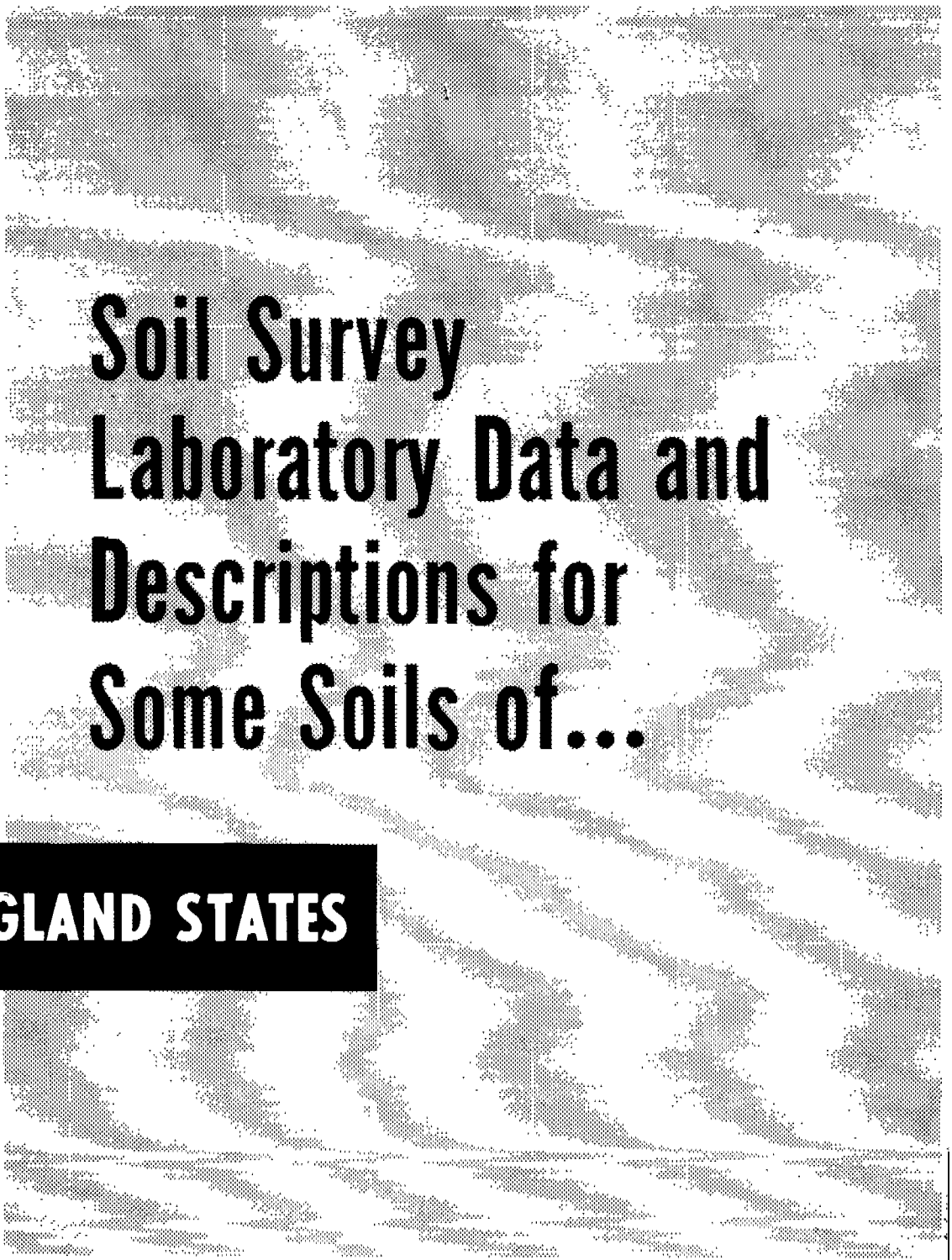
Soil Survey Investigations Report No. 20



Soil Survey Laboratory Data and Descriptions for Some Soils of...

NEW ENGLAND STATES

SOIL CONSERVATION SERVICE • U.S. DEPARTMENT OF AGRICULTURE
In cooperation with
CONNECTICUT (Storrs). MAINE, MASSACHUSETTS, NEW HAMPSHIRE,
RHODE ISLAND, AND VERMONT AGRICULTURAL EXPERIMENT STATION

Soil survey investigation reports already published are listed below:

SSIR No. 1	Soil Survey Laboratory Methods and Prodedures for Collecting Soil Samples
	Soil Survey Laboratory Data and Descriptions for Some Soils of:
SSIR No. 2	North Dakota
SSIR No. 3	Iowa
SSIR No. 4	Kansas
SSIR No. 5	Nebraska
SSIR No. 6	Arkansas, Louisiana, and Missouri
SSIR No. 7	Montana
SSIR No. 8	Wyoming
SSIR No. 9	Minnesota
SSIR No. 10	Colorado
SSIR No. 11	Oklahoma
SSIR No. 12	Puerto Rico and the Virgin Islands
SSIR No. 13	Mississippi
SSIR No. 14	Kentucky
SSIR No. 15	Tennessee
SSIR No. 16	North Carolina, South Carolina, and Georgia
SSIR No. 17	Wisconsin
SSIR No. 18	Indiana
SSIR No. 19	Illinois

Soil Survey Investigations Report No. 20

Soil Survey Laboratory Data and Descriptions for Some Soils of...

... NEW ENGLAND STATES

AUGUST 1968

SOIL CONSERVATION SERVICE • U.S. DEPARTMENT OF AGRICULTURE
In cooperation with
CONNECTICUT (Storrs), MAINE, MASSACHUSETTS, NEW HAMPSHIRE,
RHODE ISLAND, AND VERMONT AGRICULTURAL EXPERIMENT STATIONS

1. SAMPLE COLLECTION AND PREPARATION
   A. Field sampling
      1. Site selection
      2. Soil sampling
         a. Stony soils
   B. Laboratory preparation
      1. Standard (airdry)
         a. Square-hole 2-mm sieve
         b. Round-hole 2-mm sieve
      2. Field moist
      3. Carbonate-containing material
      4. Carbonate-indurated material
2. CONVENTIONS
   A. Size-fraction base for reporting
      1. <2-mm
      2. <size specified
   B. Data-sheet symbols
      tr: trace, not measurable by quantitative procedure used or less than reportable amount
      tr(s): trace, detectable only by qualitative procedure more sensitive than quantitative procedure used
      - : analysis run but none detected
      -(s): none detected by sensitive qualitative test
      blank: analysis not run
      nd: analysis not run
      <: less than reported amount or none present
3. PARTICLE-SIZE ANALYSES
   A. <2-mm fraction (pipet method)
      1. Airdry samples
         a. Carbonate and noncarbonate clay
      2. Moist samples
         a. Carbonate and noncarbonate clay
   B. >2-mm fraction
      1. Weight estimates
      2. Volume estimates
4. FABRIC-RELATED ANALYSES
   A. Bulk density
      1. Saran-coated clods
         a. Field state
         b. Airdry
         c. 30-cm absorption
         d. 1/3-bar desorption I
         e. 1/3-bar desorption II
         f. 1/3-bar desorption III
         g. 1/10-bar desorption
         h. Ovendry
      2. Paraffin-coated clods
         a. Ovendry
      3. Cores
         a. Field moist
      4. Nonpolar-liquid-saturated clods
   B. Water retention
      1. Pressure-plate extraction (1/3 or 1/10 bar)
         c. Natural clods
         d. Cores
      2. Pressure-membrane extraction (15 bars)
      3. Sand table absorption
      4. Field state
      5. Airdry
   C. Water-retention difference
      1. 1/3 bar to 15 bars
      2. 1/10 bar to 15 bars
   D. Coefficient of linear extensibility
5A. Cation-exchange capacity (cont.)
      2. NaOAc, pH 8.2
         a. Centrifuge method
      3. Sum of cations
         a. Acidity by $BaCl_2$-TEA, pH 8.2; bases by NH_4OAc, pH 7.0
      4. KOAc, pH 7.0
      5. $BaCl_2$, pH 8.2
         a. Barium by flame photometry
   B. Extractable bases
      1. NH_4OAc extraction
         a. Uncorrected
         b. Corrected (exchangeable)
      2. KCl-TEA extraction, pH 8.2
   C. Base saturation
      1. NH_4OAc, pH 7.0
      2. NaOAc, pH 8.2
      3. Sum of cations
   D. Sodium saturation (exchangeable Na pct.)
      1. NaOAc, pH 8.2
      2. NH_4OAc, pH 7.0
   E. Sodium adsorption ratio
6. CHEMICAL ANALYSES
   A. Organic carbon
      1. Acid-dichromate digestion
         a. $FeSO_4$ titration
         b. CO_2 evolution, gravimetric
      2. Dry combustion
         a. CO_2 evolution I
         b. CO_2 evolution II
      3. Peroxide digestion
         a. Weight loss
   B. Nitrogen
      1. Kjeldahl digestion
         a. Ammonia distillation
      2. Semimicro Kjeldahl
         a. Ammonia distillation
   C. Iron
      1. Dithionite extraction
         a. Dichromate titration
         b. EDTA titration
      2. Dithionite-citrate extraction
         a. Orthophenanthroline colorimetry
      3. Dithionite-citrate-bicarbonate extraction
         a. Potassium-thiocyanate colorimetry
      4. Pyrophosphate-dithionite extraction
   D. Manganese
      1. Dithionite extraction
         a. Permanganate colorimetry
   E. Calcium carbonate
      1. HCl treatment
         a. Gas volumetric
         b. Manometric
         c. Weight loss
         d. Weight gain
         e. Titrimetric
      2. Sensitive qualitative method
         a. Visual, gas bubbles
         a. Precipitation in acetone
   G. Aluminum
      1. KCl extraction I, 30 min
         a. Aluminon I
         b. Aluminon II
         c. Aluminon III
         d. Fluoride titration
      2. KCl extraction II, overnight
         a. Aluminon I
      3. NH_4OAc extraction
         a. Aluminon III
6. CHEMICAL ANALYSES (cont.)
   J. Bicarbonate
      1. Saturation extract
         a. Acid titration
   K. Chloride
      1. Saturation extract
         a. Mohr titration
         b. Potentiometric titration
   L. Sulfate
      1. Saturation extract
         a. Gravimetric, $BaSO_4$
      2. NH_4OAc extraction
         a. Gravimetric, $BaSO_4$
   M. Nitrate
      1. Saturation extract
         a. PDS acid colorimetry
   N. Calcium
      1. Saturation extract
         a. EDTA titration
      2. NH_4OAc extraction
         a. EDTA-alcohol separation
         b. Oxalate-permanganate I
         c. Oxalate-permanganate II Fe, Al, and Mn removed
         d. Oxalate-cerate
      3. NH_4Cl-EtOH extraction
         a. EDTA titration
      4. KCl-TEA extraction
         a. Oxalate-permanganate
   O. Magnesium
      1. Saturation extract
         a. EDTA titration
      2. NH_4OAc extraction
         a. EDTA-alcohol separation
         b. Phosphate titration
         c. Gravimetric, $Mg_2P_2O_7$
      3. NH_4Cl-EtOH extraction
         a. EDTA titration
   P. Sodium
      1. Saturation extract
         a. Flame photometry
      2. NH_4OAc extraction
         a. Flame photometry
   Q. Potassium
      1. Saturation extract
         a. Flame photometry
      2. NH_4OAc extraction
         a. Flame photometry
   R. Sulfur
      1. $NaHCO_3$ extraction, pH 8.5
         a. Methylene blue
   S. Total phosphorus
      1. Perchloric-acid digestion
         a. Molybdovanadophosphoric-acid colorimetry
7. MINERALOGY
   A. Instrumental analysis
      1. Preparation
         a. Carbonate removal
         b. Organic-matter removal
         c. Iron removal
         d. Particle-size fractionation
      2. X-ray diffraction
[redacted]
   f. Grain studies
   C. Total analysis
      1. Chemical
      2. X-ray emission spectrography
   D. Surface area
      1. Glycerol retention
8. MISCELLANEOUS
   A. Saturated paste, mixed
      1. Saturation extract
         a. Conductivity
      2. Conductivity, saturated paste

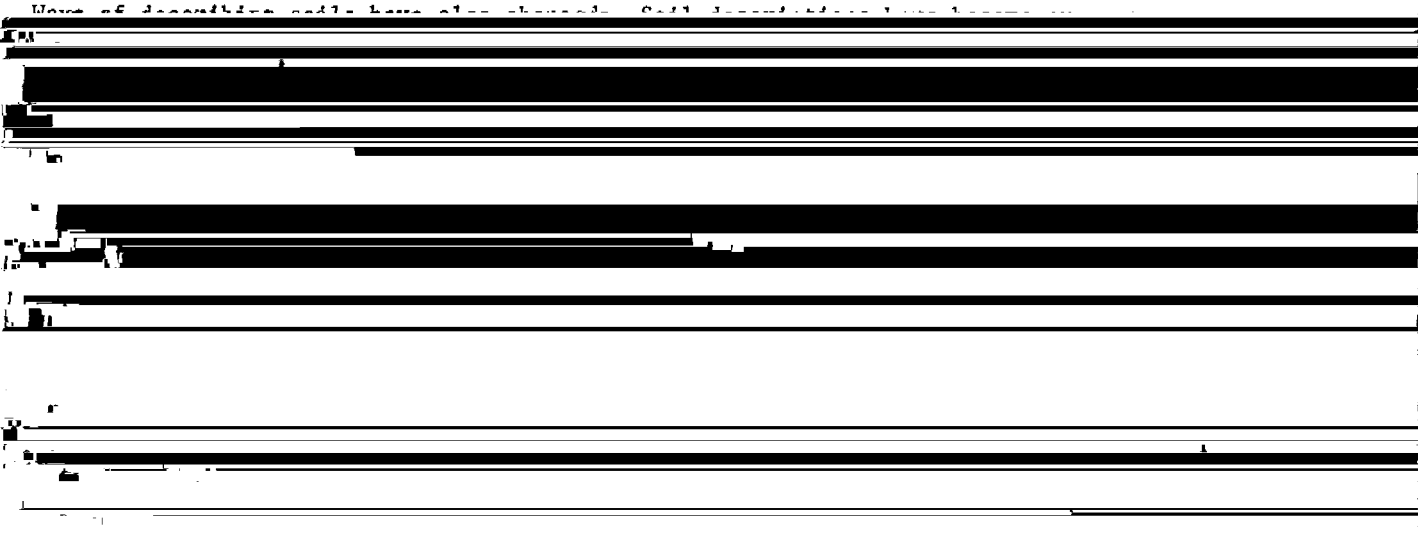
PREFACE

This publication is one in a new U.S. Department of Agriculture series established to preserve and make available technical information resulting from soil survey investigations. These investigations have been going on for about two decades. Data from them have been distributed in unpublished form to those immediately concerned. Some of the data and descriptions have appeared in technical journals, in regional bulletins, in USDA technical bulletins, and in the text of published soil surveys. But most were not available to all who might use them.

We intend to publish in this series all data from the soil survey laboratories that form reasonably complete characterizations of soils. Already-assembled data and descriptions will be published just as rapidly as they can be prepared for printing. Fragmentary data collected as reference points for specific soil surveys will not be included.

While these data were being assembled, there were many changes in laboratory methods. Some were improved and some new ones were devised. Consequently, laboratory data for different soils cannot always be directly compared without allowance for the method.

The method used is indicated by symbol in the column headings of the data table. These symbols are identified in the code sheet on the opposite page. Each method is described in the first number of this series, "Soil Survey Laboratory Methods and Procedures for Collecting Soil Samples," SSIR No. 1.



plicit on more and more features. The systems for designating horizons and for classifying soils have been changed.

The soil descriptions published here were prepared as working documents to meet a specific need of a soil survey at the time the soil samples were collected. The soil scientists who wrote them had no idea they would be published. Editing has been limited for the most part to that necessary for conformance to the "Soil Survey Manual." Field textural estimates have been retained, even though some are at variance with the laboratory data, because the field estimates themselves are important data.

There were several reasons for sampling these soils. Some were sampled to study soil genesis, some to facilitate classification, and some to obtain data to permit more useful interpretations. Those sampled for genesis or classification studies do not always fit neatly into our present concepts of soil series. Partly because of these studies, our concepts of some soil series have been modified. As a consequence, the soil series name assigned a soil at the time of sampling is not always the name that would be assigned today. Soil series names in this publication follow 1965 series definitions.

