. 90 degrees 18 minutes 47 seconds W.

Ap—0 to 7 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; moderate fine granular structure; very firm; common fine roots; neutral; 57 percent clay and 1 percent sand; abrupt smooth boundary.

A—7 to 12 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; moderate medium

angular blocky structure; very firm; few fine roots; 58 percent clay and 1 percent sand; neutral; clear smooth boundary.

Btg1—12 to 18 inches; dark gray (10YR 4/1) clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few fine roots; many distinct very dark gray (5Y 3/1) organo-clay films on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; 61 percent clay and 1 percent sand; neutral; clear smooth boundary.

Btg2—18 to 26 inches; dark gray (5Y 4/1) clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few fine roots; many distinct very dark gray (5Y 3/1) organo-clay films on faces of peds; few fine prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; 59 percent clay and 3 percent sand; neutral; clear smooth boundary.

Btg3—26 to 32 inches; dark gray (5Y 4/1) clay; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few fine roots; common distinct very dark gray (5Y 3/1) organo-clay films on faces of peds; common fine prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; 53 percent clay and 13 percent sand; neutral; clear smooth boundary.

2Btg4—32 to 38 inches; dark gray (5Y 4/1) clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; many faint very dark gray (5Y 3/1) organo-clay films on faces of peds; common medium prominent yellowish red (5YR 5/8) masses of iron accumulation in the matrix; 35 percent clay and 34 percent sand; neutral; clear smooth boundary.

2Btg5—38 to 42 inches; dark gray (5Y 4/1) sandy clay loam; weak medium prismatic structure parting to weak medium subangular blocky; very friable; few fine roots; few faint very dark gray (5Y 3/1) organo-clay films on faces of peds; common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; 23 percent clay and 52 percent sand; neutral; clear smooth boundary.

2Cg—42 to 60 inches; dark gray (5Y 4/1) stratified fine sandy loam; massive; very friable; many medium prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; 14 percent clay and 76 percent sand; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of soil development:* 32 to 64 inches

*Thickness of the mollic epipedon:* 10 to 24 inches and extends into the B horizon in many pedons

*Depth to the loamy 2B horizon:* Typically 24 to 36 inches, but ranges to 40 inches

*Depth to carbonates:* These soils typically do not have carbonates within the particle-size control section, but some pedons contain carbonates in the loamy or sandy alluvium.

Ap and A horizons:

Hue—10YR or 2.5Y

Value—2 or 3 (3 to 5 dry)

Chroma—1 or 2

Texture—silty clay loam or silty clay, and the range includes clay in some pedons

B horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—3 to 6

Chroma—0 to 2

Texture—silty clay or clay, but some subhorizons are silty clay loam or clay loam with more than 35 percent clay

2B horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silt loam, loam, silty clay loam, clay loam, sandy clay loam, sandy loam, fine sandy loam, or very fine sandy loam, and typically is stratified

2C horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 to 3

Texture—stratified with individual strata ranging from silty clay loam to very fine sand

### **8591A—Fults silty clay, 0 to 2 percent slopes, occasionally flooded**

#### **Setting**

*Landform:* Flood Plain

#### **Soil Properties and Qualities**

*Drainage:* Poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit,

such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### **Composition**

*Fults and similar soils:* 100 percent

*Similar soils:*

\* Soils that contain less sand in the lower part

\* Soils that contain less clay throughout

\* Soils that contain carbonates in the loamy alluvium

#### **Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Agronomy” section

\* “Forestland Management and Productivity” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

### **Geff Series**

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

#### **Typical Pedon for MLRA 114**

Geff silt loam, nearly level in a cultivated field, at an elevation of about 405 feet above mean sea level; about 3 miles southeast of Damiansville in Clinton County, Illinois; approximately 2,200 feet south and 1,500 feet east of the northwest corner of sec. 32, T. 1 N., R. 4 W.; USGS Okawville, IL. topographic quadrangle; lat. 38 degrees 29 minutes 20 seconds N. and long. 89 degrees 33 minutes 57 seconds W.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; moderate very fine granular structure; friable; few very fine roots; few very fine continuous tubular pores; few fine and medium irregular black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; abrupt smooth boundary.

E—5 to 12 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 8/2) dry; moderate thick platy and moderate medium subangular blocky structure; friable; few very fine roots; common very fine and fine continuous tubular pores; common medium faint light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (N 2.5/0) and brown

(7.5YR 4/4) iron-manganese nodules with sharp boundaries; neutral; clear smooth boundary.

Bt1—12 to 20 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; few very fine constricted tubular pores; few faint light gray (10YR 7/2, dry) clay depletions and common faint dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions; common fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 4/6) iron-manganese nodules with clear boundaries; moderately acid; clear smooth boundary.

Bt2—20 to 26 inches; dark yellowish brown (10YR 4/4) silty clay loam; strong fine subangular blocky structure; firm; few very fine roots; few very fine constricted tubular pores; few faint light gray (10YR 7/2, dry) clay depletions and many distinct dark grayish brown (10YR 4/2) and brown (10YR 4/3) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions and few fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 4/6) masses of iron-manganese accumulation with clear boundaries; strongly acid; clear smooth boundary.

Bt3—26 to 33 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine prismatic structure parting to moderate fine subangular blocky; firm; few very fine roots; few very fine constricted tubular pores; few faint light gray (10YR 7/2, dry) clay depletions and many distinct dark grayish brown (10YR 4/2) and brown (10YR 4/3) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions and common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common medium and coarse irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with clear boundaries; strongly acid; clear smooth boundary.

2Bt4—33 to 37 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots; few very fine constricted tubular pores; few faint light gray (10YR 7/2, dry) clay depletions and common distinct brown (10YR 4/3) clay films on faces of peds; few fine distinct grayish brown (10YR 5/2) iron depletions and common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; few fine and medium irregular very dark brown (7.5YR 2.5/2) and strong

brown (7.5YR 5/6) masses of iron-manganese accumulation with clear boundaries; about 8 percent sand; strongly acid; clear smooth boundary.

2Bt5—37 to 50 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium prismatic structure; friable; few very fine roots; few very fine vesicular pores; few faint light gray (10YR 7/2, dry) clay depletions and few distinct brown (10YR 4/3) clay films on faces of peds; few prominent black (10YR 2/1) iron-manganese coatings on vertical ped faces and lining root channels; few medium distinct grayish brown (10YR 5/2) iron depletions; many fine distinct dark yellowish brown (10YR 4/6) and few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with diffuse boundaries; about 15 percent sand; strongly acid; gradual smooth boundary.

2BCt—50 to 62 inches; dark yellowish brown (10YR 4/4) loam; weak medium prismatic structure; friable; few very fine roots; few very fine and fine vesicular pores; few faint light gray (10YR 7/2, dry) clay depletions and few distinct brown (10YR 4/3) clay films on faces of peds; few prominent black (10YR 2/1) iron-manganese coatings on vertical ped faces and lining root channels; few fine distinct grayish brown (10YR 5/2) iron depletions and many fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common medium and coarse irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with diffuse boundaries; moderately acid; gradual smooth boundary.

2C1—62 to 72 inches; yellowish brown (10YR 5/4) loam; massive; very friable; few very fine roots; few very fine and fine vesicular pores; very few prominent black (10YR 2/1) iron-manganese coatings lining root channels and pores; common medium distinct light brownish gray (10YR 6/2) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few medium and coarse irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation with diffuse boundaries; slightly acid; clear smooth boundary.

2C2—72 to 78 inches; yellowish brown (10YR 5/4) stratified loam and fine sandy loam; massive; very friable; few very fine vesicular pores; very few prominent black (10YR 2/1) iron-manganese coatings lining root channels and pores; few fine distinct light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in

the matrix; few fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation with diffuse boundaries; neutral; abrupt smooth boundary.

3E&Bt—78 to 94 inches; light yellowish brown (10YR 6/4) fine sand (E); single grain; loose; yellowish brown (10YR 5/6) loamy fine sand lamella (Bt); massive; very friable; few distinct dark yellowish brown (10YR 4/4) clay films as bridges between sand grains; slightly acid.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon including lamella:* More than 40 inches

*Thickness of loess or other silty material:* 24 to 40 inches

*Content of rock fragments:* Less than 10 percent by volume in the 2Bt and 2E&Bt horizons

Ap or A horizon:

Hue—10YR

Value—4 or 5, (6 or 7 dry) and some pedons have an A horizon less than 7 inches in thickness that has color value of 2 or 3 (4 or 5 dry)

Chroma—1 to 3

Texture—silt loam

E and/or BE horizon:

Hue—10YR

Value—5 or 6

Chroma—2 or 3

Texture—silt loam or silty clay loam

Bt horizon:

Hue—10YR

Value—4 to 6

Chroma—2 to 4

Texture—silty clay loam

2Bt and/or 2BC horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—1 to 6

Texture—averages 18 to 30 percent clay and 15 to 70 percent sand, and individual subhorizons range from 10 to 35 percent clay and 15 to 70 percent sand

3E&Bt horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—1 to 6

Texture—The E part averages 1 to 10 percent clay and 70 to 98 percent sand. The Bt part averages 3 to 15 percent clay and 65 to 95 percent sand.

Some pedons have a 2C horizon within a depth of 80 inches.

### 8432A—Geff silt loam, 0 to 2 percent slopes, occasionally flooded

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Geff and similar soils:* 100 percent

*Similar soils:*

\* Soils that contain more sand in the upper part

\* Soils that have a darker surface horizon

\* Areas that are more sloping

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

### Gorham Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls

#### Typical Pedon for MLRA 115B

Gorham silty clay loam, on a nearly level flood plain, in a cultivated field, at an elevation of about 360 feet above mean sea level; about 1 mile northwest of Gorham in Jackson County, Illinois; approximately 1,400 feet east and 1,800 feet north of the southwest corner of sec. 24, T. 9 S., R. 4 W.; USGS Altenburg, MO.-IL. topographic quadrangle; lat. 37 degrees 43

minutes 37 seconds N. and long. 89 degrees 30 minutes 12 seconds W.

Ap—0 to 7 inches; very dark gray (10YR 3/1) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine and medium angular blocky structure parting to weak fine granular; firm; common very fine roots; neutral; abrupt smooth boundary.

A—7 to 14 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium angular blocky structure; very firm; common very fine roots; common faint black (10YR 2/1) organic coatings on faces of peds; few fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation with sharp boundaries; neutral; clear smooth boundary.

Btg1—14 to 26 inches; dark gray (10YR 4/1) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; very firm; common very fine roots; common faint very dark gray (10YR 3/1) organo-clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation with clear boundaries; neutral; gradual smooth boundary.

Btg2—26 to 36 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; many fine prominent dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation with clear boundaries; about 12 percent sand; slightly acid; clear smooth boundary.

2Bt1—36 to 47 inches; olive brown (2.5Y 4/3) clay loam; moderate medium prismatic structure parting to moderate fine and medium angular blocky; firm; few very fine roots; few very fine continuous tubular pores; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds and few prominent very dark gray (10YR 3/1) organo-clay films on vertical faces of peds and lining root channels; many medium faint grayish brown (2.5Y 5/2) iron depletions; neutral; clear smooth boundary.

2Bt2—47 to 54 inches; olive brown (2.5Y 4/3) loam; weak medium angular blocky structure; friable; few very fine roots; few very fine continuous tubular pores; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds and lining root channels; common fine faint dark grayish brown (2.5YR 4/2) iron depletions and few medium distinct dark yellowish brown

(10YR 4/4) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

2BC—54 to 62 inches; brown (10YR 4/3) fine sandy loam; weak medium and coarse angular blocky structure; very friable; few very fine roots; common very fine and fine continuous tubular pores; few distinct very dark grayish brown (10YR 3/2) organo-clay films on vertical faces of peds and lining root channels and pores; common medium distinct dark grayish brown (2.5Y 4/2) iron depletions; few shiny mica flecks; slightly acid; clear smooth boundary.

2C1—62 to 78 inches; brown (10YR 4/3) stratified fine sandy loam and loamy fine sand; massive; very friable; few very fine and fine continuous tubular pores; common fine distinct grayish brown (2.5Y 5/2) iron depletions; few shiny mica flecks; slightly acid; abrupt smooth boundary.

2C2—78 to 90 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of soil development:* 36 to 72 inches  
*Thickness of the mollic epipedon:* 10 to 24 inches, and extends into the upper part of the B horizon in some pedons

*Depth to carbonates:* More than 40 inches, where present

Ap and A horizons:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2

Texture—silty clay loam, and less commonly silt loam or silty clay

Btg or Bg horizons that formed in silty alluvium:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—3 to 5

Chroma—0 to 2

Texture—silty clay loam or silty clay - Clay content averages 27 to 35 percent but individual subhorizons range to 42 percent clay. Sand content is less than 15 percent.

2Bt, 2Btg, or 2BC horizons that formed in loamy or sandy alluvium:

Hue—7.5YR, 10YR, 2.5Y, or 5Y

Value—3 to 5

Chroma—1 to 4

Texture—sandy clay loam, clay loam, loam, sandy loam, and fine sandy loam or loamy sand and the fine and very fine analogs of loamy sand - It is stratified in color or texture or both. Clay content averages 18 to 27 percent and sand content averages 35 to 70 percent. Individual horizons or strata range from 8 to 32 percent clay and range from 30 to 85 percent sand.

**2C or 2Cg horizon:**

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—2 to 6

Texture—sand, fine sand, loamy sand, or loamy fine sand, and less commonly sandy loam, or the fine and very fine analogs of sandy loam - Thin strata of other textures are in some pedons. Clay content averages 5 to 15 percent and sand content ranges from 60 to 95 percent.

## 8162A—Gorham silty clay loam, 0 to 2 percent slopes, occasionally flooded

### Setting

*Landform:* Flood Plain

### Soil Properties and Qualities

*Drainage:* Poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Gorham and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

#### *Similar soils:*

- \* Soils that contain more clay in the surface horizon
- \* Soils that contain carbonates in the loamy alluvium

#### *Dissimilar soils:*

- \* Well drained Landes soils on natural levees

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Grantfork Series

**Taxonomic Class:** Fine-loamy, mixed, superactive, mesic Aeric Epiaqualfs

### Typical Pedon for MLRA 114

Grantfork silty clay loam, on a severely eroded back slope, with a slope of 9 percent in a field of clover, at an elevation of about 590 feet above mean sea level; about one mile northeast of New Douglas in Madison County, Illinois; approximately 732 feet east and 560 feet north of the southwest corner of sec. 3, T. 6 N., R. 5 W.; USGS New Douglas, IL. topographic quadrangle; lat. 38 degrees 59 minutes 42 seconds N. and long. 89 degrees 39 minutes 17 seconds W.

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) silty clay loam, light yellowish brown (10YR 6/4) dry; weak fine and medium subangular blocky structure; firm; common very fine and few fine roots; few very fine and fine tubular pores; few fine rounded dark reddish brown (5YR 3/4) masses of iron-manganese accumulation; 11 percent sand; few pebbles; neutral; abrupt smooth boundary.

Bt—5 to 12 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium angular blocky structure in 2-inch plowsole and weak medium subangular blocky below; firm; few very fine roots; many faint brown (10YR 4/3) clay films on faces of peds in the upper part and many distinct grayish brown (10YR 4/2) clay films on faces of peds in the lower part; common fine distinct grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 17 percent sand; few pebbles; neutral; clear smooth boundary.

Btg—12 to 23 inches; grayish brown (10YR 5/2) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; 3 percent exchangeable sodium; 24 percent sand; few pebbles; slightly alkaline; abrupt smooth boundary.

Btng1—23 to 29 inches; light brownish gray (2.5Y 6/2) loam; weak medium and coarse prismatic structure parting to weak medium angular blocky; firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine prominent dark yellowish brown (10YR 4/4) and common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; 6 percent exchangeable sodium; 24 percent sand; few pebbles; moderately alkaline; clear smooth boundary.

Btng2—29 to 37 inches; grayish brown (10YR 5/2) clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; 8 percent exchangeable sodium; 25 percent sand; few pebbles; moderately alkaline; clear smooth boundary.

2Btng3—37 to 49 inches; light brownish gray (10YR 6/2) clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; many distinct grayish brown (10YR 5/2) clay films on faces of peds and brown (10YR 4/3) clay films lining pores; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; 10 percent exchangeable sodium; 35 percent sand; common pebbles; moderately alkaline; clear smooth boundary.

2Btng4—49 to 57 inches; light brownish gray (10YR 6/2) loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; many distinct dark grayish brown (10YR 4/2) and dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; 11 percent exchangeable sodium; 33 percent sand; common pebbles; strongly alkaline; clear smooth boundary.

2BCtng—57 to 67 inches; light brownish gray (10YR 6/2) clay loam; weak coarse prismatic structure; friable; common faint grayish brown (10YR 5/2) clay films on vertical faces of peds; few prominent very dark gray (10YR 3/1) organo-clay films lining pores; many medium distinct yellowish brown (10YR 5/6) and prominent yellowish red (5YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; 11 percent exchangeable sodium; 41 percent sand; common pebbles; moderately alkaline; clear smooth boundary.

3Btgb—67 to 80 inches; gray (2.5Y 5/1) clay; weak medium prismatic structure parting to moderate medium angular blocky; very firm; many faint gray (2.5Y 5/1) pressure faces on faces of peds; few prominent very dark gray (10YR 3/1) organo-clay films lining pores; many coarse prominent strong

brown (7.5YR 5/6) masses of iron accumulation in the matrix in the upper part; common pebbles and few cobbles; slightly alkaline.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* More than 45 inches

*Depth to till:* Typically 30 to 40 inches, but is as deep as 45 inches in some pedons and is at the surface in others

Ap or A horizon:

Hue—10YR

Value—3 or 4 (5 or 6 dry)

Chroma—2 to 4

Texture—silty clay loam, clay loam, silt loam, or loam

E, EB, or BE horizons, where present:

Hue—10YR

Value—4 or 5

Chroma—2 to 4

Texture—silty clay loam, clay loam, silt loam, or loam

Bt and 2Bt horizons:

Hue—10YR or 2.5Y, and less commonly 7.5YR

Value—4 to 6, but ranging to 7 in the lower part in some pedons

Chroma—2 to 4 in the upper part and 1 to 4 in the lower part

Texture—silty clay loam, clay loam, silt loam, or loam

BCg or 2BCg horizon:

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—1 or 2

Texture—silty clay loam, clay loam, silt loam, or loam

Cg or 2Cg horizon, where present:

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—1 or 2

Texture—typically clay loam, but the range includes loam or silt loam

Some pedons have a C horizon that is underlain by buried horizons of older soils, and other pedons do not have a C horizon where the modern soil is welded to a strongly developed paleosol.

## Haynie Series

**Taxonomic Class:** Coarse-silty, mixed, superactive, calcareous, mesic Mollic Udifluvents

### Typical Pedon for MLRA 115B

Haynie silt loam, in a cultivated field, at an elevation of about 375 feet above mean sea level, about 0.75 mile southwest of Kaskaskia in Randolph County, Illinois; Illinois State Plane Coordinates 453,665 feet north and 571,165 feet east (Illinois West Zone), T. 7 S., R. 8 W.; USGS Kaskaskia, MO.-IL. topographic quadrangle; lat. 37 degrees 54 minutes 43 seconds N. and long. 89 degrees 55 minutes 44 seconds W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; slightly alkaline; abrupt smooth boundary.

C1—8 to 18 inches; brown (10YR 4/3) very fine sandy loam; massive; very friable; slightly effervescent; slightly alkaline; clear smooth boundary.

C2—18 to 42 inches; grayish brown (10YR 5/2) very fine sandy loam; massive; very friable; strongly effervescent; slightly alkaline; clear smooth boundary.

C3—42 to 53 inches; dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) very fine sandy loam; massive; very friable; common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; few lenses of silty clay loam; strongly effervescent; slightly alkaline; abrupt smooth boundary.

C4—53 to 60 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; strongly effervescent; slightly alkaline.

### MLRA Series Range in Characteristics

*Thickness of the solum:* Less than 10 inches

*Particle-size control section:* Averages less than 18 percent clay and less than 15 percent sand or coarser sand, but the content of clay combined with the content of silt is more than 35 percent and the total sand content is typically more than 15 percent.

*Depth to carbonates:* Depth to carbonates ranges from 0 to 10 inches, and the soil contains carbonates throughout the series control section.

Ap or A horizon:

Hue—10YR or 2.5Y

Value—3 (5 dry)

Chroma—2

Texture—silt loam, very fine sandy loam, or silty clay loam

C horizon:

Hue—10YR or 2.5Y

Value—4 or 5

Chroma—dominantly 2, but ranges to 4

Texture—typically silt loam or very fine sandy loam, but some pedons contain strata of loam and fine sandy loam, and in the lower part, loamy very fine sand and loamy fine sand

### 3394A—Haynie silt loam, 0 to 2 percent slopes, frequently flooded

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Haynie and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Soils that contain more clay throughout

\* Soils that contain more sand throughout

*Dissimilar soils:*

\* Small areas of poorly drained soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

### 3394B—Haynie silt loam, 2 to 5 percent slopes, frequently flooded

#### Setting

*Landform:* Flood Plain

### Soil Properties and Qualities

*Drainage:* Moderately well drained  
*Dominant parent material:* Alluvium  
*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Haynie and similar soils:* 90 percent  
*Dissimilar soils:* 10 percent

#### Similar soils:

- \* Soils that contain more clay throughout
- \* Soils that contain more sand throughout

#### Dissimilar soils:

- \* Small areas of poorly drained soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### 8394A—Haynie silt loam, 0 to 2 percent slopes, occasionally flooded

#### Setting

*Landform:* Flood Plain

### Soil Properties and Qualities

*Drainage:* Moderately well drained  
*Dominant parent material:* Alluvium  
*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Haynie and similar soils:* 85 percent  
*Dissimilar soils:* 15 percent

#### Similar soils:

- \* Soils that contain more clay in the surface horizon

#### Dissimilar soils:

- \* Areas of poorly drained soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### Herrick Series

**Taxonomic Class:** Fine, smectitic, mesic Aquertic Argiudolls

#### Typical Pedon for MLRA 114

Herrick silt loam, nearly level in a cultivated field, at an elevation of about 520 feet above mean sea level; about 2 miles east of Summerfield in St. Clair County, Illinois (map sheet Trenton NW, IL.); approximately 850 feet west and 520 feet north of the southeast corner of sec. 24, T. 2 N., R. 6 W.; USGS Trenton, IL. topographic quadrangle; lat. 38 degrees 35 minutes 53 seconds N. and long. 89 degrees 42 minutes 33 seconds W.

Ap—0 to 8 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many very fine roots; about 25 percent clay; slightly acid; abrupt smooth boundary.

A—8 to 13 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; strong medium granular structure; friable; many very fine roots; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 26 percent clay; slightly acid; clear smooth boundary.

BE—13 to 18 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; weak medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; few faint light brownish gray (10YR 6/2, dry) clay depletions on faces of peds and many distinct very dark brown (10YR 2/2) organic coatings on faces of peds; common fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 32 percent clay; slightly acid; clear smooth boundary.

Bt1—18 to 28 inches; brown (10YR 4/3) silty clay loam; weak fine prismatic structure parting to moderate fine and medium subangular blocky; firm; common very fine roots; many distinct very dark grayish brown (10YR 3/2) clay films on faces of peds; few fine distinct grayish brown (10YR 5/2) iron depletions and few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation; about 37 percent clay; moderately acid; gradual smooth boundary.

Bt2—28 to 39 inches; brown (10YR 4/3) silty clay loam; moderate fine prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots; many distinct very dark grayish brown (10YR 3/2) and dark grayish brown (10YR 4/2) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 36 percent clay; moderately acid; gradual smooth boundary.

Bt3—39 to 53 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine and medium distinct grayish brown (10YR 5/2) iron depletions and common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 33 percent clay; slightly acid; gradual smooth boundary.

BCt—53 to 60 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium prismatic structure parting to weak coarse angular blocky; friable; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 29 percent clay; neutral; gradual smooth boundary.

C—60 to 86 inches; dark yellowish brown (10YR 4/4) silt loam; massive; friable; few very fine roots; few distinct dark grayish brown (10YR 4/2) clay films lining vertical channels; common medium distinct light brownish gray (10YR 6/2) iron depletions and many fine and medium distinct yellowish brown

(10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 25 percent clay; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 40 to 65 inches

*Thickness of the mollic epipedon:* 10 to 21 inches and includes the E horizon in some pedons

*Thickness of loess:* 50 to about 80 inches

Ap horizon and A horizon, where present:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2

Texture—silt loam

E or BE horizon:

Hue—10YR

Value—3 or 4

Chroma—1 or 2, and some pedons have redoximorphic concentrations with chroma of 3 to 6 and faint redoximorphic concentrations with chroma of 2

Texture—silt loam

Some pedons have an incipient E horizon and other pedons have an EB horizon.

Bt or Btg horizon:

Hue—10YR or 2.5Y, and some pedons have 5Y in the lower part

Value—4 to 6

Chroma—2 to 6

Texture—silty clay loam or silty clay in the upper part, and silty clay loam or silt loam in the lower part

Some pedons have a BC or BCg horizon.

C or 2C horizon:

Hue—7.5YR, 10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—2 to 6

Texture—typically silt loam, but in some pedons it is loam or clay loam below a depth of 50 inches

### 46A—Herrick silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluvium

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained  
*Dominant parent material:* Loess  
*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Herrick and similar soils:* 90 percent  
*Dissimilar soils:* 10 percent

#### *Similar soils:*

- \* Soils that are poorly drained
- \* Soils that are moderately well drained
- \* Soils with less clay in the subsoil
- \* Soils with a thinner dark surface layer

#### *Dissimilar soils:*

- \* Piasa soils that have a natric horizon

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## 894A—Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes

### Setting

*Landform:* Till Plain  
*Position on Landform:* Interfluve

### Soil Properties and Qualities

#### *Drainage:*

- \* Herrick—Somewhat poorly drained
- \* Biddle—Somewhat poorly drained
- \* Piasa—Poorly drained

*Dominant parent material:* Loess  
*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Herrick and similar soils:* 40 percent  
*Biddle and similar soils:* 30 percent  
*Piasa and similar soils:* 20 percent  
*Dissimilar soils:* 10 percent

#### *Similar soils:*

- \* Soils that have a thinner dark surface horizon
- \* Areas of poorly drained soils

#### *Dissimilar soils:*

- \* Small areas of depressional soils that remain wet for periods that extend into the growing season

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Hickory Series

**Taxonomic Class:** Fine-loamy, mixed, active, mesic Typic Hapludalfs

### Typical Pedon for MLRA 114

Hickory silt loam, on a north-facing, wooded, convex slope, with a 30 percent slope, at an elevation of about 590 feet above mean sea level; about 8 miles north and 0.5 mile west of Greenville in Bond County, Illinois; approximately 792 feet west and 38 feet north of the southeast corner of sec. 28, T. 7 N., R. 3 W.; USGS Coffeen, IL. topographic quadrangle; lat. 39 degrees 00 minutes 48 seconds N. and long. 89 degrees 25 minutes 11 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many very fine and few fine and medium roots; few fine and medium continuous tubular pores; about 20 percent sand; very strongly acid; clear smooth boundary.

E—4 to 12 inches; light yellowish brown (10YR 6/4) silt loam, very pale brown (10YR 7/4) dry; weak very thick platy structure parting to weak fine granular; friable; few very fine to medium roots; few fine and medium continuous tubular pores; pockets of dark grayish brown (10YR 4/2) surface soil filling large root channels; about 20 percent sand; about 1 percent pebbles; strongly acid; clear smooth boundary.

Bt1—12 to 17 inches; yellowish brown (10YR 5/6) clay loam; moderate fine subangular blocky structure; firm; common very fine and few fine and medium roots; common distinct brown (10YR 4/3) clay films on faces of peds; about 1 percent pebbles; very strongly acid; clear smooth boundary.

Bt2—17 to 26 inches; dark yellowish brown (10YR 4/6) clay loam; moderate medium subangular blocky structure; firm; few very fine and medium roots; common distinct brown (10YR 5/3) clay films on faces of peds; about 2 percent fine and medium pebbles; very strongly acid; gradual smooth boundary.

Bt3—26 to 35 inches; yellowish brown (10YR 5/4) clay loam; moderate medium and coarse angular blocky structure; firm; few very fine and medium roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and few prominent brown (7.5YR 4/4) clay films coating medium pebbles; many medium and coarse distinct brownish yellow (10YR 6/8) and prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 3 percent fine and medium pebbles; very strongly acid; gradual smooth boundary.

Bt4—35 to 46 inches; yellowish brown (10YR 5/4) clay loam; weak medium and coarse prismatic structure parting to weak coarse angular blocky; firm; few very fine and medium roots; common distinct dark yellowish brown (10YR 4/4) clay films on vertical faces of peds and few prominent brown (7.5YR 4/4) clay films coating medium and coarse pebbles; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 4 percent fine to coarse pebbles; strongly acid; diffuse smooth boundary.

BCt—46 to 58 inches; light yellowish brown (10YR 6/4) loam; weak medium and coarse subangular blocky structure; friable; few very fine and fine roots; few distinct dark yellowish brown (10YR 4/4) clay films on vertical faces of peds and few prominent brown (7.5YR 4/4) clay films coating medium pebbles; common medium distinct dark yellowish brown (10YR 4/6) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 5 percent fine and medium pebbles; strongly acid; gradual smooth boundary.

CB—58 to 65 inches; yellowish brown (10YR 5/6) loam; massive; friable; few very fine and fine roots; few distinct brown (10YR 4/3) clay films lining root channels and coating medium pebbles; few fine

distinct brown (10YR 5/3) iron depletions in the matrix; about 5 percent fine and medium pebbles; moderately acid; clear smooth boundary.

C—65 to 80 inches; variegated yellowish brown (10YR 5/4), strong brown (7.5YR 5/6), and light gray (2.5Y 7/1) loam; massive; friable; few very fine roots; about 3 percent fine and medium pebbles; slightly acid.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* More than 40 inches

*Thickness of loess:* 0 to 20 inches

*Depth to carbonates:* More than 40 inches, where present

*Particle-size control section:* Averages 27 to 35 percent clay, 15 to 45 percent fine sand and coarser, and less than 20 percent gravel

A horizon, where present:

Hue—10YR

Value—2 to 4 (4 to 6 dry)

Chroma—2 or 3

Texture—silt loam or loam

Ap horizon, where present:

Hue—7.5YR or 10YR

Value—3 to 5 (5 to 7 dry)

Chroma—2 to 4

Texture—silt loam or loam, and silty clay loam or clay loam in some eroded pedons

E horizon:

Hue—10YR

Value—4 to 6 (5 to 7 dry)

Chroma—2 to 4

Texture—silt loam or loam

Some pedons have a BE horizon

Bt and/or 2Bt horizons:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—3 to 6

Texture—commonly clay loam, but in some pedons the first subhorizon is silty clay loam, and in other pedons the lower horizons are loam or gravelly clay loam

Some pedons have a BC horizon

CB and C horizon:

Hue—7.5YR, 10YR or 2.5Y

Value—5 to 7

Chroma—1 to 8

Texture—loam, clay loam, or sandy loam; and gravel content averages about 5 percent and ranges from 2 to 20 percent

## 8F2—Hickory silt loam, 18 to 35 percent slopes, eroded

### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Till

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Hickory and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Areas that are more or less eroded
- \* Soils that contain more clay in the subsoil
- \* Soils that contain redox iron depletions in the subsoil

*Dissimilar soils:*

- \* Somewhat poorly drained Atlas soils
- \* Areas of stony soils and bedrock outcrops
- \* Areas where gullies have formed

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Homen Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

### Typical Pedon for MLRA 114

Homen silt loam, gently sloping in a cultivated field, at an elevation of about 560 feet above mean sea level; about 4 miles south of Coulterville in Randolph County, Illinois; approximately 714 feet south and 45 feet east of the center of sec. 1, T. 5 S., R. 5 W.; USGS Percy, IL, topographic quadrangle; lat. 38 degrees 7 minutes 23

seconds N. and long. 89 degrees 36 minutes 5 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine and fine roots; few fine constricted tubular pores; few fine rounded black (N 2.5/0) iron-manganese concretions; about 23 percent clay; slightly acid; abrupt smooth boundary.