Soil Survey

CONNECTICUT

Soil Series	County	Soil Survey No.	Page
Charlton	Hartford	S58Conn-2-1	9
	Tolland	S58Conn-7-1	11
	Tolland	S58Conn-7-2	13
Gloucester	Tolland	S58Conn-7-3	15
Stockbridge	Litchfield	S56Conn-3-1	17
	Litchfield	S56Conn-3-2	19
Woodbridge	Tolland	S58Conn-7-4	21

MAINE

Soil Series	County	Soil Survey No.	Page
Bangor	Penobscot	S55Maine-10-1	23
	Penobscot	S55Maine-10-2	25
	Penobscot	S55Maine-10-6	27
Burnham	Penobscot	S59Maine-10-1	29
	Penobscot	S59Maine-10-2	31
Caribou	Aroostook	S56Maine-2-1	33
	Aroostook	S56Maine-2-4	35
	Aroostook	S58Maine-2-8	37
Conant	Aroostook	S58Maine-2-3	39
	Aroostook	S58Maine-2-4	41
Daigle	Aroostook	S58Maine-2-7	43
	Aroostook	S58Maine-2-9	45
Dixmont	Penobscot	S58Maine-10-7	47
	Penobscot	S58Maine-10-9	49
	Penobscot	S58Maine-10-10	51
	Penobscot	S58Maine-10-14	53
Easton	Aroostook	S56Maine-2-2	55
	Aroostook	S56Maine-2-3	57
	Penobscot	S56Maine-10-1	59
Monarda	Penobscot	S58Maine-10-6	61
	Penobscot	S58Maine-10-8	63
Perham	Aroostook	S58Maine-2-5	65
	Aroostook	S58Maine-2-6	67
Plaisted	Penobscot	S55Maine-10-3	69
	Penobscot	S55Maine-10-4	71
	Penobscot	S55Maine-10-5	73
Washburn	Aroostook	S59Maine-2-4	75
	Aroostook	S59Maine-2-5	77

MASSACHUSETTS

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	Franklin	S56Mass-6-4	123
	Franklin	S56Mass-6-5	125
	Hampshire	S56Mass-8-1	127
Merrimac	Hampshire	S56Mass-8-2	129
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Stockbridge	Berkshire	S60Mass-2-1	143
	Berkshire	S60Mass-2-2	145
Sudbury	Franklin	S58Mass-6-2	147
Westminster	Franklin	S62Mass-6-1	149
	Franklin	S62Mass-6-2	151
Windsor	Plymouth	S54Mass-12-5	153
Woodbridge	Hampshire	S58Mass-8-1	155
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NEW HAMPSHIRE

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Charlton	Grafton	S60NH-5-6	167
	Grafton	S60NH-5-8	169
	Rockingham	S55NH-8-1	171
	Rockingham	S55NH-8-3	173
	Strafford	S55NH-9-1	175
Gloucester	Rockingham	S55NH-8-2	177
	Rockingham	S58NH-8-2	179
Hadley	Strafford	S55NH-9-2	181
	Merrimack	S58NH-7-1	183
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	Merrimack	S57NH-7-4	187
Hinckley	Merrimack	S57NH-7-1	189
Hermon	Grafton	S60NH-5-3	191
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Winooski	Grafton	S62NH-5-1	241
	Grafton	S62NH-5-2	243
Woodbridge	Strafford	S56NH-9-2	245
	Strafford	S56NH-9-3	247
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RHODE ISLAND

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VERMONT

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	Orange	S59Vt-9-3	265
Calais	Orange	S59Vt-9-2	267
	Orange	S59Vt-9-4	269
Colrain	Orange	S59Vt-9-5	271
	Orange	S59Vt-9-6	273
Hadley	Washington	S61Vt-12-7	275
	Washington	S61Vt-12-8	277
	Washington	S61Vt-12-9	279
	Washington	S61Vt-12-15	281
Marlow	Washington	S61Vt-12-12	283
Paxton	Washington	S61Vt-12-13	285
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CONNECTICUT

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Litchfield	Stockbridge	S56Conn-3-1	17
	Stockbridge	S56Conn-3-2	19
Tolland	Charlton	S58Conn-7-1	11
	Charlton	S58Conn-7-2	13
	Gloucester	S58Conn-7-3	15
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MAINE

County	Soil Series	Soil Survey No.	Page
Aroostook	Caribou	S56Maine-2-1	33
	Caribou	S56Maine-2-4	35
	Caribou	S58Maine-2-8	37
	Conant	S58Maine-2-3	39
	Conant	S58Maine-2-4	41
	Daigle	S58Maine-2-7	43
	Daigle	S58Maine-2-9	45
	Easton	S56Maine-2-2	55
	Easton	S56Maine-2-3	57
	Perham	S58Maine-2-5	65
	Perham	S58Maine-2-6	67
	Washburn	S59Maine-2-4	75
	Washburn	S59Maine-2-5	77
Penobscot	Bangor	S55Maine-10-1	23
	Bangor	S55Maine-10-2	25
	Bangor	S55Maine-10-6	27
	Burnham	S59Maine-10-1	29
	Burnham	S59Maine-10-2	31
	Dixmont	S58Maine-10-7	47
	Dixmont	S58Maine-10-9	49
	Dixmont	S58Maine-10-10	51
	Dixmont	S58Maine-10-14	53
	Easton	S56Maine-10-1	59
	Monarda	S58Maine-10-6	61
	Monarda	S58Maine-10-8	63
	Plaisted	S55Maine-10-3	69
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MASSACHUSETTS

County	Soil Series	Soil Survey No.	Page
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Berkshire	Amenia	S60Mass-2-3	81
	Amenia	S60Mass-2-4	83
	Lenox	S60Mass-2-5	115
	Lenox	S60Mass-2-6	117
	Pittsfield	S60Mass-2-7	137
	Pittsfield	S60Mass-2-8	139
	Stockbridge	S60Mass-2-1	143
	Stockbridge	S60Mass-2-2	145
Bristol	Deerfield	S59Mass-3-1	93
	Ninigret	S59Mass-3-2	131
Franklin	Gloucester	S56Mass-6-6	103
	Gloucester	S56Mass-6-7	105
	Hinckley	S56Mass-6-2	107
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	Marlow	S55Mass-6-1	119
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	Westminster	S62Mass-6-2	151
Hampshire	Leicester	S58Mass-8-4	111
	Leicester	S58Mass-8-6	113
	Marlow	S55Mass-8-1	121
	Marlow	S56Mass-8-1	127
	Merrimac	S56Mass-8-2	129
	Woodbridge	S58Mass-8-1	155
	Woodbridge	S58Mass-8-2	157
Plymouth	Agawam	S54Mass-12-6	79
	Carver	S57Mass-12-2	85
	Carver	S57Mass-12-5	87
	Carver	S59Mass-12-1	89
	Carver	S59Mass-12-2	91
	Essex	S57Mass-12-1	99
	Essex	S57Mass-12-3	101
	Ridgebury	S57Mass-12-4	141
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	Charlton	S60NH-5-6	167
	Charlton	S60NH-5-8	169
	Hermon	S60NH-5-3	191
	Paxton	S60NH-5-5	203
	Paxton	S60NH-5-7	205
	Peru	S62NH-5-3	211
	Peru	S62NH-5-4	213
	Podunk	S62NH-5-5	215
	Podunk	S62NH-5-6	217
	Waumbek	S60NH-5-1	237
	Waumbek	S60NH-5-2	239
	Winooski	S62NH-5-1	241
	Winooski	S62NH-5-2	243
Merrimack	Au Gres	S59NH-7-1	159
	Hadley	S58NH-7-1	183
	Hartland	S57NH-7-3	185
	Hartland	S57NH-7-4	187
	Hinckley	S57NH-7-1	189
	Ondawa	S58NH-7-2	197
	Paxton	S56NH-7-1	199
	Paxton	S56NH-7-2	201
	Ridgebury	S59NH-7-5	219
	Ridgebury	S59NH-7-6	221
	Saugatuck	S59NH-7-2	227
	Scituate	S59NH-7-3	231
	Scituate	S59NH-7-4	233
Rockingham	Buxton	S58NH-8-1	163
	Charlton	S55NH-8-1	171
	Charlton	S55NH-8-3	173
	Gloucester	S55NH-8-2	177
	Gloucester	S58NH-8-2	179
Strafford	Buxton	S58NH-9-1	165
	Charlton	S55NH-9-1	175
	Hadley	S55NH-9-2	181
	Melrose	S55NH-9-3	193
	Melrose	S57NH-9-2	195

NEW HAMPSHIRE (Continued)

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	Suffield	S57NH-9-1	235
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	Woodbridge	S56NH-9-3	247
Sullivan	Peru	S58NH-10-1	207
	Peru	S58NH-10-2	209
	Woodbridge	S59NH-10-1	249

RHODE ISLAND

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Washington	Bridgehampton	S58RI-5-2	251
	Bridgehampton	S58RI-5-3	253
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VERMONT

County	Soil Series	Soil Survey No.	Page
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	Vergennes	S58Vt-1-6	293
Grand Isle	Benson	S56Vt-7-2	259
Orange	Cabot	S59Vt-9-1	263
	Cabot	S59Vt-9-3	265
	Calais	S59Vt-9-2	267
	Calais	S59Vt-9-4	269
	Colrain	S59Vt-9-5	271
	Colrain	S59Vt-9-6	273
Washington	Buckland	S61Vt-12-11	261
	Hadley	S61Vt-12-7	275
	Hadley	S61Vt-12-8	277
	Hadley	S61Vt-12-9	279
	Hadley	S61Vt-12-15	281
	Marlow	S61Vt-12-12	283
	Paxton	S61Vt-12-13	285
	Shelburne	S61Vt-12-14	287
	Shelburne	S61Vt-12-16	289
	Woodbridge	S61Vt-12-10	295

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Charlton stony fine sandy loam SOIL Nos. S58Conn-2-1 LOCATION Hartford County, Connecticut

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58449-58455

Depth (In.)	Horizon	1Elb Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments: 2A2 >2 Pct.	2 – 19 Pct. of <76mm	19 – 76 Pct. of <76mm
		Pct. of < 2 mm																
0-1/2	A1						organic											
1/2-1 1/2	A1-A2		33.2	6.0	5.0	8.2	8.7	22.1	16.8		17.9	45.4						
1 1/2-5	B21		34.7	7.0	4.4	7.6	8.2	21.5	16.6		17.8	46.1						
5-11 1/2	B22		30.7	5.5	6.7	8.1	8.6	22.6	17.8		15.1	46.7						
11 1/2-17	B23		33.0	3.2	6.3	8.0	8.5	22.4	18.6		15.9	49.1						
17-23	B3		32.6	2.9	5.3	8.0	8.8	23.4	19.0		15.1	50.4						
23-36	C		22.5	0.6	5.9	9.2	11.9	30.9	19.0		12.4	46.4						

Depth (In.)	6A1a Organic carbon Pct.	6H1a Nitrogen Pct.	C/N	6C1a Ext. iron Fe_2O_3 Pct.	Carbonate as $CaCO_3$ Pct.	Bulk density g/cc	g/cc	g/cc	Water content Pct.	Pct.	Pct.	pH 8C1a (1:1) H_2O
0-1/2	organic			1.0								
1/2-1 1/2	24.50	0.805	30	1.7								3.9
1 1/2-5	7.24	0.186	38	2.0								4.7
5-11 1/2	1.46	0.042	35	1.8								4.6
11 1/2-17	0.59	0.032	18	1.3								4.7
17-23	0.45	0.033	14	1.1								4.8
23-36	0.31			0.7								5.0

Depth (In.)	Extractable bases: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	6H1a Ext. acidity	CEC: 5A3a Sum cations	Base saturation: 5C3 Sum cations Pct.	Pct.
	meq/100 g							
0-1/2	2.0	1.0	0.1	0.4	52.7	56.2	6	
1/2-1 1/2	0.1	0.2	tr.	0.2	23.2	23.7	2	
1-1/2-5	0.1	0.1	0.1	0.1	11.5	11.9	3	
5-11 1/2	0.2	tr.	tr.	0.1	7.2	7.5	4	
11 1/2-17	0.1	tr.	tr.	tr.	5.2	5.3	2	
17-23	0.2	tr.	tr.	tr.	5.0	5.2	4	
23-36	0.2	tr.	tr.	tr.	2.6	2.8	7	

Depth (In.)

Soil Type: Charlton stony fine sandy loam
Soil No.: S58Conn-2-1
Location: Glastonbury, Hartford County, Connecticut. 0.7 mile northeast of Lookout Tower on John Tom Hill. East of Birch Mountain Road and near the Hartford-Tolland county line.
Vegetation: White, red and black oak, red maple, gray and white birch with an understory of mountain laurel, blueberries, witch hazel, chestnut sprouts and other shrubs.

[redacted]

Drainage: Well drained.
Parent Material: Glacial till, derived predominantly from shist.
Sampled by: Alexander, Flach, Grossman, Waggoner, Hill, Sawhney, de Roo, and Shearin.
Described by: Shearin

Horizon and
Beltsville
Lab. Number

O1 1-1/2 to 1/2 inches. Undecomposed litter.
Not sampled

O2 1/2 to 0 inches. Black (10YR 2/1) and very dark brown (10YR 2/2) partially decomposed litter.
Not sampled

A1 0 to 1/2 inches. Sampled but not described.
58449

A1 - A2 1/2 to 1-1/2 inches. Very dark grayish brown (10YR 3/2) and dark brown (10YR 3/3) fine sandy
58450 loam; massive; well matted with fine roots; boundary abrupt.

B21 1-1/2 to 5 inches. Dark brown (7.5YR 4/4) fine sandy loam, but close to a silt loam; very
58451 weak medium and coarse subangular blocky structure; very friable; coarse skeleton 15 - 20 percent; boundary clear.

B22 5 to 11-1/2 inches. [redacted]

[redacted]

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Charlton stony fine sandy loam SOIL Nos. S58Conn-7-1 LOCATION Tolland County, Connecticut

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58443-58448

Depth (In.)	Horizon	Size class and particle diameter (mm) 3A1 — 1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	Coarse fragments: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm														
1 1/2-1/2	O1				Not sampled											
1/2-0	O2				Not sampled											
0-1	A1		32.3	6.7	3.2	8.9	9.5	21.6	17.8		14.4	47.9				
1-5 1/2	B21		34.2	7.8	2.9	7.6	9.2	20.0	18.3		14.5	49.2				
5 1/2-16	B22		32.6	6.6	3.3	8.2	9.6	21.0	18.7		13.2	50.2				
16-26	B23		30.2	3.6	3.2	9.8	10.3	22.9	20.0		11.5	52.2				
26-45	C1m		31.7	5.8	3.2	8.3	9.8	21.8	19.4		16.2	47.4				
45-54	C2		21.8	2.2	3.2	10.0	12.7	27.6	22.5		5.4	54.8				

Depth (In.)	6A1a Organic carbon Pct.	6H1a Nitrogen Pct.	C/N	6C1a Ext. Iron as Fe_2O_3 Pct.	Carbonate as $CaCO_3$ Pct.		Bulk density g/cc	g/cc	g/cc		Water content Pct.	Pct.	Pct.		pH 8C1a (1:1) H_2O
1 1/2-1/2	Not sampled														
1/2-0	Not sampled														
0-1	5.36	0.141	38	1.3											4.0
1-5 1/2	0.98	0.44	22	1.4											4.6
5 1/2-16	0.29			1.4											4.6
16-26	0.26			0.9											4.9
26-45	0.10			0.9											5.3
45-54	0.04			0.6											5.6

Depth (In.)	Extractable bases: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	5B1a 6H1a Ext. acidity	CEC: 5A3a Sum cations								Base saturation: 5C3 Sum cations Pct.	Pct.
	meq/100 g														
1 1/2-1/2	Not sampled														
1/2-0	Not sampled														
0-1	0.2	0.1	0.1	0.3	16.4	17.1								4	
1-5 1/2	0.2	tr.	tr.	0.1	9.6	9.9								3	
5 1/2-16	0.3	0.1	tr.	0.1	8.4	8.9								6	
16-26	0.2	tr.	tr.	tr.	4.8	5.0								4	
26-45	0.5	0.1	0.1	tr.	4.3	5.0								14	
45-54	0.3	tr.	0.1	tr.	2.6	3.0								13	

Depth (In.)					