E—9 to 15 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; weak medium platy structure parting to moderate medium granular; friable; common very fine and fine roots; few fine continuous tubular pores; few fine rounded black (N 2.5/0) iron-manganese concretions; about 25 percent clay; very strongly acid; clear smooth boundary.

Bt—15 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; common very fine and fine roots; common fine and medium constricted tubular pores; common prominent very pale brown (10YR 7/3, dry) clay depletions on faces of peds; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine and medium rounded black (N 2.5/0) iron-manganese concretions; about 29 percent clay; very strongly acid; abrupt smooth boundary.

Bt/E—22 to 28 inches; yellowish brown (10YR 5/6) silty clay loam (Bt part); moderate fine and medium subangular blocky structure; firm; common fine roots along vertical ped faces; many distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine and medium rounded black (N 2.5/0) iron-manganese concretions; many prominent very pale brown (10YR 7/3, dry) clay depletions on faces of peds and filling vertical interstices between peds (E part); very strongly acid; abrupt smooth boundary.

Bt1—28 to 37 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots throughout; common prominent very pale brown (10YR 7/3, dry) clay depletions on faces of peds and many prominent dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 32 percent clay; very strongly acid; clear smooth boundary.

Bt2—37 to 48 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky;

firm; common very fine roots throughout; few prominent very pale brown (10YR 7/3, dry) clay depletions on faces of peds and common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 30 percent clay; strongly acid; gradual smooth boundary.

B't3—48 to 58 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; common very fine roots throughout; few very fine constricted tubular pores; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 28 percent clay; moderately acid; clear smooth boundary.

2BC—58 to 66 inches; brown (7.5YR 5/4) silt loam; weak coarse subangular blocky structure; friable; few very fine roots throughout; common very fine and fine constricted tubular pores; few fine distinct pinkish gray (7.5YR 6/2) iron depletions in the matrix; few medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 26 percent clay and 10 percent sand; moderately acid; gradual smooth boundary.

2C—66 to 92 inches; brown (7.5YR 4/4) silt loam; massive with few diagonal cleavage planes; friable; few very fine roots throughout; common fine and medium constricted tubular pores; few prominent black (N 2.5/0) iron-manganese coatings lining root channels and pores; few fine distinct pinkish gray (7.5YR 6/2) iron depletions and common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 24 percent clay and 12 percent sand; slightly acid.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 40 to 80 inches

*Thickness of loess:* 40 to about 80 inches

Ap horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 or 3

Texture—silt loam

E horizon:

Hue—10YR

Value—4 or 5

Chroma—2 to 4

Texture—silt loam

Some pedons have an EB or a BE horizon.

Bt horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—3 to 6

Texture—silty clay loam

Bt/E and B't horizons:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—2 to 6

Texture—silty clay loam or silt loam

Some pedons have a BC horizon.

2BC and 2C horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—1 to 4

Texture—silt loam

### 582B—Homen silt loam, 2 to 5 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluve

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Homen and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that contain more clay in the subsoil

\* Areas of somewhat poorly drained soils

\* Areas of moderately eroded soils

*Dissimilar soils:*

- \* Poorly drained Pierron soils in depressions

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**582B2—Homen silt loam, 2 to 5 percent slopes, eroded****Setting**

*Landform:* Till Plain

*Position on Landform:* Side Slope

**Soil Properties and Qualities**

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Homen and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Soils that contain more clay in the subsoil
- \* Areas of somewhat poorly drained soils
- \* Areas of severely eroded soils

*Dissimilar soils:*

- \* Poorly drained Pierron soils in depressions

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**582C2—Homen silt loam, 5 to 10 percent slopes, eroded****Setting**

*Landform:* Till Plain

*Position on Landform:* Side Slope

**Soil Properties and Qualities**

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Homen and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Areas of well drained soils
- \* Areas of severely eroded soils

*Dissimilar soils:*

- \* Wakeland soils in small upland drainageways

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**Hurst Series**

**Taxonomic Class:** Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs

**Typical Pedon for MLRA 114**

Hurst silt loam, nearly level in a cultivated field, at an elevation of about 385 feet above mean sea level; about 3 miles east of Hurst in Williamson County, Illinois; approximately 1,490 feet north and 1,200 feet west of the southeast corner of sec. 10, T. 8 S., R. 1 E.; USGS Herrin, IL. topographic quadrangle; lat. 37 degrees 50 minutes 15 seconds N. and long. 89 degrees 4 minutes 48 seconds W.

- Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; many very fine roots; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 21 percent clay; slightly acid; abrupt smooth boundary.
- E—7 to 12 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate medium platy structure parting to weak fine subangular blocky; friable; common very fine roots; many fine faint light brownish gray (10YR 6/2) iron depletions and common medium faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with sharp boundaries; about 22 percent clay; strongly acid; clear smooth boundary.
- Bt1—12 to 18 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; common continuous distinct brown (10YR 4/3) clay films on faces of peds; many continuous prominent very pale brown (10YR 8/2) clay depletions on faces of peds; many fine and medium distinct light brownish gray (10YR 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded very dark brown (7.5YR 2.5/2) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; very strongly acid; clear smooth boundary.
- 2Bt2—18 to 28 inches; brown (10YR 5/3) silty clay; weak fine prismatic structure parting to weak medium angular blocky; very firm; common very fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine faint grayish brown (10YR 5/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation with clear boundaries; about 43 percent clay; very strongly acid; gradual smooth boundary.
- 2Btg1—28 to 40 inches; grayish brown (2.5Y 5/2) silty clay loam; weak fine prismatic structure parting to weak medium angular blocky; very firm; few very fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds and few continuous prominent brown (10YR 4/3) clay films lining large channels; few fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation with clear boundaries; about 38 percent clay; very strongly acid; clear smooth boundary.
- 2Btg2—40 to 53 inches; grayish brown (2.5Y 5/2) silty clay; weak medium prismatic structure parting to weak medium angular blocky; very firm; few very fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common continuous prominent black (N 2.5/0) iron-manganese coatings on faces of peds and lining large channels; few fine prominent yellowish brown (10YR 5/6) and common fine distinct dark brown (10YR 3/3) masses of iron accumulation in the matrix; about 46 percent clay; moderately acid; clear smooth boundary.
- 2Btg3—53 to 62 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to weak coarse angular blocky; firm; few very fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many coarse irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 37 percent clay; slightly effervescent; slightly alkaline; clear smooth boundary.
- 2BCkg—62 to 76 inches; olive gray (5Y 4/2) silty clay; weak medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; common continuous distinct olive gray (5Y 4/2) pressure faces on faces of peds; common continuous distinct very dark brown (7.5YR 2.5/3) iron-manganese coatings on ped faces and lining large channels; few fine prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) masses of iron accumulation with diffuse boundaries; common fine and medium irregular white (10YR 8/1, dry) carbonate concretions; about 45 percent clay; strongly effervescent; slightly alkaline; clear smooth boundary.
- 2Cg—76 to 80 inches; grayish brown (2.5Y 5/2) silty clay loam; massive; firm; few continuous distinct dark grayish brown (10YR 4/2) clay films lining vertical channels; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation along vertical channels; few fine prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; common fine irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 33 percent clay; slightly alkaline.

**MLRA Series Range in Characteristics**

*Depth to the base of the argillic horizon:* 44 to more than 80 inches

*Thickness of loess or other silty material:* 0 to 24 inches

*Depth to carbonates:* In the lower part of the 2B horizon or in the 2BC and 2C horizons, where present

Ap or A horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 or 3

Texture—silt loam or silty clay loam

E horizon, where present:

Hue—10YR

Value—5 or 6 (6 to 8 dry)

Chroma—2, or 3 (if accompanied by redoximorphic features)

Texture—silt loam or silty clay loam

Some pedons, especially those having a loess cap of nearly 24 inches in thickness, have a BE or Bt horizon formed in the upper, silty material.

2Bt and 2Btg horizons:

Hue—10YR or 2.5Y, and 5Y for 2Btg horizon

Value—4 to 6

Chroma—3 or 4 for 2Bt horizon, and 1 or 2 for 2Btg horizon

Texture—silty clay loam, silty clay, or clay

Some pedons have a 2BC horizon

2C horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 to 4

Texture—silty clay loam or silty clay and may be stratified, and a sandy substratum phase that is loamy sand or sand is recognized

**8338A—Hurst silt loam, 0 to 2 percent slopes, occasionally flooded****Setting**

*Landform:* Lake Plain

*Position on Landform:* Broad Flat

**Soil Properties and Qualities**

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Lacustrine deposits

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this

section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Hurst and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Areas that have a thicker loess mantle

\* Areas that are more sloping

*Dissimilar soils:*

\* Areas of poorly drained Okaw soils

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Agronomy” section

\* “Forestland Management and Productivity” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

**8338B—Hurst silt loam, 2 to 5 percent slopes, eroded, occasionally flooded****Setting**

*Landform:* Lake Plain

*Position on Landform:* Shoulder Slope

**Soil Properties and Qualities**

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Lacustrine deposits

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Hurst and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that have a thicker loess mantle

\* Soils that are more or less sloping

*Dissimilar soils:*

\* Areas of moderately well drained Colp soils

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 8338C—Hurst silty clay loam, 5 to 10 percent slopes, eroded, occasionally flooded

#### Setting

*Landform:* Lake Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Lacustrine deposits

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Hurst and similar soils:* 100 percent

*Similar soils:*

- \* Areas of severely eroded soils
- \* Areas that are more or less sloping

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 8489A—Hurst silt loam, sandy substratum, 0 to 2 percent slopes, occasionally flooded

#### Setting

*Landform:* Lake Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Lacustrine deposits

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Hurst, sandy substratum and similar soils:* 100 percent

*Similar soils:*

- \* Areas that are more sloping
- \* Areas of moderately well drained soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### Lakaskia Series

**Taxonomic Class:** Fine, mixed, superactive, mesic Vertic Argiaquolls

#### Typical Pedon for MLRA 114

Lakaskia silt loam, on a nearly level lake plain, in a cultivated field, at an elevation of about 412 feet above mean sea level; about 4 miles south of Germantown in Clinton County, Illinois; approximately 2,297 feet west and 2,510 feet south of the northeast corner of sec. 27, T. 1 N., R. 4 W.; USGS Breese, IL. topographic quadrangle; lat. 38 degrees 30 minutes 3 seconds N. and long. 89 degrees 31 minutes 27 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak thin platy structure parting to weak fine granular; friable; common very fine roots; few fine continuous tubular pores; few fine rounded strong brown (7.5YR 4/6) and black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; abrupt smooth boundary.

A—8 to 13 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine angular blocky structure; friable; common very fine roots; few fine continuous tubular pores; few fine rounded strong brown (7.5YR 4/6) and black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; abrupt smooth boundary.

Btg1—13 to 17 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure; firm; common very fine roots; few fine constricted tubular pores; few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine prominent dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) iron-manganese nodules with clear boundaries; neutral; clear smooth boundary.

Btg2—17 to 26 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure; firm; few very fine roots; many distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; few fine distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; few fine and medium rounded black (7.5YR 2.5/1) and strong brown (7.5YR 4/6) iron-manganese nodules with clear boundaries; neutral; clear smooth boundary.

2Btg1—26 to 36 inches; grayish brown (2.5Y 5/2) silty clay; weak medium prismatic structure; firm; many distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; common fine distinct light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (7.5YR 2.5/1) and strong brown (7.5YR 5/6) iron-manganese nodules with clear boundaries; few coarse irregular light gray (10YR 7/2) carbonate concretions; slightly effervescent; slightly alkaline; gradual smooth boundary.

2Btg2—36 to 50 inches; grayish brown (2.5Y 5/2) silty clay loam; weak coarse prismatic structure; firm; many distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; common fine distinct light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few coarse rounded black (10YR 2/1) iron-manganese concretions and few fine irregular strong brown (7.5YR 5/6) iron-manganese nodules with clear boundaries; few coarse irregular light gray (10YR 7/2) carbonate

concretions; slightly effervescent; slightly alkaline; clear smooth boundary.

2BCtkg—50 to 60 inches; olive gray (5Y 5/2) silty clay loam; weak medium prismatic structure; firm; common distinct dark grayish brown (2.5Y 4/2) clay films on vertical faces of peds and lining root channels; few shiny nonintersecting slickensides; common medium prominent dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese concretions and common medium and coarse irregular strong brown (7.5YR 5/6) iron-manganese nodules with diffuse boundaries; common medium and coarse irregular light gray (10YR 7/2) carbonate concretions with white (10YR 8/1) coatings; slightly effervescent; slightly alkaline; clear smooth boundary.

2Cg—60 to 82 inches; light olive gray (5Y 6/2) clay loam; massive with horizontal planes of weakness; friable; few fine and medium vesicular pores; few distinct dark grayish brown (2.5Y 4/2) clay films lining root channels and filling pores; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse black (10YR 2/1) masses of iron manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; slightly effervescent; slightly alkaline; abrupt wavy boundary.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 36 to 74 inches

*Thickness of loess:* About 18 to 34 inches

*Thickness of the mollic epipedon:* 10 to 18 inches

*Depth to carbonates:* Below 20 inches, where present

Ap and A horizons:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2

Texture—silt loam or silty clay loam

Btg horizon:

Hue—10YR, 2.5Y, or neutral

Value—3 to 6

Chroma—0 to 2

Texture—silty clay loam or silty clay

2Btkg, 2BCtkg, 2Btg and 2BCg horizons, where present:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silty clay loam or silty clay

2C horizons, where present:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 to 4

Texture—silt loam, loam, silty clay loam, clay loam, or silty clay

### 468A—Lakaskia silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Lake Plain

*Position on Landform:* Broad Flat

#### Soil Properties and Qualities

*Drainage:* Poorly drained

*Dominant parent material:* Lacustrine deposits

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Lakaskia and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Soils that have a thicker loess mantle
- \* Soils that contain more or less clay in the subsoil
- \* Areas of somewhat poorly drained soils

*Dissimilar soils:*

- \* Areas of somewhat poorly drained Bartelso soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### Landes Series

**Taxonomic Class:** Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls

### Typical Pedon for MLRA 115B

Landes very fine sandy loam, gently sloping in a cultivated field, at an elevation of about 400 feet above mean sea level; about 3 miles northwest of New Hanover in Monroe County, Illinois; approximately 1,740 feet south and 2,800 feet west of intersection of railroad tracks and Steppig Road, sec. 25, T. 1 S., R. 11 W.; USGS Oakville, MO. - IL. topographic quadrangle; lat. 38 degrees 24 minutes 57 seconds N. and long. 90 degrees 16 minutes 2 seconds W.

Ap—0 to 10 inches; very dark gray (10YR 3/1) very fine sandy loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; many very fine and few fine roots; few very fine tubular pores; slightly acid; abrupt smooth boundary.

A—10 to 14 inches; very dark gray (10YR 3/1) very fine sandy loam, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure; very friable; common very fine and few fine roots; common very fine and fine tubular pores; common faint black (10YR 2/1) organic coatings on faces of peds; neutral; clear smooth boundary.

AB—14 to 18 inches; dark brown (10YR 3/3) very fine sandy loam, brown (10YR 5/3) dry; weak fine subangular blocky structure; very friable; common very fine roots and few fine roots; few very fine tubular pores; few distinct black (10YR 2/1) organic coatings on faces of peds; neutral; clear smooth boundary.

Bw1—18 to 30 inches; brown (10YR 4/3) very fine sandy loam; weak fine subangular blocky structure; very friable; few very fine and fine roots; common very fine and fine tubular pores; few faint dark brown (10YR 3/3) organo-clay films on faces of peds; neutral; gradual smooth boundary.

Bw2—30 to 39 inches; brown (10YR 4/3) very fine sandy loam; weak medium subangular blocky structure; very friable; few very fine and fine roots; few very fine tubular pores; few distinct brown (10YR 4/3) clay films in root channels and in pores; neutral; gradual smooth boundary.

BC—39 to 47 inches; brown (10YR 4/3) loamy very fine sand; weak medium subangular blocky structure; very friable; few very fine roots; slightly acid; clear smooth boundary

C—47 to 80 inches; brown (10YR 5/3) very fine sand; single grain; loose; few very fine roots; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of soil development:* 22 to 40 inches

*Thickness of the mollic epipedon:* 10 to 20 inches

*Depth to carbonates:* Some pedons contain carbonates within a depth of 40 inches.

*Particle-size control section:* Contains between 50 and 90 percent sand and the dominant sand size is fine or very fine.

Ap and A horizons:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 to 3

Texture—It typically is fine sandy loam, very fine sandy loam or sandy loam, and less commonly is loam, loamy fine sand, loamy very fine sand, loamy sand or silt loam.

Bw horizon and BC horizon, where present:

Hue—10YR

Value—4 to 6

Chroma—2 to 4

Texture—It is loam, fine sandy loam, very fine sandy loam, sandy loam, loamy fine sand or loamy very fine sand. Many pedons are stratified. Rock fragment (fine gravel) content ranges from 0 to 10 percent.

C horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—1 to 4

Texture—It is sand, fine sand, very fine sand, loamy sand, loamy fine sand, loamy very fine sand, sandy loam, fine sandy loam, very fine sandy loam, loam or silt loam and is stratified in many pedons. Rock fragment (fine gravel) content ranges from 0 to 10 percent.

### **8304B—Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded**

#### **Setting**

*Landform:* Natural Levee

#### **Soil Properties and Qualities**

*Drainage:* Well drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### **Composition**

*Landes and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Soils with strata that contain more clay

\* Areas that are more sloping

*Dissimilar soils:*

\* Areas of poorly drained soils in small depressions

#### **Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

### **Lenzburg Series**

**Taxonomic Class:** Fine-loamy, mixed, active, calcareous, mesic Alfic Udarents

#### **Typical Pedon for MLRA 114**

Lenzburg gravelly silty clay loam, in a wooded area, in Pyramid State Park, on a south-facing slope, of 35 percent at an elevation of about 450 feet above mean sea level; about 3 miles northwest of Pyatts in Perry County, Illinois; about 2,280 feet west and 100 feet south of the center of sec. 10, T. 6 S., R. 3 W.; USGS Pinckeyville, IL. topographic quadrangle; lat. 38 degrees 1 minute 4 seconds N. and long. 89 degrees 25 minutes 35 seconds W.

A—0 to 3 inches; mixed very dark gray (10YR 3/1) and dark yellowish brown (10YR 4/4) gravelly silty clay loam, gray (10YR 5/1) and light yellowish brown (10YR 6/4) dry; weak coarse granular structure; friable; common fine and medium roots; about 20 percent rock fragments of coal, sandstone, shale, and limestone; strongly effervescent; moderately alkaline; abrupt irregular boundary.

C1—3 to 16 inches; mixed gray (10YR 6/1) and yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; firm; few fine and medium roots; about 4 percent rock fragments; slightly effervescent; moderately alkaline; gradual smooth boundary.

C2—16 to 26 inches; mixed brown (7.5YR 5/2) and yellowish brown (10YR 5/6) silty clay loam; massive; firm; few very fine and medium roots; few medium prominent light olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; about 6 percent rock fragments; common pockets of black (N 2.5/0) clayey shale approximately 1 inch across; slightly effervescent; slightly alkaline; clear irregular boundary.

C3—26 to 60 inches; mixed yellowish brown (10YR 5/6) and gray (10YR 6/1) channery silty clay loam; massive; firm; few very fine and fine roots; about 30 percent rock fragments of weathered and unweathered shale; strongly effervescent; moderately alkaline.

#### MLRA Series Range in Characteristics

*Depth to bedrock:* More than 5 feet

*Depth to carbonates:* The control section is slightly alkaline or moderately alkaline and contains carbonates.

A horizon:

Hue—10YR, 2.5Y or 5Y

Value—2 to 5 (4 to 7 dry)

Chroma—typically 2 to 4, but ranging from 1 to 6

Texture—silt loam, silty clay loam, clay loam, or loam; or the gravelly, stony, or channery analogs

Some pedons have an AC horizon.

C horizon:

Hue—dominant colors are in hue of 7.5YR or 10YR

Value—4 to 6, and some pedons have color value of 2 or 3

Chroma—3 or 4

Texture—silty clay loam, silt loam, loam, silty clay, or clay loam; or the channery, gravelly, or cobbly analogs - Thin strata or small pockets of coarser or finer textured material are in some pedons.

An acid substratum phase has been recognized. Below a depth of 48 inches it contains refuse material from the coal washing operation. The material is a mixture of mineral and coal fragments and contains a high content of pyrite which releases sulfur upon oxidation.

#### 871B—Lenzburg gravelly silty clay loam, 1 to 7 percent slopes, stony

##### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

##### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Mine spoil and earth fill

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this

section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

##### Composition

*Lenzburg and similar soils:* 100 percent

*Similar soils:*

\* Soils that contain more rock fragments throughout

##### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Forestland Management and Productivity” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

#### 871D—Lenzburg gravelly silty clay loam, 7 to 18 percent slopes, stony

##### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

##### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Mine spoil and earth fill

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

##### Composition

*Lenzburg and similar soils:* 100 percent

*Similar soils:*

\* Soils that contain more rock fragments throughout

##### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Forestland Management and Productivity” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

### 871G—Lenzburg gravelly silty clay loam, 18 to 70 percent slopes, stony

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Mine spoil and earth fill

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Lenzburg and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Soils that contain more rock fragments throughout

*Dissimilar soils:*

\* Small depressional areas that have wet soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

### 825B—Lenzburg silty clay loam, acid substratum, 1 to 7 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Mine spoil and earth fill

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit,

such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Lenzburg, acid substratum and similar soils:* 100 percent

*Similar soils:*

\* Areas that have a thinner mantle of soil material

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

### Littleton Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls

#### Typical Pedon for MLRA 115B

Littleton silt loam, nearly level in a cultivated field, at an elevation of about 425 feet above mean sea level; about 1 mile north of Caseyville in St. Clair County, Illinois (map sheet Monks Mound SE, IL.); approximately 2,042 feet west and 2,010 feet north of the southeast corner of sec. 6, T. 2 N., R. 8 W.; USGS Monks Mound, IL. topographic quadrangle; lat. 38 degrees 38 minutes 55 seconds N. and long. 90 degrees 1 minute 45 seconds W.

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium granular structure; friable; common very fine and few fine roots; few fine tubular pores; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 21 percent clay; slightly acid; abrupt smooth boundary.

A—10 to 21 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; very friable; many very fine and few fine roots; common very fine and fine tubular pores; about 23 percent clay; slightly acid; clear smooth boundary.

AB—21 to 33 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure parting to weak fine granular; friable; common very fine and few fine roots; few very fine and fine tubular pores; few

fine rounded black (10YR 2/1) iron-manganese nodules with clear boundaries; about 24 percent clay; slightly acid; clear smooth boundary.

**Bw1**—33 to 45 inches; dark grayish brown (10YR 4/2) silt loam; weak fine subangular blocky structure; friable; common very fine and few fine roots; common faint very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine faint brown (10YR 4/3) and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few fine irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 25 percent clay; slightly acid; gradual smooth boundary.

**Bw2**—45 to 58 inches; brown (10YR 4/3) silt loam; weak medium angular blocky structure; friable; few very fine roots; few very fine and fine tubular pores; few faint very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine faint dark grayish brown (10YR 4/2) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 26 percent clay; neutral; gradual smooth boundary.

**C**—58 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; massive; friable; few very fine roots; common fine tubular pores; common medium distinct grayish brown (10YR 5/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 23 percent clay; neutral.

#### **MLRA Series Range in Characteristics**

*Depth to the base of the cambic horizon:* Typically 35 to 50 inches, but ranges from 30 to 62 inches

*Thickness of the mollic epipedon:* 24 to 36 inches

Ap and A horizons:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 to 3

Texture—silt loam

Some pedons have a BA horizon

Bw horizon:

Hue—10YR or 2.5Y

Value—3 to 5

Chroma—2 or 3

Texture—silt loam, but thin subhorizons are silty clay loam in some pedons

Some pedons have a BC horizon.

C or Cg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 to 4

Texture—silt loam, but some pedons contain thin subhorizons of silty clay loam that contain less than 30 percent clay

### **81A—Littleton silt loam, 0 to 2 percent slopes**

#### **Setting**

*Landform:* Alluvial Fan

#### **Soil Properties and Qualities**

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Slope alluvium

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### **Composition**

*Littleton and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that have a thinner mollic epipedon

\* Soils that contain more sand throughout

\* Soils with a dark buried soil

*Dissimilar soils:*

\* Areas of well drained Worthen soils

#### **Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

## Marine Series

**Taxonomic Class:** Fine, smectitic, mesic Aeric Vertic Albaqualfs

### Typical Pedon for MLRA 114

Marine silt loam - with a slope of 1 percent on a broad, slightly convex summit in a cultivated field at an elevation of about 500 feet above sea level; about 3 miles south of Highland in Madison County, Illinois; approximately 2,030 feet east and 650 feet south of the northwest corner of sec. 21, T. 3 N., R. 5 W.; USGS St. Jacob, IL. topographic quadrangle; lat. 38 degrees 41 minutes 18 seconds N. and long. 89 degrees 46 minutes 14 seconds W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; many very fine roots; few very fine continuous tubular pores; few fine rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; strongly acid; abrupt smooth boundary.

E—9 to 17 inches; light brownish gray (10YR 6/2) silt loam, white (10YR 8/1) dry; weak thin platy structure; friable; common very fine roots; few very fine continuous pores; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; very strongly acid; abrupt smooth boundary.

Bt1—17 to 25 inches; brown (10YR 4/3) silty clay; moderate medium prismatic structure parting to strong fine angular blocky; very firm; common very fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; very strongly acid; clear smooth boundary.

Bt2—25 to 34 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine distinct grayish brown (2.5Y 5/2) iron depletions and common medium prominent brownish yellow (10YR 6/8) masses of iron accumulation in the matrix; common fine and medium rounded dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; very strongly acid; clear smooth boundary.

Btg1—34 to 43 inches; grayish brown (10YR 5/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent light olive brown (2.5Y 5/4) and common coarse prominent brownish yellow (10YR 6/8) masses of iron accumulation in the matrix; few medium rounded black (N 2.5/0) iron-manganese nodules with strong brown (7.5YR 4/6) boundaries; very strongly acid; clear smooth boundary.

Btg2—43 to 52 inches; light grayish brown (2.5Y 6/2) silty clay loam; weak coarse prismatic structure; firm; few very fine roots; many faint grayish brown (2.5Y 5/2) clay films on faces of peds; common coarse prominent brownish yellow (10YR 6/8) and common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; slightly acid; gradual smooth boundary.

BCtg—52 to 62 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse subangular blocky structure; friable; few faint grayish brown (2.5Y 5/2) clay films on vertical faces of peds and few distinct dark grayish brown (10YR 4/2) clay films in root channels and in pores; common coarse prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; slightly acid; gradual smooth boundary.

2C—62 to 80 inches; brown (7.5YR 5/3) silt loam; massive; friable; many medium faint brown (7.5YR 5/2) iron depletions and many coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 8 percent sand; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* More than 42 inches

*Depth of loess:* 55 to about 80 inches

Ap horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 or 3

Texture—silt loam or silt

E horizon:

Hue—10YR

Value—5 to 7

Chroma—1 or 2

Texture—silt or silt loam

Some pedons have a B/E horizon about 2 inches in thickness

Bt horizon:

Hue—10YR or 2.5Y

Value—4 to 7

Chroma—3 or 4

Texture—silty clay loam or silty clay

Btg horizon:

Hue—10YR or 2.5Y

Value—4 to 7

Chroma—1 or 2

Texture—silty clay loam or silty clay, but grades to silt loam in the lower part in some pedons

BCtg or BCg horizon, where present:

Hue—10YR or 2.5Y

Value—4 to 7

Chroma—1 or 2

Texture—silty clay loam or silt loam

C or 2C horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—5 to 7

Chroma—1 to 3

Texture—silt loam or loam

In pedons with less than 80 inches of loess, the lower part of the soil formed in silty pediment that contains a component of sand and/or the underlying Illinoian till that commonly contains a strongly developed paleosol. These horizons or strata typically are silt loam, loam, silty clay loam, or clay loam.

### 517A—Marine silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluve

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Marine and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

#### Similar soils:

- \* Soils that contain less clay in the subsoil
- \* Soils that do not have an abrupt textural change
- \* Areas of poorly drained soils

#### Dissimilar soils:

- \* Areas of well drained Ruma soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### 517B—Marine silt loam, 2 to 5 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluve

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Marine and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

#### Similar soils:

- \* Soils that contain less clay in the subsoil
- \* Soils that do not have an abrupt textural change
- \* Areas of moderately well drained soils

#### Dissimilar soils:

- \* Areas of well drained Ruma soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section

- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Mascoutah Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Typic Endoaquolls

### Typical Pedon for MLRA 115B

Mascoutah silty clay loam - nearly level in a cultivated field at an elevation of about 428 feet above mean sea level; about 0.5 mile north of Mascoutah in St. Clair County, Illinois (map sheet Lebanon SE, IL.); approximately 500 feet west and 75 feet south of the center of sec. 30, T. 1 N., R. 6 W.; USGS Lebanon, IL. topographic quadrangle; lat. 38 degrees 30 minutes 4 seconds N. and long. 89 degrees 48 minutes 30 seconds W.

Ap—0 to 9 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate coarse granular structure; friable; many very fine and few fine roots; few fine rounded strong brown (7.5YR 5/6) iron-manganese nodules with sharp boundaries; about 29 percent clay; neutral; abrupt smooth boundary.

A—9 to 16 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure parting to moderate medium granular; friable; many very fine roots; few fine rounded strong brown (7.5YR 5/6) iron-manganese nodules with sharp boundaries; about 30 percent clay; neutral; clear smooth boundary.

AB—16 to 21 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure; firm; common very fine roots; common continuous distinct black (10YR 2/1) organic coatings on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 31 percent clay; neutral; clear smooth boundary.

Bg—21 to 32 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; many continuous distinct very dark gray (10YR 3/1) organic coatings on faces of peds; common fine distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix;

common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 32 percent clay; neutral; clear smooth boundary.

Btg1—32 to 44 inches; grayish brown (2.5Y 5/2) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common patchy distinct dark gray (10YR 4/1) clay films on faces of peds; common fine and medium distinct light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 31 percent clay; neutral; gradual smooth boundary.

Btg2—44 to 58 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; few continuous distinct very dark gray (10YR 3/1) organo-clay films lining channels and pores; few patchy distinct dark gray (10YR 4/1) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with diffuse strong brown (7.5YR 4/6) boundaries and few fine and medium irregular dark reddish brown (5YR 3/4) masses of iron-manganese accumulation; very dark gray (10YR 3/1) krotovina; about 29 percent clay; neutral; gradual smooth boundary.