Soil Type: Charlton stony fine sandy loam
Soil No.: S58Conn-7-1
Location: Tolland, Tolland County, Connecticut. 0.9 mile southwest of Grant Hill School on the north side of New Road.
Vegetation: Mainly white oak, hickory, red maple, yellow and black birch and a few white ash; sparse undergrowth of shrubs.
Slope: 6 percent
Drainage: Well drained.
Parent Material: Glacial till, predominantly derived from shist.
Sampled by: Alexander, Flach, Grossman, Waggoner, Hill, Sawhney, de Roo, and Shearin.
Described by: Shearin

Horizon and
Beltsville
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O1 1-1/2 to 1/2 inches. Largely undecomposed leaves and organic debris.
Not sampled

O2 1/2 to 0 inches. Partially decomposed litter.
Not sampled

A1 0 to 1 inches. Very dark grayish brown (10YR 3/2) and dark brown (10YR 3/2) fine sandy loam;
58443 well matted with fine roots; massive; boundary abrupt.

B21 1 to 5-1/2 inches. Dark brown (10YR 3/3) fine sandy loam; very weak coarse subangular blocky
58444 structure; very friable; coarse skeleton about 10 percent; boundary clear.

B22 5-1/2 to 16 inches. Dark brown (7.5YR 4/4) fine sandy loam; very weak medium subangular
58445 blocky structure; very friable; coarse skeleton 15 to 20 percent; boundary clear.

B23 16 to 26 inches. Dark yellowish brown (10YR 4/4) fine sandy loam; very weak medium subangular
58446 blocky structure; very friable; coarse skeleton about 20 percent; boundary clear.

C1m 26 to 45 inches. Intermingled olive brown (2.5Y 4/4) and dark grayish brown (10YR 4/2)
58447 gravelly sandy loam with pockets of gravelly loamy coarse sand; massive. This horizon consists of firm to very firm discontinuous tongues or pockets of a weak but brittle pan mixed with very friable material in about equal proportions. Silt films are common in the weak pan.

C2 45 to 54 inches. Olive (5Y 4/3) gravelly coarse sandy loam or gravelly loamy coarse sand;

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Charlton stony fine sandy loam SOIL Nos. S58Conn-7-2. LOCATION Tolland County, Connecticut

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58456-58461

Depth (In.)	Horizon	Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05) 1B1b	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Silt: Int. II (0.2–0.02)	(2–0.1)			Coarse fragments: 2A2 ≥ 2 Pct.	Coarse fragments: 2–19 Pct. of < 76mm	Coarse fragments: 19–76 Pct. of < 76mm
		Pct. of < 2 mm																
0-1 1/2	A1-A2		31.2	4.6	4.4	12.5	13.5	21.1	12.7		13.9	41.0						
1 1/2-3	B21		32.7	4.5	4.5	12.3	13.2	20.4	12.4		15.3	40.6						
3-10 1/2	B22		30.2	6.7	5.0	13.6	13.2	19.4	11.9		12.9	39.2						
10 1/2-18	B23		31.0	5.9	4.7	12.1	12.0	19.9	14.4		12.5	43.9						
18-22	C1		20.6	1.1	7.7	14.6	14.8	25.0	16.2		8.4	42.0						
22-30+	C2		16.8	0.2	7.8	18.1	16.0	25.1	16.0		6.4	39.6						

Depth (In.)	6A1a Organic carbon Pct.	6H1a Nitrogen Pct.	C/N	6C1a Ext. iron as Fe_2O_3 Pct.	Carbonate as $CaCO_3$ Pct.		Bulk density g/cc	g/cc	g/cc		Water content Pct.	Pct.	Pct.			pH 8C1a (1:1) H_2O
0-1 1/2	6.70	0.181	37	1.0												3.8
1 1/2-3	3.01	0.104	29	1.4												4.7
3-10 1/2	0.65	0.035	18	1.2												4.7
10 1/2-18	0.33			1.0												4.6
18-22	0.18			0.5												5.0
22-30+	0.08			0.2												5.3

Depth (In.)	Extractable bases 5H1a: 6N2d Ca	602b Mg	6P2a Na	6Q2a K	6H1a Ext. acidity	CEC: 5A3a Sum cations									Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g															
0-1 1/2	0.1	tr.	0.1	0.1	22.5	22.8									1	
1 1/2-3	0.1	tr.	0.1	0.1	20.3	20.6									1	
3-10 1/2	0.1	tr.	tr.	0.1	5.6	5.8									3	
10 1/2-18	0.2	0.1	0.2	0.1	3.2	3.8									16	
18-22	0.1	tr.	0.1	0.1	3.0	3.3									9	
22-30+	tr.	tr.	tr.	tr.	1.7	1.7										

Depth (In.)

Soil Type: Charlton stony fine sandy loam
Soil Number: S58Conn-7-2
Location: Ellington, Tolland County, Connecticut. About 2.2 miles southwest of Crystal Lake on the south side of Crystal Lake Road. One-tenth of a mile west of junction of Crystal Lake and Shenipsit Lake Roads.
Vegetation: Mainly white and black oak, red maple, and chestnut sprouts with a few young white pine. Sparse undergrowth of low bush blueberry and other shrubs.
Slope: 2 percent
Drainage: Well to somewhat excessively drained.
Parent Material: Glacial till, derived predominantly from granitoid gneiss.
Sampled by: Alexander, Flach, Grossman, Waggoner, Hill, Sawhney, and Shearin.
Described by: Shearin

Horizon and
Beltsville
Lab. Number

O1 - O2 1-1/2 to 0 inches. Undecomposed and partially decomposed leaves and other organic debris.
not sampled

A1 - A2 0 to 1-1/2 inches. Very dark grayish brown (10YR 3/2) (A-1) and dark brown (10YR 3/3) (A-2)
58456 fine sandy loam with white sand grains prominent; well matted with fine roots; boundary abrupt.

B21 1-1/2 to 3 inches. Dark brown (10YR 4/3) fine sandy loam; very weak medium and coarse
58457 subangular blocky structure; very friable; coarse skeleton about 15 percent; boundary clear.

B22 3 to 10-1/2 inches. Yellowish brown (10YR 5/8) gravelly, fine sandy loam; very weak medium
58458 and coarse subangular blocky structure; very friable; boundary clear.

B23 10-1/2 to 18 inches. Yellowish brown (10YR 5/6) gravelly, sandy loam very weak medium and
58459 coarse subangular blocky structure; very friable; boundary clear.

C1 18 to 22 inches. Intermingled dark grayish brown (2.5Y 4/2) and light olive brown (2.5Y 5/4)
58460 gravelly coarse sand or gravelly loamy coarse sand; structureless; loose.

C2 22 to 30 inches. Intermingled light brownish gray (10YR 6/2) and grayish brown (10YR 5/2)
58461 gravelly coarse sand or gravelly loamy coarse sand; structureless; generally loose with thin lenses or pockets of very friable material.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Gloucester stony sandy loam SOIL Nos. S58Conn-7-3 LOCATION Tolland County, Connecticut

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58462-58468

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	3A2 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments: 2A2 ≥ 2 Pct.	Coarse fragments: 2 – 19 Pct. of < 76mm	Coarse fragments: 19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
1-0	O2						Organic											
0-1 1/2	A1-A2		17.1	1.2	4.2	10.3	11.8	33.0	22.4		5.7	53.6						
1 1/2-6	B21		22.1	2.7	4.6	8.7	10.1	29.7	22.1		9.5	52.9						
6-11	B22		19.0	2.9	6.0	9.7	10.5	29.3	22.6		6.5	53.0						
11-21	B23		17.9	1.7	5.6	10.2	11.3	30.7	22.6		6.2	52.9						
21-27	B3-C1		16.2	0.5	5.1	10.7	11.6	31.8	24.1		4.6	55.2						
27-40	C		12.9	1.0	5.7	12.2	13.2	33.4	21.6		5.8	48.6						

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	6B1a C/N	6C1a Ext. iron as Fe_2O_3	6C1a Carbonate as $CaCO_3$		Bulk density				Water content			pH		8C1a (1:1)

Soil Type: Gloucester stony sandy loam
Soil No.: S58Conn-7-3
Location: Stafford, Tolland County, Connecticut. About 0.7 mile west of State Line Pond and about 150 feet south of Crow Hill Road in a forested area.
Vegetation: Mainly pole size white and black oak, white and black birch, red maple and a few white pine. Sparse understory consists mainly of chestnut and red maple sprouts, low bush blueberry and bracken fern. The area was burned within the last two or three years.
Slope: 5 percent.
Drainage: Somewhat excessively drained.
Parent Material: Glacial till, derived predominantly from granitoid gneiss.
Sampled by: Hill and Shearin
Described by: Shearin

Horizon and Beltsville Lab. Number	
O1 not sampled	1-1/2 to 1 inches. Raw leaves or other debris.
O2 58462	1 to 0 inches. Very dark brown (10YR 2/2) partially decomposed litter; well matted with fine roots.
A1 - A2 58463	0 to 1-1/2 inches. Very dark grayish brown (10YR 3/2) and dark brown (10YR 3/3) light sandy loam, with prominent light gray to white sand grains; well matted with fine roots; very friable; boundary abrupt.
B21 58464	1-1/2 to 6 inches. Dark brown (7.5YR 4/4) light sandy loam or fine sandy loam; very weak medium subangular blocky structure; very friable; coarse skeleton 10 to 15 percent; boundary clear.
B22 58465	6 to 11 inches. Yellowish brown (10YR 5/8) light sandy loam or fine sandy loam; very weak medium subangular blocky structure; very friable; coarse skeleton 15 to 20 percent; boundary clear.
B23 58466	11 to 21 inches. Light olive brown (2.5Y 5/4) gravelly sandy loam; very weak medium subangular blocky structure; very friable; boundary clear.
B3 - C1 58467	21 to 27 inches. Gray (N 6/) with streaks or pockets of light olive brown (2.5Y 5/4) gravelly loamy coarse sand; slightly firm and brittle to very friable. The olive brown streaks and pockets apparently are in old root channels and surrounding weathered gneiss fragments.
C 58468	27 to 40 inches. Gray (N 6/) with coatings of light brownish gray (2.5Y 6/2) gravelly coarse sand; slightly firm to very friable.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Stockbridge silt loam SOIL Nos. S56 Conn-3-1 LOCATION Litchfield County, Connecticut

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561359-561365

Depth (In.)	Horizon	1H1b Size class and particle diameter (mm) 3A1														Coarse fragments		
		Total			Sand						Silt					2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)			≥ 2	2 – 19	19–76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-4	A1		53.6	10.8	4.7	5.9	3.9	8.8	12.3		29.8	41.5				17		
4-14	B21		53.0	10.1	6.3	6.0	4.0	8.3	12.3		29.2	41.2				29		
14-22	B22		48.0	15.3	6.4	6.0	3.8	8.3	12.2		28.7	36.6				10		
22-30	B23x		49.0	15.2	5.7	5.8	4.0	8.7	11.6		30.0	35.9				8		
30-38	C1		47.4	13.1	5.8	6.5	4.6	10.2	12.4		28.1	38.1				12		
38-48	C2		40.2	10.5	7.0	7.2	5.0	13.8	16.3		23.4	41.9				14		
48+	C3		43.1	7.8	4.3	5.2	3.8	15.3	20.5		23.4	51.1				16		

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N	6C1a Ext. iron as Fe_2O_3	Carbonate as $CaCO_3$		Bulk density				Water content				pH		
								4A1e				4B1c	4B2				8C1a
								⅓ bar				⅓ bar	15 bar				(1:1) H_2O
	Pct.	Pct.		Pct.	Pct.		g/cc	g/cc	g/cc		Pct.	Pct.	Pct.				
0-4	3.82	0.272	14	2.4				0.85				29.8	15.6				5.5
4-14	0.87	0.076	11	2.6				1.14				22.0	5.7				5.2
14-22	0.26	0.042	6	3.3				1.42				21.5	7.0				5.1
22-30	0.16	0.032		2.9				1.57				21.6	6.8				5.1
30-48	0.14	0.027		2.9				1.48				20.7	6.2				5.1
38-48	0.16	0.026		2.4	9			1.40				18.2	5.7				7.0
48+	0.11	0.017		1.6	33												7.9

Depth (In.)	Extractable bases 5H1a				6H1a		CEC		6G1d							Base saturation	
	6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	H		5A3a Sum cations		Ext. Al							5C3 Sum cations	
	meq/100 g															Pct.	Pct.
0-4	7.3	1.4	0.1	0.5	14.0		23.3									40	
4-14	0.6	0.4	tr.	0.2	6.4		7.6									16	
14-22	0.7	0.4	tr.	0.2	5.9		7.2									18	
22-30	0.6	0.5	tr.	0.3	5.2		6.6									21	
30-38	0.5	0.9	tr.	0.2	4.8		6.4									25	
38-48		4.7	tr.	0.1	2.4												
48+		4.3	0.1	0.3													

Depth (In.)

Soil Type: Stockbridge silt loam
Soil Number: S56Conn-3-1
Location: Salisbury, Litchfield County, Connecticut. About one mile southwest of Hotchkiss School, 0.2 miles west of Highway No. 41, Seymour Farm, aerial photo DPC-5H-55.
Vegetation: Cut over forested area consisting mainly of sugar maple, red maple, ash and black and red oak. Very little underbrush. Area probably has been pastured but not cultivated.
Slope: 5 percent.
Parent Material: Calcareous late Wisconsin till derived principally from limestone shale and slate.
Physiographic Position: Undulating to rolling limestone valley of northwest Connecticut. Samples collected on north end of northwest-southeast drumloidal hill.
Collected By: Pedersen, Davidson, Waggoner, Tamura, Gonick and Shearin.
Described By: Shearin and Gonick.

Horizon and Beltsville Lab. Number	
A1 561359	0 to 4 inches. Very dark grayish brown (10YR 3/2) silt loam; moderate fine to medium granular; very friable; roots numerous; coarse skeleton 5 percent; boundary abrupt.
B21 561360	4 to 14 inches. Dark yellowish brown (10YR 4/4) crushed surface (10YR 5/6) silt loam; friable; very weak medium to coarse subangular blocky; roots well distributed; coarse skeleton 5 - 8 percent; boundary clear.
B22 561361	14 to 22 inches. Olive brown (2.5Y 4/4), crushed surface (10YR 4/4) silt loam; very weak medium to coarse subangular blocky; friable; roots well distributed; coarse fragments 5 - 10 percent; boundary clear.
B23 561362	22 to 30 inches. Olive (5Y 4/3) crushed surface (2.5Y 4/4), gravelly silt loam or loam; weak coarse platy and crushes into subangular clods or peds; very firm; silt or silt and clay coatings on some breakage faces and around small rock fragments; roots are less numerous than in overlying horizons; coarse fragments 20 - 30 percent; boundary clear.
C1 561363	30 to 38 inches. Very dark grayish brown (2.5Y 3/2) with a few very fine gray and brown mottlings, gravelly loam or sandy loam; very weak coarse platy which crush into medium to coarse clods; firm in place but friable when removed; soft brown limestone ghosts common; coarse fragments 25 - 30 percent; few roots present.
C2 561364	38 to 48 inches. Very dark grayish brown (2.5Y 3/2) to dark olive gray (5Y 3/2) gravelly loam or sandy loam; structure and consistence essentially the same as in the overlying horizon; coarse fragments 25-30 percent; few roots; few soft brown limestone ghosts.
C3 561365	48 inches.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Stockbridge gravelly silt loam SOIL Nos. S56 Conn-3-2 LOCATION Litchfield County, Connecticut

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561366-561371

Depth (In.)	Horizon	1H1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	3A1 Int. II (0.2-0.02)	(2-0.1)			Coarse fragments: 2A2 > 2 Pct.	2-19 Pct. of < 76mm	19-76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap		51.7	12.7	6.5	6.4	4.6	7.6	10.5		29.2	37.5				30		
8-16	B21		57.9	10.7	6.7	5.7	3.3	5.7	10.0		26.8	44.3				50		
16-26	B22		55.5	12.8	6.3	5.2	3.1	5.9	11.2		25.1	45.1				29		
26-33	B23x		49.4	12.0	8.3	7.8	4.5	7.7	10.3		27.0	37.0				33		
33-42	C1		39.0	17.9	8.0	9.1	5.5	9.5	11.0		22.8	32.8				38		
42-70	C2		49.4	11.0	7.0	7.4	4.5	9.1	11.6		26.3	40.0				13		

Depth (In.)	6A1a Organic carbon Pct.	6H1a Nitrogen Pct.	C/N	6C1a Ext. iron as Fe_2O_3 Pct.	Carbonate as $CaCO_3$ Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	g/cc	Water content Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.	pH		8C1a (1:1) H_2O
0-8	2.73	0.250	11	1.6			1.38			28.2	9.6			6.0
8-16	0.55	0.070	8	1.9			1.45			22.9	5.6			5.2
16-26	0.26	0.044	6	2.4		a)	1.66			22.7	7.0			5.3
26-33	0.16	0.035		1.9			1.62			20.2	6.4			5.5
33-42	0.23	0.041		2.1			1.62			20.5	7.7			6.3
42-70	0.12	0.016		1.8	18					19.2	5.6			8.0

Depth (In.)	Extractable bases 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	5H1a 6H1a Ext. acidity	CEC 5A3a Sum cations	6G1d Ext. Al	Base saturation 5C3 Sum cations Pct.	Pct.
	meq/100 g								
0-8	5.3	2.4	tr.	0.3	9.4	17.4		46	
8-16	1.1	0.5	tr.	0.5	5.8	7.9		27	
16-26	1.7	0.6	tr.	0.7	5.5	8.5		35	
26-33	3.3	0.8	tr.	0.5	4.1	8.7		53	
33-42	5.0	1.9	tr.	0.2	3.3	10.4		68	
42-70									

Depth (In.)

a. Clod sample

Soil Type: Stockbridge gravelly silt loam
Soil Number: S56Conn-3-2
Location: Sharon, Litchfield County, Connecticut, About 1-1/2 miles southwest of Sharon Center on Benton Hill Road 0.2 mile west of Highway 41, Demotte Farm, aerial photo No. DPC-5H-23.
Vegetation: Cultivated area in silage corn in 1956.
Slope: 2 percent.
Parent Material: Calcareous late Wisconsin till derived principally from limestone, slate and shale.
Physiographic Position: Undulating to rolling limestone valley of northwestern Connecticut. Sample collected of crest of north end of north-south drumloidal hill.
Collected By: Pedersen, Davidson, Waggoner, Tamura, Gonick and Shearin.
Described By: Shearin and Gonick.