BCtg—58 to 66 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium subangular blocky structure; friable; few continuous prominent very dark gray (10YR 3/1) organo-clay films in pores and channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular very dark brown (7.5YR 2.5/2) and few medium irregular dark reddish brown (5YR 3/4) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 25 percent clay; slightly effervescent; slightly alkaline; gradual smooth boundary.

Cg—66 to 80 inches; gray (5Y 6/1) silt loam; massive; very friable; few continuous prominent very dark gray (10YR 3/1) organo-clay films lining pores and channels; common medium and coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with diffuse strong

brown (7.5YR 4/6) boundaries; about 23 percent clay; slightly effervescent; slightly alkaline.

### MLRA Series Range in Characteristics

*Thickness of loess:* More than 80 inches  
*Thickness of the mollic epipedon:* 12 to 24 inches  
*Particle-size control section:* Averages 27 to 35 percent clay and less than 7 percent sand  
*Depth to carbonates:* Carbonates, where present, typically occur in the Cg horizon but they may occur in the lower part of the B horizon below a depth of 40 inches.

Ap and A horizons, and AB horizon, where present:  
 Hue—10YR, 2.5Y, 5Y, or neutral  
 Value—2 or 3 (3 or 4 dry)  
 Chroma—0 or 1  
 Texture—silty clay loam

Bg and Btg horizons:  
 Hue—10YR, 2.5Y, 5Y, or neutral  
 Value—3 to 5 in the upper part, and 4 to 6 in the lower part  
 Chroma—0 to 2  
 Texture—silty clay loam

BCtg horizon:  
 Hue—10YR, 2.5Y, 5Y, or neutral  
 Value—4 to 6  
 Chroma—0 to 2  
 Texture—silty clay loam or silt loam

Cg horizon:  
 Hue—10YR, 2.5Y, 5Y, or neutral  
 Value—5 or 6  
 Chroma—0 to 2  
 Texture—silt loam, and is silty clay loam in the upper part of some pedons

### 385A—Mascoutah silty clay loam, 0 to 2 percent slopes

#### Setting

*Landform:* Till Plain  
*Position on Landform:* Interfluve

#### Soil Properties and Qualities

*Drainage:* Poorly drained  
*Dominant parent material:* Loess  
*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Mascoutah and similar soils:* 90 percent  
*Dissimilar soils:* 10 percent

#### Similar soils:

- \* Soils that contain more clay in the subsoil
- \* Soils that contain less clay in the surface layer
- \* Areas of somewhat poorly drained soils

#### Dissimilar soils:

- \* *Areas of well drained Wakenda soils*

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### McFain Series

**Taxonomic Class:** Clayey over loamy, smectitic over mixed, superactive, mesic Fluvaquentic Endoaquolls

#### Typical Pedon for MLRA 115B

McFain silty clay, in a depressional, with grasses and scattered trees, at an elevation of about 410 feet above mean sea level, near the southeastern boundary of Frank Holton State Park in East St. Louis, Illinois (map sheet French Village SW, IL.; approximately 1,260 feet north and 170 feet east of the center of sec. 34, T. 1 N., R. 9 W.; USGS French Village, IL. topographic quadrangle; lat 38 seconds 34 minutes 57 seconds N. and long. 90 degrees 4 minutes 54 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; strong fine angular blocky structure parting to moderate medium granular; firm; many very fine and common fine roots; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; common fine and medium white (10YR 8/1) shell fragments of mollusks; strongly effervescent; slightly alkaline; clear smooth boundary.

A—8 to 13 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; moderate fine prismatic structure parting to strong fine angular blocky; very firm; many very fine and common fine roots; common faint very dark gray (10YR 3/1) pressure faces on faces of peds; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; common fine and medium white

(10YR 8/1) shell fragments of mollusks; strongly effervescent; slightly alkaline; clear smooth boundary.

Bg1—13 to 20 inches; dark gray (10YR 4/1) silty clay; weak medium prismatic structure parting to moderate medium angular blocky; very firm; many very fine and few fine roots; common distinct very dark gray (10YR 3/1) pressure faces on faces of peds; few fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation; common fine and medium white (10YR 8/1) shell fragments of mollusks; strongly effervescent; slightly alkaline; abrupt smooth boundary.

2Bg2—20 to 26 inches; dark gray (2.5Y 4/1) loam; moderate fine and medium subangular blocky structure; friable; many very fine and few fine roots; few very fine and fine constricted tubular pores; few distinct very dark gray (10YR 3/1) organic coatings lining root channels and pores; common fine and medium distinct grayish brown (10YR 5/2) masses of iron accumulation in the matrix; common fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation; few fine white (10YR 8/1) shell fragments of mollusks; strongly effervescent; moderately alkaline; clear smooth boundary.

2Bg3—26 to 34 inches; stratified dark grayish brown (2.5Y 4/2) very fine sandy loam and dark gray (2.5Y 4/1) silt loam; weak medium and coarse subangular blocky structure; very friable; common very fine roots; common fine and medium continuous tubular pores; few distinct very dark gray (10YR 3/1) organic coatings lining root channels and pores; common fine and medium prominent brown (7.5YR 4/4) masses of iron accumulation along root channels and pores; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; few fine white (10YR 8/1) shell fragments of mollusks; strongly effervescent; moderately alkaline; gradual smooth boundary.

2Cg1—34 to 52 inches; stratified dark grayish brown (2.5Y 4/2) very fine sandy loam and gray (2.5Y 5/1) loam; massive; very friable; few very fine roots; few fine and medium continuous tubular pores; few prominent very dark brown (7.5YR 2.5/2) iron-manganese coatings lining root channels and pores; common fine and medium prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; few fine white (10YR 8/1) shell fragments of mollusks; strongly effervescent; moderately alkaline; clear smooth boundary.

2Cg2—52 to 80 inches; stratified dark grayish brown (2.5Y 4/2) loamy very fine sand and dark gray

(2.5Y 4/1) silt loam; massive; very friable; few very fine roots; common medium faint gray (2.5Y 5/1) iron depletions and few fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; slightly effervescent; slightly alkaline.

#### MLRA Series Range in Characteristics

*Depth to the base of soil development:* Commonly 30 to 55 inches

*Thickness of the mollic epipedon:* 10 to 20 inches, and extends into the upper part of the Bg horizon in some pedons

*Thickness of the slackwater sediments:* 14 to 30 inches

*Depth to carbonates:* In the loamy alluvium, and shells of mollusks are common. Some pedons do not contain carbonates in the 2Cg horizon

Ap and A horizons:

Hue—10YR or neutral

Value—2 or 3 (3 to 5 dry)

Chroma—0 or 1

Texture—silty clay or silty clay loam

Bg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silty clay, or silty clay loam that contains more than 35 percent clay

2Bg or 2Bkg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silt loam, loam, or fine sandy loam

2Cg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—stratified silty clay loam to very fine sand

#### 1248A—McFain silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded

##### Setting

*Landform:* Flood Plain

##### Soil Properties and Qualities

*Drainage:* Very poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit,

such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*McFain and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Soils that do not contain carbonates
- \* Soils that contain more clay in the subsoil and/or substratum

*Dissimilar soils:*

- \* Well drained Landes soils on natural levees

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Meadowbank Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Typic Argiudolls

### Typical Pedon for MLRA 114

Meadowbank silt loam - with a 2 percent slope in a cultivated field at an elevation of about 410 feet above mean sea level; about 2 miles southeast of New Memphis in Clinton County, Illinois; approximately 700 feet west and 100 feet north of the southeast corner of sec. 7, T. 1 S., R. 5 W.; USGS Venedy, IL. topographic quadrangle; lat. 38 degrees 27 minutes 7 seconds N. and long. 89 degrees 41 minutes 21 seconds W.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many very fine and few fine roots; 15 percent clay and 20 percent sand; slightly acid; clear smooth boundary.

A—9 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure parting to moderate fine granular; friable; common very fine and few fine roots; 19 percent clay and 19 percent sand; neutral; clear smooth boundary.

AB—13 to 17 inches; dark brown (10YR 3/3) silt loam, brown (10YR 4/3) dry; moderate medium subangular blocky; friable; few very fine roots; few faint very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; 23 percent clay and 18 percent sand; neutral; clear smooth boundary.

Bt1—17 to 25 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; 29 percent clay and 14 percent sand; neutral; clear smooth boundary.

Bt2—25 to 34 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium prismatic structure; friable; few very fine roots; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; 31 percent clay and 17 percent sand; slightly acid; clear smooth boundary.

2Bt3—34 to 40 inches; dark yellowish brown (10YR 4/4) loam; moderate medium prismatic structure; friable; few very fine roots; common distinct dark brown (7.5YR 3/2) organo-clay films on faces of peds; 24 percent clay and 37 percent sand; slightly acid; clear smooth boundary.

2Bt4—40 to 45 inches; dark yellowish brown (10YR 4/4) sandy loam; moderate medium prismatic structure; friable; few very fine roots; common distinct dark brown (7.5YR 3/3) organo-clay films on faces of peds; 17 percent clay and 56 percent sand; moderately acid; clear smooth boundary.

2BCt—45 to 53 inches; brown (7.5YR 4/4) sandy loam; weak medium and coarse prismatic structure; friable; few very fine roots; few distinct dark brown (7.5YR 3/3) organo-clay films on faces of peds; 13 percent clay and 72 percent sand; moderately acid; clear smooth boundary.

2E&Bt—53 to 80 inches; dark yellowish brown (10YR 4/4) loamy sand (E part); brown (7.5YR 4/4) sandy loam lamella (Bt part); single grain and loose (E part); massive and very friable (Bt part); few very fine roots; common distinct dark brown (7.5YR 3/4) clay bridges (Bt part); lamellae are individually 1/2 to 2 inches thick; thicker lamella have weak medium blocky structure; combined thickness of lamellae is about 8 inches; slightly acid.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 60 to more than 80 inches

*Thickness of the mollic epipedon:* 10 to 19 inches

*Thickness of loess or other silty material:* 24 to 40 inches

*Depth to carbonates:* More than 72 inches, where present

*Content of rock fragments:* 0 to 10 percent by volume in the 2Bt and 2E&Bt horizons

Ap, A, and AB horizons:  
Hue—10YR

Value—2 or 3 (4 or 5 dry)  
 Chroma—2 or 3  
 Texture—silt loam

**Bt horizon:**

Hue—7.5YR or 10YR  
 Value—4 or 5  
 Chroma—4 to 6  
 Texture—silty clay loam

**2Bt horizon:**

Hue—7.5YR or 10YR  
 Value—4 or 5  
 Chroma—4 to 6  
 Texture—clay loam, loam, or sandy loam

**2E&Bt horizon:**

Hue—7.5YR or 10YR  
 Value—4 or 5  
 Chroma—3 to 6  
 Texture—sandy loam, loamy sand, or sand

Some pedons have a 2C horizon within a depth of 80 inches.

### **8436B—Meadowbank silt loam, 2 to 5 percent slopes, occasionally flooded**

#### **Setting**

*Landform:* Flood Plain

#### **Soil Properties and Qualities**

*Drainage:* Well drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### **Composition**

*Meadowbank and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain more sand in the upper part
- \* Areas that are more or less sloping

#### **Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

## **Menfro Series**

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Typic Hapludalfs

#### **Typical Pedon for MLRA 115B**

Menfro silt loam, gently sloping, in a cultivated field, about 1.5 miles northwest of O'Fallon in St. Clair County, Illinois (map sheet O'Fallon NE, IL.); approximately 1,500 feet north and 1,500 feet east of the center of sec. 24, T. 2 N., R. 8 W.; USGS O'Fallon IL. topographic quadrangle; lat. 38 degrees 36 minutes 42 seconds N. and long. 89 degrees 55 minutes 58 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; friable; many very fine and few fine roots; about 22 percent clay; moderately acid; abrupt smooth boundary.

E—7 to 10 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; common fine continuous tubular pores; about 24 percent clay; moderately acid; abrupt smooth boundary.

Bt1—10 to 18 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; many faint dark yellowish brown (10YR 4/4) clay films on faces of peds; about 32 percent clay; moderately acid; clear smooth boundary.

Bt2—18 to 35 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; many distinct brown (10YR 4/3) clay films on faces of peds; about 31 percent clay; moderately acid; gradual smooth boundary.

Bt3—35 to 50 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; few very fine and fine continuous tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; about 30 percent clay; moderately acid; gradual smooth boundary.

Bt4—50 to 62 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium subangular blocky structure; friable; few very fine roots; few very fine and fine vesicular and tubular pores; few distinct

brown (10YR 4/3) clay films on vertical faces of peds; about 28 percent clay; moderately acid; gradual smooth boundary.

BCt—62 to 70 inches; dark yellowish brown (10YR 4/4) silt loam; weak coarse subangular blocky structure; friable; few very fine roots; common very fine and fine vesicular and tubular pores; few distinct brown (10YR 4/3) clay films lining root channels and pores; about 24 percent clay; slightly acid; gradual smooth boundary.

C—70 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; massive; very friable; few very fine roots; common very fine and fine vesicular and tubular pores; very few faint brown (10YR 4/3) clay films lining root channels and pores; about 20 percent clay; slightly acid.

#### MLRA Series Range in Characteristics

*Thickness of the solum:* Typically 50 to 70 inches, but ranges from 30 to 100 inches

*Thickness of loess:* 6 to 20 feet or more

The A horizon, where present, has hue of 10YR, value of 2 to 4, and chroma of 2 to 4; and is about 1 to 4 inches thick.

Ap horizon:

Hue—10YR

Value—3 to 5 (6 or 7 dry)

Chroma—2 to 4

Texture—silt loam

E horizon, where present:

Hue—10YR

Value—4 or 5

Chroma—3 or 4

Texture—silt loam

The BE horizon, where present, has hue of 10YR or 7.5YR, value of 4, and chroma of 3 or 4. It is silt loam or silty clay loam.

Bt horizon:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—3 to 6

Texture—silty clay loam

C horizon:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—3 or 4

Texture—silt loam or silty clay loam

## 79B—Menfro silt loam, 2 to 5 percent slopes

### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluvium

### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Menfro and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Areas of moderately well drained soils

\* Soils with a darker surface layer

\* Areas with more or less slope

*Dissimilar soils:*

\* Small areas that are severely eroded

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

## 79C2—Menfro silt loam, 5 to 10 percent slopes, eroded

### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Menfro and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

#### *Similar soils:*

- \* Areas of moderately well drained soils
- \* Small areas that are severely eroded
- \* Areas with more or less slope

#### *Dissimilar soils:*

- \* Wakeland soils in small upland drainageways

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## 79C3—Menfro silt clay loam, 5 to 10 percent slopes, severely eroded

### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Menfro and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

#### *Similar soils:*

- \* Areas of moderately well drained soils
- \* Small areas that are moderately eroded

- \* Areas with more or less slope

#### *Dissimilar soils:*

- \* Wakeland soils in small upland drainageways

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## 79D2—Menfro silt loam, 10 to 18 percent slopes, eroded

### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Menfro and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

#### *Similar soils:*

- \* Areas of moderately well drained soils
- \* Areas with more or less slope

#### *Dissimilar soils:*

- \* Wakeland soils in upland drainageways

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### 79D3—Menfro silty clay loam, 10 to 18 percent slopes, severely eroded

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Menfro and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Areas of moderately well drained soils

\* Areas with more or less slope

*Dissimilar soils:*

\* Wakeland soils in upland drainageways

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### 79F—Menfro silt loam, 18 to 35 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Menfro and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Soils that contain less clay in the subsoil

\* Areas that are moderately eroded

*Dissimilar soils:*

\* Wakeland soils in upland drainageways

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### 79F3—Menfro silty clay loam, 18 to 35 percent slopes, severely eroded

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Menfro and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Soils that contain less clay in the subsoil

\* Soils that are moderately eroded

*Dissimilar soils:*

\* Wakeland soils in upland drainageways

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 79G—Menfro silt loam, 35 to 60 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Menfro and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Soils that contain less clay in the subsoil
- \* Soils that are less sloping

*Dissimilar soils:*

- \* Areas that are severely eroded

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 5079C—Menfro silt loam, karst, 5 to 12 percent slopes, severely eroded

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Menfro, karst and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain carbonates in the substratum
- \* Soils that contain more clay in the surface horizon
- \* Areas of moderately well drained soils
- \* Areas between the sinks that are less sloping

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 5079D—Menfro silt loam, karst, 12 to 25 percent slopes, severely eroded

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Menfro, karst and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Soils that contain more clay in the surface horizon
- \* Areas of moderately well drained soils
- \* Areas between the sinks that are less sloping

*Dissimilar soils:*

- \* Wilbur soils in the bottom of the sinks

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**5079G—Menfro silt loam, karst, 25 to 60 percent slopes****Setting**

*Landform:* Till Plain

*Position on Landform:* Side Slope

**Soil Properties and Qualities**

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Menfro, karst and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Soils that contain more clay in the surface horizon
- \* Soils that contain less clay in the subsoil

*Dissimilar soils:*

- \* Wilbur soils in the bottom of the sinks

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section

- \* “Engineering” section

- \* “Soil Properties” section

**2079D—Menfro-Urban land complex, 8 to 15 percent slopes****Setting**

*Landform:* Till Plain

*Position on Landform:* Side Slope

**Soil Properties and Qualities**

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Menfro and similar soils:* 50 percent

*Urban land:* 40 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Areas of moderately well drained soils
- \* Areas that are moderately eroded
- \* Areas that are more or less sloping

*Dissimilar soils:*

- \* Wakeland soils in upland drainageways

*Urban land:*

- \* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**2079E—Menfro-Urban land complex, 15 to 25 percent slopes****Setting**

*Landform:* Till Plain

*Position on Landform:* Side Slope

## Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Mentro and similar soils:* 50 percent

*Urban land:* 40 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Areas that are more or less sloping

*Dissimilar soils:*

\* Wakeland soils in upland drainageways

*Urban land:*

\* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

## Millstadt Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs

### Typical Pedon for MLRA 114

Millstadt silt loam, nearly level, on a lake terrace tread, in a cultivated field, at an elevation of about 412 feet above mean sea level; about 1.5 mile south of New Athens in St. Clair County, Illinois (map sheet New Athens West/SE, IL.); approximately 2,200 feet east and 2,380 feet south of the northwest corner of sec. 4, T. 3 S., R. 7 W.; USGS New Athens West, IL. topographic quadrangle; lat. 38 degrees 18 minutes 5 seconds N. and long. 89 degrees 52 minutes 57 seconds W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; many

very fine roots throughout; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 20 percent clay; neutral; abrupt smooth boundary.

E—9 to 14 inches; pale brown (10YR 6/3) silt loam, very pale brown (10YR 7/3) dry; moderate medium platy structure parting to weak fine granular; friable; common very fine roots throughout; few distinct very pale brown (10YR 8/2, dry) clay depletions on faces of peds; few fine faint light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 22 percent clay; slightly acid; clear smooth boundary.

EB—14 to 18 inches; pale brown (10YR 6/3) silt loam, very pale brown (10YR 7/3) dry; moderate fine subangular blocky structure; friable; common very fine roots between peds; many distinct very pale brown (10YR 8/2, dry) clay depletions on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions and few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 26 percent clay; very strongly acid; clear smooth boundary.

Bt1—18 to 28 inches; brown (10YR 4/3) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots between peds; many continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 33 percent clay; very strongly acid; clear smooth boundary.

Bt2—28 to 38 inches; brown (10YR 5/3) silty clay loam; moderate fine prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots between peds; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine faint grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 31 percent clay; very strongly acid; gradual smooth boundary.

Bt3—38 to 53 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few

very fine roots between pedes; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of pedes; common fine and medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 30 percent clay; strongly acid; clear smooth boundary.

2Btg1—53 to 62 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots between pedes; few discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of pedes; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 38 percent clay; moderately acid; abrupt smooth boundary.

2Btg2—62 to 67 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; friable; common discontinuous distinct (10YR 4/2) clay films on faces of pedes; few fine faint light brownish gray (2.5Y 6/2) iron depletions and common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 30 percent clay and 10 percent sand; slightly acid; abrupt smooth boundary.

2Btg3—67 to 80 inches; grayish brown (2.5Y 5/2) silty clay; weak medium prismatic structure parting to moderate fine and medium angular blocky; very firm; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of pedes; few fine faint light brownish gray (2.5Y 6/2) iron depletions and common medium prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation; about 42 percent clay; slightly effervescent in places; neutral; clear smooth boundary.

2Btkg—80 to 100 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; firm; few continuous distinct very dark grayish brown (10YR 3/2) organo-clay coatings lining root channels; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on vertical

faces of pedes; common fine prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation and few fine irregular white (10YR 8/1, dry) masses of carbonate accumulation; several thin strata of brown (10YR 4/3) silt loam; about 38 percent clay; strongly effervescent; slightly alkaline.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 60 to more than 80 inches

*Depth to carbonates:* More than 48 inches, where present

*Thickness of loess:* Typically 36 to about 70 inches

Ap horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 or 3

Texture—silt loam

E horizon, and EB horizon, where present:

Hue—10YR

Value—4 to 6 (6 to 8 dry)

Chroma—2 or 3

Texture—silt loam or silty clay loam

Bt horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 to 6

Texture—silty clay loam or silt loam

2Bt horizon, and 2BC and 2C horizons, where present:

Hue—7.5YR, 10YR, 2.5Y, or 5Y

Value—4 to 7

Chroma—2 to 4

Texture—clay, silty clay, silty clay loam, or silt loam

### 423A—Millstadt silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Lake Terrace

*Position on Landform:* Tread

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent materials:* Loess overlying lacustrine deposits

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit,

such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Millstadt and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Soils that contain more clay in the subsoil
- \* Soils that have an abrupt textural change
- \* Areas of poorly drained soils

*Dissimilar soils:*

- \* Areas of moderately well drained Redbud soils

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## 423B—Millstadt silt loam, 2 to 5 percent slopes

### Setting

*Landform:* Lake Terrace

*Position on Landform:* Tread

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess overlying lacustrine deposits

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Millstadt and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Soils that contain more clay in the subsoil
- \* Soils that have an abrupt textural change
- \* Areas of moderately well drained soils

*Dissimilar soils:*

- \* Areas of poorly drained Floraville soils

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Morristown Series

**Taxonomic Class:** Loamy-skeletal, mixed, active, calcareous, mesic Typic Udorthents

### Typical Pedon for MLRA 114

Morristown very stony silty clay loam, from an area of 18 to 60 percent slopes; in a pasture with scattered trees, at an elevation of about 470 feet above mean sea level; about 1 mile west of Duquoin in Perry County, Illinois; approximately 280 feet west and 1,200 feet south of the northeast corner of sec. 12, T. 6 S., R. 2 W.; USGS Pyatts, IL. topographic quadrangle; lat. 38 degrees 1 minute 15 seconds N. and long. 89 degrees 15 minutes 47 seconds W.

Ap—0 to 2 inches; yellowish brown (10YR 5/4) very stony silty clay loam; weak fine granular structure; friable; many very fine and fine roots between peds; common prominent very dark grayish brown (10YR 3/2) coatings on faces of peds; about 45 percent rock fragments consisting of 70 percent stones, 20 percent gravel and cobbles, and 10 percent boulders; moderately alkaline; clear irregular boundary.

AC—2 to 6 inches; yellowish brown (10YR 5/4) very stony clay loam; weak thin platy structure; friable; many very fine and fine roots in peds and few medium peds between peds; few faint dark brown (10YR 3/3) coatings on faces of peds; common fine and medium distinct grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; about 37 percent rock fragments consisting of 50 percent stones, 25 percent cobbles, 15 percent boulders, and 10 percent gravel; strongly effervescent; moderately alkaline; clear irregular boundary.

C—6 to 60 inches; brownish yellow (10YR 6/6) very bouldery clay loam; massive; friable; common very fine and few fine roots between peds to a depth of about 24 inches; few fine distinct brown (10YR 5/3) iron depletions; about 39 percent rock fragments consisting of 40 percent boulders, 30

percent stones, and 30 percent gravel and cobbles; strongly effervescent; moderately alkaline.

### MLRA Series Range in Characteristics

*Depth to bedrock:* More than 5 feet

*Rock fragments on the soil surface:* Boulders and stones cover as much as 3 percent of the surface.

*Content of rock fragments in the control section:*

Averages about 39 percent and ranges from 35 to 60 percent

A or Ap horizon:

Hue—10YR

Value—3 to 5 (5 to 7 dry)

Chroma—1 to 4

Texture—stony or very stony analogs of clay loam, or silty clay loam

C horizon:

Hue—7.9YR, 10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 to 6

Texture—clay loam, silty clay loam, or the gravelly to very bouldery analogs of these textures

## 821G—Morristown very stony silty clay loam, 35 to 70 percent slopes

### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Mine spoil and earth fill (fig. 3).

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Morristown and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Areas that are less sloping

\* Soils that contain less rock fragments throughout

*Dissimilar soils:*

\* Small depressional areas of wet soils

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

## Nameoki Series

Nameoki silty clay, with a slope of 1 percent, on a gently undulating flood plain, in a cultivated field, at an elevation of about 410 feet above mean sea level; about 1.5 miles northwest of Mitchell in Madison County, Illinois; approximately 1,900 feet south and 1,930 feet east of the northwest corner of sec. 28, T. 4 N., R. 9 W; USGS Wood River, IL.-MO. topographic quadrangle; lat. 38 degrees 46 minutes 7 seconds N. and long. 90 degrees 6 minutes 28 seconds W.

**Taxonomic Class:** Fine, smectitic, mesic Aquertic Hapludolls

### Typical Pedon for MLRA 115B

Ap—0 to 8 inches; very dark gray (10YR 3/1) silty clay, dark grayish brown (10YR 4/2) dry; moderate fine angular blocky structure; firm; common very fine roots; neutral; abrupt smooth boundary.

A—8 to 12 inches; very dark grayish brown (10YR 3/2) silty clay, dark grayish brown (10YR 4/2) dry; strong fine angular blocky structure; very firm; common very fine roots; common faint very dark grayish brown (10YR 3/2) pressure faces on faces of peds; neutral; clear smooth boundary.

Bw1—12 to 16 inches; very dark grayish brown (10YR 3/2) silty clay, grayish brown (10YR 5/2) dry; strong fine and medium angular blocky structure; very firm; few very fine roots; many distinct very dark grayish brown (10YR 3/2) pressure faces on faces of peds; few fine faint brown (10YR 5/3) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

Bw2—16 to 28 inches; brown (10YR 4/3) silty clay; moderate fine prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots; many distinct dark grayish brown (10YR 4/2) pressure faces on faces of peds; common fine faint grayish brown (10YR 5/2) iron depletions and few fine faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

2Btg1—28 to 41 inches; dark grayish brown (10YR 4/2) stratified clay loam and silty clay loam; weak



Figure 3.—An area of Morrystown soils that was surface mined for coal before reclamation laws.

medium prismatic structure parting to weak medium subangular blocky; firm; common very fine roots; common very fine and fine continuous tubular pores; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/6) and few fine faint brown (10YR 5/3) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

2Btg2—41 to 48 inches; dark grayish brown (10YR 4/2) stratified silt loam and silty clay loam; weak medium prismatic structure parting to weak fine and medium subangular blocky; firm; common very fine roots; few very fine and fine continuous tubular pores; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) and few fine faint brown (10YR 5/3) masses of iron accumulation in the matrix; common fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; neutral; clear smooth boundary.

2BCtg—48 to 54 inches; dark grayish brown (2.5Y 4/2) stratified silt loam and loam; weak medium

subangular blocky structure; friable; few very fine roots; common fine and medium continuous tubular pores; few distinct very dark grayish brown (10YR 3/2) organo-clay films lining root channels and pores; common medium faint olive brown (2.5Y 4/3) masses of iron accumulation in the matrix; common fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation; neutral; gradual smooth boundary.

2Cg—54 to 72 inches; grayish brown (2.5Y 5/2) stratified silt loam and very fine sandy loam; massive; very friable; few very fine roots; common very fine and fine tubular and vesicular pores; common fine faint olive brown (2.5Y 4/3) masses of iron accumulation in the matrix; few fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation; neutral; abrupt smooth boundary.

2Ckg—72 to 90 inches; grayish brown (2.5Y 5/2) stratified very fine sandy loam and silt loam; massive; friable; few very fine and fine vesicular pores; common fine and medium prominent accumulation in the matrix; common fine and medium irregular light gray (10YR 7/2) masses of carbonate accumulation and few medium irregular light brownish gray (10YR 6/2) carbonate

concretions; strongly effervescent; slightly alkaline.

### MLRA Series Range in Characteristics

*Depth to the base of soil development:* 40 to about 72 inches

*Thickness of the mollic epipedon:* 10 to 20 inches, and extends into the B horizon in many pedons

*Depth to the loamy 2B horizon:* 24 to 40 inches

*Depth to carbonates:* These soils typically do not have carbonates within the particle size control section, but some pedons contain carbonates in the loamy alluvium.

Ap and A horizons:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2

Texture—silty clay loam or silty clay, and includes clay in some pedons

Some pedons have an AB or BA horizon

Bw horizon:

Hue—10YR or 2.5Y

Value—3 to 6

Chroma—2 to 4

Texture—silty clay or clay, but some subhorizons are silty clay loam or clay loam that contain more than 35 percent clay

2Bg, 2Btg, 2BCtg, or 2Bw horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 to 4 in the upper part, and 1 to 4 in the lower part

Texture—silt loam, loam, silty clay loam, clay loam, sandy loam, fine sandy loam, or very fine sandy loam, and typically is stratified

Some pedons have a BC horizon

2C or 2Cg horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—1 to 3

Texture—It typically is stratified with individual strata ranging from silty clay loam to very fine sand.

### 8592A—Nameoki silty clay, 0 to 2 percent slopes, occasionally flooded

#### Setting

*Landform:* Flood Plain

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Nameoki and similar soils:* 100 percent

*Similar soils:*

\* Areas of poorly drained soils

\* Soils that contain carbonates in the loamy alluvium

\* Soils that have an abrupt textural change

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

### Negley Series

**Taxonomic Class:** Fine-loamy, mixed, active, mesic Typic Paleudalfs

#### Typical Pedon for MLRA 114

Negley loam, in a wooded area, at an elevation of about 600 feet above mean sea level; about 1 mile southeast of Grantfork in Madison County, Illinois; approximately 540 feet west and 1,160 feet north of the southeast corner of sec. 4, T. 4 N., R. 5 W.; USGS Grantfork, IL. topographic quadrangle; lat. 38 degrees 49 minutes 10 seconds N. and long. 89 degrees 39 minutes 24 seconds W.

A—0 to 3 inches; dark grayish brown (10YR 4/2) loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; many very fine and few fine roots; less than 5 percent gravel; moderately acid; clear smooth boundary.

E—3 to 7 inches; yellowish brown (10YR 5/4) loam, very pale brown (10YR 7/4) dry; weak fine granular structure; friable; common very fine and few fine roots; about 10 percent gravel; strongly acid; clear smooth boundary.

- Bt1—7 to 12 inches; yellowish red (5YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; common very fine and few fine roots; common distinct reddish brown (5YR 4/4) clay films on faces of peds; about 10 percent gravel; strongly acid; clear smooth boundary.
- Bt2—12 to 22 inches; yellowish red (5YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; common very fine and few fine roots; distinct reddish brown (5YR 4/4) clay films on faces of peds; about 10 percent gravel; strongly acid; clear smooth boundary.
- Bt3—22 to 32 inches; yellowish red (5YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; few very fine and fine roots; many distinct reddish brown (5YR 4/4) clay films on faces of peds; about 10 percent gravel; strongly acid; clear smooth boundary.
- Bt4—32 to 39 inches; strong brown (7.5YR 5/6) clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; many distinct reddish brown (5YR 4/4) clay films on faces of peds; common medium distinct yellowish red (5YR 5/6) masses of iron accumulation in the matrix; about 10 percent gravel; strongly acid; clear smooth boundary.
- Bt5—39 to 50 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct brown (7.5YR 5/4) clay films on faces of peds; common medium prominent reddish brown (5YR 4/4) and common medium distinct reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; about 10 percent gravel; moderately acid; clear smooth boundary.
- Bt6—50 to 65 inches; yellowish red (5YR 4/6) gravelly clay loam; moderate coarse subangular blocky structure; firm; few very fine roots; common distinct reddish brown (5YR 4/4) clay films on faces of peds; common medium prominent reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; common fine irregular dark brown (7.5YR 3/2) iron-manganese nodules with clear boundaries; about 25 percent gravel; moderately acid; clear smooth boundary.
- Bt7—65 to 80 inches; yellowish red (5YR 4/6) gravelly sandy clay loam; weak coarse subangular blocky structure; firm; few very fine roots; few distinct reddish brown (5YR 4/4) clay films on faces of peds; common medium and coarse prominent reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; common fine irregular dark brown (7.5YR 3/2) iron-manganese nodules with clear boundaries; about 30 percent gravel; moderately acid.

### MLRA Series Range in Characteristics

*Thickness of the solum:* About 80 to 150 inches

*Thickness of the loess mantle:* 0 to 18 inches

*Percent rock fragments in the solum:* 5 to 35 percent

*Depth to carbonates:* Commonly present in the C horizon

A or Ap horizon:

Hue—7.5YR or 10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 to 4

Texture—commonly silt loam or loam, but some eroded areas are clay loam

Some pedons have A horizons 1 to 5 inches thick that have hue of 10YR, value of 2 or 3 (4 or 5 dry) and chroma of 2

E horizon, where present:

Hue—7.5YR or 10YR

Value—5 or 6

Chroma—2 to 5

Texture—loam or silt loam

BE or BA horizon, where present:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—3 to 6

Texture—silt loam, loam, clay loam, or their gravelly analogues

Bt horizon:

Hue—5YR or 7.5YR

Value—4 or 5

Chroma—3 to 8

Texture—loam, clay loam, sandy clay loam, or their gravelly analogues with subhorizons of sandy loam and sandy clay

BC horizon:

Hue—5YR, 7.5YR, or 10YR

Value—4 or 5

Chroma—3 to 8

Texture—sandy clay loam, sandy loam, coarse sandy loam, clay loam, or their gravelly analogues

C horizon:

Hue—10YR

Value—4 or 5

Chroma—3 to 6

Texture—It is stratified or has dominant textures of coarse sandy loam, gravelly sand, gravelly sandy loam, and gravelly loamy sand with lenses of finer textured material in some pedons.

## 585F2—Negley loam, 18 to 35 percent slopes, eroded

### Setting

*Landform:* Ridge

*Position on Landform:* Side Slope

### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Outwash

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Negley and similar soils:* 100 percent

*Similar soils:*

- \* Areas that are more or less sloping
- \* Areas that are more or less eroded

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Oconee Series

**Taxonomic Class:** Fine, smectitic, mesic Udollic Epiaqualfs

### Typical Pedon for MLRA 115B

Oconee silt loam, on a north-facing slope, of 4 percent, in a cultivated field, at an elevation of about 560 feet above mean sea level; about 1.5 miles northwest of Grantfork in Madison County, Illinois; approximately 1,315 feet east and 2,245 feet north of the southwest corner of sec. 29, T. 5 N., R. 5 W.; USGS Grantfork, IL. topographic quadrangle; lat. 38 degrees 50 minutes 58 seconds N. and long. 89 degrees 41 minutes 17 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, grayish brown (10YR 5/2) dry; weak medium

granular structure grading to weak thin platy in the lower part; very friable; common very fine roots; common very fine tubular pores within peds; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; slightly acid; abrupt smooth boundary.

E1—8 to 12 inches; dark grayish brown (10YR 4/2) silt loam, light gray (10YR 7/2) dry; moderate thick platy structure; very friable; few very fine roots; few very fine tubular pores within peds; many distinct brown (10YR 5/3) clay depletions in pores; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine and medium irregular very dark gray (5YR 3/1) iron-manganese nodules with sharp boundaries; moderately acid; clear smooth boundary.

E2—12 to 16 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; moderate fine and medium subangular blocky structure; friable; few very fine roots; common very fine pores within and between peds; many distinct brown (10YR 5/3) clay depletions in pores; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded dark brown (7.5YR 3/2) iron-manganese nodules with clear boundaries; moderately acid; clear smooth boundary.

B/E—16 to 21 inches; brown (10YR 5/3) silty clay loam (Bt); strong very fine subangular blocky structure; firm; few very fine roots; common fine pores in the silty material between peds; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds and many prominent light brownish gray (10YR 6/2) clay depletions on faces of peds and in pores (E); many medium prominent strong brown (7.5YR 5/6) and few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine and medium rounded dark brown (7.5YR 3/2) iron-manganese nodules with clear boundaries; strongly acid; clear irregular boundary.

Bt—21 to 29 inches; brown (10YR 5/3) silty clay; moderate medium prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots between peds; few fine pores between peds; many prominent dark grayish brown (10YR 4/2) clay films on faces of peds; common medium faint grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-

manganese nodules with sharp boundaries; strongly acid; clear smooth boundary.

Btg1—29 to 38 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots between peds; few fine pores between peds; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/8) and common coarse prominent brownish yellow (10YR 6/8) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; strongly acid; clear smooth boundary.

Btg2—38 to 47 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; few fine pores between peds; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium distinct light olive brown (2.5Y 5/6), common medium prominent yellowish brown (10YR 5/8), and few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; moderately acid; clear smooth boundary.

Btg3—47 to 58 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak coarse prismatic structure; firm; few fine pores between peds; many prominent very dark grayish brown (10YR 3/2) organic coatings lining root channels and filling pores; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium and coarse prominent brownish yellow (10YR 5/8) and strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; moderately acid; clear smooth boundary.

C1—58 to 65 inches; brown (10YR 5/3) silt loam; massive; friable; few vertical cleavage planes; few fine vesicular pores; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of cleavage planes; many medium prominent yellowish brown (10YR 5/8) and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; slightly acid; gradual smooth boundary.

C2—65 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; common fine and medium vesicular pores; few prominent very dark grayish

brown (10YR 3/2) organic coatings lining root channels and filling pores; few fine distinct (10YR 5/2) iron depletions and few medium distinct yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few medium irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* More than 42 inches

*Thickness of loess:* Typically 55 to about 80 inches

Ap horizon:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2, and the range includes 3 for some eroded pedons

Texture—silt loam

E horizon:

Hue—10YR

Value—4 to 7

Chroma—1 or 2, and the range includes 3 if accompanied by redoximorphic features

Texture—silt loam

Bt and/or Btg horizon:

Hue—10YR in the upper part, and 10YR or 2.5Y in the lower part

Value—4 to 6

Chroma—2 to 4 in the upper part, and 1 to 6 in the lower part

Texture—silty clay loam or silty clay

BC or BCg horizon, where present:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—1 to 6

Texture—silty clay loam or silt loam

C or 2C horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—typically 1 to 3, but ranging from 1 to 8

Texture—silt loam

### 113A—Oconee silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluve

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess  
*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Oconee and similar soils:* 90 percent  
*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Areas of poorly drained soils
- \* Soils that have a mollic epipedon

*Dissimilar soils:*

- \* Darmstadt soils that have a natric horizon

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## 113B—Oconee silt loam, 2 to 5 percent slopes

### Setting

*Landform:* Till Plain  
*Position on Landform:* Interfluve

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained  
*Dominant parent material:* Loess  
*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Oconee and similar soils:* 90 percent  
*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Areas of moderately drained soils
- \* Soils that have a mollic epipedon
- \* Soils that have a light-colored surface layer

*Dissimilar soils:*

- \* Darmstadt soils that have a natric horizon

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## 882A—Oconee-Darmstadt-Coulterville silt loams, 0 to 2 percent slopes

### Setting

*Landform:* Till Plain  
*Position on Landform:* Interfluve

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained  
*Dominant parent material:* Loess  
*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Oconee and similar soils:* 40 percent  
*Darmstadt and similar soils:* 30 percent  
*Coulterville and similar soils:* 20 percent  
*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Soils that have a darker surface horizon
- \* Soils that contain less clay in the subsoil

*Dissimilar soils:*

- \* Piasa soils that have a natric horizon
- \* Areas that have a concentration of exchangeable sodium near the surface of the soil

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section

\* “Soil Properties” section

## 882B—Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes

### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluvium

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

### Composition

*Oconee and similar soils:* 40 percent

*Coulterville and similar soils:* 30 percent

*Darmstadt and similar soils:* 20 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that have a darker surface horizon

\* Areas of moderately eroded soils

*Dissimilar soils:*

\* Areas of severely eroded soils that have a concentration of exchangeable sodium at or near the surface of the soil

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Agronomy” section

\* “Forestland Management and Productivity” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

## Okaw Series

**Taxonomic Class:** Fine, smectitic, mesic Chromic Vertic Albaqualfs

### Typical Pedon for MLRA 114

Okaw silt loam, with a slope of one percent, on a lake plain, in a cultivated field, at an elevation of about 390

feet above mean sea level; about 1.25 miles northwest of Vergennes in Jackson County, Illinois; approximately 1,944 feet west and 105 feet north of the southeast corner of sec. 8, T. 7 S., R. 2 W.; USGS Vergennes, IL. topographic quadrangle; lat. 37 degrees 55 minutes 26 seconds N. and long. 89 degrees 20 minutes 48 seconds W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate very fine and fine granular structure; friable; common very fine roots; few very fine constricted tubular pores; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; slightly acid; abrupt smooth boundary.

Eg1—7 to 11 inches; light brownish gray (10YR 6/2) silt loam, very pale brown (10YR 8/2) dry; moderate thin platy structure parting to weak fine granular; friable; few very fine roots; many very fine and fine continuous tubular pores; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; strongly acid; clear smooth boundary.

Eg2—11 to 15 inches; light brownish gray (10YR 6/2) silt loam, very pale brown (10YR 8/2) dry; weak thin platy structure parting to weak fine granular; friable; few very fine roots; many very fine and fine pores; common fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; many fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; very strongly acid; abrupt wavy boundary.

2Btg—15 to 31 inches; grayish brown (10YR 5/2) silty clay; weak fine prismatic structure parting to weak fine angular blocky; very firm; few very fine roots; common faint grayish brown (10YR 5/2) clay films on faces of peds; few fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; light brownish gray (10YR 6/2) silt loam material in krotovinas and along cracks; very strongly acid; clear smooth boundary.

2Bg—31 to 41 inches; olive gray (5Y 5/2) silty clay; weak medium prismatic structure parting to weak medium and coarse angular and subangular blocky; very firm; few very fine roots along ped faces; few prominent very dark brown (10YR 2/2) iron-manganese stains on faces of peds; few fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with clear strong

brown (7.5YR 4/6) boundaries; light brownish gray (10YR 6/2) silt loam material along cracks; very strongly acid; gradual smooth boundary.

2BCg—41 to 54 inches; olive gray (5Y 5/2) silty clay; weak coarse prismatic structure; very firm; few prominent very dark brown (10YR 2/2) iron-manganese stains on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; strongly acid; gradual smooth boundary.

2Cg1—54 to 63 inches; olive gray (5Y 5/2) silty clay; massive; firm; common prominent very dark brown (10YR 2/2) iron-manganese stains on faces along some cleavage planes; many medium and coarse irregular black (10YR 2/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; neutral; clear smooth boundary.

2Cg2—63 to 73 inches; olive gray (5Y 5/2) clay; massive; very firm; few prominent shiny slickensides and common distinct olive gray (5Y 4/2) pressure faces along vertical cleavage planes; common fine and medium irregular dark reddish brown (5YR 3/4) masses of iron-manganese accumulation with clear boundaries and few medium irregular black (10YR 2/1) iron-manganese nodules with diffuse strong brown (7.5YR 4/6) boundaries; slightly alkaline; gradual smooth boundary.

2Cg3—73 to 102 inches; light olive gray (5Y 6/2) silty clay loam; massive; firm; few distinct shiny slickensides and few faint olive gray (5Y 5/2) pressure faces along cleavage planes; common medium and coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many medium and coarse irregular black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries in the upper 6 inches of the horizon; slightly alkaline.

#### MLRA Series Range in Characteristics

*Depth to the base of soil development:* 40 to 75 inches

*Thickness of loess or other silty material:* 10 to 20 inches

*Depth to carbonates:* In the 2Cg horizon, where present

Ap or A horizon:

Hue—10YR

Value—3 to 5, (6 or 7 dry)

Chroma—1 or 2

Texture—typically silt loam, but silty clay loam is within the range

Eg horizon:

Hue—10YR

Value—4 to 7

Chroma—1 or 2

Texture—silt loam, and less commonly silty clay loam

Some pedons have a B/E horizon less than 3 inches in thickness that is mostly Bt material with clay depletions on faces of peds.

2Btg and 2Bg horizons:

Hue—10YR, 2.5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silty clay or clay, and some pedons have subhorizons that are silty clay loam

2BCg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silty clay loam, silty clay, or clay

2Cg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 or 2

Texture—silty clay loam, silty clay, or clay

### 8084A—Okaw silt loam, 0 to 2 percent slopes, occasionally flooded

#### Setting

*Landform:* Lake Plain

*Position on Landform:* Broad Flat

#### Soil Properties and Qualities

*Drainage:* Poorly drained

*Dominant parent material:* Lacustrine deposits

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Okaw and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that contain carbonates in the subsoil

\* Areas of somewhat poorly drained soils

\* Soils that have a darker surface horizon

*Dissimilar soils:*

\* Areas of moderately well drained Colp soils

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Orion Series

**Taxonomic Class:** Coarse-silty, mixed, superactive, nonacid, mesic Aquic Udifluvents

### Typical Pedon for MLRA 114/115B

Orion silt loam, nearly level, in a cultivated field, at an elevation of about 470 feet above mean sea level; about 2 miles west of Marine in Madison County, Illinois; approximately 300 feet east and 1,500 feet north of the center of sec. 30, T. 4 N., R. 6 W.; USGS Marine, IL. topographic quadrangle; lat. 38 degrees 46 minutes 7 seconds N. and long. 89 degrees 48 minutes 31 seconds W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; very friable; many very fine and few fine roots; few fine continuous tubular pores; about 22 percent clay; slightly acid; abrupt smooth boundary.

C1—7 to 14 inches; dark grayish brown (10YR 4/2) silt loam; massive; very friable; common very fine roots; few very fine and fine continuous tubular pores; few distinct very dark grayish brown (10YR 3/2) organic coatings lining root channels and pores; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 17 percent clay; slightly acid; gradual smooth boundary.

C2—14 to 35 inches; stratified brown (10YR 5/3) and dark grayish brown (10YR 4/2) silt loam; massive with moderate medium platy depositional strata; very friable; few very fine roots; common very fine and fine continuous tubular pores; common medium faint grayish brown (10YR 5/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine rounded strong brown (7.5YR 4/6) masses of iron-manganese

accumulation; about 15 percent clay; moderately acid; clear smooth boundary.

Ab1—35 to 46 inches; very dark gray (10YR 3/1) silt loam; weak fine subangular blocky structure; friable; few very fine roots; few very fine continuous tubular pores; few fine faint dark gray (10YR 4/1) iron depletions; few fine irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation; about 25 percent clay; slightly acid; clear smooth boundary.

Ab2—46 to 54 inches; very dark gray (10YR 3/1) silt loam; weak medium subangular blocky structure; friable; few very fine roots; few very fine continuous tubular pores; few medium faint dark grayish brown (10YR 4/2) masses of iron accumulation in the matrix; few fine irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation; about 26 percent clay; slightly acid; clear smooth boundary.

Cg—54 to 66 inches; dark grayish brown (2.5Y 4/2) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; common medium faint light brownish gray (2.5Y 6/2) and dark gray (2.5Y 4/1) iron depletions; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 26 percent clay; slightly acid; abrupt smooth boundary.

A'b1—66 to 76 inches; very dark gray (2.5Y 3/1) silty clay loam; moderate fine prismatic structure parting to weak fine angular blocky; firm; few faint very dark gray (2.5Y 3/1) pressure faces on faces of peds; few fine faint dark gray (2.5Y 4/1) iron depletions; few fine irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation and few fine rounded black (N 2.5/0) iron-manganese concretions; about 32 percent clay; neutral; gradual smooth boundary.

A'b2—76 to 95 inches; very dark gray (2.5Y 3/1) silty clay loam; strong fine and medium prismatic structure parting to moderate medium angular blocky; firm; common faint very dark gray (2.5Y 3/1) pressure faces on faces of peds; few fine irregular dark brown (7.5YR 3/4) masses of iron-manganese accumulation and few fine rounded black (N 2.5/0) iron-manganese concretions; about 38 percent clay; neutral.

### MLRA Series Range in Characteristics

*Depth to the Ab horizon:* 20 to 40 inches

Ap or A horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 or 3

Texture—silt loam

In some pedons, thin individual strata have value of 3 and chroma of 1 in the Ap and C horizons.

C horizon:

Hue—10YR  
Value—4 or 5  
Chroma—2 or 3  
Texture—typically silt loam stratified with thin layers of very fine sand or silt

Ab and A'b horizons:

Hue—10YR or 2.5Y  
Value—2 or 3  
Chroma—1 or 2  
Texture—silt loam or silty clay loam, but in some pedons it is stratified with other textures

Bgb and Cg horizons, where present:

Hue—10YR, 2.5Y, 5Y, or neutral  
Value—4 to 6  
Chroma—0 to 2  
Texture—silt loam, but may be stratified with textures that contain more sand than silt

### **3415A—Orion silt loam, 0 to 2 percent slopes, frequently flooded**

#### **Setting**

*Landform:* Flood Plain

#### **Soil Properties and Qualities**

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### **Composition**

*Orion and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Soils that contain more clay in the recent alluvium
- \* Soils that have the dark buried soil below a depth of 40 inches

*Dissimilar soils:*

- \* Small areas of well drained soils

#### **Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### **802B—Orthents, loamy, undulating**

#### **Setting**

*Landform:* Flood Plain

#### **Soil Properties and Qualities**

*Drainage:* Well drained

*Dominant parent material:* Alluvium

*Flooding frequency:* None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### **Composition**

*Orthents, loamy and similar soils:* 100 percent

*Similar soils:*

- \* Soils that have fragments of diagnostic horizons
- \* Soils that contain more silt in the underlying layers

#### **Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### **802D—Orthents, loamy, steep**

#### **Setting**

*Landform:* Flood Plain

#### **Soil Properties and Qualities**

*Drainage:* Well drained

*Dominant parent material:* Alluvium

*Flooding frequency:* None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

### Composition

*Orthents, loamy and similar soils:* 100 percent

*Similar soils:*

- \* Soils that have fragments of diagnostic horizons
- \* Soils that contain more silt in the underlying layers
- \* Soils that have slopes less than 5 percent

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## 826D—Orthents, silty, acid substratum, rolling

### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

### Composition

*Orthents, acid substratum and similar soils:* 100 percent

*Similar soils:*

- \* Soils that have slopes less than 2 percent
- \* Soils that have fragments of diagnostic horizons
- \* Soils that contain more sand in the underlying layers
- \* Soils that are less acid in the substratum
- \* Areas of moderately well drained soils

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## 801B—Orthents, silty, undulating

### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

### Composition

*Orthents, silty and similar soils:* 100 percent

*Similar soils:*

- \* Areas of moderately well drained soils
- \* Soils that have fragments of diagnostic horizons
- \* Soils that contain more sand in the underlying layers
- \* Soils that have carbonates in some part of the soil profile

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## 801D—Orthents, silty, steep

### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

## Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is not included in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Orthents, silty and similar soils:* 100 percent

*Similar soils:*

- \* Soils that have slopes less than 5 percent
- \* Areas of moderately well drained soils
- \* Soils that have fragments of diagnostic horizons
- \* Soils that contain more sand in the underlying layers
- \* Soils that have carbonates in some part of the soil profile

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Otter Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls

### Typical Pedon for MLRA 114

Otter silt loam, nearly level, in a cultivated field, at an elevation of about 435 feet above mean sea level; about 4 miles northeast of Mascoutah in St. Clair County, Illinois (map sheet Trenton SW, IL.); approximately 250 feet north and 300 feet west of the southeast corner of sec. 23, T. 1 N., R. 6 W.; USGS Trenton, IL. topographic quadrangle; lat. 38 degrees 30 minutes 37 seconds N. and long. 89 degrees 43 minutes 30 seconds W.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; many very fine roots; common fine constricted tubular pores; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

A1—9 to 21 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine granular structure; friable; common very fine roots; common very fine and fine continuous tubular pores; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

A2—21 to 37 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; common very fine roots; few very fine continuous tubular pores; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

AB—37 to 45 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine subangular blocky structure; friable; few very fine roots; few very fine continuous tubular pores; common faint black (10YR 2/1) organic coatings on faces of peds; few fine faint dark grayish brown (10YR 4/2) iron depletions; common fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation; neutral; clear smooth boundary.

Bg—45 to 55 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure; friable; few very fine roots; few very fine continuous tubular pores; common distinct black (10YR 2/1) organic coatings on faces of peds; common fine faint dark gray (10YR 4/1) iron depletions and few fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; gradual smooth boundary.

Cg1—55 to 72 inches; gray (2.5Y 5/1) silt loam; massive; friable; few very fine roots; few very fine vesicular and tubular pores; few distinct very dark gray (10YR 3/1) organo-clay films lining root channels and pores; common fine distinct light olive brown (2.5Y 5/4) and few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and common medium and coarse rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; neutral; diffuse smooth boundary.

Cg2—72 to 80 inches; gray (2.5Y 5/1) silty clay loam; massive; firm; few very fine vesicular and tubular pores; few distinct very dark gray (10YR 3/1) organo-clay films lining root channels and pores; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular

strong brown (7.5YR 5/6) masses of iron-manganese accumulation and common medium and coarse rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; neutral.

### MLRA Series Range in Characteristics

*Thickness of the solum:* 24 to 50 inches

*Thickness of the mollic epipedon:* 24 to 50 inches

*Depth to carbonates:* In the Cg horizon, where present

Ap and A horizons:

Hue—7.5YR, 10YR, 2.5Y, or neutral

Value—2 or 3 (3 to 5 dry)

Chroma—0 to 2

Texture—typically silt loam, but some pedons contain subhorizons of loam or silty clay loam

Bg horizon or a transition horizon:

Hue—7.5YR, 10YR, 2.5Y, or neutral

Value—2 to 6

Chroma—0 to 2

Texture—typically silt loam, but some pedons contain subhorizons of loam, sandy loam, or silty clay loam

In some pedons there is a buried silt loam A horizon below a depth of 30 inches.

Cg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—2 to 6

Chroma—0 to 2

Texture—silt loam or loam, and some pedons contain strata that include sandy loam or silty clay loam

## 3076A—Otter silt loam, 0 to 2 percent slopes, frequently flooded

### Setting

*Landform:* Flood Plain

### Soil Properties and Qualities

*Drainage:* Poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit,

such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

### Composition

*Otter and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain more clay in the subsoil
- \* Soils that have a thinner dark surface layer
- \* Areas of somewhat poorly drained soils

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## Petrolia Series

**Taxonomic Class:** Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents

### Typical Pedon for MLRA 114

Petrolia silty clay loam, nearly level, in a cultivated field, at an elevation of about 412 feet above mean sea level; about 3 miles south of Bartelso in Clinton County, Illinois (map sheet Addieville NW, IL.); approximately 800 feet west and 400 feet south of the center of sec. 29, T. 1 N., R. 3 W.; USGS Addieville, IL. topographic quadrangle; lat. 38 degrees 29 minutes 56 seconds N. and long. 89 degrees 27 minutes 28 seconds W.

Ap—0 to 8 inches; dark grayish brown (2.5Y 4/2) silty clay loam, light brownish gray (2.5Y 6/2) dry; moderate fine granular structure; friable; common very fine roots; few fine rounded black (N 2.5/0) and strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout; about 34 percent clay; neutral; abrupt smooth boundary.

Bg1—8 to 15 inches; dark gray (2.5Y 4/1) silty clay loam; weak medium subangular blocky structure; friable; few very fine roots; few faint dark gray (2.5Y 4/1) pressure faces on faces of peds; common fine prominent dark yellowish brown (10YR 4/4) and common fine faint (2.5Y 4/2) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) and strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout; about 32 percent clay; slightly acid; clear smooth boundary.

Bg2—15 to 26 inches; gray (2.5Y 5/1) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct dark gray (2.5Y 4/1) pressure faces on faces of peds; common fine and medium prominent dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries and few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation throughout; about 33 percent clay; slightly acid; clear smooth boundary.

Bg3—26 to 42 inches; gray (2.5Y 5/1) silty clay loam; weak medium prismatic structure parting to weak medium and coarse subangular blocky; firm; few very fine roots; few distinct dark gray (2.5Y 4/1) pressure faces on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries and common fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation throughout; about 34 percent clay; slightly acid; gradual smooth boundary.

BCg—42 to 55 inches; gray (2.5Y 5/1) silty clay loam; weak medium prismatic structure; firm; few very fine roots; few distinct dark gray (2.5Y 4/1) clay films lining root channels and pores; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and common fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout; about 35 percent clay; slightly acid; gradual smooth boundary.

Cg1—55 to 73 inches; gray (2.5Y 6/1) silty clay loam; massive; firm; few very fine roots in old channels; few distinct dark gray (2.5Y 4/1) clay films lining root channels and pores; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and common fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout; about 33 percent clay; neutral; diffuse smooth boundary.

Cg2—73 to 90 inches; gray (2.5Y 6/1) silty clay loam; massive; firm; common medium and coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular

black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and few fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout; dark gray (2.5Y 4/1) krotovina; about 36 percent clay; neutral.

### MLRA Series Range in Characteristics

*Depth to carbonates:* More than 60 inches

*Particle-size control section:* Averages 27 to 35 percent clay and less than 15 percent fine sand or coarser

*Reaction:* Typically slightly acid or neutral, but individual strata or subhorizons are very strongly acid to slightly alkaline

Ap or A horizon:

Hue—10YR or 2.5Y

Value—4 to 6, and some pedons have a thin surface horizon with value of 3

Chroma—1 or 2

Texture—silty clay loam, or less commonly silt loam

Bg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silty clay loam

Cg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—dominantly silty clay loam, but some pedons are silt loam and other pedons contain strata of silty clay, silt loam, loam, or fine sandy loam

### 1288A—Petrolia silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded

#### Setting

*Landform:* Flood Plain

*Position on Landform:* Backswamp

#### Soil Properties and Qualities

*Drainage:* Very poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Petrolia, undrained and similar soils:* 100 percent

*Similar soils:*

- \* Soils with a dark surface layer
- \* Soils that contain more clay throughout

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## 3288L—*Petrolia* silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration

### Setting

*Landform:* Flood Plain

### Soil Properties and Qualities

*Drainage:* Poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Petrolia and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain less clay throughout
- \* Soils that have a dark surface layer
- \* Areas of somewhat poorly drained soils

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Piasa Series

**Taxonomic Class:** Fine, smectitic, mesic Vertic Natraqualfs

### Typical Pedon for MLRA 114

Piasa silt loam, nearly level, in a cultivated field, at an elevation of about 630 feet above mean sea level; about 3 miles north of Hillsboro in Montgomery County, Illinois; approximately 277 feet west and 85 feet south of the northeast corner of sec. 26, T. 9 N., R. 4 W.; USGS Hillsboro, IL. topographic quadrangle; lat. 39 degrees 12 minutes 8 seconds N. and long. 89 degrees 29 minutes 37 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine granular structure; friable; common very fine roots; few fine continuous tubular pores; few fine and medium rounded black (5YR 2.5/1) iron manganese nodules with sharp boundaries; neutral; abrupt smooth boundary.

Eg—8 to 12 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; moderate thin and medium platy structure; friable; few very fine roots; few fine pores filled with black (10YR 2/1) soil material; light gray (10YR 7/1, dry) clay depletions on faces of peds; common fine and medium rounded black (5YR 2.5/1) iron manganese nodules with sharp boundaries; slightly alkaline; abrupt wavy boundary.

Btng—12 to 16 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak very coarse columnar structure parting to moderate fine angular blocky; firm; few very fine roots; few fine tubular pores; common distinct gray (10YR 6/1, dry) clay depletions on the slightly rounded caps of the columns and on the faces of the columns; common prominent black (10YR 2/1) organic coatings lining root channels and filling pores; many distinct dark gray (10YR 4/1) clay films on faces of peds; common fine prominent dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly alkaline; clear smooth boundary.

Btkng1—16 to 20 inches; dark grayish brown (2.5Y 4/2) silty clay; weak very coarse prismatic structure parting to moderate medium and coarse angular blocky; firm, sticky; few very fine roots; few fine tubular pores; few prominent black (10YR 2/1) organic coatings lining root channels and filling pores; common distinct dark gray (10YR 4/1) clay films on faces of peds; few fine faint very dark grayish brown (2.5Y 3/2) and few fine prominent dark yellowish brown (10YR 4/4) masses of iron

accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; few fine and medium irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; few medium rounded white (10YR 8/1) carbonate concretions; slightly effervescent; slightly alkaline; clear smooth boundary.

Btkng2—20 to 26 inches; dark grayish brown (2.5Y 4/2) silty clay; weak very coarse prismatic structure parting to moderate medium and coarse angular blocky; firm, sticky; few very fine roots; few fine tubular pores; few prominent black (10YR 2/1) organic coatings lining root channels and filling pores; common distinct dark gray (10YR 4/1) clay films on faces of peds; common fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; few fine and medium irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; common medium and coarse rounded white (10YR 8/1) carbonate concretions; slightly effervescent; moderately alkaline; clear smooth boundary.

Btkng3—26 to 33 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak very coarse prismatic structure parting to weak and moderate medium angular blocky; firm, slightly sticky; few very fine roots; common distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; common medium and coarse rounded white (10YR 8/1) carbonate concretions; slightly effervescent; moderately alkaline; clear smooth boundary.

Btkng4—33 to 37 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak very coarse prismatic structure parting to weak coarse angular blocky; friable; few very fine roots; few distinct dark gray (10YR 4/1) clay films on faces of peds; many medium and coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; few medium rounded white (10YR 8/1) carbonate concretions; slightly effervescent; slightly alkaline; clear smooth boundary.

BCg—37 to 48 inches; grayish brown (2.5Y 5/2) silt loam; weak coarse angular blocky structure; friable; few very fine roots; few faint gray (10YR 5/1) clay films on vertical faces of peds; many

coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine irregular black (10YR 2/1) iron-manganese nodules with sharp boundaries; slightly alkaline; clear smooth boundary.