Horizon and Beltsville Lab. Number

Ap 561366 — 0 to 8 inches. Very dark grayish brown (10YR 3/2) gravelly silt loam; firm in place due to traffic but when dug out with spade breaks into coarse subangular clods that crush readily into weak fine and medium granular; friable; fine roots numerous; coarse skeleton 20 - 25 percent; lower boundary abrupt.

B21 561367 — 8 to 16 inches. Dark yellowish brown (10YR 4/4), crushed surface (10YR 5/6), gravelly silt loam; moderate medium to coarse subangular blocky; friable; fine roots fairly numerous; coarse skeleton; 20 - 30 percent; lower boundary gradual.

B22 561368 — 16 to 26 inches. Olive brown (2.5Y 4/4), crushed surface (2.5Y 5/4), gravelly silt loam; weak medium to coarse subangular blocky; friable; few fine roots; coarse skeleton 20 - 30 percent; lower boundary clear.

[redacted]

561369 — crushes down into medium to coarse subangular clods; very firm in place and firm to friable when disturbed; (not a brittle pan) silt or silt and clay coatings are noticeable on some breakage faces and around some rock fragments; coarse skeleton probably 30 - 40 percent; lower boundary gradual.

C1 561370 — 33 to 42 inches. This horizon consists of the same material as in the overlying horizon with pockets or layers of the following: Variegated or mottled olive (5Y 5/3) and (5Y 4/3) silty clay loam or silty clay; massive; very firm and dense; few old root casts and a few fine pin holes less than 1 mm in size; contains some gritty material but practically no coarse fragments; boundary gradual.

C2 561371 — 42 to 70 inches. Dark olive gray (5Y 3/2) gravelly loam till; medium to coarse subangular clods; firm in place but friable when disturbed; coarse fragments 30 - 40 percent.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Woodbridge loam SOIL Nos. S58Conn-7-4 LOCATION Tolland County, Connecticut

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 581021-581024

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1 Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	2A2 Coarse fragments > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm														
0-8	Ap		35.6	9.0	2.2	7.4	8.6	19.2	18.0		15.6	49.3		17		
8-16	B21		38.3	4.4	2.8	7.5	8.7	19.7	18.6		17.0	51.6		11		
16-24	B22g		39.6	4.8	3.4	7.3	8.4	18.4	18.1		17.4	51.0		14		
24-36	B3gm or B23gm		29.1	3.5	4.3	8.2	9.0	22.3	23.6		12.4	53.8		16		

Depth (In.)	6A1a Organic carbon Pct.	6H1a Nitrogen Pct.	C/N	6C1a Ext. iron as Fe_2O_3 Pct.	Carbonate as $CaCO_3$ Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	g/cc	Water content 4H1b 1/10 bar Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.	pH 8C1a (1:1) H_2O
0-8	3.21	0.215	15	1.2			1.21		37.7		10.5	6.1
8-16	0.73	0.058	13	1.4			1.25		31.8		5.1	5.8
16-24	0.51	0.039	13	1.3			1.30		30.8		4.5	5.7
24-36	0.14			0.7			2.08		15.6		2.5	5.7

Depth (In.)	Extractable bases 5H1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	6H1a Ext. acidity	CEC 5A3a Sum cations		Base saturation 5C3 Sum cations Pct.	Pct.
	meq/100 g								
0-8	7.5	2.2	0.2	0.2	10.1	20.2		50	
8-16	1.3	0.6	0.1	0.1	6.1	8.2		26	
16-24	1.2	0.6	0.1	0.1	2.3	4.3		46	
24-36	0.9	0.4	0.1	0.1	0.6	2.1		71	

Depth (In.)

Soil Type: Woodbridge loam
Soil No.: S58Conn-7-4
Location: Tolland County, Connecticut. 0.6 mile southwest of the junction of highways 31 and alternate 44 in the Town of Coventry.
Vegetation: Sample collected in a cultivated area; used for cauliflower in 1958.
Slope: 1 percent.
Drainage: Moderately well drained.
Parent Material: Glacial till derived from schistose and granitoid rocks.
Collected by: E. J. Pedersen, Ilgen, Gonick, A. P. Shearin, and Dave Hill. November 13, 1958.
Described by: A. P. Shearin

Horizon and Beltsville Lab. Number	
Ap 581021	0 to 8 inches. Very dark grayish brown (10YR 3/2) loam; massive; friable; 15 - 20 percent; coarse skeleton; boundary abrupt.
B21 581022	8 to 16 inches. Dark yellowish brown (10YR 4/4) loam; very weak coarse subangular blocky; friable to very friable; coarse skeleton 10 to 15 percent; boundary clear.
B22g 581023	16 to 24 inches. Dark yellowish brown (10YR 4/4) mottled with grayish brown (10YR 5/2) and strong brown (7.5YR 5/8) loam; very weak coarse subangular blocky; coarse skeleton 10 - 15 percent; boundary abrupt.
B3gx or B23gx 581024	24 to 36 inches. Mottled grayish brown (10YR 5/2), olive gray (5Y 5/2), yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) gravelly sandy loam; massive and breaks into coarse subangular blocky when disturbed; very firm; some silt films around rock fragments.
Notes:	Wormholes filled with material from Ap horizon common in B21 and B22g horizons. Most roots in Ap horizon but some in B21 and G22g horizons.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Bangor silt loam SOIL Nos. S55Maine-10-1 LOCATION Penobscot County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 5699 - 56105

	1B1b	Size class and particle diameter (mm) 3A1					
	Total	Sand	Silt			3B2	Coarse fragments 3B1

Soil Type: Bangor silt loam
Soil No.: S55Maine-10-1
Location: Penobscot County, Maine. Lloyd Littlefield orchard on the west side of Route 7, 2 miles north of Newport, Maine.
Vegetation and land use: Orchard
Slope and land form: 3 to 8 percent
Drainage: Well drained

[redacted]

Sampled by and date: L. T. Alexander, J. S. Hardesty, and K. V. Goodman. October 10, 1955.

Horizon and Beltsville Lab. No.	
Ap 5699	0 to 7 inches. Dark grayish brown to very dark grayish brown (10YR 4/2 - 3/2), moderately strong medium granular, friable silt loam. The boundary is abrupt and smooth.
B21	7 to 10.5 inches. Yellowish brown (10YR 5/6 - 5/8), weak medium granular, very friable

[redacted]

56101	The boundary is clear and wavy.
B3 56102	14 to 20 inches. Light olive brown (2.5Y 5/4), weak fine subangular blocky firm silt loam. The boundary is gradual and wavy.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Bangor silt loam SOIL Nos. S55Maine-10-2 LOCATION Penobscot County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56106 - 56111

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm																
0-4	Ap1	29.7	59.5	10.8	5.6	6.7	3.7	6.2	7.5	20.6	38.9	31.8	22.2			33		
4-8	Ap2	32.1	58.9	9.0	6.9	6.5	3.6	6.2	8.9	19.5	39.4	32.1	23.2			39		
8-14	B21	32.9	59.6	7.5	4.4	6.7	3.8	7.1	10.9	27.0	32.6	37.2	22.0			32		
14-21	B22	33.4	58.7	7.9	6.4	6.8	3.9	6.9	9.4	20.1	38.6	33.6	24.0			38		
21-32	C1	30.3	55.4	14.3	6.7	6.6	3.4	6.0	7.6	14.7	40.7	25.8	22.7			39		
32-40	C2	28.8	55.9	15.3	5.8	6.4	3.2	5.8	7.6	15.0	40.9	26.1	21.2			35		

Depth (in.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-4	4.69	0.341	14			1.7					33.8	9.8				5.0
4-8	2.60	0.218	12			1.7					31.6	7.3				4.9
8-14	1.70	0.138	12			1.7					32.6	7.5				5.2
14-21	0.94	0.096	10			1.4					32.7	5.8				5.2
21-32	0.10	0.037				1.3					20.7	4.8				5.3
32-40	0.13	0.036				1.3					21.4	5.5				5.2

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-4	3.3	0.7	0.1	0.6	4.7	19.5	24.2				2.24	0.16	0.91			19	
4-8	1.9	0.4	0.1	0.4	2.8	16.1	18.9				2.10	0.19	0.81			15	
8-14	1.1	0.4	0.1	0.2	1.8	15.5	17.3				2.31	0.23	1.00			10	
14-21	0.5	0.2	0.1	0.2	1.0	11.3	12.3				1.56	0.18	0.73			8	
21-32	1.3	0.2	tr.	0.3	1.8	4.3	6.1				0.43	0.09	0.34			30	
32-40	1.2	0.4	0.1	0.3	2.0	4.5	6.5				0.42	0.08	0.36			31	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Bangor silt loam
Soil No.: S55Maine-10-2
Location: Penobscot County, Maine. Idle field one mile north of Dexter, Maine, on Route 24 along the side of Lake Wassookeag.
Vegetation and land use: Cultivated, idle.
Slope and land form: 3 to 8 percent.
Drainage: Well drained
Parent Material: Extremely firm glacial till of Wisconsin age.
Sampled by and date: L. T. Alexander, J. S. Hardesty, K. V. Goodman. October 10, 1955.

Horizon and Beltsville Lab. No.	
Ap1 56106	0 to 4 inches. Dark yellowish brown (10YR 4/4), weak fine granular, very friable silt loam. The boundary is clear and smooth.
Ap2 56107	4 to 8 inches. Dark yellowish brown to yellowish brown (10YR 3/4 - 5/6), weak fine granular friable silt loam. The boundary is abrupt and smooth.
B21 56108	8 to 14 inches. Strong brown (7.5YR 5/6), weak very fine subangular blocky, moderately firm silt loam. The boundary is clear and smooth.
B22 56109	14 to 21 inches. Olive yellow (2.5Y 6/6), weak fine granular, friable silt loam. The boundary is clear and smooth.
C1 56110	21 to 32 inches. Light olive brown (2.5Y 5/4), moderately strong medium platy, extremely firm clay loam slaty glacial till. The boundary is gradual and wavy.
C2 56111	32 to 40 inches. Light olive brown (2.5Y 5/4), moderately strong medium subangular blocky, very firm clay loam slaty glacial till. The boundary is diffuse and wavy into a darker olive and extremely hard glacial till that includes a noticeable quantity of "ghosts" -- weathered fine soft limy rock fragments.

Notes: Roots form a dense sod in the upper foot of this profile. Boulders of sandstone, slate, and granite occurred in the field and were frequent enough for a stoniness equal to class 1.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Bangor stony silt loam SOIL Nos. S55Maine-10-6 LOCATION Penobscot County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56129 - 56133

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt 0.05–0.02	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm																
1-3	A2	33.9	61.5	4.6	3.8	4.6	3.6	9.4	12.5	25.3	36.2	42.1	21.4			9		
3-9	B21	39.5	55.7	4.8	6.5	7.0	4.2	5.1	16.7	23.9	31.8	41.8	22.8			21		
9-19	B22	42.0	54.3	3.7	7.2	7.5	4.8	6.1	16.4	22.4	31.9	41.0	25.6			28		

Soil Type: Bangor stony silt loam
Soil No.: S55Maine-10-6
Location: Penobscot County, Maine. East side of a pit just south of Dexter, Maine.
Vegetation and land use: White pine and hemlock.
Slope and land form: 10 to 15 percent
Drainage: Well drained
Parent Material: Firm or hard glacial till of Wisconsin age.
Sampled by and date: K. V. Goodman and J. S. Hardesty. October 12, 1955.

Horizon and Beltsville Lab. No.	
O2 Not Sampled	2 to 0 inches. Very dark grayish brown to dark gray (10YR 3/2 - 4/1) or black, weak coarse crumb, loose loamy mor. The boundary is wavy and abrupt.
A1 Not Sampled	0 to 1 inch. Dark grayish brown (10YR 4/2), weak medium granular, very friable silt loam. The boundary is clear and irregular.
A2 56129	1 to 3 inches. Light gray (10YR 6/1), very weak thin platy, very friable silt loam. The boundary is clear and broken (discontinuous).
B21 56130	3 to 9 inches. Strong brown (7.5YR 5/6), weak medium granular, firm silt loam. The boundary is abrupt and irregular.
B22 56131	9 to 19 inches. Light yellowish brown (2.5Y 6/4), very weak fine granular, friable silt loam. The boundary is gradual and wavy.
C1 56132	19 to 32 inches. Olive (5Y 5/3), weak medium platy, extremely firm and somewhat gritty silt loam. The boundary is gradual and wavy.
C2 56133	32 to 40 inches plus. Olive gray (5Y 5/2), weak thick platy, extremely hard and somewhat gritty silt loam with many "ghosts". The boundary is diffused and wavy into a deeper and a darker olive till. The C1 and C2 horizons break readily when displaced into weak medium to coarse subangular blocky fragments.

Notes: Roots of the pine and hemlock were concentrated in the upper foot and a half of the soil. Only a few penetrated the extremely firm C or parent materials. The stoniness was about class 2.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Burnham very stony loam SOIL Nos. S59Maine-10-1 LOCATION Penobscot County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 6092 - 6094

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-1	A1g	a																
1-7	A2g	46.2	44.9	8.9	5.3	6.9	5.9	12.6	15.5	21.5	23.4	44.4	30.7			27		
7-17	C1g	52.0	41.5	6.5	7.8	9.4	6.7	13.2	14.9	18.7	22.8	41.5	37.1			24		
17-36	C2g	48.2	43.8	8.0	4.4	7.2	6.6	14.0	16.0	21.0	22.8	45.3	32.2			18		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-1	a																
1-7	1.47	0.071	21			0.1											4.7
7-17	0.03					0.5											6.4
17-36	0.08					0.5											5.7

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al			Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-1	a																	
1-7	0.1	0.2	0.1	0.1		13.1	13.6		3.3								4	
7-17	2.2	1.2	0.1	0.1		1.2	4.8		tr.								75	
17-36	1.3	0.8	0.1	0.1		1.7	4.0		0.1								58	

Depth (In.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

a Not sampled.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Burnham very stony loam
Soil No.: S59Me-10-1
Location: Penobscot County, Maine. U. of Maine Forest at Stillwater, 1/4 mile east of sawmill. Pit is in grove of white pine that was measured in Pine-soil study.
Vegetation and land use: Forest
Sampled by and date: K. V. Goodman and R. M. Riley. September 23, 1959.