2Btgb1—48 to 62 inches; gray (10YR 5/1) silt loam; moderate fine and medium prismatic structure parting to weak medium angular blocky; friable; few fine vesicular pores; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and filling pores and many distinct dark gray (10YR 4/1) clay films on faces of peds; many coarse prominent yellowish brown (10YR 5/8) and reddish brown (5YR 4/4) masses of iron accumulation in the matrix; few medium and coarse irregular black (10YR 2/1) iron-manganese nodules with diffuse strong brown (7.5YR 5/6) boundaries; about 10 to 15 percent sand and 1 percent pebbles; slightly alkaline; gradual smooth boundary.

2Btgb2—62 to 80 inches; grayish brown (10YR 5/2) clay loam; moderate medium prismatic structure parting to weak medium angular blocky; firm; few fine vesicular pores; few prominent very dark gray (10YR 3/1) organic coatings lining root channels and filling pores and common distinct dark gray (10YR 4/1) clay films on faces of peds; many medium and coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 5 percent pebbles; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of the natric horizon:* 30 to 50 inches

*Thickness of loess:* 40 to 72 inches

*Exchangeable sodium:* Ranges from 15 percent to more than 35 percent in the natric horizon

*Depth to carbonates:* Variable, and are not everywhere present

Ap horizon:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2

Texture—silt loam

Eg horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—1 or 2

Texture—silt loam

Btng horizon, and Btkng horizon, where present:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 or 2

Texture—silty clay loam or silty clay

BCg horizon:

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 or 2

Texture—silty clay loam or silt loam

Cg and 2Cg horizons, where present, and 2Ab and/or 2Btgb horizons, where present:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—3 to 6

Chroma—0 to 2

Texture—silt loam, loam, silty clay loam, or clay loam

## Pierron Series

**Taxonomic Class:** Fine, smectitic, mesic Chromic Vertic Albaqualfs

### Typical Pedon for MLRA 114

Pierron silt loam, nearly level, in a cultivated field, at an elevation of about 540 feet above mean sea level; about 2 miles northeast of Marine in Madison County, Illinois; approximately 1,730 feet east and 80 feet south of the northwest corner of sec. 14, T. 4 N., R. 6 W.; USGS Grantfork, IL. topographic quadrangle; lat. 38 degrees 48 minutes 2 seconds N. and long. 89 degrees 44 minutes 19 seconds W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; very friable; many very fine and common fine roots; few fine continuous tubular pores; many distinct light brownish gray (10YR 6/2, dry) clay depletions on faces of peds; few fine rounded black (5YR 2.5/1) iron-manganese nodules with sharp boundaries; slightly acid; abrupt smooth boundary.

Eg1—8 to 12 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak thin platy structure; very friable; few very fine roots; common very fine and fine continuous tubular pores; common distinct light gray (10YR 7/1, dry) clay depletions on faces of peds; few medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; many fine and medium rounded reddish brown (5YR 4/4) and dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear boundaries; moderately acid; clear smooth boundary.

Eg2—12 to 20 inches; light brownish gray (10YR 6/2) silt loam, light gray (10YR 7/1) dry; moderate thick platy structure parting to weak fine subangular blocky; very friable; few very fine roots; common very fine continuous tubular pores; many distinct white (10YR 8/1, dry) clay depletions on faces of peds; few distinct very dark grayish brown (10YR 3/2) organic coatings lining root channels; common medium prominent light olive brown (2.5Y 5/4) and few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common medium rounded black (5YR 2.5/1) iron-manganese nodules with clear reddish brown (5YR 4/4) boundaries; strongly acid; abrupt smooth boundary.

Btg1—20 to 29 inches; light brownish gray (2.5Y 6/2) silty clay; moderate medium prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots; few prominent very dark grayish brown (10YR 3/2) organic coatings lining root channels; many prominent grayish brown (2.5Y 5/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/4) and few fine distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; common medium rounded dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; very strongly acid; clear smooth boundary.

Btg2—29 to 36 inches; light brownish gray (2.5Y 6/2) silty clay; strong medium prismatic structure parting to moderate medium angular blocky; very firm; common prominent very dark grayish brown (10YR 3/2) organic coatings lining root channels; many prominent grayish brown (2.5Y 5/2) clay films on faces of peds; common coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium rounded dark reddish brown (5YR 2.5/2) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; very strongly acid; clear smooth boundary.

Btg3—36 to 44 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm; common prominent very dark grayish brown (10YR 3/2) organic coatings lining root channels; many distinct grayish brown (2.5Y 5/2) clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common medium rounded black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; strongly acid; clear smooth boundary.

Btg4—44 to 55 inches; light olive gray (5Y 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm;

common distinct dark gray (10YR 4/1) organic coatings lining root channels; common distinct grayish brown (2.5Y 5/2) clay films on faces of peds; common coarse prominent strong brown (7.5YR 5/6) and common medium prominent light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; common medium rounded black (5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; moderately acid; gradual smooth boundary.

Btg5—55 to 66 inches; light olive gray (5Y 6/2) silty clay loam; weak coarse prismatic structure; friable; common distinct grayish brown (2.5Y 5/2) clay films on faces of peds; common medium prominent brownish yellow (10YR 6/8) and yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine irregular black (5YR 2.5/1) iron-manganese nodules with clear boundaries and common fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

2Cg—66 to 80 inches; grayish brown (2.5Y 5/2) silt loam; massive; friable; common fine and medium prominent brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 4/6) boundaries; about 10 percent sand; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 50 to 80 inches or more

*Thickness of loess:* Typically 55 to about 80 inches

Ap horizon:

Hue—10YR  
Value—4 or 5 (6 or 7 dry)  
Chroma—1 or 2  
Texture—silt loam

Eg horizon:

Hue—10YR or 2.5Y  
Value—5 or 6 (6 to 8 dry)  
Chroma—1 or 2  
Texture—silt loam or silt

Btg horizon:

Hue—10YR, 2.5Y, or 5Y  
Value—4 to 6  
Chroma—1 or 2  
Texture—silty clay loam or silty clay

Cg or 2Cg horizon:

Hue—7.5YR, 10YR, 2.5Y, 5Y, or neutral  
Value—4 to 7

Chroma—0 to 2

Texture—silt loam, loam, silty clay loam, or clay loam

### 31A—Pierron silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluve

#### Soil Properties and Qualities

*Drainage:* Poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Pierron and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Soils that do not have an abrupt textural change
- \* Soils that contain less clay in the subsoil
- \* Soils that have a dark surface layer

*Dissimilar soils:*

- \* Darmstsd soils that have a natric horizon
- \* Small areas of depressional soils that remain wet for periods that extend into the growing season

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### 864—Pits, quarries

#### Composition

*Pits, quarries:* 90 percent (*fig. 4*).

*Dissimilar soils:* 10 percent

*Pits, quarries:*\* *Areas of open excavations from which limestone has been removed*

*Dissimilar soils:*

- \* Areas of water
- \* Small areas of orthents, silty or orthents, loamy

\* Small areas of undisturbed soils

## 865—Pits, gravel

### Composition

*Pits, gravel:* 90 percent  
*Dissimilar soils:* 10 percent

*Pits, gravel:*

\* Areas from which sand and gravel have been removed

*Dissimilar soils:*

\* Areas of water

\* Small areas of orthents, silty or orthents, loamy

\* Small areas of undisturbed soils

## Raccoon Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Typic Endoaqualfs

### Typical Pedon for MLRA 114

Raccoon silt loam, nearly level, in a cultivated field, at an elevation of about 425 feet above mean sea level; about 1 mile east of West End in Saline County, Illinois; approximately 135 feet north and 2,095 feet east of the center of sec. 30, T. 7 S., R. 5 E.; USGS Akin, IL. topographic quadrangle; lat. 37 degrees 53 minutes 8 seconds N. and long. 88 degrees 41 minutes 23 seconds W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; common fine very dark grayish brown (10YR 3/2) masses of iron-manganese accumulation throughout; neutral; abrupt smooth boundary.

Eg1—6 to 10 inches; dark grayish brown (10YR 4/2) silt loam; weak thin platy structure; firm; common fine very dark grayish brown (10YR 3/2) masses of iron-manganese accumulation throughout; neutral; abrupt smooth boundary.

Eg2—10 to 14 inches; dark grayish brown (10YR 4/2) silt loam; weak medium platy structure parting to weak fine granular; friable; common fine faint grayish brown (10YR 5/2) and few fine distinct light gray (10YR 7/1) iron depletions in the matrix; common fine very dark grayish brown (10YR 3/2) masses of iron-manganese accumulation throughout; strongly acid; clear smooth boundary.

Eg3—14 to 30 inches; gray (10YR 6/1) silt loam; weak medium platy structure parting to weak fine granular; friable; common very fine constricted tubular pores; common medium prominent

yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; many fine black (10YR 2/1) masses of iron-manganese accumulation throughout; few grayish brown (10YR 5/2) krotovinas; very strongly acid; clear smooth boundary.

Btg1—30 to 37 inches; gray (10YR 6/1) silty clay loam; weak medium prismatic structure parting to weak fine subangular blocky; firm; few very fine tubular pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; common fine black (10YR 2/1) iron-manganese concretions; very strongly acid; clear smooth boundary.

Btg2—37 to 47 inches; gray (10YR 6/1) silty clay loam; moderate medium prismatic structure parting to weak medium subangular blocky; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine faint light gray (10YR 7/1) iron depletions and many fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine black (10YR 2/1) iron-manganese concretions; very strongly acid; clear smooth boundary.

Btg3—47 to 59 inches; gray (10YR 6/1) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; few faint gray (10YR 5/1) and common prominent dark olive gray (5Y 3/2) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6) and dark brown (7.5YR 4/4) masses of iron accumulation in the matrix; few fine black (10YR 2/1) iron-manganese concretions; strongly acid; clear smooth boundary.

Cg—59 to 73 inches; gray (5Y 6/1) and (10YR 6/1) silt loam; massive; friable; many coarse distinct grayish brown (10YR 5/2) and prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; slightly acid increasing to neutral in the lower part.

### MLRA Series Range in Characteristics

*Depth to the top of the argillic horizon:* 24 to 36 inches

*Depth to the base of the argillic horizon:* 40 to 75 inches

*Particle-size control section:* These soils average 27 to 35 percent clay in the particle-size control section. The upper and middle parts of the series control section average less than 10 percent sand and less than 2 percent by volume gravel. The lower part of the series control section averages 10 to 35 percent sand and averages 18 to 30 percent

clay. Individual horizons or strata have as much as 80 percent sand or as much as 42 percent clay.

Ap or A horizon:

Hue—10YR  
Value—3 to 6 (5 to 7 dry)  
Chroma—2 or 3  
Texture—silt loam

Eg horizon:

Hue—10YR or 2.5Y  
Value—4 to 7  
Chroma—1 or 2  
Texture—silt loam

Btg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral  
Value—4 to 7  
Chroma—0 to 2  
Texture—dominantly silty clay loam, but is silt loam in upper or lower subhorizons in some pedons

Cg horizon:

Hue—10YR, 2.5Y, or 5Y  
Value—4 to 7  
Chroma—1 or 2  
Texture—dominantly silt loam or loam, but in some pedons it is stratified with strata of loamy fine sand to silty clay

### **109A—Raccoon silt loam, 0 to 2 percent slopes**

#### **Setting**

*Landform:* Till Plain

*Position on Landform:* Interfluvium

#### **Soil Properties and Qualities**

*Drainage:* Poorly drained

*Dominant parent material:* Slope alluvium

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

#### **Composition**

*Raccoon and similar soils:* 100 percent

*Similar soils:*

- \* Soils with thinner surface and subsurface layers
- \* Soils that contain more clay in the subsoil
- \* Soils that contain more sand in the substratum

#### **Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

### **8109A—Raccoon silt loam, 0 to 2 percent slopes, occasionally flooded**

#### **Setting**

*Landform:* Lake Plain

*Position on Landform:* Broad Flat

#### **Soil Properties and Qualities**

*Drainage:* Poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### **Composition**

*Raccoon and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain more clay in the subsoil
- \* Soils that contain more sand throughout

#### **Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section



Figure 4.—Limestone quarry, a miscellaneous land type, Pits, quarries.

## Redbud Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

### Typical Pedon for MLRA 114

Redbud silt loam, gently sloping, on a lake terrace tread, in a cultivated field, at an elevation of about 420 feet above mean sea level; about 6 miles south of New Athens in St. Clair County, Illinois (map sheet Redbud NE, IL.); approximately 1,280 feet north and 2,040 feet east of the southwest corner of sec. 28, T. 3 S., R. 7 W.; USGS Red Bud, IL. topographic quadrangle; lat. 38 degrees 14 minutes 10 seconds N. and long. 89 degrees 53 minutes 5 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; common very fine and fine roots throughout; neutral; abrupt smooth boundary.

E—9 to 16 inches; dark yellowish brown (10YR 4/4) silt loam, pale brown (10YR 6/3) dry; moderate medium platy structure; friable; common very fine

roots throughout; few distinct dark brown (10YR 3/3) organic coatings lining root channels; few fine irregular black (N 2.5/0) masses of iron-manganese accumulation; slightly acid; abrupt smooth boundary.

Bt1—16 to 22 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots between peds; common distinct brown (7.5YR 4/2) clay films on faces of peds; few fine and medium irregular black (N 2.5/0) masses of iron-manganese accumulation; moderately acid; clear smooth boundary.

Bt2—22 to 28 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium prismatic structure parting to strong medium subangular blocky; firm; few very fine roots between peds; few prominent black (10YR 2/1) iron-manganese stains on faces of peds; common distinct brown (7.5YR 4/2) clay films on faces of peds; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-

manganese accumulation; moderately acid; clear smooth boundary.

**Bt3**—28 to 36 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots between peds; few prominent black (10YR 2/1) iron-manganese stains on faces of peds; common distinct brown (7.5YR 4/2) clay films on faces of peds; many medium prominent grayish brown (10YR 5/2) iron depletions and common medium distinct yellowish red (5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; moderately acid; clear smooth boundary.

**Bt4**—36 to 45 inches; strong brown (7.5YR 4/4) silty clay loam; moderate medium prismatic structure; friable; few very fine roots between peds; few distinct brown (7.5YR 4/2) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions and common medium prominent yellowish red (5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; moderately acid; abrupt smooth boundary.

**2Bt5**—45 to 60 inches; dark yellowish brown (10YR 4/4) silty clay; moderate medium prismatic structure; very firm; few very fine roots between peds; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

**2Bt6**—60 to 72 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium prismatic structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

**2BCt**—72 to 80 brown (10YR 4/3) silt loam; weak medium prismatic structure; friable; few distinct dark gray (10YR 4/1) clay films in root channels and pores; common coarse faint grayish brown (10YR 5/2) iron depletions in the matrix; few fine irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 54 to 80 inches or more

*Depth to carbonates:* More than 48 inches, where present

*Thickness of loess:* Typically 36 to about 70 inches

**Ap horizon:**

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 or 3

Texture—silt loam

Some undisturbed pedons have a thin A horizon with a color value of 3 and a chroma of 1 or 2.

**E horizon:**

Hue—10YR

Value—4 to 6 (6 to 8 dry)

Chroma—3 to 6

Texture—silt loam or silty clay loam

Some pedons have a BE or an EB horizon

**Bt horizon:**

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—2 to 6

Texture—silty clay loam or silt loam

**2Bt horizon, and 2BC or 2C horizon, where present:**

Hue—7.5YR, 10YR, 2.5Y, or 5Y

Value—4 to 7

Chroma—2 to 4

Texture—clay, silty clay, silty clay loam, or silt loam; and is stratified in some pedons

### 437B—Redbud silt loam, 2 to 5 percent slopes

#### Setting

*Landform:* Lake Terrace

*Position on Landform:* Tread

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess overlying lacustrine deposits

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

**Composition**

*Redbud and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain more clay in the subsoil
- \* Small areas that are moderately eroded
- \* Areas of somewhat poorly drained soils

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

**437C2—Redbud silt loam, 5 to 10 percent slopes, eroded****Setting**

*Landform:* Lacustrine Terrace

*Position on Landform:* Side Slope

**Soil Properties and Qualities**

*Drainage:* Moderately well drained

*Dominant parent material:* Loess overlying lacustrine deposits

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

**Composition**

*Redbud and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain more clay in the subsoil
- \* Areas that are severely eroded
- \* Areas of somewhat poorly drained and/or well drained soils

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section

- \* "Engineering" section
- \* "Soil Properties" section

**906C3—Redbud-Hurst silty clay loams, 5 to 10 percent slopes, severely eroded****Setting***Landform:*

- \* Redbud—Lake Terrace
- \* Hurst—Lake Terrace

*Position on Landform:*

- \* Redbud—Side slope
- \* Hurst—Side slope

**Soil Properties and Qualities***Drainage:*

- \* Redbud—Moderately well drained
- \* Hurst—Somewhat poorly drained

*Dominant parent material:*

- \* Redbud—Loess overlying lacustrine deposits
- \* Hurst—Lacustrine deposits

*Flooding frequency:*

- \* Redbud—None
- \* Hurst—None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

**Composition**

*Redbud and similar soils:* 50 percent

*Hurst and similar soils:* 40 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Areas of less sloping soils
- \* Areas of moderately eroded soils

*Dissimilar soils:*

- \* Petrolia soils in drainageways
- \* Okaw soils on the lower part of side slopes

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## 907D3—Redbud-Colp silty clay loams, 10 to 18 percent slopes, severely eroded

### Setting

#### Landform:

- \* Redbud—Lake Terrace
- \* Colp—Lake Terrace

#### Position on Landform:

- \* Redbud—Side slope
- \* Colp—Side slope

### Soil Properties and Qualities

#### Drainage:

- \* Redbud—Moderately well drained
- \* Colp—Moderately well drained

#### Dominant parent material:

- \* Redbud—Loess overlying lacustrine deposits
- \* Colp—Lacustrine deposits

#### Flooding frequency:

- \* Redbud—None
- \* Colp—None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Redbud and similar soils:* 50 percent

*Colp and similar soils:* 40 percent

*Dissimilar soils:* 10 percent

#### Similar soils:

- \* Areas of well drained soils
- \* Areas of moderately eroded soils

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Ridgway Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Typic Hapludalfs

### Typical Pedon for MLRA 114

Ridgway silt loam, gently sloping, in a cultivated field, at an elevation of about 415 feet above mean sea level; about 3 miles southwest of Bartelso in Clinton County, Illinois; approximately 1,267 feet east and 1,874 feet north of the southwest corner of sec. 36, T. 1 N., R. 4 W.; USGS Addieville, IL. topographic quadrangle; lat. 38 degrees 29 minutes 2 seconds N. and long. 89 degrees 29 minutes 33 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine and few fine roots; fragments of dark yellowish brown (10YR 4/4) subsoil mixed in the lower part; neutral; abrupt smooth boundary.

Bt1—8 to 16 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate very fine subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; many faint brown (10YR 4/3) clay films on faces of peds; neutral; clear smooth boundary.

Bt2—16 to 27 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; common fine continuous tubular pores; many distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; gradual smooth boundary.

2Bt3—27 to 32 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; strongly acid; clear smooth boundary.

2Bt4—32 to 52 inches; brown (7.5YR 4/4) fine sandy loam; weak medium and coarse subangular blocky structure; friable; common very fine roots; few fine and medium vesicular and tubular pores; few distinct brown (10YR 4/3) clay films on faces of peds; strongly acid; gradual smooth boundary.

2E&Bt—52 to 74 inches; yellowish brown (10YR 5/6) fine sand (E part); single grain; loose; brown (7.5YR 4/4) loamy fine sand lamellae (Bt part); massive; very friable; many faint brown (7.5YR 4/3) clay films as bridges between sand grains; lamella are individually 1 to 2 inches thick and combined thickness of lamella is about 10 inches; few very fine roots; moderately acid; clear smooth boundary.

2C—74 to 98 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; few very fine roots; slightly acid.

### MLRA Series Range in Characteristics

*Thickness of the series control section:* 60 to 80 inches

*Thickness of loess or other silty material:* 24 to 40 inches

*Content of rock fragments:* Less than 10 percent by volume in the 2Bt and 2E&Bt horizons

Ap or A horizon:

Hue—10YR

Value—4 or 5, (6 or 7 dry) and 3 (5 dry) for horizons less than 6 inches in thickness

Chroma—2 or 3

Texture—silt loam

Some pedons have an E horizon.

Bt horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture—silty clay loam or silt loam

2Bt horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture—clay loam, loam, or sandy loam, and in some pedons it is stratified and some strata have coarser or finer textures

2E&Bt horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture—The E part is loamy sand, sand, or the fine or very fine analogs. The Bt part is loamy sand, sandy loam, or the fine or very fine analogs.

### **8434B—Ridgway silt loam, 2 to 5 percent slopes, occasionally flooded**

#### **Setting**

*Landform:* Flood Plain

#### **Soil Properties and Qualities**

*Drainage:* Well drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### **Composition**

*Ridgway and similar soils:* 100 percent

*Similar soils:*

\* Soils that contain more sand in the upper part

\* Areas of moderately well drained soils

\* Areas that are more or less sloping

#### **Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Agronomy” section

\* “Forestland Management and Productivity” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

### **Rocher Series**

**Taxonomic Class:** Coarse-loamy, mixed, superactive, calcareous, mesic Typic Udifluvents

#### **Typical Pedon for MLRA 115B**

Rocher loam, near the crest of a broad, low natural levee, with a 2 percent slope, in a cultivated field, at an elevation of about 382 feet above mean sea level; about 7 miles southeast of Prairie du Rocher in Randolph County, Illinois; approximately 1,980 feet southwest with a line perpendicular to levee and 1,320 feet northeast of Mississippi River, also approximately 5,400 feet southeast along the levee from the intersection of the levee and the Discharge (drainage ditch), and 800 feet southwest perpendicular to the levee, T. 6 S., R. 8 W.; state plain coordinates 484,480 feet north and 540,490 feet east, Illinois West Zone; T. 6 S., R. 8 W.; USGS Ste. Genevieve, MO.-IL. topographic quadrangle; lat. 37 degrees 59 minutes 47 seconds N. and long. 90 degrees 1 minute 32 seconds W.

Ap—0 to 5 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; weak medium and coarse granular structure; very friable; common fine roots; slightly effervescent; slightly alkaline; clear smooth boundary.

C1—5 to 11 inches; brown (10YR 5/3) very fine sandy loam; massive; very friable; common fine roots; slightly effervescent; slightly alkaline; clear smooth boundary.

C2—11 to 32 inches; light yellowish brown (10YR 6/4) loamy very fine sand; single grain; loose; few fine roots; slightly effervescent; slightly alkaline; gradual smooth boundary.

C3—32 to 53 inches; yellowish brown (10YR 5/4) loamy very fine sand; single grain; loose; slightly effervescent; slightly alkaline; gradual smooth boundary.

C4—53 to 62 inches; light yellowish brown (10YR 6/4) loamy fine sand; single grain; loose; slightly effervescent; slightly alkaline.

### MLRA Series Range in Characteristics

*Thickness of the solum:* 6 to 20 inches, and corresponds to the thickness of the A horizon or the A and AC horizons

*Depth to carbonates:* Carbonates are at a depth of 10 inches or less. Some pedons do not have carbonates in some strata at depths between 20 and 60 inches.

Ap or A horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 or 3

Texture—very fine sandy loam, fine sandy loam, loamy fine sand, loamy very fine sand, very fine sand, loam, or silt loam

Some pedons have an AC horizon. It is within the same ranges defined for the Ap or A horizon.

C horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 to 4

Texture—very fine sand, very fine sandy loam, or loamy very fine sand, and contains strata of loamy fine sand, fine sand, fine sandy loam, silt loam, or loam

## 3038B—Rocher loam, 2 to 5 percent slopes, frequently flooded

### Setting

*Landform:* Flood Plain

### Soil Properties and Qualities

*Drainage:* Somewhat excessively drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Rocher and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

### Similar soils:

\* Soils that contain more clay in the surface layer

\* Soils that do not have carbonates in the surface layer

### Dissimilar soils:

\* Small areas of somewhat poorly drained Blake soils in depressional landform positions

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

## Ruma Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Typic Hapludalfs

### Typical Pedon for MLRA 114

Ruma silty clay loam, in an area of Ruma-Ursa silty clay loams, 18 to 35 percent slopes, severely eroded; in a hay field on a south-facing shoulder slope with a gradient of 12 percent at an elevation of about 485 feet above mean sea level; about 2 miles east of Floraville in St. Clair County, Illinois (map sheet Millstadt SE, IL.); approximately 1,515 feet south and 1,030 feet west of the northeast corner of sec. 7, T. 2 S., R. 8 W.; USGS Millstadt, IL. topographic quadrangle; lat. 38 degrees 22 minutes 6 seconds N. and long. 90 degrees 1 minute 18 seconds W.

Ap—0 to 5 inches; mixed dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) silty clay loam, light yellowish brown (10YR 6/4) dry; moderate fine subangular blocky structure; friable; many very fine and common fine and medium roots; few very fine and fine constricted tubular pores; about 29 percent clay; slightly acid; abrupt smooth boundary.

Bt1—5 to 13 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common very fine and few fine and medium roots; many distinct dark brown (10YR 3/3) clay films on faces of peds; about 33 percent clay; strongly acid; clear smooth boundary.

Bt2—13 to 28 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; common very fine and few fine roots; many distinct dark yellowish brown (10YR 3/4) clay films

on faces of peds; about 32 percent clay; strongly acid; gradual smooth boundary.

Bt3—28 to 40 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate medium prismatic structure parting to moderate medium and coarse angular blocky; firm; few very fine roots; few very fine constricted tubular pores; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few prominent black (10YR 2/1) iron-manganese coatings on vertical faces of peds and lining root channels; about 28 percent clay; moderately acid; gradual smooth boundary.

Bt4—40 to 48 inches; yellowish brown (10YR 5/6) silt loam; weak medium prismatic structure; friable; few very fine roots; few very fine and fine constricted tubular pores; few distinct dark yellowish brown (10YR 4/4) clay films on vertical faces of peds; few fine rounded very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 23 percent clay; slightly acid; clear smooth boundary.

2BCt1—48 to 62 inches; brown (7.5YR 4/4) silt loam; massive; friable; few very fine roots; common very fine and fine tubular pores; very few distinct dark yellowish brown (10YR 4/4) clay films lining root channels; few fine rounded very dark brown (7.5YR 2.5/2) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 25 percent clay and 8 percent sand; slightly acid; gradual smooth boundary.

2BCt2—62 to 95 inches; brown (7.5YR 4/4) silt loam; massive; friable; few very fine roots; few fine and medium tubular pores; very few distinct dark yellowish brown (10YR 4/4) clay films lining root channels; few fine distinct pinkish gray (7.5YR 6/2) iron depletions along root channels; few fine rounded black (7.5YR 2.5/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 5/6) boundaries; about 24 percent clay and 12 percent sand; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 40 to 70 inches

*Thickness of loess:* 40 inches to about 80 inches

Ap horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 to 4

Texture—silt loam or silty clay loam

In undisturbed areas the A horizon has color value of 3 (5 or 6 dry) and chroma of 1 or 2

E, EB, or BE horizons, where present:

Hue—10YR

Value—4 or 5

Chroma—2 to 4

Texture—silt loam

Bt and BC horizons:

Hue—7.5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—3 to 6

Texture—silty clay loam or silt loam

2Bt, 2BC, or 2CB horizons:

Hue—7.5YR, 10YR, or 2.5Y

Value—5 or 6

Chroma—2 to 6

Texture—silt loam

### 491B2—Ruma silty clay loam, 2 to 5 percent slopes, eroded

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluve

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Ruma and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Areas of soils that are less eroded

\* Soils that contain more clay in the subsoil

*Dissimilar soils:*

\* Areas of somewhat poorly drained Marine soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

### 491C3—Ruma silty clay loam, 5 to 10 percent slopes, severely eroded

#### Setting

*Landform:* Till Plain  
*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Well drained  
*Dominant parent material:* Loess  
*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Ruma and similar soils:* 85 percent  
*Dissimilar soils:* 15 percent

*Similar soils:*  
\* Areas of moderately well drained soils  
\* Areas of moderately eroded soils  
*Dissimilar soils:*  
\* Wakeland soils in small upland drainageways

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 491D3—Ruma silty clay loam, 10 to 18 percent slopes, severely eroded

#### Setting

*Landform:* Till Plain  
*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Well drained  
*Dominant parent material:* Loess  
*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this

section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Ruma and similar soils:* 85 percent  
*Dissimilar soils:* 15 percent

*Similar soils:*  
\* Areas of moderately well drained soils  
\* Areas of moderately eroded soils  
*Dissimilar soils:*  
\* Wakeland soils in upland drainageways

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 886F3—Ruma-Ursa silty clay loams, 18 to 35 percent slopes, severely eroded

#### Setting

*Landform:* Till Plain  
*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Well drained  
*Dominant parent material:*  
\* Ruma—Loess  
\* Ursa—Till, basal  
*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Ruma and similar soils:* 50 percent  
*Ursa and similar soils:* 40 percent  
*Dissimilar soils:* 10 percent

*Similar soils:*  
\* Soils that have a thinner loess mantle  
*Dissimilar soils:*  
\* Areas of soils that are not eroded

## Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Shaffton Series

**Taxonomic Class:** Fine-loamy, mixed, superactive, mesic Fluvaquentic Hapludolls

### Typical Pedon for MLRA 115B

Shaffton clay loam, on a gently undulating flood plain, in a cultivated field, at an elevation of about 405 feet above mean sea level; about 2.5 miles west of Columbia in Monroe County, Illinois; approximately 280 feet east and 350 feet north of the southwest corner of sec. 18, T. 1 S., R. 10 W.; USGS Oakville, MO.-IL. topographic quadrangle; lat. 38 degrees 26 minutes 37 seconds N. and long. 90 degrees 15 minutes 20 seconds W.

- Ap—0 to 10 inches; very dark gray (10YR 3/1) clay loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; few very fine roots; neutral; abrupt smooth boundary.
- Bw1—10 to 16 inches; brown (10YR 4/3) clay loam; moderate medium prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.
- Bw2—16 to 21 inches; brown (10YR 4/3) clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.
- Bw3—21 to 27 inches; brown (10YR 4/3) fine sandy loam; weak medium prismatic structure parting to weak medium angular blocky; very friable; few very fine roots; few faint very dark gray (10YR 3/1) organic coatings on faces of peds; few fine distinct gray (10YR 5/1) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of

iron accumulation in the matrix; moderately acid; clear smooth boundary.

- Bw4—27 to 33 inches; brown (10YR 4/3) fine sandy loam; weak medium prismatic structure parting to weak medium angular blocky; very friable; few very fine roots; few faint very dark gray (10YR 3/1) organic coatings on faces of peds; common fine distinct gray (10YR 5/1) iron depletions and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.
- BC—33 to 43 inches; brown (10YR 4/3) fine sandy loam; weak medium prismatic structure parting to weak medium angular blocky; very friable; few very fine roots; many medium distinct gray (10YR 5/1) iron depletions and common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.
- CB—43 to 53 inches; brown (10YR 5/3) silt loam; weak medium prismatic structure; very friable; few very fine roots; common medium distinct gray (10YR 5/1) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.
- Cg—53 to 60 inches; 70 percent gray (10YR 5/1) and 30 percent strong brown (7.5YR 5/6) stratified fine sandy loam and silt loam; massive; very friable; few very fine roots; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; slightly acid.