Horizon and Beltsville Lab. No.	
O1 Not sampled	10 to 7 inches. Brown fibrous mat of forest duff and sphagnum moss.
O2 Not sampled	7 to 0 inches. Black, finely fibrous firm mat of forest duff and sphagnum moss.
A1g Not sampled	0 to 1 inch. Very dark brown (10YR 2/2) silt loam; weak medium granular structure; non-sticky; 10-15 percent coarse fragments; abrupt irregular boundary.
A2g 6092	1 to 7 inches. Light gray (10YR 6/1) stained dark brown along root channels, loam; thin platy structure; slightly sticky; 10-15 percent coarse fragments; abrupt irregular boundary.
C1g 6093	7 to 17 inches. Strongly mottled gray, yellowish brown and yellow (10YR 6/1, 5/6, 7/6) gritty loam; strong medium platy structure; extremely firm, brittle; 15-20 percent coarse fragments; diffuse wavy boundary.
C2g 6094	17 to 36 inches. Strongly mottled light gray and yellowish brown (10YR 7/1, 5/6) gritty silt loam; weak medium platy structure; slightly sticky; 30-40 percent coarse fragments; diffuse wavy boundary into mottled gray till that became wet from water filling the excavation. Coarse fragments in this till prevented excavation fast enough to keep ahead of the water.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Burnham very stony loam SOIL Nos. S59Maine-10-2 LOCATION Penobscot County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 6095 - 6098

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2	2 - 19	19 - 76
		Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		Cm	> 2	Pct. of < 76mm
		Pct. of < 2 mm													Pct.		
0-8	A1	56.9	38.1	5.0	2.8	9.3	9.4	19.3	16.1	19.9	18.2	47.1	40.8			20		
8-18	A2g	65.4	31.4	3.2	7.7	9.6	8.9	18.0	21.2	20.3	11.1	51.5	44.2			27		
18-30	C1g	64.3	33.7	2.0	6.7	9.3	8.8	18.4	21.1	20.9	12.8	52.8	43.2			23		
30-34	C2g	64.5	33.8	1.7	6.1	8.7	8.3	18.6	22.8	21.5	12.3	55.3	41.7			25		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density			4D1 COLE	Water content				4C1 WRD	pH	
								4A1e ⅓ bar	4A1h Oven dry			4B1c ⅓ bar	4B2 15 bar			8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		In/in		
0-8	6.70	0.330	20			0.4											5.0
8-18	0.24	0.020				0.3											5.3
18-30	0.36	0.022	16			0.2											5.5
30-34	0.35	0.018	19			0.2											5.5

Depth (In.)	Extractable bases 5B1a					6H2a	CEC		6G1d		Ratios to clay			8D3		Base saturation	
	6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	Ext. acidity	5A3a Sum cations		Ext. Al		CEC Sum	Ext. iron	15-bar water	Ca/Mg		5C9 Sum cations	5C1 NH_4OAc
	meq/100 g															Pct.	Pct.
0-8	10.8	1.7	0.1	0.1		7.8	20.5		0.3							62	
8-18	0.8	0.3	tr.	tr.		1.8	2.9		0.4							38	
18-30	0.5	0.1	tr.	tr.		3.8	4.4		0.2							14	
30-34	0.5	0.2	tr.	tr.		4.3	5.0		0.2							14	

Depth (In.)	Clay Fraction Analysis 7Alb-d								
	Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Burnham very stony loam
Soil No.: S59Me-10-2
Location: Penobscot County, Maine. 3 miles east of Milford village on county road. Pit is about 100 yards east of cottage with pink fence. Sampled by and date: K. V. Goodman and R. M. Riley. Oct. 14,1959.

Horizon and Beltsville Lab. No.	
O2 Not sampled	5 to 0 inches. Black finely fibrous mat of organic material.
A1 6095	0 to 8 inches. Very dark gray (N 3/) silt loam; weak fine granular structure; slightly sticky, nonplastic; 10-15 percent coarse fragments; abrupt smooth boundary.
A2g 6096	8 to 18 inches. Gray, stained brown along roots (10YR 6/1, 4/3) fine sandy loam; weak thick platy structure breaking into weak coarse granular; friable, 20-30 percent coarse fragments; abrupt smooth boundary.
C1g 6097	18 to 30 inches. Strongly mottled gray, brown, and yellow (10YR 6/1, 4/3, 7/6) gritty sandy loam; weak coarse subangular blocky structure; firm in place but brittle and friable when displaced; 30-40 percent coarse fragments; clear, wavy boundary.
C2g 6098	30 to 34 inches. Mottled light gray, pale brown, and yellow (10YR 7/1, 6/3, 7/6) gritty sandy loam; weak coarse subangular blocky breaking into coarse granular structure; very firm in place but brittle and friable when displaced; 30-40 percent coarse fragments; clear wavy boundary into extremely firm or hard till that became wet from water seeping into excavation.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Caribou gravelly silt loam SOIL Nos. 856Maine-2-1 LOCATION Aroostook County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561201 - 561210

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-3	A1	36.6	40.3	23.1	0.6	7.8	12.4	12.8	3.0	16.5	23.8	24.7	33.6			12		
3-5	A2	51.2	38.5	10.3	0.8	12.2	17.2	17.1	3.9	15.5	23.0	26.3	47.3			21		
5-8	B21	25.4	51.4	23.2	3.7	4.8	2.9	5.1	8.9	16.3	35.1	28.1	16.5			35		
8-19	B22	47.4	23.6	29.0	1.0	11.2	15.6	15.8	3.8	8.9	14.7	18.9	43.6			54		
19-26	A'2	34.9	48.9	16.2	8.9	8.3	3.9	5.8	8.0	15.8	33.1	27.0	26.9			28		
26-43	B'21	27.4	52.3	20.3	7.8	7.3	2.6	3.4	6.3	15.8	36.5	24.0	21.1			38		
43-53	B'22	42.0	33.6	24.4	16.0	12.4	4.3	4.8	4.5	10.2	23.4	17.1	37.5			39		
53-63	C1	46.1	24.7	29.2	13.8	15.3	5.6	6.3	5.1	7.3	17.4	15.6	41.0			48		
63-76	C2	47.6	32.9	19.5	16.2	14.4	5.5	6.4	5.1	10.2	22.7	18.8	42.5			55		
76-90	D1	42.3	33.7	24.0	12.6	13.1	5.3	6.3	5.0	10.5	23.2	19.0	37.3			62		

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N		6E1e Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A3a Field Moist Cores	4A1a ⅓ bar	4A1h Oven dry	4D1 COLE	Water content:	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in			
0-3	7.6	0.373	20			1.8	0.67					41.3	14.9					4.6
3-5	0.92	0.084	11			1.0						27.5	5.5					4.4
5-8	3.20	0.231	14			2.8	0.84					35.8	14.2					4.3
8-19	1.50	0.098	15			1.5	0.97					25.3	8.1					4.7
19-26	0.27					1.6						23.7	7.2					4.6
26-43	0.17					2.3						23.9	7.8					4.7
43-53	0.17					2.8						24.2	11.2					7.5
53-63	0.22				5	2.3						25.9	13.6					7.6
63-76	0.12				1	2.0						21.2	9.8					7.6
76-90	0.23				9	2.0												7.5

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-3	8.6	2.3	0.1	0.3	11.3	26.5	37.8				1.64	0.08	0.64			30	
3-5	2.4	0.6	0.1	0.1	3.2	10.7	13.9				1.35	0.10	0.53			23	
5-8	1.4	0.4	tr.	0.2	2.0	36.9	38.9				1.68	0.12	0.61			5	
8-19	0.5	0.1	tr.	0.2	0.8	17.8	18.6				0.64	0.05	0.28			4	
19-26	1.3	0.2	tr.	0.2	1.7	11.2	12.9				0.80	0.10	0.44			13	
26-43	3.6	0.2	0.1	0.2	4.1	8.5	12.6				0.62	0.11	0.38			32	
43-53	a											0.11	0.46				
53-63	a											0.08	0.46				
63-76	a											0.10	0.50				
76-90	a											0.08					

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Calcareous.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Caribou gravelly silt loam
Soil No.: S56Maine-2-1
Location: Aroostook County, Maine. Pit bordering previous farm dump toward back of Aroostook Experiment Station Farm, approximately 2 miles south of Presque Isle.
Vegetation and land use: Mostly spruce, fir, red maple, aspen, white and black birch, with pussy willows, cornus, witch hazel, and some grasses.
Slope and land form: 2 to 15 percent.
Drainage: Well drained
Parent Material: Late Wisconsin glacial till largely from the underlying gray calcareous shale, which has some interbeds of nearly pure limestone. The till also includes material from nearby bedrock formation.
Sampled by and date: J. S. Hardesty, W. Farley, E. J. Pedersen. July 12, 1956.
Described by: W. H. Lyford

Horizon and
Beltsville
Lab. No.

A1
561201 — 0 to 3 inches. Very dark grayish brown (10YR 3/2 moist) gravelly silt loam with moderate medium granular structure; very friable, many roots; many earthworms present in forested area; night crawler mounds occur on surface at 8-12 inch intervals, 10-20 percent coarse skeleton of 1/2-3 inch subrounded dark gray shale and fine grained quartzite; very strongly acid; abrupt smooth boundary. 2-3 inches thick.

A2 — 3 to 5 inches. Discontinuous light brownish gray (10YR 6/2 moist) silt loam, appearing light gray

[redacted]

spots; weak thin platy structure; very friable; few roots; few fine pores; abrupt smooth boundary.

B21
561203 — 3 to 8 inches. Reddish brown (5YR 4/4 moist) silt loam with weak very fine granular structure; very friable; many roots; 5 to 10 percent by volume 1/2-3 inch coarse fragments, many of which are hard angular leached calcareous shale. Upper 1/2 to 1 inch darker colored; abrupt smooth boundary. 3 to 8 inches thick.

B22
561204 — 8 to 19 inches. Dark yellowish brown (10YR 4/4 moist) gravelly silt loam with weak fine granular structure; very friable; many roots; 10-20 percent by volume of 1/2-2 inch subrounded pebbles; abrupt

[redacted]

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Caribou gravelly silt loam SOIL Nos. S56Maine-2-4 LOCATION Aroostook County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561223 - 561229

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 >= 2 Pct.	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	35.2	49.6	15.2	8.8	6.2	4.0	7.6	8.6	19.6	30.0	32.6	26.6			26		
8-14	B21	37.3	47.9	14.8	6.3	7.3	4.8	9.2	9.7	26.3	21.6	41.2	27.6			24		
14-25	A'2	46.2	41.3	12.5	8.9	9.3	6.0	11.0	11.0	16.5	24.8	33.8	35.2			28		
25-32	B'21	33.3	42.0	24.7	6.7	6.5	4.0	7.6	8.5	13.9	28.1	26.8	24.8			32		
32-40	B'22	36.5	42.3	21.2	7.0	6.8	4.7	8.9	9.1	15.2	27.1	29.7	27.4			19		
40-49	B'23	36.9	42.5	20.6	6.4	7.4	4.7	9.2	9.2	14.5	28.0	29.2	27.7			22		
49-58	C1	36.2	41.6	22.2	9.4	7.7	4.2	7.1	7.8	14.0	27.6	25.8	28.4			25		

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a Field Moist Core g/cc	4A1e 1/3 bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	2.08	0.202	10			1.5	1.09					27.8	8.2				4.8
8-14	1.55	0.127	12			1.5						28.3	8.5				4.6
14-25	0.16					1.0						16.8	5.1				4.8
25-32	0.14					1.5						21.0	9.2				5.1
32-40	0.08					1.3						20.0	8.2				6.0
40-49	0.10					1.3						19.3	7.5				6.2
49-58	0.08				10	1.4						20.1	9.0				7.7

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	3.0	0.7	0.1	0.7	4.5	18.2	22.7					1.49	0.10	0.54			20	
8-14	1.0	0.1	tr.	0.4	1.5	22.3	23.8					1.61	0.10	0.57			6	
14-25	2.0	0.3	tr.	0.2	2.5	4.6	7.1					0.57	0.08	0.41			35	
25-32	5.1	0.8	tr.	0.2	6.1	4.6	10.8					0.44	0.06	0.37			57	
32-40	6.1	0.8	tr.	0.1	7.0	2.7	9.7					0.46	0.06	0.39			72	
40-49	6.1	0.9	tr.	0.1	7.1	2.5	9.7					0.47	0.06	0.36			74	
49-58	a												0.06	0.40				

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Calcareous

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Caribou gravelly silt loam
Soil No.: S56Maine-2-4
Location: Aroostook County, Maine. Myron Gartley Farm, approximately 4-1/2 miles south of Presque Isle on U. S. Route 1
Vegetation and land use: Mostly spruce, fir, red maple, aspen, white and black birch, with pussy willows, cornus, witch hazel, and some grasses
Slope and land form: Nearly level
Drainage: Well drained
Parent material: Late Wisconsin glacial till largely from the underlying gray calcareous shale, which has some interbeds of nearly pure limestone. The till also includes material from nearby bedrock formation
Collected by and date: W. Farley, E. J. Pedersen and W. H. Lyford. July 13, 1956.

Horizon and Beltsville Lab. Nos.	
Ap 561223	0 to 8 inches. Brown (10YR 4/3) gravelly silt loam, light brownish gray to light yellowish brown (2.5Y 6/3) when dry; weak coarse and fine granular structure; very friable; 20-30 percent volume of 1/4-3 inch diameter subrounded and angular dark gray shale siltstone and fine grained quartzite none of which are calcareous but some are brown inside as a result of leaching of previous calcareous shales; pH 4.5-5.0; abrupt smooth boundary.
A2 Not sampled	8 to 12 inches. Discontinuous pale brown (10YR 6/3) silt loam which appears light gray in place; weak thin platy or very weak fine granular structure, very friable; occurs as spots 8-12 inches wide and 1 to 2 inches thick at horizontal distances of 6 to 8 feet; abrupt smooth boundary.
B21 561224	8 to 14 inches. Brown (7.5YR 4/4) gravelly silt loam with compound very weak subangular and weak very fine granular structure; very friable; roots numerous; discontinuous in the sample pit but in general present over 80 to 90 percent of the area; 20-30 percent by volume of 1/4-1/2 inch subrounded and angular shale fragments; pH 4.5-5.0; broken wavy boundary. This may be a better B22 horizon as the original orterde may be entirely incorporated in the plow layer at the sample spot.
A'2	14 to 25 inches. Yellowish brown (10YR 5/4) gravelly silt loam which crushes to a

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Caribou gravelly silt loam **LOCATION** Aroostook County, Maine

SOIL NOS. S58Me-2-8 **LAB. NOS.** 10537 - 10541

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-9	Ap	8.6	6.5	4.0	8.2	10.1	46.6	16.0	32.8	28.3	28.7	1
9-13	B_2	10.0a	7.2a	4.2a	8.1a	9.7a	45.9	14.9	30.9	29.1	29.3	1
13-17	A'_2	7.4a	7.1a	4.8a	9.5a	11.2a	44.7	15.3	34.5	26.7	30.4	1
17-24	B'_{21}	9.5a	8.1a	4.7a	9.8a	10.7a	44.8	12.4	34.3	26.5	31.7	1
24-29	B'_{22}	13.2a	8.2a	4.4a	9.2a	8.9a	42.3	13.8	29.3	27.0	35.2	1

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C	$CaCO_3$ equivalent %	4A1a[b] Bulk Density g/cc	MOISTURE TENSIONS 1/10 ATMOS. %	1/3 ATMOS. %	4B2 15 ATMOS. %
4.9			2.32	0.184	13	2.7			1.39			8.7
4.9			2.19	0.141	16	3.1			1.26			10.6
5.0			0.82	0.078	10	2.0			1.33			8.0
5.1			0.41	0.060	7	2.1			--			6.5
5.0			0.28			2.7			1.65			5.9

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5B1a (milliequivalents per 100g. soil →)	5C3 Base Sat. % on Sum Cations	5A3a C.E.C. Sum me/100g.	MOISTURE AT SATURATION %
12.6	2.5	0.6	19.1	<0.1	0.6		16	22.8	
12.5	1.4	0.3	24.8	<0.1	0.5		8	27.0	
7.6	0.9	0.3	12.2	<0.1	0.3		11	13.7	
5.5	0.9	0.2	8.2	<0.1	0.3		14	9.6	
5.6	1.5	0.3	6.0	<0.1	0.3		26	8.1	

CARIBOU GRAVELLY SILT LOAM
S58Me-2-8

Sample Collected: For characterization study. September 11, 1958 by E. J. Pedersen, Bob Dever; Joe Kubota, J. Stewart Hardesty, Bryce McEwen, and John R. Arno. Description written by John R. Arno.

Location: On Charles Hatch's farm, 300 feet north of road running west off U. S. No. 1 highway at about 1-3/4 miles south of point where Prestile stream crosses U. S. No. 1 highway. Exact location is shown on field sheet, photograph AHZ-28-34.

Present Vegetation: Oats had been harvested from this field a few days before it was sampled. Some medium red clover was growing as an undercover. Potatoes had been grown on this field in 1957.

Topography: This sample was collected on a southern slope of about 4 percent.

Drainage: This is a well-drained soil. Surface runoff is medium, permeability is moderate.

Parent Material: Late Wisconsin glacial till developed mainly from gray calcareous shales. This soil is mapped as moderately deep.

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10537	0-9	Dark brown (10YR-4/3, moist) gravelly silt loam; weak fine and weak coarse crumb structure; very friable; 10 to 20 percent ¼ to 2 inch thick angular shale fragments; abrupt, smooth lower boundary; 8 to 10 inches thick.
B2 10538	9-13	Dark brown (7.5YR-4/4) and dark yellowish brown (10YR-4/4) gravelly silt loam; weak fine granular next to roots and weak subangular blocky structure between roots; roots numerous; very friable in place and on removal; 10 to 20 percent angular partly weathered shale fragments; abrupt wavy lower boundary; 3 to 6 inches thick.
A'2 10539	13-17	Light olive brown (2.5Y 5/4) gravelly silt loam; weak platy structure; breaking to fine subangular blocky structure on removal; firm in place, but friable on removal; about 20 percent partly weathered shale fragments; abrupt wavy lower boundary; 3 to 5 inches thick.
B'21 10540	17-24	Dark yellowish brown (10YR-4/4) gravelly silt loam with small pockets of silty clay loam; moderate thick platy structure breaking into moderate fine subangular blocky structure on removal; firm in place, friable on removal; silt films on tops and sides of peds and shale fragments; 50 percent partly weathered shale fragments; abrupt wavy lower boundary; 6 to 10 inches thick.
B'22 10541	24-29	Yellowish brown (10YR-5/4) gravelly clay loam; massive in place breaking to moderate medium subangular blocky structure; firm in place, friable when removed; silt films on tops and sides of peds and shale fragments; 60 percent partly weathered shale fragments; abrupt smooth lower boundary; 4 to 7 inches thick.
D	29-32 plus	Yellowish brown (10YR-5/6) shale fragments; soft enough to remove with pick and spade.

Remarks. Soil colors taken from moist soil.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Conant silt loam **LOCATION** Aroostook County, Maine

SOIL NOS. S58Me-2-3 **LAB. NOS.** 10503 - 10509

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)							3A1		2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2 <19mm.	
0-9	Ap	9.3	6.0	3.3	7.4	8.5	49.6	15.9	30.1	32.3	31.6	1-sil
9-12	A_2B_2	10.2	8.2	4.6	9.9	9.1	44.0	14.0	30.3	28.3	33.4	1
12-19	A'-	13.7	9.9	5.3	10.2	9.2	40.3	11.4	29.0	25.8	36.4	1

CONANT SILT LOAM S58Me-2-3

Sample Collected: For Characterization study, September 8, 1958 by E. J. Pedersen, Bob Dever, Joe Kubota, Roy Bither, Bryce McEwen and John R. Arno. Description written by John R. Arno.

Location: Harold Clark's farm, town of Caribou, Aroostook County, Maine. North side of east and west farm road. Exact location shown on field sheet, photograph AHZ-27-60.

Present Vegetation: Hay field; mostly medium red clover and timothy.

Topography: Sample collected on a south slope about 2 percent.

Drainage: This soil has been mapped to include moderately well-drained and somewhat poorly-drained soils. Surface runoff is slow, permeability is moderately slow.

Parent Material: Late Wisconsin glacial till developed mainly from gray calcareous shales.

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap	0-5	Dark gray brown (10YR-4/2, moist) silt loam; weak

[redacted]

		granular on removal; very friable; abrupt lower boundary; 8 to 11 inches thick.
A2B2 10504	9-12	Light olive brown (2.5Y-5/6) and yellowish brown (10YR-5/6) silt loam; no mottles; variable colors are due to mixing of horizons; weak granular to weak blocky structure; very friable; clear wavy lower boundary; 2 to 6 inches thick.
A'2g 10505	12-19	Gray brown (2.5Y-5/2) silt loam; few, faint yellowish brown (10YR-5/4) and dark gray brown (10YR-4/2) mottles; weak platy structure; friable; 15 percent coarse skeleton; clear wavy lower boundary; 5 to 8 inches thick.
B'21gm 10506	19-27	Light olive brown (2.5Y-5/4) clay loam; yellowish brown (10YR-5/6) and gray brown (10YR-5/2) mottles; mottles are very distinct around polygons; moderate coarse platy breaking to moderate coarse subangular blocky structure; very firm; brittle; silt or clay films on tops and sides of plates and shale fragments; many pores stained with manganese; about 20 percent coarse fragments; clear wavy lower boundary; 6 to 10 inches thick.
B'22gm 10507	27-35	Light olive brown (2.5Y-5/4, moist) clay loam with silty clay loam pockets; many coarse gray (2.5Y-5/0) and few fine yellowish brown (10YR-5/4) mottles; platy structure; very firm; weakly brittle; thin discontinuous clay films on tops of plates; coarse polygons; 10 to 20 percent coarse skeleton; clear wavy lower boundary; 6 to 12 inches thick.
Du 10508	35-40	Dark olive gray (5Y-3/2) gravelly silt loam; weak platy structure; friable; thin clay or silt films on plates; firm in place; 20-30 percent coarse skleton composed of ½ to 1 inch thick slate and shale fragments; abrupt lower boundary; horizon only on 3 sides of pit.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Conant silt loam **LOCATION** Aroostook County, Maine

SOIL NOS. S58Me-2-4 **LAB. NOS.** 10510 - 10520

CONANT SILT LOAM S58Me-2-4

Sample Collected: For characterization study. September 8, 1958 by E. J. Pedersen, Bob Dever, Joe Kubota, Roy Bither, Bryce McEwen and John R. Arno. Description written by John R. Arno.

Location: Town of Caribou, Aroostook County, Maine. Three-tenths of a mile east of Green Ridge school, 150 feet north of road. Exact location shown on field sheet, photograph AHZ-29-1.

Present Vegetation: Idle strip at edge of potato field, now growing timothy and golden rod.

Topography: Sample collected on a 3 percent east slope.

Drainage: This soil has been mapped to include moderately well-drained and somewhat poorly-drained soils. Surface runoff is medium, permeability is moderately slow.

Parent Material: Late Wisconsin glacial till developed mainly from gray calcareous shales.

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10510	0-10	Dark brown (10YR-4/3, moist) silt loam; moderate medium granular structure; very friable; abrupt smooth lower boundary; 8 to 11 inches thick.
B2 10511	10-13	Dark brown (7.5YR-4/4) fine gravelly silt loam; weak medium granular structure; very friable; abrupt lower boundary; 2 to 6 inches thick.
A'2g 10512	13-17	Light olive brown (2.5Y-5/4, moist) silt loam; few fine olive gray (5Y-5/2, moist) mottles; weak coarse platy structure; friable; 15 to 20 percent coarse skeleton; clear irregular lower boundary; 2 to 6 inches thick.
B'21gm 10513	17-25	Olive brown (2.5Y-4/4, moist) silty clay loam; many coarse gray brown (2.5Y-5/2, moist) and few fine yellowish brown (10YR-5/6, moist) mottles; moderate coarse subangular blocky structure; very firm; brittle; silt on tops and sides of peds; pores common and stained with manganese oxide; clear irregular lower boundary; 5 to 10 inches thick.
B'22gm 10514	25-35	Olive brown (2.5Y-4/4, moist) clay loam with coarse gray (2.5Y-5/0) and few fine yellowish brown (10YR-5/4) mottles; moderate coarse subangular blocky structure; very firm; brittle; silt films on tops and sides of peds; pores stained with manganese oxide; 15 to 25 percent coarse skeleton; clear wavy lower boundary; 8 to 14 inches thick.
B'23g 10515	35-42	Light olive brown (2.5Y-5/4) silty clay loam; few fine gray (2.5Y-5/0) mottles; massive to weak platy structure; very firm in place, slightly plastic on removal; few silt or clay films on tops of shale fragments; 15 to 20 percent coarse skeleton; clear wavy lower boundary; 5 to 8 inches thick.
B'24 10516	42-49	Light olive brown (2.5Y-5/4) fine gravelly silty clay loam; massive to weak fine platy structure; firm in place friable on removal; few clay films on tops of plates and shale fragments; 20 to 30 percent coarse skeleton; noncalcareous; clear wavy lower boundary; 5 to 10 inches thick.
C1 10517	49-64	Light olive brown (2.5Y-5/4) silt loam with small pockets of silty clay loam; massive to weak coarse platy structure; firm; some clay films on tops of shale fragments; 20 to 30 percent coarse skeleton; calcareous; clear wavy lower boundary; 10 to 20 inches thick.
C2 10518	64-69 plus	Light olive brown (2.5Y-5/4) loam; massive; firm; 30 to 40 percent partly weathered shale fragments; calcareous.
C3 10518	69-73	Same as above
C4 10520	73-79 plus	Same as above

Remarks: All soil colors taken from moist soil.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Daigle silt loam **LOCATION** Aroostook County, Maine

SOIL NOS. S58Me-2-7 **LAB. NOS.** 10531 - 10536

DEPTH INCHES	HORIZON	1B1a PARTICLE-SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-8	Ap	6.4	4.6	2.9	6.2	6.6	52.0	21.3	28.6	33.4	30.8	sil
8-13	B2A'2g	9.9	5.7	3.8	7.9	8.9	48.3	15.5	31.2	30.1	33.9	l
13-23	B'21g	6.6	4.5	2.7	6.1	7.2	41.2	31.7	24.8	27.0	27.8	cl
23-34	B'22g	7.2	4.3	2.7	6.2	7.3	43.2	29.1	25.2	28.8	27.2	cl
34-39	B'23	5.7	4.3	2.7	6.5	7.5	43.9	29.4	25.5	29.7	28.9	cl
39-46	B'24	6.0	4.7	3.0	6.9	7.6	43.2	28.6	26.2	28.5	18.9	cl

pH 8C1a 1:5	1:10	ORGANIC MATTER 6A1a ORGANIC CARBON	6B1a NITROGEN	C/N	6C1a Free Iron	ELECTRICAL CONDUCTIVITY EC x 10³	6E1e $CaCO_3$ equiv.	4A1a[a] Bulk Density	MOISTURE TENSIONS 1/10 ATMOS.	1/3 ATMOS.	4B2 15 ATMOS.

DAIGLE SILT LOAM
S58Me-2-7

Sample collected: For characterization study, September 10, 1958 by E. J. Pedersen, Bob Dever, Joe Kubota, J. Stewart Hardesty, Roy Bither, Bryce McEwen and John R. Arno. Description written by John R. Arno.

Location: Town of Wade, Aroostook County, Maine; on Wade farms at end of Dunn Town Road. Exact location on field sheet, photograph AHZ-34-79.

Present Vegetation: Hay field of clover and timothy.

Topography: Sample collected on a south, 2 percent slope.

Drainage: Somewhat poorly drained; surface runoff medium, permeability is slow.

Parent Material: Late Wisconsin glacial till.

Remarks: Sample collected for series identification. Soil was mapped as Daigle before 1956; correlated as Dixmont in 1956. (1290)

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10531	0-8	Dark grayish brown (10YR-4/2, moist) silt loam; medium granular structure; friable; 20 percent coarse skeleton; abrupt lower boundary; 7 to 10 inches thick.
B2A'2g 10532	8-13	Light olive brown (2.5Y-5/6) and dark brown (10YR-4/3) silt loam; many dark grayish brown (10YR-4/2) and gray brown (2.5Y-5/2) mottles; moderate medium platy structure; breaks to moderate medium granular structure; friable; few thin silt films on plates; 10 to 15 percent coarse skeleton clear wavy lower boundary; 3 to 8 inches thick.
B'21gm 10533	13-23	Dark brown (10YR-4/3) clay loam with pockets of silty clay loam; fine grayish brown (2.5Y-5/2) mottles; moderate medium subangular blocky structure; very firm and brittle; clay films on tops and sides of peds; peds and pores stained with manganese and organic material; coarse polygons; 20 to 30 percent coarse skeleton; clear wavy lower boundary; 8 to 12 inches thick.
B'22g 10534	23-34	Dark gray brown (10YR-4/2) silty clay loam; few fine gray brown (2.5Y-5/2) mottles; weak platy breaking to weak subangular blocky structure; very firm; few clay films on tops of plates; clear wavy lower boundary; 8 to 15 inches thick.
B'23 10535	34-39	Dark brown (10YR-4/3) silty clay; few gray brown (10YR-5/2) mottles; subangular blocky structure; very firm; few clay films on peds; 20 to 30 percent coarse skeleton; clear wavy lower boundary; 4 to 6 inches thick. 6.5PH.
B'24 10536	39-46 plus	Dark brown (10YR-4/3) silty clay loam; massive; very firm; plastic; 30 to 40 percent coarse skeleton.

Remarks: All soil colors taken from moist soil.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Daigle silt loam **LOCATION** Aroostook County, Maine

SOIL NOS. S58Me-2-9 **LAB. NOS.** 10542 - 10547

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 1B1a VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-7	Ap	7.0 a	4.8 a	2.4 a	4.9	6.0	51.7	23.2	25.1	35.0	23.3	sil
7-11	B_{2g}	11.5 a	7.2 a	3.9 a	7.5	6.9	43.0	20.2	24.6	29.0	32.8	l
11-16	A'2g	9.3 a	6.1 a	3.6 a	7.4	6.9	44.8	21.9	25.0	30.7	28.1	l
16-27	B'2g	8.2 a	5.0 a	2.9 a	6.2	6.1	41.9	29.7	22.8	28.6	33.8	cl
27-33	DU	25.5 a	12.4 a	6.3 a	9.3	4.8	20.9	19.8	16.5	13.5	56.9	cosl-scl
33-44	C	7.2 a	5.5 a	3.4 a	7.0	6.4	42.0	28.5	23.2	29.0	28.2	cl

pH 8C1a 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1e $CaCO_3$ equivalent %	4A1a Bulk Density g/cc	MOISTURE TENSIONS 1/10 ATMOS. %	1/3 ATMOS. %	4B2 15 ATMOS. %
4.9			3.37	0.214	16	2.8			--			12.4
5.0			1.04	0.088	12	2.0			--			8.5
5.0			0.31	0.045	7	1.8			--			7.8
6.2			0.13	0.033		2.2			--			12.2
6.7			0.11			2.3		< 1	--			9.0
7.1			0.11			2.0		< 1	--			10.0

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C3 Base Sat. % on Sum Cations	5A3a C.E.C. Sum me/100g.	MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →							
19.0	3.8	1.0	19.9	0.1	0.3	21	25.1	
10.1	1.3	0.3	13.4	<0.1	0.2	12	15.2	
7.3	1.7	0.5	8.7	<0.1	0.1	21	11.0	
14.4	10.1	3.1	4.4	0.1	0.2	75	17.9	
12.3	9.1	2.4	2.9	0.1	0.2	80	14.7	
10.8	8.7	0.9	2.4	0.1	0.2	80	12.3	

a. Few (Fe-Mn) concr.

b. Not corrected for coarse fragments contained in bulk density clod.

DAIGLE SILT LOAM
S58Me-2-9

Sample Collected: For characterization study. September 17, 1958 by J. Stewart Hardesty and John R. Arno. Description written by John R. Arno.

Location: Town of Perham, Aroostook County, Maine. Walter Houston's farm called Mouse Island; on dead end road west from Perham village off Route 228. Exact location on field sheet, photograph AHZ-35-35.

Present Vegetation: Hay field, mostly timothy and bluegrass.

Topography: Sample collected on a south slope of 3 percent.

Drainage: Somewhat poorly drained. Surface runoff is medium, permeability is slow.

Parent Material: Late Wisconsin glacial till developed from hard dark gray shales.