### MLRA Series Range in Characteristics

*Depth to the base of soil development:* Commonly about 36 inches, but ranges from 30 to 50 inches  
*Thickness of the mollic epipedon:* 10 to 15 inches  
*Depth to carbonates:* More than 60 inches, where present

Ap or A horizon:

Hue—10YR  
 Value—2 or 3 (4 or 5 dry)  
 Chroma—1 to 3  
 Texture—silty clay loam, clay loam, silt loam, or loam

Bw horizon:

Hue—10YR or 2.5Y  
 Value—4 or 5  
 Chroma—2 or 3  
 Texture—silty clay loam, clay loam, silt loam, loam, fine sandy loam or sandy loam

Cg or C horizon:

Hue—10YR or 2.5Y  
 Value—4 or 5

Chroma—1 to 3

Texture—commonly is stratified and ranges in texture from silty clay loam to coarse sand

### 8183A—Shaffton clay loam, 0 to 2 percent slopes, occasionally flooded

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Shaffton and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain more clay in the surface horizon
- \* Soils that contain carbonates in the loamy alluvium
- \* Areas of poorly drained soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 2183A—Shaffton-Urban land complex, 0 to 2 percent slopes, occasionally flooded

#### Setting

*Landform:*

- \* Shaffton—Flood Plain
- \* Urban land—Flood Plain

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Shaffton and similar soils:* 50 percent

*Urban land:* 40 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Areas of poorly drained soils
- \* Soils that have more clay throughout

*Dissimilar soils:*

- \* Well drained Landes soils on natural levees

*Urban land:*

- \* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## Swanwick Series

**Taxonomic Class:** Fine-silty, mixed, active, nonacid, mesic Alfic Udarents - The Swanwick soils in St. Clair County are taxadjuncts and classify as fine instead of fine-silty.

#### Typical Pedon for MLRA 114

Swanwick silty clay loam, on a gently sloping summit, in a cultivated field, at an elevation of about 410 feet above mean sea level; about 2 miles east of New Athens in St. Clair County, Illinois (map sheet New Athens East/NW, IL.); approximately 2,200 feet west and 360 feet south of the northeast corner of sec. 25, T. 2 S., R. 7 W.; USGS New Athens East, IL. topographic quadrangle; lat. 38 degrees 20 minutes 7 seconds N. and long. 89 degrees 49 minutes 30 seconds W.

Ap—0 to 8 inches; mixed dark grayish brown (10YR 4/2) and brown (10YR 4/3) silty clay loam, pale brown (10YR 6/3) dry; moderate fine subangular blocky structure parting to moderate medium granular; friable, slightly hard; many very fine and few fine and medium roots; common distinct very dark grayish brown (10YR 3/2) coatings on faces of peds; few fine rounded black (10YR 2/1) and

strong brown (10YR 5/6) masses of iron-manganese accumulation; about 32 percent clay; neutral; clear smooth boundary.

AC—8 to 14 inches; mixed brown (10YR 4/3) and dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium angular blocky structure; firm, hard; common very fine and few fine roots; few distinct very dark grayish brown (10YR 3/2) coatings on faces of peds; few fine and medium rounded black (10YR 2/1) and strong brown (10YR 5/6) masses of iron-manganese accumulation; about 36 percent clay; neutral; clear smooth boundary.

C1—14 to 23 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium and coarse angular blocky structure; very firm, very hard; few very fine roots; common fine and medium rounded black (10YR 2/1) and strong brown (10YR 5/6) masses of iron-manganese accumulation; about 1 percent rock fragments and 39 percent clay; neutral; abrupt wavy boundary.

C2—23 to 49 inches; dark grayish brown (2.5Y 4/2) silty clay loam; massive; very firm, extremely hard; few very fine roots; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; about 6 percent rock fragments and 40 percent clay; slightly effervescent; slightly alkaline; clear wavy boundary.

C3—49 to 63 inches; dark gray (2.5Y 4/1) silty clay loam; massive; extremely firm, extremely hard; about 8 percent rock fragments and 37 percent clay; strongly effervescent; moderately alkaline; abrupt wavy boundary.

C4—63 to 77 inches; dark yellowish brown (10YR 4/4) silty clay; massive; very firm, very hard; few fine distinct grayish brown (10YR 5/2) iron depletions; few fine and medium rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 2 percent rock fragments and 45 percent clay; slightly effervescent; slightly alkaline; abrupt wavy boundary.

C5—77 to 105 inches; mixed dark gray (2.5Y 4/1) clay loam and yellowish brown (10YR 5/4) silty clay loam; massive; very firm, very hard; about 5 percent rock fragments and 38 percent clay; strongly effervescent; moderately alkaline.

#### MLRA Series Range in Characteristics

*Depth to carbonates:* Some pedons contain strata, pockets, or soil fragments in the C horizon that contain carbonates.

*Depth to bedrock:* More than 5 feet

*Rock fragment content:* Ranges from 0 to about 10 percent in the 10 to 40 inch particle-size control section

*Reaction:* The A horizon ranges from strongly acid to slightly alkaline and individual layers in the C horizon range from very strongly acid to moderately alkaline.

Ap or A horizon:

Hue—10YR, and less commonly 7.5YR, 2.5Y, or 5Y

Value—4 or 5 (6 or 7 dry), and less commonly 4 to 6

Chroma—2 to 4, and less commonly 1 to 8

Texture—silt loam or silty clay loam

Some pedons do not have an AC horizon.

C horizon to a depth of 48 inches:

Hue—7.5YR, 10YR, 2.5Y, or 5Y

Value—4 to 6

Chroma—1 to 8

Texture—typically silty clay loam, but individual layers are silt loam, loam, or clay loam

C horizon below a depth of 48 inches:

Colors—wide range of colors, and colors are mixed

Texture—clay loam, loam, silty clay loam, silt loam, or silty clay, or the gravelly or channery analogs

Some pedons contain stones below a depth of 48 inches and they occur at random depth, spacing, and orientation.

### 824B—Swanwick silty clay loam, 1 to 5 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Shoulder Slope

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Mine spoil and earth fill

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Swanwick and similar soils:* 100 percent

*Similar soils:*

\* Soils that contain more rock fragments throughout

\* Small depressional areas that have wet soils

## Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Sylvan Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Typic Hapludalfs

### Typical Pedon for MLRA 115B

Sylvan silt loam, from an area of Sylvan-Bold silt loams, 18 to 35 percent slopes, eroded; in a cultivated field at an elevation of about 490 feet above mean sea level; about 1.5 miles south of Centreville in St. Clair County, Illinois (map sheet Cahokia SE, IL.); approximately 800 feet east and 780 feet north of the southwest corner of sec. 17, T. 1 N., R. 9 W.; USGS Cahokia, IL.-MO. topographic quadrangle; lat. 38 degrees 31 minutes 51 seconds N. and long. 90 degrees 7 minutes 32 seconds W.

Ap—0 to 5 inches; mixed brown (10YR 4/3) and dark yellowish brown (10YR 4/4) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure parting to moderate fine granular; friable; common very fine roots; about 26 percent clay; slightly acid; abrupt smooth boundary.

Bt1—5 to 10 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; many distinct dark brown (10YR 3/3) clay films on faces of peds; about 32 percent clay; slightly acid; clear smooth boundary.

Bt2—10 to 19 inches; dark yellowish brown (10YR 4/6) silty clay loam; weak fine and medium subangular blocky structure; friable; few very fine roots; few fine continuous tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; few fine rounded black (10YR 2/1) masses of iron-manganese accumulation with sharp boundaries; about 29 percent clay; slightly acid; gradual smooth boundary.

BCt—19 to 25 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few very fine roots; few fine continuous tubular pores; few faint yellowish brown (10YR 5/4) clay films on faces of peds; few fine rounded black (10YR 2/1) masses of iron-manganese

accumulation with sharp boundaries; about 25 percent clay; neutral; clear smooth boundary.

C1—25 to 38 inches; yellowish brown (10YR 5/4) silt loam; massive; very friable; few very fine roots; few very fine vesicular pores; common fine faint pale brown (10YR 6/3) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine rounded black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 20 percent clay; slightly effervescent; slightly alkaline; gradual smooth boundary.

C2—38 to 54 inches; brown (10YR 5/3) silt loam; massive; very friable; few very fine roots; few very fine vesicular pores; common fine faint light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine irregular black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 18 percent clay; slightly effervescent; moderately alkaline; gradual smooth boundary.

C3—54 to 80 inches; light yellowish brown (2.5Y 6/3) silt loam; massive; very friable; few very fine vesicular pores; common fine faint light brownish gray (2.5Y 6/2) iron depletions and common fine prominent dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 17 percent clay; slightly effervescent; moderately alkaline.

### MLRA Series Range in Characteristics

*Thickness of the solum:* Typically 22 to 35 inches, but ranges to 40 inches

*Depth to carbonates:* 22 to 40 inches, and the BC horizon contains carbonates in some pedons

A or Ap horizon:

Hue—10YR

Value—3 to 5 for the A horizon, and 4 to 6 for the Ap horizon

Chroma—2 or 3 for the A horizon, and 2 to 4 for the Ap horizon

Texture—typically silt loam, but some severely eroded pedons are silty clay loam

E horizon, where present:

Hue—10YR

Value—4 or 5

Chroma—2 to 4

Texture—silt loam

Some pedons have an EB or a BE horizon

Bt horizon, and BC horizon, where present:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—3 to 6

Texture—silty clay loam, but some pedons contain silt loam subhorizons

C horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 to 6

Texture—silt loam

### 962F2—Sylvan-Bold silt loams, 18 to 35 percent slopes, eroded

#### Setting

*Landform:*

\* Sylvan—Bluff

\* Bold—Bluff

*Position on Landform:*

\* Sylvan—Side slope

\* Bold—Side slope

#### Soil Properties and Qualities

*Drainage:*

\* Sylvan—Well drained

\* Bold—Well drained

*Dominant parent material:*

\* Sylvan—Loess

\* Bold—Loess, calcareous

*Flooding frequency:*

\* Sylvan—None

\* Bold—None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Sylvan and similar soils:* 50 percent

*Bold and similar soils:* 40 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that do not have carbonates

\* Areas of severely eroded soils

*Dissimilar soils:*

\* Areas of moderately well drained soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Forestland Management and Productivity” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

### 962G—Sylvan-Bold silt loams, 35 to 60 percent slopes

#### Setting

*Landform:*

\* Sylvan—Bluff

\* Bold—Bluff

*Position on Landform:*

\* Sylvan—Side slope

\* Bold—Side slope

#### Soil Properties and Qualities

*Drainage:*

\* Sylvan—Well drained

\* Bold—Well drained

*Dominant parent material:*

\* Sylvan—Loess

\* Bold—Loess, calcareous

*Flooding frequency:*

\* Sylvan—None

\* Bold—None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Sylvan and similar soils:* 50 percent

*Bold and similar soils:* 40 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that do not have carbonates

\* Soils that have less clay in the subsoil

*Dissimilar soils:*

\* Soils that are severely eroded

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Tice Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls

### Typical Pedon for MLRA 115B

Tice silty clay loam, nearly level, in a cultivated field, at an elevation of about 398 feet above mean sea level; about 0.5 mile northwest of Chalfin Bridge in Monroe County, Illinois; approximately 550 feet southwest of railroad tracks and 150 feet southeast of Outlet Road in parcel S. 707, T. 4 S., R. 11 W; USGS Selma, IL.-MO. topographic quadrangle; lat. 38 degrees 12 minutes 53 seconds N. and long. 90 degrees 16 minutes 37 seconds W.

- Ap—0 to 9 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; many very fine roots; about 28 percent clay; neutral; abrupt smooth boundary.
- A—9 to 16 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; friable; many very fine roots; common continuous distinct very dark brown (10YR 2/2) organic coatings on faces of peds; about 29 percent clay; neutral; clear smooth boundary.
- Bw1—16 to 24 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; friable; common very fine roots; many continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine faint dark grayish brown (10YR 4/2) iron depletions; about 30 percent clay; neutral; clear smooth boundary.
- Bw2—24 to 35 inches; brown (10YR 4/3) silty clay loam; weak fine prismatic structure parting to moderate fine subangular blocky; firm; common very fine roots; many continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine faint dark grayish brown (10YR 4/2) iron depletions; about 32 percent clay; neutral; clear smooth boundary.
- Bg1—35 to 47 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots; many continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/4) masses of iron

accumulation in the matrix; few fine rounded dark brown (7.5YR 3/3) masses of iron-manganese accumulation; about 34 percent clay; neutral; gradual smooth boundary.

- Bg2—47 to 61 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many continuous prominent very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine rounded dark brown (7.5YR 3/3) masses of iron-manganese accumulation; about 36 percent clay; neutral; gradual smooth boundary.
- Bg3—61 to 72 inches; grayish brown (10YR 5/2) silty clay loam; weak fine prismatic structure; firm; very fine roots; common continuous distinct very dark grayish brown (10YR 3/2) clay films on vertical faces of peds; many fine and medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 33 percent clay; slightly acid; clear smooth boundary.
- BCg—72 to 90 inches; grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure; firm; few very fine roots; few discontinuous faint dark grayish brown (10YR 4/2) clay films on vertical faces of peds and in pores and root channels; common fine and medium faint brown (10YR 4/3) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; about 38 percent clay; slightly acid.

### MLRA Series Range in Characteristics

*Depth to the base of soil development:* 30 to more than 80 inches

*Thickness of the mollic epipedon:* Typically 10 to 20 inches, but ranges to 24 inches in some pedons

*Particle-size control section:* Averages between 22 and 35 percent clay

Ap or A horizon:

Hue—10YR

Value—2 or 3, (4 or 5 dry)

Chroma—1 or 2

Texture—dominantly silty clay loam, but is silt loam in some pedons and some pedons have silty clay overwash

AB or BA horizon, where present:

Hue—10YR

Value—3 or 4

Chroma—2 or 3  
Texture—silty clay loam

**Bw and Bg horizons:**

Hue—10YR or 2.5Y, and 5Y in some gleyed pedons below 50 inches  
Value—4 or 5  
Chroma—2 to 4, and 1 in some gleyed pedons below 50 inches  
Texture—silty clay loam, or less commonly silt loam, and commonly containing strata of silt loam, loam, clay loam, or sandy loam below a depth of 30 inches

**Cg or C horizon:**

Hue—10YR, 2.5Y, or 5Y  
Value—4 to 6  
Chroma—1 to 3  
Texture—dominantly silty clay loam, but includes loam, clay loam, sandy loam, or silt loam. It is commonly stratified.

Some pedons have thin strata with textures that range fine sand to silt loam.

**8284A—Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded**

**Setting**

*Landform:* Flood Plain

**Soil Properties and Qualities**

*Drainage:* Somewhat poorly drained  
*Dominant parent material:* Alluvium  
*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Tice and similar soils:* 85 percent  
*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Soils that contain more sand in the lower part
- \* Areas of poorly drained soils

*Dissimilar soils:*

- \* Well drained Landes soils on natural levees

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**8812F—Typic Hapludalfs, 18 to 35 percent slopes, occasionally flooded**

**Setting**

*Landform:* Escarpment

**Soil Properties and Qualities**

*Drainage:* Well drained  
*Dominant parent material:* Lacustrine deposits  
*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

**Composition**

*Typic Hapludalfs and similar soils:* 100 percent

*Similar soils:*

- \* Areas that are more sloping
- \* Areas that are moderately eroded

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

**533—Urban land**

**Composition**

*Urban land:* 85 percent  
*Dissimilar soils:* 15 percent

*Urban land:*

- \* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

*Dissimilar soils:*

- \* Areas of orthents, loamy on highway ramps and levees
- \* Small areas of water
- \* Areas of earth fill from excavations or borrow areas

## Ursa Series

**Taxonomic Class:** Fine, smectitic, mesic Chromic Vertic Hapludalfs

### Typical Pedon for MLRA 114

Ursa silty clay loam, from an area of Ruma-Ursa silty clay loams, 18 to 35 percent slopes, severely eroded; in a hay field, on a northeast-facing lower back slope with a gradient of 20 percent at an elevation of about 470 feet above mean sea level; about 2 miles east of Floraville in St. Clair County, Illinois (map sheet Millstadt SE, IL.); approximately 1,410 feet south and 600 feet west of the northeast corner of sec. 7, T. 2 S., R. 8 W.; USGS Millstadt, IL. topographic quadrangle; lat. 38 degrees 22 minutes 38 seconds N. and long. 90 degrees 1 minute 12 seconds W.

Ap—0 to 3 inches; mixed brown (10YR 4/3) and yellowish brown (10YR 5/4) silty clay loam, pale brown (10YR 6/3) and light yellowish brown (10YR 6/4) dry; moderate very fine subangular blocky structure; friable; many very fine and few fine roots; few fine rounded black (10YR 2/1) iron-manganese nodules; about 31 percent clay, 10 percent sand, and 1 percent pebbles; slightly acid; abrupt smooth boundary.

Bt1—3 to 8 inches; yellowish brown (10YR 5/4) clay loam; moderate fine subangular blocky structure; firm; common very fine and few fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; common fine and medium rounded black (10YR 2/1) iron-manganese nodules; about 37 percent clay, 22 percent sand, and 2 percent pebbles; strongly acid; clear smooth boundary.

Bt2—8 to 17 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; very firm; few very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; common fine and medium rounded black (10YR 2/1) iron-manganese nodules; about 48 percent clay, 25 percent sand, and 5 percent pebbles; strongly acid; clear smooth boundary.

Bt3—17 to 29 inches; yellowish brown (10YR 5/6) silty clay; weak fine prismatic structure parting to moderate fine and medium angular blocky; very firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation; about 45 percent clay, 12 percent sand, and 4 percent pebbles; moderately acid; gradual smooth boundary.

Bt4—29 to 38 inches; yellowish brown (10YR 5/6) silty clay; weak medium prismatic structure parting to weak medium angular blocky; very firm; few very

fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 42 percent clay, 13 percent sand, and 2 percent pebbles; slightly acid; gradual smooth boundary.

Bt5—38 to 54 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate fine and medium angular blocky; firm; few very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds and few prominent black (10YR 2/1) iron-manganese coatings on vertical faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 38 percent clay, 15 percent sand, and 1 percent pebbles; neutral; clear smooth boundary.

Bt6—54 to 68 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; common prominent dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) clay films on faces of peds and common prominent black (10YR 2/1) iron-manganese coatings on vertical faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 36 percent clay, 15 percent sand, and 1 percent pebbles; neutral; gradual smooth boundary.

BCt—68 to 80 inches; yellowish brown (10YR 5/4) clay loam; weak medium prismatic structure; firm; common prominent grayish brown (10YR 5/2) clay films on vertical faces of peds; common medium faint pale brown (10YR 6/3) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; about 31 percent clay, 25 percent sand, and 2 percent pebbles; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of soil development:* 50 to 60 inches or more

*Thickness of loess or silty pedisegment:* 0 to 20 inches

*Depth to carbonates:* More than 60 inches, where present

Ap or A horizon:

Hue—7.5YR or 10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 or 4

Texture—typically silt loam or loam, but eroded pedons include silty clay loam, clay loam, or clay

Uneroded pedons typically have E horizons and BE or Bt horizons formed in loess or pedisement above the till

Bt or 2Bt horizon that formed in till:

Hue—7.5YR or 10YR, and the lower part of some pedons have hue of 2.5Y or 5Y

Value—4 to 6

Chroma—3 to 8, and the lower part of some pedons have chroma of 1 to 8

Texture—loam, clay loam, silty clay loam, silty clay, or clay

BC or 2BC horizon:

Hue—7.5YR or 10YR, and less commonly 2.5Y or 5Y

Value—4 to 6

Chroma—1 to 6

Texture—loam, clay loam, silty clay, or clay

C or 2C horizon:

Hue—7.5YR or 10YR, and less commonly 2.5Y or 5Y

Value—4 to 6

Chroma—1 to 6

Texture—loam, clay loam, silty clay, or clay

Some pedons contain buried horizons of older soils beneath the modern soil.

## Virден Series

**Taxonomic Class:** Fine, smectitic, mesic Vertic Argiaquolls

### Typical Pedon for MLRA 114

Virден silt loam, slightly depressional in a cultivated field, at an elevation of about 421 feet above mean sea level; about 2 miles east of Mascoutah in St. Clair County, Illinois (map sheet Mascoutah NE, IL.); 1,410 feet south and 2,000 feet east of the NW corner of sec. 34, T. 1 N., R. 6 W.; USGS Mascoutah, IL. topographic quadrangle; lat. 38 degrees 29 minutes 28 seconds N. and long. 89 degrees 45 minutes 14 seconds W.

Ap—0 to 10 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; many very fine roots; about 25 percent clay; neutral; clear smooth boundary.

A—10 to 15 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure parting to moderate medium granular; firm; common very fine roots; few fine rounded very dark brown (7.5YR 2.5/2) masses of

iron-manganese accumulation; about 26 percent clay; neutral; clear smooth boundary.

Btg1—15 to 22 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate fine prismatic structure parting to moderate fine angular blocky; firm; common very fine roots; many distinct black (10YR 2/1) organo-clay films on faces of peds; few fine distinct brown (10YR 4/3) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 38 percent clay; neutral; clear smooth boundary.

Btg2—22 to 38 inches; grayish brown (2.5Y 5/2) silty clay loam; strong medium prismatic structure parting to moderate medium angular blocky; firm; common very fine roots; many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 37 percent clay; slightly acid; clear smooth boundary.

Btg3—38 to 52 inches; gray (2.5Y 5/1) silty clay loam; moderate medium prismatic structure parting to weak medium angular blocky; firm; few very fine roots; many distinct dark gray (10YR 4/1) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 36 percent clay; slightly acid; clear smooth boundary.

Btg4—52 to 66 inches; gray (2.5Y 5/1) silty clay loam; weak medium prismatic structure parting to weak coarse angular blocky; firm; few very fine roots; common distinct dark gray (10YR 4/1) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium and coarse rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; about 33 percent clay; neutral; gradual smooth boundary.

BCtg—66 to 74 inches; gray (2.5Y 6/1) silty clay loam; weak coarse subangular blocky structure; friable; few very fine roots; few distinct dark gray (10YR 4/1) clay films lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 28 percent clay; neutral; gradual smooth boundary.

Cg—74 to 86 inches; gray (2.5Y 6/1) silt loam; massive; friable; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 26 percent clay; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 40 to 60 inches or more

*Thickness of the mollic epipedon:* 10 to 24 inches, and commonly extends into the upper part of the B horizon

*Thickness of loess:* 60 to 80 inches or more

*Depth to carbonates:* Below 50 inches, where present

Ap, A, or AB horizons:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2

Texture—silt loam or silty clay loam

Btg and BCtg horizons:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—2 to 6

Chroma—0 to 2

Texture—silty clay loam, silty clay, or silt loam

Cg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silty clay loam or silt loam

### 50A—Virden silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluve

#### Soil Properties and Qualities

*Drainage:* Poorly drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Virden and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

#### Similar soils:

\* Soils that contain more clay in the surface layer

\* Areas of somewhat poorly drained soils

\* Soils with a concentration of exchangeable sodium in the subsoil

#### Dissimilar soils:

\* Piasa soils that have a natric horizon

\* Small areas of depressional soils that remain wet for periods that extend into the growing season

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Agronomy” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

### 885A—Virden-Fosterburg silt loams, 0 to 2 percent slopes

#### Setting

#### Landform:

\* Virden—Till Plain

\* Fosterburg—Till Plain

#### Position on Landform:

\* Virden—Interfluve

\* Fosterburg—Interfluve

#### Soil Properties and Qualities

#### Drainage:

\* Virden—Poorly drained

\* Fosterburg—Poorly drained

#### Dominant parent material:

\* Virden—Loess

\* Fosterburg—Loess

#### Flooding frequency:

\* Virden—None

\* Fosterburg—None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Virden and similar soils:* 50 percent

*Fosterburg and similar soils:* 40 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

- \* Areas of somewhat poorly drained soils
- \* Soils that have a thinner dark surface horizon

*Dissimilar soils:*

- \* Small areas of depressional soils that remain wet for periods that extend into the growing season

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

**Wabash Series**

**Taxonomic Class:** Fine, smectitic, mesic Cumulic Vertic Endoaquolls

**Typical Pedon for MLRA 114**

Wabash silty clay, slightly depressional, in a cultivated field, at an elevation of about 405 feet above mean sea level; about 3 miles southeast of Albers in Clinton County, Illinois; approximately 1,320 feet south and 620 feet east of the northwest corner of sec. 20, T. 1 N., R. 4 W.; USGS Breese, IL. topographic quadrangle; lat. 38 degrees 31 minutes 12 seconds N. and long. 89 degrees 34 minutes 8 seconds W.

Ap—0 to 10 inches; very dark gray (10YR 3/1) silty clay, gray (10YR 5/1) dry; moderate medium angular blocky structure; firm; common very fine and fine roots; many faint very dark gray (10YR 3/1) pressure faces on faces of peds; common fine and medium irregular brown (7.5YR 4/4) masses of iron-manganese accumulation; about 51 percent clay; moderately acid; abrupt smooth boundary.

A1—10 to 26 inches; black (N 2.5/0) silty clay, very dark gray (N 3/0) dry; strong medium prismatic structure parting to strong medium angular blocky; very firm; common very fine roots; many distinct black (N 2.5/0) organo-clay films on faces of peds; common fine and medium irregular brown (7.5YR 4/4) masses of iron-manganese accumulation; about 53 percent clay; moderately acid; clear smooth boundary.

A2—26 to 54 inches; black (N 2.5/0) silty clay, very dark gray (N 3/0) dry; strong medium prismatic structure parting to strong fine angular blocky; very firm; few very fine roots; many distinct black (N 2.5/0) organo-clay films on faces of peds;

common fine and medium irregular brown (7.5YR 4/4) masses of iron-manganese accumulation and few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 52 percent clay; slightly acid; clear smooth boundary.

Bg1—54 to 68 inches; dark gray (5Y 4/1) silty clay; strong medium prismatic structure parting to strong fine angular blocky; very firm; few very fine roots; many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; common fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation and few medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 48 percent clay; slightly acid; clear smooth boundary.

Bg2—68 to 78 inches; dark gray (5Y 4/1) silty clay; strong medium prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots; common distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; common fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese and few medium rounded black (N 2.5/0) iron-manganese nodules with sharp boundaries; about 46 percent clay; slightly acid; clear smooth boundary.

BCg—78 to 86 inches; gray (5Y 5/1) silty clay; moderate medium prismatic parting to moderate fine and medium angular blocky; firm; few prominent very dark gray (10YR 3/1) organo-clay films on vertical faces of peds and lining root channels; common fine and medium irregular strong brown (7.5YR 5/6) masses of iron-manganese and few medium rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; few very dark gray (10YR 3/1) krotovinas; about 43 percent clay; slightly acid.

**MLRA Series Range in Characteristics**

*Depth to the base of soil development:* More than 60 inches

*Thickness of the mollic epipedon:* More than 36 inches

*Depth to carbonates:* More than 40 inches, where present

Ap and A horizons:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—2 or 3 (3 to 5 dry)

Chroma—0 to 2

Texture—silty clay or clay, and overwash phases include silty clay loam or silt loam

Bg horizon and BCg horizon, where present:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—2 to 5

Chroma—0 to 2  
Texture—silty clay or clay

Cg horizon, where present:  
Hue—10YR, 2.5Y, 5Y, or neutral  
Value—4 to 6  
Chroma—0 to 2  
Texture—silty clay loam, silty clay, or clay

### 3083L—Wabash silty clay, 0 to 2 percent slopes, frequently flooded, long duration

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Drainage:* Very poorly drained  
*Dominant parent material:* Alluvium  
*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Wabash and similar soils:* 100 percent

*Similar soils:*

- \* Soils with a thinner mollic epipedon
- \* Soils that contain less clay throughout

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Wagner Series

**Taxonomic Class:** Fine, smectitic, mesic Vertic Albaqualfs

#### Typical Pedon for MLRA 114

Wagner silt loam, nearly level, in a cultivated field, on a lake plain at an elevation of about 395 feet above mean sea level; about 3 miles northwest of St. Libory in St. Clair County, Illinois (map sheet Venedy SW, IL.);

approximately 2,372 feet north and 650 feet west of the southeast corner of sec. 35, T. 1 S., R. 6 W.; USGS Venedy, IL. topographic quadrangle; lat. 38 degrees 23 minutes 58 seconds N. and long. 89 degrees 43 minutes 33 seconds W.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine roots; few fine constricted tubular pores; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 20 percent clay; neutral; abrupt smooth boundary.

Eg1—9 to 14 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak thick platy structure parting to moderate fine granular; friable; many very fine roots; few fine constricted tubular pores; few distinct white (10YR 8/1, dry) clay depletions on faces of peds; few fine faint gray (10YR 6/1) iron depletions and few fine faint brown (10YR 5/3) masses of iron accumulation in the matrix; common fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and common fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 21 percent clay; moderately acid; abrupt smooth boundary.

Eg2—14 to 17 inches; light brownish gray (10YR 6/2) silt loam, light gray (10YR 7/2) dry; weak medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; common distinct white (10YR 8/1, dry) clay depletions on faces of peds; common fine faint brown (10YR 5/3) masses of iron accumulation in the matrix; common fine irregular strong brown (7.5YR 5/6) and few fine rounded yellowish red (5YR 5/6) masses of iron-manganese accumulation and common fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 22 percent clay; very strongly acid; abrupt smooth boundary.

2Btg1—17 to 28 inches; dark grayish brown (10YR 4/2) silty clay; weak medium prismatic structure; very firm; few very fine roots; few prominent light gray (10YR 7/2, dry) clay depletions on faces of peds and common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; common fine irregular strong brown (7.5YR 5/6) and common fine and medium rounded yellowish red (5YR 5/6) masses of iron-manganese accumulation and few fine rounded black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 48 percent clay; very strongly acid; clear smooth boundary.

- 2Btg2—28 to 35 inches; grayish brown (2.5Y 5/2) silty clay; weak medium prismatic structure parting to weak medium angular blocky; very firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 46 percent clay; strongly acid; clear smooth boundary.
- 2Btg3—35 to 44 inches; olive gray (5Y 5/2) silty clay loam; moderate fine prismatic structure parting to moderate fine and medium angular blocky; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds and few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 38 percent clay; moderately acid; gradual smooth boundary.
- 2Btg4—44 to 55 inches; light olive gray (5Y 6/2) silty clay; weak medium prismatic structure parting to moderate fine angular blocky; very firm; few very fine roots; few very fine vesicular pores; common distinct grayish brown (2.5Y 5/2) clay films on faces of peds and few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; many fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 43 percent clay; slightly acid; clear smooth boundary.
- 2Btg5—55 to 67 inches; light olive gray (5Y 6/2) silty clay; weak medium prismatic structure parting to moderate medium angular blocky; very firm; few fine vesicular pores; common distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds and few prominent very dark grayish brown (10YR 3/2) organo-clay films lining root channels; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular reddish yellow (7.5YR 6/8) and yellowish red (5YR 4/6) masses of iron-manganese accumulation and few medium irregular black (10YR 2/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; few gray (2.5Y 5/1) krotovinas; about 42 percent clay; neutral; clear smooth boundary.
- 2BCtg—67 to 72 inches; gray (5Y 5/1) silty clay loam; weak coarse prismatic structure; firm; few fine

vesicular pores; common distinct dark grayish brown (2.5Y 4/2) clay films on vertical faces of peds and few prominent very dark gray (2.5Y 3/1) organo-clay films lining root channels and pores; common coarse prominent strong brown (7.5YR 4/6) and few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded yellowish red (5YR 4/6) masses of iron-manganese accumulation; about 37 percent clay; neutral; clear smooth boundary.

- 2Cg—72 to 80 inches; gray (5Y 6/1) silty clay loam; massive with widely-spaced cleavage planes; firm; few fine vesicular pores; few distinct very dark gray (2.5Y 3/1) organo-clay films lining root channels and pores; common fine and medium prominent yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation; about 32 percent clay; slightly alkaline.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* More than 48 inches

*Thickness of loess or other silty material:* 12 to 20 inches

*Depth to carbonates:* In the 2Cg horizon, where present

Ap or A horizon:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 or 2

Texture—silt loam

Eg horizon:

Hue—10YR

Value—4 to 6

Chroma—1 or 2

Texture—silt loam, or less commonly, silty clay loam

Some pedons have a B/E horizon less than 3 inches in thickness that is mostly Bt material with clay depletions on faces of peds.

2Btg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—typically silty clay or clay, but some pedons have subhorizons that are silty clay loam

Some pedons have a 2BCg horizon

2Cg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silty clay loam, silty clay, or clay; and is stratified in some pedons

## 8026A—Wagner silt loam, 0 to 2 percent slopes, occasionally flooded

### Setting

*Landform:* Lake Plain

*Position on Landform:* Broad Flat

### Soil Properties and Qualities

*Drainage:* Poorly drained

*Dominant parent material:* Lacustrine deposits

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

### Composition

*Wagner and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that contain less clay in the subsoil

\* Areas of somewhat poorly drained soils

*Dissimilar soils:*

\* Areas of short steep slopes on risers

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

## Wakeland Series

**Taxonomic Class:** Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents

### Typical Pedon for MLRA 114

Wakeland silt loam, nearly level, in a cultivated field, at an elevation of about 485 feet above mean sea level; about 2 miles northeast of Highland in Madison County, Illinois; approximately 1,600 feet north and 1,330 feet

east of the center of sec. 34, T. 4 N., R. 5 W.; USGS Grantfork, IL. topographic quadrangle; lat. 38 degrees 45 minutes 18 seconds N. and long. 89 degrees 38 minutes 27 seconds W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; very thin lenses of light gray (10YR 7/1) clean silt and very fine sand; weak fine granular structure; friable; many very fine and few fine roots; few fine continuous tubular pores; neutral; clear smooth boundary.

Cg1—8 to 34 inches; dark grayish brown (10YR 4/2) silt loam; thin lenses of light brownish gray (10YR 6/2) clean silt and very fine sand; massive; friable; few very fine roots; common very fine and fine continuous tubular pores; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; neutral; gradual smooth boundary.

Cg2—34 to 44 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; common medium faint light brownish gray (10YR 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

Cg3—44 to 68 inches; grayish brown (10YR 5/2) silt loam; massive; friable; common medium faint dark grayish brown (10YR 4/2) and light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium rounded dark brown (7.5YR 3/2) iron-manganese nodules; slightly acid; clear smooth boundary.

Ab—68 to 80 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine subangular blocky structure; friable; few fine rounded black (10YR 2/1) iron-manganese nodules; slightly acid.

### MLRA Series Range in Characteristics

Ap or A horizon:

Hue—10YR

Value—4 or 5 for Ap, 3 or 4 for A

Chroma—2 to 4 for Ap, 1 for A

Texture—silt loam

C and/or Cg horizon to a depth of about 30 inches:

Hue—10YR, and less commonly 7.5YR

Value—4 to 6

Chroma—1 to 4

Texture—silt loam

C and/or Cg horizon between a depth of 30 to 80 inches:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—1 to 6

Texture—silt loam, and below a depth of 40 inches some pedons have thin layers which range from loam to fine sandy loam

### 3333A—Wakeland silt loam, 0 to 2 percent slopes, frequently flooded

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Drainage:* Somewhat poorly drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Wakeland and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain more clay throughout
- \* Areas of poorly drained and/or moderately well drained soils
- \* Soils that have a dark buried soil above a depth of 40 inches

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Wakenda Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Typic Argiudolls

#### Typical Pedon for MLRA 115B

Wakenda silt loam, moderately sloping, in a cultivated field, at an elevation of about 500 feet above mean sea level; about 2.5 miles east of Belleville in St. Clair County, Illinois (map sheet O'Fallon SE, IL.); approximately 1,900 feet west and 1,300 feet south of

the northeast corner of sec. 30, T. 1 N., R. 7 W.; USGS O'Fallon, IL. topographic quadrangle; lat. 38 degrees 30 minutes 32 seconds N. and long. 89 degrees 55 minutes 1 second W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine and common fine roots; about 22 percent clay; slightly acid; abrupt smooth boundary.

AB—8 to 13 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine subangular blocky structure parting to moderate fine granular; friable; many very fine and few fine roots; few fine and medium continuous tubular pores; fragments of brown (10YR 4/3) subsoil mixed by cultivation; common faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; about 25 percent clay; slightly acid; clear smooth boundary.

Bt1—13 to 21 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; firm; many very fine and few fine roots; few fine continuous tubular pores; many distinct dark brown (10YR 3/3) clay films on faces of peds; about 29 percent clay; moderately acid; clear smooth boundary.

Bt2—21 to 29 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine prismatic structure parting to moderate fine and medium subangular blocky; firm; common very fine roots; few fine continuous tubular pores; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; about 32 percent clay; slightly acid; gradual smooth boundary.

Bt3—29 to 39 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots; few fine continuous tubular pores; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; about 31 percent clay; slightly acid; gradual smooth boundary.

Bt4—39 to 49 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; common very fine roots; common fine and medium continuous tubular pores; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds and few prominent dark brown (10YR 3/3) clay films lining root channels and pores; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; about 29 percent clay; slightly acid; gradual smooth boundary.

BcT—49 to 60 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium and coarse subangular blocky structure; friable; few very fine roots; few

very fine and fine vesicular and tubular pores; few faint brown (10YR 4/3) clay films on vertical faces of peds and few distinct dark brown (10YR 3/3) clay films lining root channels and pores; few fine faint brown (10YR 5/3) iron depletions and few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; about 26 percent clay; slightly acid; gradual smooth boundary.

C—60 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; very friable; few very fine roots; common fine and medium vesicular and tubular pores; few fine faint pale brown (10YR 6/3) iron depletions and few medium distinct brown (7.5YR 4/4) masses of iron accumulation in the matrix; about 21 percent clay; slightly acid.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 40 to 65 inches or more

*Thickness of the mollic epipedon:* 10 to 18 inches, but ranges to 24 inches

Ap and/or A horizons:

Hue—10YR  
Value—2 or 3 (4 or 5 dry)  
Chroma—1 to 3  
Texture—silt loam

Some pedons have a BA horizon

Bt horizon:

Hue—7.5YR or 10YR  
Value—3 or 4 in the upper part, and 4 or 5 in the lower part  
Chroma—2 to 4 in the upper part, and 3 or 4 in the lower part  
Texture—silty clay loam or silt loam

C horizon:

Hue—10YR  
Value—4 or 5  
Chroma—2 to 4  
Texture—silt loam, but silty clay loam is within the range

#### 441B—Wakenda silt loam, 2 to 5 percent slopes

##### Setting

*Landform:* Till Plain  
*Position on Landform:* Interfluvium

##### Soil Properties and Qualities

*Drainage:* Moderately well drained  
*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

##### Composition

*Wakenda and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that have a thinner dark surface horizon

\* Areas of moderately well drained soils

*Dissimilar soils:*

\* Areas of somewhat poorly drained Edwardsville soils

##### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Agronomy” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

#### 441C2—Wakenda silt loam, 5 to 10 percent slopes, eroded

##### Setting

*Landform:* Till Plain  
*Position on Landform:* Side Slope

##### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

##### Composition

*Wakenda and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Soils that have a thinner dark surface horizon

\* Areas of moderately well drained soils

*Dissimilar soils:*

\* Wakeland soils in small upland drainageways

## Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

## Wilbur Series

**Taxonomic Class:** Coarse-silty, mixed, superactive, mesic Fluvaquentic Eutrochrepts

### Typical Pedon for MLRA 115B

Wilbur silt loam, nearly level, in a cultivated field, at an elevation of about 445 feet above mean sea level; about 1 mile north of Columbia in Monroe County, Illinois (map sheet Columbia NW, IL.); approximately 1,200 feet west and 1,100 feet south of the northeast corner of sec. 9, T. 1 S., R. 10 W.; USGS Columbia, IL. topographic quadrangle; lat. 38 degrees 28 minutes 7 seconds N. and long. 90 degrees 12 minutes, 15 seconds W.

- Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; common very fine roots; few fine constricted tubular pores; about 18 percent clay; slightly acid; clear smooth boundary.
- Bw1—7 to 15 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; few very fine roots; common fine and medium continuous tubular pores; few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 17 percent clay; neutral; clear smooth boundary.
- Bw2—15 to 22 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; few very fine roots; few fine and medium continuous tubular pores; few fine faint grayish brown (10YR 5/2) iron depletions; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; about 16 percent clay; neutral; clear smooth boundary.
- Bw3—22 to 41 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; few very fine roots; common very fine and fine constricted tubular pores; common fine faint grayish brown (10YR 5/2) iron depletions;

common fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation and few fine rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries; few thin light yellowish brown (10YR 6/4) strata; about 16 percent clay; neutral; clear smooth boundary.

- Cg—41 to 65 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; few very fine roots; few fine constricted tubular pores; few fine distinct dark yellowish brown (10YR 3/4) masses of iron accumulation in the matrix; common fine irregular black (7.5YR 2.5/1) and brown (7.5YR 4/4) masses of iron-manganese accumulation; about 22 percent clay; neutral; clear smooth boundary.
- 2Ab—65 to 80 inches; very dark gray (2.5Y 3/1) silty clay loam; moderate fine subangular blocky structure; firm; common fine irregular strong brown (7.5YR 4/6) masses of iron manganese accumulation and common fine and medium rounded black (7.5YR 2.5/1) iron-manganese nodules with diffuse strong brown (7.5YR 5/6) boundaries; about 36 percent clay; slightly acid.

### MLRA Series Range in Characteristics

- Depth to the base of the cambic horizon:* 30 to 50 inches
- Depth to buried soil:* More than 60 inches, where present
- Rock fragments:* Less than 1 percent throughout
- Particle-size control section:* Averages from 10 to 17 percent clay and from 1 to 15 percent sand coarser than very fine sand - very fine sand content averages from 1 to 10 percent
- Reaction:* Moderately acid to slightly alkaline
- Ap or A horizon:  
 Hue—10YR  
 Value—4 (6 dry)  
 Chroma—2 to 4  
 Texture—silt loam
- Bw horizon:  
 Hue—10YR  
 Value—4 or 5  
 Chroma—3 to 6  
 Texture—silt loam
- C horizon:  
 Hue—10YR  
 Value—4 to 6  
 Chroma—2 to 6  
 Texture—silt loam or loam, and some pedons are stratified

### 3336A—Wilbur silt loam, 0 to 2 percent slopes, frequently flooded

#### Setting

*Landform:* Flood Plain

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Alluvium

*Flooding frequency:* Frequent

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Wilbur and similar soils:* 100 percent

*Similar soils:*

- \* Soils that contain more clay throughout
- \* Soils that have a dark buried soil above a depth of 60 inches
- \* Areas of somewhat poorly drained and/or well drained soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

### Winfield Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

#### Typical Pedon for MLRA 115B

Winfield silt loam, on a 3 percent south-facing convex slope, in a cultivated field, at an elevation of about 540 feet above mean sea level; about 3 miles north of O'Fallon in St. Clair County, Illinois (map sheet Collinsville SE, IL.); approximately 205 feet east and 610 feet south of the northwest corner of sec. 9, T. 2 N., R. 7 W.; USGS, Collinsville, IL. topographic quadrangle; lat. 38 degrees 38 minutes 32 seconds N. and long. 89 degrees 53 minutes 27 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine roots; about 22 percent clay; neutral; abrupt smooth boundary.

E—9 to 13 inches; brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry; weak medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; few faint light gray (10YR 7/2, dry) clay depletions on faces of peds; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 25 percent clay; moderately acid; clear smooth boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; few distinct light gray (10YR 7/2, dry) clay depletions along root channels; many distinct brown (10YR 4/3) clay films on faces of peds; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries; about 33 percent clay; moderately acid; clear smooth boundary.

Bt2—21 to 30 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common very fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries; about 32 percent clay; strongly acid; gradual smooth boundary.

Btg1—30 to 40 inches; light brownish gray (10YR 6/2) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/4) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; moderately acid; clear smooth boundary.

Btg2—40 to 56 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium prismatic structure parting to weak medium and coarse subangular blocky; firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many medium and coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-

manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 28 percent clay; moderately acid; clear smooth boundary.

BCtg—56 to 62 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium angular blocky structure; friable; few very fine roots; few faint brown (10YR 5/3) clay films on faces of peds; common fine and medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common medium irregular black (10YR 2/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 25 percent clay; slightly acid; gradual smooth boundary.

Cg—62 to 80 inches; light brownish gray (2.5Y 6/2) silt loam, massive; friable; common medium and coarse prominent strong brown (7.5YR 4/6) and few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular black (10YR 2/1) masses of iron manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 20 percent clay; neutral.

#### MLRA Series Range in Characteristics

*Depth to the base of the argillic horizon:* 35 to 65 inches

*Thickness of loess:* More than 80 inches

*Particle-size control section:* Clay content averages 27 to 35 percent in the particle-size control section and sand content averages less than 7 percent throughout the series control section.

*Reaction:* Very strongly acid to neutral

Ap horizon:

Hue—10YR

Value—4 or 5 (6 or 7 dry)

Chroma—2 or 3

Texture—silt loam or silty clay loam

Some pedons have an A horizon less than 6 inches in thickness with color value of 3 and chroma of 2 or 3

E horizon, where present:

Hue—10YR

Value—4 to 6

Chroma—2 to 4

Texture—silt loam or silty clay loam

BE horizon, where present:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—3 or 4

Texture—silt loam or silty clay loam

The upper part of the Bt horizon:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—3 to 6

Texture—silty clay loam

The lower part of the Bt horizon and the Btg horizon:

Hue—10YR

Value—4 to 6

Chroma—1 to 6

Texture—silt loam or silty clay loam

Some pedons have a BC or BCg horizon

C or Cg horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—1 to 4

Texture—silt loam

### 477B—Winfield silt loam, 2 to 5 percent slopes

#### Setting

*Landform:* Till Plain

*Position on Landform:* Interfluvium

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Winfield and similar soils:* 100 percent

*Similar soils:*

\* Soils that have a darker surface horizon

\* Areas of somewhat poorly drained and/or well drained soils

\* Areas of moderately eroded soils

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

### 477B2—Winfield silt loam, 2 to 5 percent slopes, eroded

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Winfield and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that contain less clay in the subsoil

\* Areas of severely eroded soils

*Dissimilar soils:*

\* Wakeland soils in small upland drainageways

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

### 477C2—Winfield silt loam, 5 to 10 percent slopes, eroded

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Winfield and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Areas of severely eroded soils

*Dissimilar soils:*

\* Wakeland soils in small upland drainageways

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* "Agronomy" section

\* "Forestland Management and Productivity" section

\* "Wildlife Habitat" section

\* "Engineering" section

\* "Soil Properties" section

### 477C3—Winfield silty clay loam, 5 to 10 percent slopes, severely eroded

#### Setting

*Landform:* Till Plain

*Position on Landform:* Side Slope

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

#### Composition

*Winfield and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

\* Soils that contain less clay in the subsoil

\* Areas of moderately eroded soils

*Dissimilar soils:*

\* Wakeland soils in small upland drainageways

### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Agronomy” section
- \* “Forestland Management and Productivity” section
- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

### 2477B—Winfield-Urban land complex, 2 to 8 percent slopes

#### Setting

##### Landform:

- \* Winfield—Till Plain

#### Soil Properties and Qualities

*Drainage:* Moderately well drained

*Dominant parent material:* Loess

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Winfield and similar soils:* 50 percent

*Urban land:* 40 percent

*Dissimilar soils:* 10 percent

##### Similar soils:

- \* Areas of somewhat poorly drained soils

##### Dissimilar soils:

- \* Wakeland soils in small upland drainageways

##### Urban land:

- \* Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* “Wildlife Habitat” section
- \* “Engineering” section
- \* “Soil Properties” section

## Worthen Series

**Taxonomic Class:** Fine-silty, mixed, superactive, mesic Cumulic Hapludolls

#### Typical Pedon for MLRA 115B

Worthen silt loam, nearly level, in a cultivated field, at an elevation of about 425 feet above mean sea level; about 1 mile north of Caseyville in St. Clair County, Illinois (map sheet Monks Mound SE, IL.); approximately 670 feet west and 1,500 feet north of the southeast corner of sec. 6, T. 2 N., R. 8 W.; USGS Monks Mound, IL. topographic quadrangle; lat. 38 degrees 38 minutes 52 seconds N. and long. 90 degrees 1 minute 26 seconds W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; common very fine roots; few very fine and fine tubular pores; about 18 percent clay; slightly acid; abrupt smooth boundary.

A—8 to 21 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; friable; common very fine roots; few very fine and fine tubular pores; about 20 percent clay; slightly acid; clear smooth boundary.

AB—21 to 30 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine subangular blocky structure parting to weak fine granular; friable; few very fine roots; common very fine and fine tubular pores; about 21 percent clay; slightly acid; clear smooth boundary.

Bw1—30 to 46 inches; brown (10YR 4/3) silt loam; weak fine and medium subangular blocky structure; friable; few very fine roots; few very fine tubular pores; very few distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels and in pores; very few distinct very pale brown (10YR 7/3, dry) clay depletions on faces of peds; about 25 percent clay; slightly acid; clear smooth boundary.

Bw2—46 to 63 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; few very fine roots; few very fine tubular pores; very few distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels and in pores; few distinct very pale brown (10YR 7/3, dry) clay depletions on faces of peds; about 23 percent clay; slightly acid; clear smooth boundary.

C—63 to 80 inches; brown (10YR 4/3) silt loam; massive; friable; about 26 percent clay; neutral.

### MLRA Series Range in Characteristics

*Depth to the base of soil development:* 30 to about 65 inches

*Thickness of the mollic epipedon:* 24 to 36 inches

*Depth to carbonates:* Some pedons contain carbonates in the C horizon below a depth of 50 inches.

Ap and A horizons:

Hue—10YR

Value—2 or 3 (4 or 5 dry)

Chroma—1 to 3

Texture—silt loam

Some pedons have an BA horizon.

Bw horizon:

Hue—7.5YR or 10YR

Value—3 or 4 in the upper part, and 4 or 5 in the lower part

Chroma—2 to 4 in the upper part, and 3 to 6 in the lower part

Texture—silt loam

Some pedons have a BC horizon.

C horizon:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—3 to 6

Texture—silt loam

### 37A—Worthen silt loam, 0 to 2 percent slopes

#### Setting

*Landform:* Alluvial Fan

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Slope alluvium

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Worthen and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that contain carbonates

\* Soils that have a thinner mollic epipedon

\* Soils that contain more clay in the subsoil and/or substratum

*Dissimilar soils:*

\* Somewhat poorly drained Littleton soils

\* Areas of Wakeland soils along drainageways

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Agronomy” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* “Soil Properties” section

### 37B—Worthen silt loam, 2 to 5 percent slopes

#### Setting

*Landform:* Alluvial Fan

#### Soil Properties and Qualities

*Drainage:* Well drained

*Dominant parent material:* Slope alluvium

*Flooding frequency:* None

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the “Soil Properties” section in Part II of this publication.

#### Composition

*Worthen and similar soils:* 90 percent

*Dissimilar soils:* 10 percent

*Similar soils:*

\* Soils that contain carbonates

\* Soils that have a thinner mollic epipedon

\* Soils that contain more clay in the subsoil and/or substratum

*Dissimilar soils:*

\* Somewhat poorly drained Littleton soils

\* Areas of Wakeland soils along drainageways

#### Management

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

\* “Agronomy” section

\* “Wildlife Habitat” section

\* “Engineering” section

\* "Soil Properties" section

## Zipp Series

**Taxonomic Class:** Fine, mixed, active, nonacid, mesic  
Vertic Endoaquepts

### Typical Pedon for MLRA 114

Zipp silty clay, in an oxbow, on a lake plain, in a cultivated field, at an elevation of about 388 feet above mean sea level; about 2.5 miles northeast of Fayetteville in St. Clair County, Illinois (map sheet Mascoutah SE, IL.); approximately 50 feet north and 1,700 feet east of the southwest corner of sec. 34, T. 1 S., R. 6 W.; USGS Mascoutah, IL. topographic quadrangle; lat. 38 degrees 23 minutes 37 seconds N. and long. 89 degrees 45 minutes 16 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) silty clay, gray (10YR 5/1) dry; weak fine angular blocky structure; firm; common very fine roots; common fine rounded black (N 2.5/0) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; moderately acid; abrupt smooth boundary.

Bg1—8 to 17 inches; dark gray (2.5Y 4/1) silty clay; weak fine prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; few fine prominent yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation; strongly acid; clear smooth boundary.

Bg2—17 to 26 inches; dark gray (2.5Y 4/1) silty clay; weak medium prismatic structure parting to weak medium angular blocky; very firm; few very fine roots; few faint gray (2.5Y 5/1) pressure faces on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; strongly acid; clear smooth boundary.

Bg3—26 to 37 inches; dark gray (2.5Y 4/1) silty clay; weak medium prismatic structure parting to weak medium and coarse angular blocky; very firm; few very fine roots; common distinct dark gray (2.5Y 4/1) pressure faces on faces of peds; few fine distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with clear strong brown (7.5YR 4/6) boundaries; slightly acid; clear smooth boundary.

Bg4—37 to 51 inches; gray (5Y 5/1) silty clay; weak medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many distinct gray (5Y 5/1) pressure faces on faces of peds; few distinct shiny olive gray (5Y 5/2) slickensides; few fine distinct gray (N 5/0) iron depletions along root channels and few fine and medium prominent light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; neutral; clear smooth boundary.

BCKg—51 to 63 inches; gray (5Y 5/1) silty clay; weak medium prismatic structure parting to weak medium and coarse angular blocky; firm; few very fine roots; few faint gray (5Y 5/1) pressure faces on faces of peds; common distinct shiny olive gray (5Y 5/2) slickensides; few fine distinct gray (N 5/0) iron depletions along root channels and few medium prominent light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; few fine irregular black (N 2.5/0) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with sharp boundaries; common fine irregular white (10YR 8/1) masses of carbonate accumulation and common medium and coarse irregular light gray (10YR 7/2) carbonate concretions with clear white (10YR 8/1) boundaries; strongly effervescent; slightly alkaline; gradual smooth boundary.

Ckg—63 to 80 inches; gray (5Y 6/1) silty clay; massive with vertical cleavage planes; firm; few distinct shiny light olive gray (5Y 6/2) slickensides; few prominent very dark gray (2.5Y 3/1) clay films lining channels; common medium distinct light gray (N 6/0) iron depletions along root channels and few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (N 2.5/0) and strong brown (7.5YR 5/6) masses of iron-manganese accumulation with sharp boundaries; few fine irregular white (10YR 8/1) masses of carbonate accumulation and few medium irregular light gray (10YR 7/2) carbonate concretions with clear white (10YR 8/1) boundaries; slightly effervescent; slightly alkaline.

### MLRA Series Range in Characteristics

*Depth to the base of the cambic horizon:* Typically 36 to 48 inches, but ranges to about 60 inches

*Depth to carbonates:* In the C horizon, where present

*Particle-size control section:* Averages 35 to 55 percent clay and 1 to 12 percent sand

*Reaction:* Moderately acid to neutral in the A and B horizons, and neutral to moderately alkaline in the C horizon

Typically, the Zipp soils in the Kaskaskia River valley are more acid in the upper part of the B horizon than stated for the Zipp series.

**A horizon:**

Hue—10YR  
Value—3 or 4  
Chroma—1 or 2  
Texture—silty clay loam or silty clay, and less commonly silt loam

**Bg horizon:**

Hue—10YR, 2.5Y, 5Y, or neutral  
Value—4 to 6  
Chroma—0 or 1  
Texture—silty clay loam or silty clay

**Cg horizon:**

Hue—10YR, 2.5Y or 5Y, or neutral  
Value—4 to 7  
Chroma—0 to 2  
Texture—silty clay or silty clay loam that can be stratified, and includes thin strata of silt loam

**8524L—Zipp silty clay, 0 to 2 percent slopes, occasionally flooded, long duration**

**Setting**

*Landform:* Lake Plain

*Position on Landform:* Broad Flat

**Soil Properties and Qualities**

*Drainage:* Very poorly drained

*Dominant parent material:* Lacustrine deposits

*Flooding frequency:* Occasional

A typical soil series description with range in characteristics is included, in alphabetical order, in this section. Additional information specific to this map unit, such as horizon depth and textures, is available in the "Soil Properties" section in Part II of this publication.

**Composition**

*Zipp and similar soils:* 85 percent

*Dissimilar soils:* 15 percent

*Similar soils:*

- \* Soils that contain less clay in the surface horizon
- \* Soils that have a darker surface horizon
- \* Soils that contain carbonates in the subsoil

*Dissimilar soils:*

- \* Areas of somewhat poorly drained soils

**Management**

For general and detailed information about managing this map unit, see the following sections in Part II of this publication:

- \* "Agronomy" section
- \* "Forestland Management and Productivity" section
- \* "Wildlife Habitat" section
- \* "Engineering" section
- \* "Soil Properties" section

# References

---

- (1) American Association of State Highway and Transportation Officials (AASHTO). 1986. Standard specifications for highway materials and methods of sampling and testing. 14th edition, 2 volumes.
- (2) American Society for Testing and Materials (ASTM). 1993. Standard classification of soils for engineering purposes. ASTM Standard D 2487.
- (3) Cowardin, L.M., and others. 1979. Classification of wetlands and deep-water habits of the United States. U.S. Fish and Wildlife Service. FWS/OBS- 79/31.
- (4) Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1. US Army Engineers Waterways Experiment Station, Vicksburg, MS.
- (5) Federal Register. July 13, 1994. Changes in Hydric Soils of the United States.
- (6) Federal Register. February 24, 1995. Hydric Soils of the United States.
- (7) Fehrenbacher, J. B., and others. 1978. Soil productivity in Illinois. University of Illinois, College of Agriculture, Cooperative Extension Service Circular 1156.
- (8) Jenny, Hans. 1941. Factors of soil formation.
- (9) National Research Council. 1995. Wetlands: Characteristics and boundaries.
- (10) Olson, K.R., and J.M. Lang. 1994. Productivity of Newly Established Illinois Soils (Including Supplements). University of Illinois-Urbana, Department of Agronomy. Agronomy Mimeo Series 1994-11.
- (11) Smith, G.D. and L. H. Smith. 1938. St. Clair County Soils. University of Illinois Agricultural Experiment Station.
- (12) Tiner, R. W., Jr. 1985. Wetlands of Delaware. Cooperative Publication. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- (13) United States Department of Agriculture. 1996. Field Indicators of Hydric Soils in the United States. G.W. Hurt, Whited, P.M., Pringle, R.F. (editors.). Natural Resources Conservation Service, Fort Worth, TX.
- (14) United States Department of Agriculture. 1961. Land capability classification. U.S. Department of Agriculture. Handbook 210.
- (15) United States Department of Agriculture. 1975. Soil Taxonomy. A basic system of soil classification for making and interpreting soil surveys. Soil Conservation Service., U. S. Department of Agriculture. Handbook 436.
- (16) U.S. Department of Agriculture. 1993. Soil Survey Manual. U.S. Department of Agriculture. Handbook 18.
- (17) United States Department of Agriculture. Soil Survey Staff. 1994. Keys to Soil Taxonomy. Sixth Edition. U.S. Department of Agriculture.
- (18) United States Department of Commerce, Bureau of the Census. 1990. 1990 Census of Population and Housing.
- (19) Wallace, D.L. 1978. Soil Survey of St. Clair County, Illinois, U.S. Department of Agriculture. Soil Conservation Service.



# Glossary

---

**Ablation till.** Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alluvial fan.** The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Animal-unit-month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Area reclaim** (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low .....	0 to 3
Low .....	3 to 6
Moderate .....	6 to 9
High .....	9 to 12
Very high.....	More than 12

**Backslope.** The geomorphic component that forms the steepest inclined surface and principalemment of many hill slopes. Backslopes in profile are commonly steep and linear and descend to a footslope. In terms of gradational process,

backslopes are erosional forms produced mainly by mass wasting and running water.

**Basal till.** Compact glacial till deposited beneath the ice.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

**Bluff.** A high bank or bold headland, with a broad, precipitous, sometimes rounded cliff face overlooking a plain or body of water, especially on the outside of a stream meander.

**Bottom land.** The normal flood plain of a stream, subject to flooding.

**Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.

**Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

**Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

**Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

**Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

**Chiseling.** Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface. A form of emergency tillage to control soil blowing.

- Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clayey soil.** Silty clay, sandy clay, or clay.
- Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- Closed depression.** A low area completely surrounded by higher ground and having no natural outlet.
- Coarse fragments.** Mineral or rock particles larger than 2 millimeters in diameter.
- Coarse textured soil.** Sand or loamy sand.
- Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
- Colluvium.** Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.
- Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.
- Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- Concretions.** Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.
- Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.
- Conservation tillage.** Any tillage and planting system in which a cover of crop residue is maintained on at least 30 percent of the soil surface after planting in order to reduce the hazard of water erosion; in areas where soil blowing is the primary concern, a system that maintains a cover of at least 1,000 pounds of flat residue of small grain or the equivalent during the critical erosion period.
- Consistence, soil.** The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:
- Loose.*—Noncoherent when dry or moist; does not hold together in a mass.
- Friable.*—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.
- Firm.*—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.
- Plastic.*—Readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.
- Sticky.*—Adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.
- Hard.*—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.
- Soft.*—When dry, breaks into powder or individual grains under very slight pressure.
- Cemented.*—Hard; little affected by moistening.
- Contour stripcropping (or contour farming).** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.
- Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.
- Coprogenous earth (sedimentary peat).** Fecal material deposited in water by aquatic organisms.
- Corrosive.** High risk of corrosion to uncoated steel or deterioration of concrete.
- Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- Cropping system.** Growing crops according to a planned system of rotation and management practices.
- Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.
- Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.
- Deep soil.** A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Deferred grazing.** Postponing grazing or arresting grazing for a prescribed period.
- Depth to rock** (in tables). Bedrock is too near the surface for the specified use.

**Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

**Drainage class (natural).** Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

*Excessively drained.*—These soils have very high and high hydraulic conductivity and a low water-holding capacity. They are not suited to crop production unless irrigated.

*Somewhat excessively drained.*—These soils have high hydraulic conductivity and a low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

*Well drained.*—These soils have an intermediate water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

*Moderately well drained.*—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of some field crops are adversely affected unless a drainage system is installed. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

*Somewhat poorly drained.*—These soils are wet close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted unless a drainage system is installed. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

*Poorly drained.*—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

*Very poorly drained.*—These soils are wet to the surface most of the time. The wetness prevents the growth of important crops (except rice) unless a drainage system is installed.

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Drainageway.** An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or

lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**Eolian soil material.** Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

*Erosion (geologic).* Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

*Erosion (accelerated).* Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, for example, fire, that exposes the surface.

**Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. The term is more often applied to cliffs resulting from differential erosion.

**Excess fines** (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

**Fast intake** (in tables). The rapid movement of water into the soil.

**Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

**Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

**Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

**Fine textured soil.** Sandy clay, silty clay, or clay.

**First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.

**Flat.** The low-lying, exposed, flat land of a lake delta or of a lake bottom.

**Flood plain.** A nearly level alluvial plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is usually a constructional landform built of sediment deposited during overflow and lateral migration of the stream.