Remarks: Sample collected for series identification. Soil was Daigle before 1956; correlated as Dixmont in 1956. (1290)

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10542	0-7	Dark grayish brown (10YR-4/2, moist) silt loam; moderate medium granular structure; friable; 10 to 15 percent coarse skeleton; abrupt lower boundary; 6 to 10 inches thick.
B2g 10543	7-11	Yellowish brown (10YR-5/6) silt loam; with few fine grayish brown (10YR-5/2) and yellowish brown (10YR-5/6) mottles; weak medium granular structure; friable; 20 to 30 percent coarse skeleton; clear wavy lower boundary; 2 to 8 inches thick.
A'2g 10544	11-16	Grayish brown (2.5Y-5/2) silt loam; with many medium grayish brown (10YR-5/2) and yellowish brown (10YR-5/6) mottles; weak platy to granular structure; friable; clay films common; 20 to 30 percent coarse skeleton; clear wavy lower boundary; 3 to 6 inches thick.
B'2gm 10545	16-27	Dark grayish brown (10YR-4/2) clay loam with pockets of silty clay loam; many medium light olive brown (2.5Y-5/4) and light brownish gray (2.5Y-6/2) mottles; moderate medium subangular blocky structure; very firm and brittle; clay films on tops and sides of peds; manganese and organic stains; coarse polygons; 30 percent coarse skeleton; clear wavy lower boundary; 8 to 14 inches thick.
Du 10546	27-33	Grayish brown (2.5Y-5/2) gravelly loam; massive; firm in place friable when removed; 80 percent coarse skeleton; discontinuous horizon.
C 10547	33-44	Dark yellowish brown (10YR-4/4) silty clay loam; few fine grayish brown (2.5Y-5/2) mottles; moderate medium subangular blocky structure; very firm and stickly; clay films on tops and sides of peds; peds and pores stained with manganese and organic material; 30 to 40 percent coarse skeleton.

Remark: All soil colors taken from moist soil.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Dixmont silt loam **LOCATION** Penobscot County, Maine

SOIL NOS. S58Me-10-7 **LAB. NOS.** 10555 - 10560

		1B1a	PARTICLE-SIZE DISTRIBUTION (in mm.) (per cent)						3A1		
DEPTH		very				very				2A2	

DIXMONT SILT LOAM
S58Me-10-7

Sample Collected: For Characterization by Pedersen, Goodman, Kubota, Dever, Riley and Whitney 9/3/58. Description by Goodman.

Location: Lloyd Littlefield orchard 4 miles north of Newport on R. 7. Pit is at south end of young orchard on east side of road. This profile is on the same ridge as the Bangor and Monarda soils previously sampled for characterization study. It is down drainage somewhat for a good modal profile but does give the catena development for soils on this material.

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10555	0-9	Very dark grayish brown (10YR 3/2) mod. weak fine granular friable silt loam with an abrupt, smooth boundary. 10-20 percent coarse skeleton, strongly acid.
		A_2, trace, not sampled or described.
B21 10556	9-13	Dark yellowish brown (10YR 4/4), weak medium subangular blocky, friable silt loam with a clear wavy boundary. 10-20 percent coarse skeleton, strongly acid.
B22	13-23	Light olive brown (2.5Y 5/4: 5/0, 10YR 4/3) mottled
10557		dark brown, mod. strong medium platy, very firm gritty silt loam with a clear wavy boundary. Strongly acid, 10-20 percent coarse skeleton.
B32gm 10558	23-33	Intensely mottled olive, olive yellow (5Y 5/4:2.5Y 6/6) with brown spots moderately strong medium to coarse platy, extremely firm gritty silt loam with high percent of silt and clay and gradual wavy boundary. Medium acid, 10-20 percent coarse skeleton.
B33gm 10559	33-44	Light olive brown mottled gray and pale brown (2.5Y 5/4: 2.5Y 5/1: 10YR 6/3) mod. strong medium to coarse platy, very firm gritty silt loam with high percent silt and clay and clear wavy boundary. Medium acid, 15-25 percent coarse skeleton.
C1 10560	44-52	Light olive brown (2.5Y 5/4) slightly mottled gray and olive brown mod. strong thin platy, very hard or firm gritty silt loam. Slightly acid or neutral, 15-25 percent coarse skeleton.

Note: A definite "pan" development was observed in this profile. All of the B horizons are strongly platy in place and are brittle and easily fractured when displaced. The soil also loses its firmness and becomes slightly friable with depth when excavated. Roots are concentrated in the upper 13 inches, many to 16 inches and few below this.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Dixmont silt loam **LOCATION** Penobscot County, Maine

SOIL NOS. S58Me-10-9 **LAB. NOS.** 10568 - 10574

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1									2A2	TEXTURAL CLASS
		1B1a VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2 (<19mm)	
0-7	Ap	10.5	7.7	3.6	6.1	8.9	53.6	9.6	37.2	28.7	14.6	sil
7-10	B_{21}	12.9	10.1	4.6	7.4	9.7	48.2	7.1	36.6	25.3	19.7	l-sl

DIXMONT SILT LOAM
S58Me-10-9

Sample Collected: For characterization by Pedersen, Kubota, Dever, Hardesty, Epstein, Grant, Riley, Whitney and Goodman 9/4/58. Description by Goodman.

Location 2 miles north Corinna on Rt. 7 near experimental plots by Extension Service. Pit was dug on south end of plots on west side of road on a gentle concave slope. This profile represents the moderately deep Dixmont silt loam which is frequently associated with the Thorndike silt loams rather than the usual Bangor soils. This is not a modal profile but is representative for this kind of Dixmont silt loam.

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10568	0-7	Dark grayish brown (10YR 4/2), weak medium granular, friable silt loam with abrupt smooth boundary. Strongly acid, 5-10 percent coarse skeleton.
B21 10569	7-10	Olive yellow (2.5Y 6/6), weak fine subangular blocky friable silt loam with clear wavy boundary. Strongly acid, 10-15 percent coarse skeleton.
B22gm 10570	10-15	Olive, mottled pale olive and light olive brown (5Y 5/3; 6/4: 2.5Y 5/6), strong medium platy very firm silt loam with high percent of silt and clay and clear wavy boundary. Strongly acid, 15-20 percent coarse skeleton.
B31gm 10571	15-23	Olive, mottled with pale olive (5Y 5/4; 6/4) strong medium platy, very firm silt loam with high percent of silt and clay and gradual wavy boundary. Strongly acid, 15-20 percent coarse skeleton.
B32gm 10572	23-32	Olive, faintly mottled pale olive and with brown spots 5Y 5/4; 6/4: 10YR 4/3), mod. strong, medium to thin platy, very firm, gritty silt loam with gradual wavy boundary and many brown "ghosts". Medium acid, 15-20 percent coarse skeleton.
B33gm 10573	32-38	Similar to above
C1 10574	38-44	Olive (5Y 4/4), strong medium platy, very firm, gritty silt loam with brown ghosts and an abrupt smooth boundary next to lime seamed bedrock (Dr).

Note: The "fragipan" layers (B---gm) have pronounced platiness in place but break into fine and medium subangular blocky peds that are brittle and easily crushed when the soil is excavated.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Dixmont silt loam **LOCATION** Penobscot County, Maine

SOIL NOS. S58Me-10-10 **LAB. NOS.** 10575 - 10581

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-7	Ap	7.4a	4.8a	2.5a	5.7	7.5	58.2	13.9	31.1	37.9	24.4	sil
7-11	B_2	9.4a	5.0a	2.8a	6.2	7.4	55.3	13.9	29.7	36.7	23.0	sil
11-15	B_{31gm}	7.6a	6.2a	3.6a	8.1	8.9	50.5	15.1	31.2	32.9	25.1	sil-l
15-25	B_{32gm}	6.7a	6.4a	3.7a	9.1	10.3	52.0	11.8	35.0	32.5	20.8	sil
25-36	B_{33gm}	14.6a	8.7a	4.8a	10.7	11.4	42.1	7.7	35.7	23.9	29.4	l
36-46	B_{34gm}	9.6a	9.2a	6.4a	14.2	15.7	40.1	4.8	43.8	19.8	29.7	sl
46-60+	C_1	11.2a	9.3a	5.7a	13.4	15.5	40.9	4.0	43.7	20.6	29.0	sl

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	$CaCO_3$ equivalent %	4A1a[b] Bulk Density g/cc	MOISTURE TENSIONS 1/10 ATMOS. %	1/3 ATMOS. %	4B2 15 ATMOS. %
5.7			2.66	0.215	12	2.4			1.32			8.1
5.6			1.70	0.126	14	2.5			1.36			7.2
5.8			0.16	0.034		2.9			1.52			6.5
5.8			0.16	0.052		2.4			1.90			6.4
5.9			0.05			2.6			1.84			3.9
6.0			0.04			2.6			1.89			3.0
6.0			0.04			2.3			1.96			2.5

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 5B1a 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C3 Base Sat. % on Sum Cations	5A3a C.E.C. Sum me/100g.					MOISTURE AT SATURATION %
	← milliequivalents per 100g. soil →											
11.8	5.7	0.8	11.4	0.1	0.1	37	18.1					
6.0	2.9	0.4	11.9	0.1	0.2	23	15.5					
4.1	1.4	0.4	5.1	0.1	0.2	29	7.2					
6.0	1.0	0.2	7.8	0.1	0.2	16	9.3					
3.4	1.4	0.2	2.9	0.1	0.1	38	4.7					
3.4	1.4	0.3	1.2	0.1	0.1	61	3.1					
2.7	1.2	0.2	1.0	0.1	0.1	62	2.6					

a. Few (Fe-Mn?) Concr.

b. Not corrected for coarse fragments contained in bulk density clod.

DIXMONT SILT LOAM
S58Me-10-10

Sample Collected: For Characterization study by Goodman, Whitney, and Riley 9/8/58. Description by Goodman.

Location West of Village of Corinna in Hopkins pasture between road corner and dam, on a nearly level ridge top. This profile represents a modal profile for the deep silty Dixmont soils.

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10575	0-7	Dark brown (10YR 3/3), weak fine granular friable silt loam with abrupt smooth boundary. Strongly acid, 10-20 percent coarse skeleton.
B2 10576	7-11	Yellowish brown (10YR 5/6), weak fine subangular blocky firm silt loam with a clear wavy boundary. Strongly acid, 10-20 percent coarse skeleton.
B31g 10577	11-15	Pale olive (5Y 6/3) mottled with yellowish brown and dark yellowish brown (10YR 5/4, 4/4) weak thin platy, firm silt loam with clear wavy boundary. Strongly acid, 10-20 percent coarse skeleton.
B32gm 10578	15-25	Intensely mottled olive gray (5Y 5/2) dark brown (10YR 4/3) and olive brown (2.5Y 4/4), strong medium platy, extremely firm "heavy" silt loam with gradual wavy boundary. Strongly acid, 10-20 percent coarse skeleton.
B33gm 10579	25-36	Strongly mottled olive brown (2.5Y 4/4) weak medium platy, very firm "heavy" silt loam with gradual wavy boundary. Medium acid, 20-30 percent coarse skeleton.
B34gm 10580	36-46	Dark grayish brown (10YR 4/2) with common mottles of grayish brown (2.5Y 5/2) weak thick platy, firm, gritty silt loam with diffuse wavy boundary. Medium acid, 20-30 percent coarse skeleton.
C1 10581	46-60	Dark yellowish brown (10YR 4/4) weak medium subangular blocky, friable, gritty silty loam. Medium acid, 20-30 percent coarse skeleton.

Note: This continues for another foot into dark olive friable silty glacial till with many dark brown "ghosts". This modal profile shows good "pan" development with many weathered stones and pebbles. Roots are concentrated in upper 11 inches, many to 15, and few below this.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Dixmont silt loam **LOCATION** Penobscot County, Maine

S58Me-10-1[illegible] **LAB. NOS.** 10582 - 10588

DIXMONT SILT LOAM
S58Me-10-14

Sample Collected: For characterization sample by Goodman, Whitney, and Riley 9/9/58. Description by Goodman.

Location: 2 miles southwest Corinna on back road to Newport in Nutter pasture on south side of road. This modal profile has less B_2 than usual but shows a good "pan" development and has many weathered rock ("ghosts").

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10582	0-7	Dark yellowish brown (10YR 4/4), weak medium granular, very friable silt loam with an abrupt smooth boundary. Strongly acid, 10-20 percent coarse skeleton.
B2p 10583	7-9	Yellowish brown (10YR 5/6), weak medium platy, friable silt loam with a clear discontinuous boundary. Strongly acid, 10-20 percent coarse skeleton.
B31gm 10584	9-15	Pale olive (5Y 6/4; 2.5Y 5/6) with common small mottles olive brown, moderately strong medium platy, firm silt loam with a clear wavy boundary, strongly acid, 10-20 percent coarse skeleton.
B32gm 10585	15-23	Intensely mottled light olive brown and light olive gray (2.5Y 5/4, 5/6; 5Y 6/2), strong medium platy, extremely firm, heavy silt loam; strongly acid, 10-20 percent coarse skeleton.
B33gm 10586	23-37	Light olive gray (5Y 6/2; 2.5Y 5/4; 10YR 6/6) with many mottles of light olive brown and brownish yellow, strong medium platy, extremely firm, "heavy" silt loam with clear wavy boundary. Medium acid, 20-30 percent coarse skeleton.
B34gm 10587	37-50	Dark yellowish brown (10YR 4/4, 5/4) with a few mottles of yellowish brown, moderately strong medium platy very firm gritty silt loam with a diffuse wavy boundary. Medium acid, 30-40 percent coarse skeleton.
C1 10588	50-56	Olive brown (2.5Y 4/4) weak medium platy, very firm gritty silt loam with a diffuse wavy boundary, into deeper and darker olive glacial till. Medium or slightly acid, 30-40 percent coarse skeleton.

Note: The "fragipan" (B---gm) layers in this soil are very firm and platy in place but when excavated the soil is brittle and breaks readily into weak platy and subangular blocky peds. These are friable and can readily be crushed into gritty small plaques between thumb and finger.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Easton silt loam SOIL Nos. S56Maine-2-2 LOCATION Aroostook County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561211 - 561216

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm																
0-8	Ap	20.3	51.2	28.5	3.6	3.9	2.4	4.5	5.9	14.1	37.1	22.7	14.4			9		
8-15	A2g	35.1	50.7	14.2	10.8	6.6	3.6	6.3	7.8	18.6	32.1	30.0	27.3			7		
15-27	B21g	29.6	44.6	25.8	5.8	6.0	3.8	6.6	7.4	13.5	31.1	24.6	22.2			18		
27-38	B22g	29.8	48.2	22.0	6.1	5.9	3.5	6.3	8.0	15.1	33.1	26.6	21.8			14		
38-50	B23g	34.2	44.7	21.1	8.0	6.7	4.1	7.2	8.2	13.8	30.9	26.0	26.0			18		
50-58	C1	34.2	44.7	21.1	6.3	7.3	4.5	7.7	8.4	13.7	31.0	26.4	25.8			16		

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	5.8	0.328	18			1.5					41.2	15.5				4.8
8-15	0.63	0.069	9			1.5					23.1	5.7				5.2
15-27	0.27				1	1.8					22.1	9.6				7.2
27-38	0.15				2	1.8					27.5	8.9				7.7
38-50	0.08				9	1.5					22.1	8.3				7.8
50-58	0.09				6	1.3					19.0	8.0				7.8

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. Iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-8	4.1	1.3	0.1	0.4	5.9	26.7	32.5			1.14	0.05	0.54		18	
8-15	1.8	0.3	0.1	0.2	2.4	7.0	9.4			0.66	0.10	0.40		26	
15-27	a										0.07	0.37			
27-38	a										0.08	0.40			
38-50	a										0.07	0.39			
50-58	a										0.06	0.38			

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Calcareous.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Easton silt loam
Soil No.: S56Maine-2-2
Location: Aroostook County, Maine. T. Thompson Farm approximately 3 miles east of Presque Isle and 1/2 mile south of Academy Street extension at the end of farm road about 150 feet from the woods.
Vegetation and land use: Pasture
Slope and land form: 1 or 2 percent
Drainage: Poorly drained
Parent Material: Late Wisconsin glacial till largely from the underlying gray calcareous shale, which has some interbeds of nearly pure limestone. The till also includes material from nearby bedrock formation.
Sampled by and date: W. Farley, J. S. Hardesty, E. J. Pedersen. July 12, 1956.
Described by: W. H. Lyford