**Footslope.** The geomorphic component that forms the inner, gently inclined surface at the base of a hill slope. The surface profile is dominantly concave. In terms of gradational processes, a footslope is a transition zone between an upslope site of erosion (backslope) and a downslope site of deposition (toeslope).

**Forb.** Any herbaceous plant not a grass or a sedge.

**Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

**Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

**Glacial drift** (geology). Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

**Glacial outwash** (geology). Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

**Glacial till** (geology). Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

**Glaciated uplands.** Land areas that were previously covered by continental or alpine glaciers and that are at a higher elevation than the flood plain.

**Glaciofluvial deposits** (geology). Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

**Glaciolacustrine deposits.** Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

**Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

**Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

**Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

**Gravelly soil material.** Material that is 15 to 50 percent, by volume, rounded or angular rock

fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

**Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

**Ground water** (geology). Water filling all the unblocked pores of underlying material below the water table.

**Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage. A gullied map unit is one that has numerous gullies.

**Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

**Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

**Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

*O horizon.*—An organic layer of fresh and decaying plant residue.

*A horizon.*—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.*—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the number 2 precedes the letter C.

*Cr horizon.*—Sedimentary beds of consolidated sandstone and semiconsolidated and consolidated shale. Generally, roots can penetrate this horizon only along fracture planes.

*R layer.*—Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2 .....	Very low
0.2 to 0.4 .....	Low
0.4 to 0.75 .....	Moderately low
0.75 to 1.25 .....	Moderate
1.25 to 1.75 .....	Moderately high
1.75 to 2.5 .....	High
More than 2.5 .....	Very high

**Interfluve.** A landform composed of the relatively undissected upland or ridge between two adjacent ralleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

**Intermittent stream.** A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:  
*Drip (or trickle).*—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

**Kame.** A moundlike hill of glacial drift, composed chiefly of stratified sand and gravel.

**Kame terrace.** A terracelike ridge consisting of stratified sand and gravel that were deposited by a meltwater stream flowing between a melting glacier and a higher valley wall or lateral moraine and that remained after the disappearance of the ice. It is commonly pitted with kettles and has an irregular ice-contact slope.

**Lacustrine deposit** (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Lake plain.** A surface marking the floor of an extinct lake, filled in by well sorted, stratified sediments.

**Lake terrace.** A narrow shelf, partly cut and partly built, produced along a lake shore in front of a scarp line of low cliffs and later exposed when the water level falls.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loamy soil.** Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

**Loess.** Fine grained material, dominantly of silt-sized particles, deposited by wind.

**Low strength.** The soil is not strong enough to support loads.

**Major land resource areas (MLRA).** Major land resource areas (MLRA's) are geographically associated land resource areas. These are designated by Arabic numbers and identified by a descriptive geographic name.

**Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonates, gypsum or other soluble salts, iron oxide, and manganese oxide.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately deep soil.** A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Moraine.** An accumulation of glacial drift in a topographic landform of its own, resulting chiefly from the direct action of glacial ice. Some types are lateral, recessional, and terminal.

**Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Mottling, soil.** Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

**Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

**Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

**Natural levee.** A long, broad low ridge or embankment of sand and coarse silt, built by a stream on its flood plain and along both sides of its channel,

especially in time of flood when water overflowing the normal banks is forced to deposit the coarsest part of its load. It has a gentle slope away from the river and toward the surrounding floodplain, and its highest elevation is closest to the river bank.

**Neutral soil.** A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

**Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition.

**Outwash plain.** An extensive area of glaciofluvial material that was deposited by meltwater streams.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The downward movement of water through the soil.

**Percs slowly** (in tables). The slow movement of water through the soil, adversely affecting the specified use.

**Permeability.** The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow .....	Less than 0.06 inch
Slow .....	0.06 to 0.2 inch
Moderately slow .....	0.2 to 0.6 inch
Moderate.....	0.6 inch to 2.0 inches
Moderately rapid .....	2.0 to 6.0 inches
Rapid .....	6.0 to 20 inches
Very rapid.....	More than 20 inches

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of

moisture content within which the soil remains plastic.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plowpan.** A compacted layer formed in the soil directly below the plowed layer.

**Ponding.** Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

**Poor filter** (in tables). Because of rapid permeability or an impermeable layer near the surface, the soil may not adequately filter effluent from a waste disposal system.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid.....	Below 3.5
Extremely acid .....	3.5 to 4.4
Very strongly acid .....	4.5 to 5.0
Strongly acid .....	5.1 to 5.5
Moderately acid .....	5.6 to 6.0
Slightly acid.....	6.1 to 6.5
Neutral .....	6.6 to 7.3
Slightly alkaline .....	7.4 to 7.8
Moderately alkaline.....	7.9 to 8.4
Strongly alkaline .....	8.5 to 9.0
Very strongly alkaline.....	9.1 and higher

**Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha, alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

**Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

**Rill.** A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and

not wide enough to be an obstacle to farm machinery.

**Ridge.** A long, narrow elevation of the land surface, usually sharp crested with steep sides and forming an extended upland between valleys.

**Riser.** The vertical or steeply sloping surface, commonly one of a series, of natural steplike landforms, as those of a glacial stairway or of successive stream terraces.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

**Rock outcrop.** Exposures of bare bedrock other than lava flows and rock-lined pits.

**Rooting depth** (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

**Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

**Sandy soil.** Sand or loamy sand.

**Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

**Sedimentary rock.** Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

**Seepage** (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

**Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

**Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

**Shale.** Sedimentary rock formed by the hardening of a clay deposit.

**Shallow soil.** A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

**Shoulder slope.** The uppermost inclined surface at the top of a hillside. It is the transition zone from the backslope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

**Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Side Slope.** The slope bounding a drainageway and lying between the drainageway and the adjacent interfluvium. It is generally linear along the slope width and overland flow is parallel down the slope.

**Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant or dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey the following simple slope classes are recognized:

Nearly level.....	0 to 2 percent
Gently sloping .....	2 to 5 percent
Moderately sloping .....	5 to 10 percent
Strongly sloping.....	10 to 18 percent
Steep.....	18 to 35 percent
Very steep .....	35 to 70 percent

The following complex slope classes are recognized:

Undulating .....	1 to 8 percent
Rolling .....	4 to 16 percent

**Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Slow intake** (in tables). The slow movement of water into the soil.

**Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

**Small stones** (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

**Soil quality.** Soil quality is the fitness of a specific kind of soil to function within its surroundings, support plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand .....	2.0 to 1.0
Coarse sand .....	1.0 to 0.5
Medium sand .....	0.5 to 0.25
Fine sand .....	0.25 to 0.10
Very fine sand .....	0.10 to 0.05
Silt.....	0.05 to 0.002
Clay.....	Less than 0.002

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 6 to 15 inches (15 to 38 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Stream channel.** The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

**Stream terrace.** One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

**Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

- Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are: *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).
- Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.
- Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.
- Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter or loosen a layer that is restrictive to roots.
- Substratum.** The part of the soil below the solum.
- Subsurface layer.** Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.
- Summit.** A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.
- Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."
- Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.
- Terminal moraine.** A belt of thick glacial drift that generally marks the termination of important glacial advances. It commonly is a massive arcuate ridge or complex of ridges underlain by till and other types of drift.
- Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.
- Terrace** (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.
- Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."
- Thin layer** (in tables). Otherwise suitable soil material too thin for the specified use.
- Till plain.** An extensive nearly level to gently rolling or moderately sloping area that is underlain by or consists of till and that has a slope of 0 to 8 percent.
- Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- Toeslope.** The outermost inclined surface at the base of a hill. Toeslopes are commonly gentle and linear in profile.
- Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.
- Tread.** The flat or gently sloping surface of natural step-like landforms, commonly one of a series, such as successive stream terraces.
- Understory.** Any plants in a forest community that grow to a height of less than 5 feet.
- Upland** (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.
- Urban land.** Areas covered by buildings, dwellings, roads, streets, parking lots, and lawns and gardens.
- Variation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.
- Very deep soil.** A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Very shallow soil.** A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Weathering.** All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.
- Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.
- Wilting point (or permanent wilting point).** The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

**Windthrow.** The action of uprooting and tipping over trees by the wind.

# Tables

---

Table 1.—Temperature and Precipitation  
(Recorded in the period 1961-90 at Belleville, Illinois)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 yrs in 10 will have--		Average number of growing degree days*	Average	2 yrs in 10 will have--		Average number of days with 0.1 inch or more	Average total snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
January---	38.8	20.0	29.4	69	-14	5	1.86	0.61	2.89	3	6.0
February--	43.9	24.2	34.1	72	-6	11	2.18	1.01	3.19	3	4.1
March-----	55.9	34.4	45.1	82	9	75	3.51	2.19	4.70	6	2.6
April-----	67.7	44.1	55.9	88	24	224	3.39	1.98	4.64	6	0.8
May-----	76.8	52.8	64.8	91	32	455	4.04	2.20	5.67	6	0.0
June-----	85.3	61.6	73.4	96	44	700	3.72	2.12	5.15	6	0.0
July-----	89.2	65.4	77.3	1 00	49	834	3.45	1.60	5.04	5	0.0
August----	87.0	62.7	74.8	99	46	759	3.37	1.58	4.92	4	0.0
September-	80.9	55.8	68.4	96	35	546	3.25	1.41	4.82	4	0.0
October---	70.2	44.3	57.2	89	24	253	2.80	1.27	4.12	5	0.0
November--	56.1	35.6	45.8	78	13	70	3.44	1.25	5.26	5	0.6
December--	42.9	25.4	34.1	69	3	12	3.10	1.23	4.68	4	3.3
Yearly :											
Average-	66.2	43.9	55.0	---	---	---	---	---	---	---	---
Extreme-	108	27	---	1 02	14	---	---	---	---	---	---
Total---	---	---	---	---	---	3,945	38.13	32.25	43.77	57	17.4

\*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50.0 degrees F).

Table 2.-Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Belleville, Illinois)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 7	April 18	May 1
2 year in 10 later than--	April 1	April 13	April 26
5 year in 10 later than--	March 21	April 3	April 16
First freezing temperature in fall:			
1 yr in 10 earlier than--	October 21	October 5	September 26
2 yr in 10 earlier than--	October 27	October 11	October 2
5 yr in 10 earlier than--	November 7	October 22	October 14

Table 3.-Growing Season

(Recorded in the period 1961-90 at Belleville, Illinois)

Probability	Daily minimum temperature during growing season		
	Number of days higher than 24 °F	Number of days higher than 28 °F	Number of days higher than 32 °F
9 years in 10	203	176	156
8 years in 10	212	185	164
5 years in 10	230	201	180
2 years in 10	247	218	196
1 year in 10	256	227	204

Table 4.—Classification of the Soils

(An asterisk in the first column indicates that some soil map units are taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Alvin.....	Coarse-loamy, mixed, superactive, mesic Typic Hapludalfs
Atlas.....	Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs
Aviston.....	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
Bartelso.....	Fine, mixed, superactive, mesic Aquertic Argiudolls
Beaucoup.....	Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls
Bethalto.....	Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs
Biddle.....	Fine, smectitic, mesic Aquertic Argiudolls
Birds.....	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
Blair.....	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Blake.....	Fine-silty, mixed, superactive, calcareous, mesic Aquic Udifluvents
Bold.....	Coarse-silty, mixed, superactive, calcareous, mesic Typic Udorthents
Bunkum.....	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Caseyville.....	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs
Coffeen.....	Coarse-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Colp.....	Fine, smectitic, mesic Aquertic Chromic Hapludalfs
Coulterville.....	Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs
Cowden.....	Fine, smectitic, mesic Vertic Albaqualfs
Darmstadt.....	Fine-silty, mixed, superactive, mesic Albic Natraqualfs
Darwin.....	Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls
Downsouth.....	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Drury.....	Fine-silty, mixed, superactive, mesic Dystric Eutrochrepts
Dupo.....	Coarse-silty over clayey, mixed over smectitic, superactive, nonacid, mesic Aquic Udifluvents
Edwardsville.....	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Floraville.....	Fine, smectitic, mesic Chromic Vertic Albaqualfs
Fluvaquents, loamy.....	Fluvaquents, loamy, mixed, superactive, nonacid, mesic
Fluvaquents.....	Fluvaquents, loamy, mixed, superactive, nonacid, mesic
Fosterburg.....	Fine, smectitic, mesic Vertic Argiaquolls
Fults.....	Fine, smectitic, mesic Vertic Endoaquolls
Geff.....	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Gorham.....	Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls
Grantfork.....	Fine-loamy, mixed, superactive, mesic Aeric Epiaqualfs
Haynie.....	Coarse-silty, mixed, superactive, calcareous, mesic Mollic Udifluvents
Herrick.....	Fine, smectitic, mesic Aquertic Argiudolls
Hickory.....	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Homen.....	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Hurst.....	Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs
Lakaskia.....	Fine, mixed, superactive, mesic Vertic Argiaquolls
Landes.....	Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls
Lenzburg.....	Fine-loamy, mixed, active, calcareous, mesic Alfic Udarents
Littleton.....	Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls
Marine.....	Fine, smectitic, mesic Aeric Vertic Albaqualfs
Mascoutah.....	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
McFain.....	Clayey over loamy, smectitic over mixed, superactive, mesic Fluvaquentic Endoaquolls
Meadowbank.....	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Menfro.....	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Millstadt.....	Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs
Morristown.....	Loamy-skeletal, mixed, active, calcareous, mesic Typic Udorthents
Nameoki.....	Fine, smectitic, mesic Aquertic Hapludolls
Negley.....	Fine-loamy, mixed, active, mesic Typic Paleudalfs
Ocone.....	Fine, smectitic, mesic Udollic Epiaqualfs
Okaw.....	Fine, smectitic, mesic Chromic Vertic Albaqualfs
Orion.....	Coarse-silty, mixed, superactive, nonacid, mesic Aquic Udifluvents
Orthents, acid substratum.....	Fine-silty, mixed, active, nonacid, mesic Aquic Udorthents
Orthents, loamy.....	Fine-loamy, mixed, active, nonacid, mesic Typic Udorthents
Orthents, silty.....	Fine-silty, mixed, active, nonacid, mesic Aquic Udorthents
Orthents.....	Fine-loamy, mixed, active, nonacid, mesic Aquic Udorthents
Otter.....	Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls
Petroliia.....	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
Piasa.....	Fine, smectitic, mesic Vertic Natraqualfs
Pierron.....	Fine, smectitic, mesic Chromic Vertic Albaqualfs

Table 4.-Classification of the Soils--continued

Soil name	Family or higher taxonomic class
Racoon-----	Fine-silty, mixed, superactive, mesic Typic Endoaqualfs
Redbud-----	Fine-silty, mixed, superactive, mesic Oxyaquic HapludalFs
Ridgway-----	Fine-silty, mixed, superactive, mesic Typic HapludalFs
Rocher-----	Coarse-loamy, mixed, superactive, calcareous, mesic Typic Udifluvents
Ruma-----	Fine-silty, mixed, superactive, mesic Typic HapludalFs
Shaffton-----	Fine-loamy, mixed, superactive, mesic Fluvaquentic Hapludolls
*Swanwick-----	Fine-silty, mixed, active, nonacid, mesic Alfic Udarents
Sylvan-----	Fine-silty, mixed, superactive, mesic Typic HapludalFs
Tice-----	Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Typic HapludalFs-----	Typic HapludalFs
Ursa-----	Fine, smectitic, mesic Chromic Vertic HapludalFs
Virden-----	Fine, smectitic, mesic Vertic Argiaquolls
Wabash-----	Fine, smectitic, mesic Cumulic Vertic Endoaquolls
Wagner-----	Fine, smectitic, mesic Vertic Albaqualfs
Wakeland-----	Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents
Wakenda-----	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Wilbur-----	Coarse-silty, mixed, superactive, mesic Fluvaquentic Eutrochrepts
Winfield-----	Fine-silty, mixed, superactive, mesic Oxyaquic HapludalFs
Worthen-----	Fine-silty, mixed, superactive, mesic Cumulic Hapludolls
Zipp-----	Fine, mixed, active, nonacid, mesic Vertic Endoaquepts

Table 5.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
5C2	Blair silt loam, 5 to 10 percent slopes, eroded-----	216	*
5C3	Blair silt loam, 5 to 10 percent slopes, severely eroded-----	303	*
5D3	Blair silt loam, 10 to 18 percent slopes, severely eroded-----	315	*
8F2	Hickory silt loam, 18 to 35 percent slopes, eroded-----	636	0.1
31A	Pierron silt loam, 0 to 2 percent slopes-----	3,266	0.8
37A	Worthen silt loam, 0 to 2 percent slopes-----	456	0.1
37B	Worthen silt loam, 2 to 5 percent slopes-----	414	*
46A	Herrick silt loam, 0 to 2 percent slopes-----	14,629	3.4
50A	Virden silt loam, 0 to 2 percent slopes-----	2,049	0.5
75B	Drury silt loam, 2 to 5 percent slopes-----	488	0.1
79B	Menfro silt loam, 2 to 5 percent slopes-----	8,800	2.0
79C2	Menfro silt loam, 5 to 10 percent slopes, eroded-----	8,015	1.9
79C3	Menfro silt clay loam, 5 to 10 percent slopes, severely eroded-----	3,839	0.9
79D2	Menfro silt loam, 10 to 18 percent slopes, eroded-----	3,333	0.8
79D3	Menfro silty clay loam, 10 to 18 percent slopes, severely eroded-----	5,100	1.2
79F	Menfro silt loam, 18 to 35 percent slopes-----	4,901	1.1
79F3	Menfro silty clay loam, 18 to 35 percent slopes, severely eroded-----	3,315	0.8
79G	Menfro silt loam, 35 to 60 percent slopes-----	1,896	0.4
81A	Littleton silt loam, 0 to 2 percent slopes-----	376	*
90A	Bethalto silt loam, 0 to 2 percent slopes-----	3,464	0.8
109A	Racoon silt loam, 0 to 2 percent slopes-----	245	*
112A	Cowden silt loam, 0 to 2 percent slopes-----	2,109	0.5
113A	Oconee silt loam, 0 to 2 percent slopes-----	3,840	0.9
113B	Oconee silt loam, 2 to 5 percent slopes-----	2,128	0.5
267A	Caseyville silt loam, 0 to 2 percent slopes-----	3,705	0.9
267B	Caseyville silt loam, 2 to 5 percent slopes-----	830	0.2
283B	Downsouth silt loam, 2 to 5 percent slopes-----	1,730	0.4
283C2	Downsouth silt loam, 5 to 10 percent slopes, eroded-----	1,006	0.2
384A	Edwardsville silt loam, 0 to 2 percent slopes-----	7,852	1.8
384B	Edwardsville silt loam, 2 to 5 percent slopes-----	2,689	0.6
385A	Mascoutah silty clay loam, 0 to 2 percent slopes-----	3,794	0.9
423A	Millstadt silt loam, 0 to 2 percent slopes-----	5,606	1.3
423B	Millstadt silt loam, 2 to 5 percent slopes-----	1,856	0.4
433A	Floraville silt loam, 0 to 2 percent slopes-----	1,897	0.4
437B	Redbud silt loam, 2 to 5 percent slopes-----	1,542	0.4
437C2	Redbud silt loam, 5 to 10 percent slopes, eroded-----	2,262	0.5
438B	Aviston silt loam, 2 to 5 percent slopes-----	4,371	1.0
438C2	Aviston silt loam, 5 to 10 percent slopes, eroded-----	1,149	0.3
441B	Wakenda silt loam, 2 to 5 percent slopes-----	2,015	0.5
441C2	Wakenda silt loam, 5 to 10 percent slopes, eroded-----	1,957	0.5
466A	Bartelso silt loam, 0 to 2 percent slopes-----	3,183	0.7
468A	Lakaskia silt loam, 0 to 2 percent slopes-----	3,140	0.7
477B	Winfield silt loam, 2 to 5 percent slopes-----	11,061	2.6
477B2	Winfield silt loam, 2 to 5 percent slopes, eroded-----	612	0.1
477C3	Winfield silty clay loam, 5 to 10 percent slopes, severely eroded-----	858	0.2
477C2	Winfield silt loam, 5 to 10 percent slopes, eroded-----	4,515	1.0
491B2	Ruma silty clay loam, 2 to 5 percent slopes, eroded-----	1,249	0.3
491C3	Ruma silty clay loam, 5 to 10 percent slopes, severely eroded-----	1,710	0.4
491D3	Ruma silty clay loam, 10 to 18 percent slopes, severely eroded-----	2,297	0.5
515C3	Bunkum silty clay loam, 5 to 10 percent slopes, severely eroded-----	1,658	0.4
515C2	Bunkum silt loam, 5 to 10 percent slopes, eroded-----	361	*
515D3	Bunkum silty clay loam, 10 to 18 percent slopes, severely eroded-----	4,219	1.0
517A	Marine silt loam, 0 to 2 percent slopes-----	11,915	2.8
517B	Marine silt loam, 2 to 5 percent slopes-----	10,316	2.4
533	Urban land-----	10,208	2.4
536	Dumps-----	935	0.2
582B	Homen silt loam, 2 to 5 percent slopes-----	11,724	2.7
582B2	Homen silt loam, 2 to 5 percent slopes, eroded-----	1,665	0.4
582C2	Homen silt loam, 5 to 10 percent slopes, eroded-----	4,669	1.1
585F2	Negley loam, 18 to 35 percent slopes, eroded-----	973	0.2
801B	Orthents, silty, undulating-----	514	0.1
801D	Orthents, silty, steep-----	1,041	0.2
802B	Orthents, loamy, undulating-----	1,240	0.3
802D	Orthents, loamy, steep-----	2,465	0.6
821G	Morristown very stony silty clay loam, 35 to 70 percent slopes-----	3,623	0.8
824B	Swanwick silty clay loam, 1 to 5 percent slopes-----	462	0.1
825B	Lenzburg silty clay loam, acid substratum, 1 to 7 percent slopes-----	728	0.2
826D	Orthents, silty, acid substratum, rolling-----	323	*
864	Pits, quarries-----	673	0.2
865	Pits, gravel-----	73	*
866	Dumps, slurry-----	304	*
871B	Lenzburg gravelly silty clay loam, 1 to 7 percent slopes, stony-----	1,093	0.3

Table 5.-Acreage and Proportionate Extent of the Soils--continued

Map symbol	Soil name	Acres	Percent
871D	Lenzburg gravelly silty clay loam, 7 to 18 percent slopes, stony-----	2,304	0.5
871G	Lenzburg gravelly silty clay loam, 18 to 70 percent slopes, stony-----	4,009	0.9
878C3	Coulterville-Grantfork silty clay loams, 5 to 10 percent slopes, severely eroded-----	9,065	2.1
880B2	Coulterville-Darmstadt silt loams, 2 to 5 percent slopes, eroded-----	7,781	1.8
882A	Oconee-Darmstadt-Coulterville silt loams, 0 to 2 percent slopes-----	6,552	1.5
882B	Oconee-Coulterville-Darmstadt silt loams, 2 to 5 percent slopes-----	4,436	1.0
884C3	Bunkum-Coulterville silty clay loams, 5 to 10 percent slopes, severely eroded-----	11,988	2.8
885A	Virden-Fosterburg silt loams, 0 to 2 percent slopes-----	2,063	0.5
886F3	Ruma-Ursa silty clay loams, 18 to 35 percent slopes, severely eroded-----	6,433	1.5
894A	Herrick-Biddle-Piasa silt loams, 0 to 2 percent slopes-----	5,577	1.3
897D3	Bunkum-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded-----	7,036	1.6
906C3	Redbud-Hurst silty clay loams, 5 to 10 percent slopes, severely eroded-----	945	0.2
907D3	Redbud-Colp silty clay loams, 10 to 18 percent slopes, severely eroded-----	1,047	0.2
962F2	Sylvan-Bold silt loams, 18 to 35 percent slopes, eroded-----	4,825	1.1
962G	Sylvan-Bold silt loams, 35 to 60 percent slopes-----	1,941	0.4
993A	Cowden-Piasa silt loams, 0 to 2 percent slopes-----	12,651	2.9
1071A	Darwin silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded-----	1,632	0.4
1248A	McFain silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded-----	824	0.2
1288A	Petrolia silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded-----	2,337	0.5
2071L	Darwin-Urban land complex, 0 to 2 percent slopes, occasionally flooded, long duration-----	2,317	0.5
2079D	Menfro-Urban land complex, 8 to 15 percent slopes-----	744	0.2
2079E	Menfro-Urban land complex, 15 to 25 percent slopes-----	500	0.1
2183A	Shaffton-Urban land complex, 0 to 2 percent slopes, occasionally flooded-----	6,329	1.5
2384B	Edwardsville-Urban land complex, 1 to 4 percent slopes-----	2,842	0.7
2477B	Winfield-Urban land complex, 2 to 8 percent slopes-----	5,079	1.2
3038B	Rocher loam, 2 to 5 percent slopes, frequently flooded-----	226	*
3070L	Beaucoup silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration-----	926	0.2
3076A	Otter silt loam, 0 to 2 percent slopes, frequently flooded-----	1,115	0.3
3083L	Wabash silty clay, 0 to 2 percent slopes, frequently flooded, long duration-----	1,506	0.3
3180A	Dupo silt loam, 0 to 2 percent slopes, frequently flooded-----	1,416	0.3
3288L	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration-----	7,314	1.7
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded-----	31,924	7.4
3334L	Birds silt loam, 0 to 2 percent slopes, frequently flooded, long duration-----	3,865	0.9
3336A	Wilbur silt loam, 0 to 2 percent slopes, frequently flooded-----	736	0.2
3391A	Blake silty clay loam, 0 to 2 percent slopes, frequently flooded-----	558	0.1
3394A	Haynie silt loam, 0 to 2 percent slopes, frequently flooded-----	492	0.1
3394B	Haynie silt loam, 2 to 5 percent slopes, frequently flooded-----	107	*
3415A	Orion silt loam, 0 to 2 percent slopes, frequently flooded-----	691	0.2
3428A	Coffeen silt loam, 0 to 2 percent slopes, frequently flooded-----	42	*
3847L	Fluvaquents-Orthents complex, frequently flooded, long duration-----	1,070	0.2
5079D	Menfro silt loam, karst, 12 to 25 percent slopes, severely eroded-----	2,614	0.6
5079G	Menfro silt loam, karst, 25 to 60 percent slopes-----	2,529	0.6
5079C	Menfro silt loam, karst, 4 to 12 percent slopes, severely eroded-----	790	0.2
8026A	Wagner silt loam, 0 to 2 percent slopes, occasionally flooded-----	428	*
8070A	Beaucoup silty clay loam, 0 to 2 percent slopes, occasionally flooded-----	225	*
8071L	Darwin silty clay, 0 to 2 percent slopes, occasionally flooded, long duration-----	5,659	1.3
8084A	Okaw silt loam, 0 to 2 percent slopes, occasionally flooded-----	4,629	1.1
8109A	Raccoon silt loam, 0 to 2 percent slopes, occasionally flooded-----	387	*
8122C	Colp silty clay loam, 5 to 10 percent slopes, severely eroded, occasionally flooded-----	344	*
8122D	Colp silty clay loam, 10 to 18 percent slopes, severely eroded, occasionally flooded-----	2,068	0.5
8131B	Alvin fine sandy loam, 2 to 5 percent slopes, occasionally flooded-----	549	0.1
8162A	Gorham silty clay loam, 0 to 2 percent slopes, occasionally flooded-----	711	0.2
8180A	Dupo silt loam, 0 to 2 percent slopes, occasionally flooded-----	1,946	0.5
8183A	Shaffton clay loam, 0 to 2 percent slopes, occasionally flooded-----	3,296	0.8
8284A	Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded-----	39	*
8304B	Landes very fine sandy loam, 2 to 5 percent slopes, occasionally flooded-----	2,046	0.5
8338B	Hurst silt loam, 2 to 5 percent slopes, eroded, occasionally flooded-----	1,108	0.3
8338C	Hurst silty clay loam, 5 to 10 percent slopes, eroded, occasionally flooded-----	1,626	0.4
8338A	Hurst silt loam, 0 to 2 percent slopes, occasionally flooded-----	800	0.2
8394A	Haynie silt loam, 0 to 2 percent slopes, occasionally flooded-----	218	*
8432A	Geff silt loam, 0 to 2 percent slopes, occasionally flooded-----	572	0.1
8434B	Ridgway silt loam, 2 to 5 percent slopes, occasionally flooded-----	436	0.1
8436B	Meadowbank silt loam, 2 to 5 percent slopes, occasionally flooded-----	387	*
8489A	Hurst silt loam, sandy substratum, 0 to 2 percent slopes, occasionally flooded-----	559	0.1
8524L	Zipp silty clay, 0 to 2 percent slopes, occasionally flooded, long duration-----	1,065	0.2
8591A	Fults silty clay, 0 to 2 percent slopes, occasionally flooded-----	2,140	0.5
8592A	Nameeki silty clay, 0 to 2 percent slopes, occasionally flooded-----	964	0.2
8646A	Fluvaquents, Loamy, 0 to 2 percent slopes, occasionally flooded-----	1,620	0.4
8812F	Typic Hapludalfs, 18 to 35 percent slopes, occasionally flooded-----	12	*
	Water-----	10,123	2.3
	Total-----	431,330	100

\* Less than 0.1 percent.



# Accessibility Statement

---

This document is not accessible by screen-reader software. The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at (800) 457-3642 or by e-mail at [ServiceDesk-FTC@ftc.usda.gov](mailto:ServiceDesk-FTC@ftc.usda.gov). For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at <http://offices.sc.egov.usda.gov/locator/app>.

## **Nondiscrimination Policy**

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees, and applicants for employment on the basis of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, whether all or part of an individual's income is derived from any public assistance program, or protected genetic information. The Department prohibits discrimination in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases apply to all programs and/or employment activities.)

## **To File an Employment Complaint**

If you wish to file an employment complaint, you must contact your agency's EEO Counselor (<http://directives.sc.egov.usda.gov/33081.wba>) within 45 days of the date of the alleged discriminatory act, event, or personnel action. Additional information can be found online at [http://www.ascr.usda.gov/complaint\\_filing\\_file.html](http://www.ascr.usda.gov/complaint_filing_file.html).

## **To File a Program Complaint**

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at [http://www.ascr.usda.gov/complaint\\_filing\\_cust.html](http://www.ascr.usda.gov/complaint_filing_cust.html) or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter by mail to U.S. Department of Agriculture; Director, Office of Adjudication; 1400 Independence Avenue, S.W.; Washington, D.C. 20250-9419; by fax to (202) 690-7442; or by email to [program.intake@usda.gov](mailto:program.intake@usda.gov).

## **Persons with Disabilities**

If you are deaf, are hard of hearing, or have speech disabilities and you wish to file either an EEO or program complaint, please contact USDA through the Federal Relay Service at (800) 877-8339 or (800) 845-6136 (in Spanish).

If you have other disabilities and wish to file a program complaint, please see the contact information above. If you require alternative means of communication for program information (e.g., Braille, large print, audiotape, etc.), please contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

---

**Supplemental Nutrition Assistance Program**

For additional information dealing with Supplemental Nutrition Assistance Program (SNAP) issues, call either the USDA SNAP Hotline Number at (800) 221-5689, which is also in Spanish, or the State Information/Hotline Numbers (<http://directives.sc.egov.usda.gov/33085.wba>).

**All Other Inquires**

For information not pertaining to civil rights, please refer to the listing of the USDA Agencies and Offices (<http://directives.sc.egov.usda.gov/33086.wba>).