Horizon and Beltsville Lab. No.	
Ap 561211	0 to 8 inches. Dark brown (10YR 3/3 moist) silt loam with weak fine granular structure in the 10YR 3/3 remnants of A1, but the numerous 2 to 4 inch clods of A2g are massive and not yet mixed by cultivation; friable; grass roots numerous; 10-20 percent of volume of 1-3 inch diameter subrounded hard leached calcareous shale and some fine grained quartzite; pH less than 5.0; abrupt smooth boundary.
A2g 561212	8 to 15 inches. Grayish brown (2.5Y 5/2 moist) silt loam with a few fine faint light olive brown (2.5Y 5/3 and 5/4) mottles; moderate to strong medium (1/4 inch thick) platy structure; many horizontal clay-coated pore channels visible on surface of plates but none elsewhere; friable to firm in place
	not sticky or plastic, weakly brittle; few roots; many fine nearly vertical cylindrical continuous pores in the peds, these open on the upper surface of the plates and the openings and channels leading to the openings are clay glazed; many fine (1mm.) strong brown spherical concretions observed when peds are cut but not when crushed, 5-10 percent coarse skeleton mostly in the 1/4-1/2 inch diameter range; pH 5.0; abrupt smooth boundary.
B21g 561213	15 to 27 inches. Mottled gravelly silty clay loam with compound very weak very coarse blocky and weak medium platy structure at the top, structure becomes weaker with depth. Peds surfaces are grayish brown to light olive brown (2.5Y 5/3 moist), interiors have many medium distinct light olive brown (2.5Y 5/4) dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/8) mottles in about equal proportions, crushed color is 2.5Y 5/4; friable in place and rather easily penetrated with a spade, slightly sticky and plastic; no, or few, roots; network of fine irregular shaped pores in peds; 30-50 percent by volume of 1-3 inch diameter subrounded and angular coarse fragments about half of which are yellowish brown (10YR 5/6) firm leached shale which is fairly easily broken with the fingers or cut with a knife; non or very weakly calcareous. Clear smooth boundary.
B22g 561214	27 to 38 inches. Much like horizon above but massive and with few or no ped faces; perhaps more coarse skeleton than in horizon above, calcareous. A vein of water was hit at about 36 inches and water dripped into the hole rapidly at first and later stopped. In contrast with the C horizon the B22g and B23g horizons are rather wet and "soupy"; gradual boundary.
B23g 561215	38 to 50 inches. Much like horizon above; abrupt smooth boundary.
C1 561216	50 to 58 inches. Light olive brown (2.5Y 5/4 moist) gravelly light silty clay loam with weak to moderate medium platy structure; ped faces have no clay glazes; firm in place, friable when removed, not sticky or plastic; nonporous; 10-15 percent by volume, 1/4-1 inch diameter subrounded shale, silt stone and fine grained quartzite, essentially no ghosts; moderately calcareous.

Notes: The 0-8, 8-15, 27-38, and the 50-58 inch zones were sampled for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Easton silt loam SOIL Nos. S56Maine-2-3 LOCATION Aroostook County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561217 - 561222

Depth (In.)	Horizon	181b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt		Int. II			2A2	2 - 19	19 - 76
		Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	0.05-0.02	Int. III (0.02-0.002)	(0.2-0.02)	(2-0.1)	Cm	≥ 2	Pct. of < 76mm	
		Pct. of < 2 mm													Pct.		
0-10	Ap	34.3	49.4	16.3	7.9	5.9	3.9	7.3	9.3	19.0	30.4	32.4	25.0		13		
10-14	A2g	39.6	45.3	15.1	7.5	7.4	5.2	9.0	10.5	16.0	29.3	31.9	29.1		15		
14-22	B21g	33.3	42.5	24.2	5.4	6.0	4.5	8.0	9.4	13.2	29.3	27.3	23.9		15		
22-32	B22g	34.1	42.8	23.1	6.2	6.2	4.6	8.0	9.1	13.5	29.3	27.2	25.0		13		
32-43	B23g	35.4	42.4	22.2	5.3	6.6	4.9	8.9	9.7	15.2	27.2	30.2	25.7		16		
43-54	C	38.3	43.1	18.6	5.7	7.8	5.8	9.6	9.4	14.1	29.0	28.9	28.9		28		

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N		6E1e Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density 4A3a Field Moist Cores	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content	4B1c ⅓ bar	4B2 15 bar	4C1 WRD	pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	in/in		
0-10	3.23	0.244	13			1.3	0.92					30.8	10.4			5.5
10-14	0.27					1.3	1.74					17.3	4.9			6.0
14-22	0.16					1.7	1.78					19.5	9.7			6.5
22-32	0.13					1.7	1.84					19.8	9.8			6.5
32-43	0.08					1.5	1.76					19.7	8.8			6.9
43-54	0.12				5	1.3						17.1	7.2			7.8

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al	Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-10	9.6	0.4	0.1	0.2	10.3	15.2	25.5			1.56	0.08	0.64		40	
10-14	5.1	0.3	0.1	0.1	5.6	3.3	8.9			0.59	0.09	0.32		63	
14-22	9.8	0.8	0.1	0.1	10.8	3.0	13.8			0.57	0.07	0.40		78	
22-32	10.1	0.9	0.1	0.1	11.2	2.3	13.5			0.58	0.07	0.42		83	
32-43	9.1	1.0	0.1	0.1	10.3	1.9	12.2			0.55	0.07	0.40		84	
43-54	a										0.07	0.39			

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Calcareous.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Easton silt loam
Soil No.: S56Maine-2-3
Location: Aroostook County, Maine. Lovely Farm, approximately 5 miles southeast of Presque Isle, on road to Easton. Approximately 1/2 mile east of Troad corner.
Vegetation and land use: The idle end of this field has a good stand of timothy, blue grass, buttercup, goldenrod, strawberries, and Devil's paint brush.
Slope and land form: Nearly level area at end of a long 3-8 percent slope occupied by Caribou soils.
Drainage: Poorly drained
Parent Material: Late Wisconsin glacial till largely from the underlying gray calcareous shale, which has some interbeds of nearly pure limestone. The till also includes material from nearby bedrock formation.
Sampled by and date: J. S. Hardesty, W. Farley, and E. J. Pedersen. July 13, 1956.
Described by: W. H. Lyford

Horizon and Beltsville Lab. No.	
Ap 561217	0 to 10 inches. Very dark brown (10YR 2/2 moist) silt loam, gray (N 5/) when dry, with strong very coarse and fine granular structure, moist peds crush to very dark grayish brown (10YR 3/2); very friable, common earthworms; night crawlers are numerous, and the latter have tunnels penetrating vertically to 24-30 inches by volume of 1-3 inches diameter, hard subrounded dark gray shale and fine grained quartzite; pH 5.5; abrupt smooth boundary.
A2g 561218	10 to 14 inches. Grayish brown (2.5Y 5/3 moist) silt loam with moderate very coarse and coarse (1/2 inch) platy structure; firm in place, friable when removed, not sticky or plastic; many fine vertical cylindrical pores which penetrate the peds; the pore openings in the upper ped surface are clay glazed; but under surfaces have pavement of clean pebbles. Ped surface is a uniform 2.5Y 5/3, interiors have common fine faint mottles of 2.5Y 5/4 and 4/4, many very fine 10YR 5/8 hard spherical concretions show on cut surface, 5-10 percent by volume 1/4-1/2 inch diameter coarse skeleton, no ghosts; pH 6.0-6.3; abrupt smooth boundary.
B21g 561219	14 to 22 inches. Mottled silty clay loam with common medium distinct mottles of yellowish brown (10YR 5/6), dark yellowish brown (10YR 4/4) and gray (N 5/) in about a 40-40-20 proportion, respectively; compound very weak very coarse (6-8 inches) prisms and moderate very coarse angular blocky structure with distinct clay glazed pore channeled solid colored (2.5Y 5/4 - 4/4) faces; firm in place, slightly sticky and platic; many fine pores; 10-20 percent 1/4-1/2 inch diameter subangular shale fragments, no ghosts; pH 6.5-7.0; clear smooth boundary.
B22g 561220	22 to 32 inches. Like above but not prismatic and with very weak blocky structure and many black and brown soft calcareous shale ghosts, ghosts are clayey when smeared in fingers; gradual smooth boundary. This is the horizon of maximum ghosts.
B23g 561221	32 to 43 inches. Like above but with compound very weak coarse angular blocky and very weak coarse platy structure with clay glazes on blocky ped surfaces but not on plates; 30-40 percent by volume of 1/2-2 inch partially leached subrounded calcareous shale, and some dark gray fine grained quartzite; noncalcareous; abrupt smooth boundary. This is the horizon of maximum coarse skeleton and resembles a "stone line".
C 561222	43 to 54 inches. Olive brown (2.5Y 4/4 moist) gravelly light silty clay loam, not mottled, with moderate medium platy structure, plates overlapped and feathered at edges 1 to 3 inches wide and 1/4 inch thick; firm to very firm in place, friable when removed; no pores; no clay glazes, very few ghosts, 20-40 percent coarse skeleton of calcareous and noncalcareous dark gray hard shale and fine grained quartzite; moderately calcareous.

Notes: 0-10, 10-14, 22-32, and the 43-54 inch zones were sampled for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Easton very stony silt loam SOIL Nos. S56Maine-10-1 LOCATION Penobscot County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561230-561237

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-3	A11	15.8	52.9	31.3	2.4	3.0	1.8	3.6	5.0	16.4	36.5	23.7	10.8			24		
3-9	A12g	30.5	44.6	24.9	8.7	6.4	3.1	5.4	6.9	17.4	27.2	27.6	23.6			34		
9-12	A2g	42.7	39.1	18.2	9.6	9.4	5.5	9.2	9.0	13.9	25.2	28.4	33.7			23		
12-22	B21g	38.3	38.6	23.1	8.6	8.9	4.8	8.3	7.7	13.0	25.6	25.6	30.6			28		
22-30	B22g	35.9	38.1	26.0	7.3	8.6	4.6	7.9	7.5	11.7	26.4	23.7	28.4			12		
30-39	B31g	35.3	39.3	25.4	7.8	7.7	4.6	7.6	7.6	13.1	26.2	25.2	27.7			17		
39-48	B32g	34.3	39.9	25.8	7.3	7.4	4.3	7.7	7.6	11.1	28.8	23.3	26.7			38		
48-56+	C1	33.8	39.9	26.3	6.2	7.3	4.5	7.9	7.9	11.8	28.1	24.4	25.9			18		

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density 4A3a Field Moist Core g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in		pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-3	9.0	0.656	14			1.3	.75					51.9	22.8					5.6
3-9	2.59	0.218	12			1.5						29.1	13.8					5.4
9-12	0.25					1.3						17.7	6.3					5.9
12-22	0.16					1.5						18.9	8.9					5.9
22-30	0.10					1.7						20.3	10.9					6.1
30-39	0.10					1.3						20.2	10.5					6.5
39-48	0.11					1.6						20.7	10.4					6.6
48-56+	0.10					1.3						18.8	10.0					7.4

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-3	16.8	3.1	0.2	0.6	20.7	28.4	49.1					1.57	0.04	0.73	5		42	
3-9	7.0	1.3	0.1	0.3	8.7	15.5	24.2					0.97	0.06	0.55	5		36	
9-12	3.8	0.9	0.1	0.2	5.0	4.0	9.0					0.49	0.07	0.35			56	
12-22	5.4	1.1	0.1	0.1	6.7	4.4	11.1					0.48	0.06	0.38	5		60	
22-30	7.0	1.7	0.1	0.1	8.9	4.2	13.1					0.50	0.06	0.42	4		68	
30-39	7.2	2.0	0.1	0.2	9.5	3.6	13.1					0.52	0.05	0.41	4		72	
39-48	7.4	2.2	0.1	0.2	9.9	2.7	12.6					0.49	0.06	0.40	3		78	
48-56+	7.9	1.7	0.1	0.2	9.9	0.8	10.7					0.41	0.05	0.38	5		92	

[redacted]

Clay Fraction Analysis 7A1b-d

[redacted]

Soil Type: Easton very stony silt loam
Soil No.: S56Maine-10-1
Location: Penobscot County, Maine. 2 miles north of Shin Pond on Route 159, about 200 feet west of the road just before the road curves to the south.
Vegetation and land use: Pasture
Slope and land form: 2 percent gentle slope
Drainage: Poorly drained
Parent Material: Late Wisconsin glacial till largely from the underlying gray calcareous shale, which has some interbeds of nearly pure limestone. The till also includes material from nearby bedrock formation.
Sampled by and date: R. A. Bither, K. V. Goodman, E. J. Pedersen, and W. H. Lyford. July 16, 1956.

Horizon and Beltsville Lab. No.	
A11 561230	0 to 3 inches. Very dark brown (10YR 2/2) strong silt loam; weak fine granular structure, very friable, grass roots numerous; up to 50 percent of volume of 4-8 inch rounded stones, pH 5.8; abrupt clear boundary.
A12g 561231	3 to 9 inches. Very dark grayish brown (10YR 3/2 moist) stony silt loam with weak coarse to fine granular structure; very friable; roots numerous; up to 50 percent of volume 3-8 inch rounded hard shale; a few fine 10YR 4/4 mottles occur. Material has a rather characteristic very dark brown dull dirty color. Abrupt smooth boundary.
A2g 561232	9 to 12 inches. Grayish brown (2.5Y 5/2 moist) light silty clay loam, strong fine trapezoidally blocky structure with a suggestion of platiness, each ped is coated with gray with the interiors 2.5Y 4/4; roots common, no pores or pore channels; 5-10 percent by volume 1/4-1/2 inch subangular blocky shale; few fine brown spherical concretions; pH 6.3; abrupt smooth boundary.
B21g 561233	12 to 22 inches. Mottled grayish brown (2.5Y 5/2) gravelly silty clay loam, with exterior of strong very coarse to fine angular subangular blocky peds solid color 2.5Y 5/2 and interiors with common fine distinct mottles of olive brown (2.5Y 4/4) crushed slightly sticky and plastic, color is also 2.5Y 4/4; friable to firm in place, very friable removed; roots common along very coarse prism faces and between blocky peds; no pores either along ped faces or inside; very coarse prisms 12-18 inches apart occur and the prism faces are solid colored grayish brown (2.5Y 5/2) bordered with yellowish brown (10YR 5/4 to 5/6). The grayish surfaces are silty clay, the interiors gravelly silty clay loam; 10-20 percent by volume 1/2-1 inch subangular blocky shale with some as large as cobbles or stones, less gravelly than horizon below. pH 6.5-7.0; clear smooth boundary.
B22g 561234	22 to 30 inches. Much like horizon above but firmer and with noticeably greater content of gravel, 20-40 percent as contrasted to 10-20 percent. Most of water coming from this horizon and most comes along polygon faces, some also along blocks, runs into holes constantly, about 2-4 gallons every five minutes in a 2 x 6 foot hole.
B31g 561235	30 to 39 inches. Essentially like horizon below and subdivided arbitrarily in the middle. Mottles along prism faces and very few or none in platy peds 0.1 percent of volume is brown soft ghosts.
B32g 561236	39 to 48 inches. Olive brown (2.5Y 4/4 moist) gravelly silty clay loam, with about 20 percent of area common coarse distinct grayish brown mottles; compound weak very coarse 6-8 inch diameter prismatic and moderate medium platy structure; very firm to firm in place, friable when removed; no roots; no pores; faces of prisms are solid colored 2.5Y 5/2 silty clay with dark yellowish brown (10YR 4/4) 1/4 inch borders, clay glazed surfaces on prism faces; dark reddish brown fine common mottles on surface of platy peds; pH 6.5-7.0, abrupt smooth boundary.
C1 561237	48 to 56 inches plus. Olive brown (2.5Y 4/4 moist) gravelly silty clay loam, moderate medium platy structure. Very firm to firm in place, friable when removed; no roots; no pores; no clay flows, 20-40 percent by volume of 1/4-4 inch diameter subangular dark gray shale, some of which are weakly calcareous ; 8-12 inch size boulders occur at intervals of 2-3 feet; no running water in this horizon, 2.5Y 5/2 mottles occur along ped faces at bottom end of polygon cracks; pH 7.0 plus; possibly on bedrock at 56 inches.

Notes: The 3-9, 22-30, and the 48-56 inch zones were sampled for the Bureau of Public Roads.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Monarda silt loam **LOCATION** Penobscot County, Maine

SOIL NOS. S58Me-10-6 **LAB. NOS.** 10548 - 10554

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)							3A1		2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2 (<19mm.)	
0-8	Ap	6.3	4.5	3.3	8.9	8.6	56.1	12.3	34.5	35.0	13.6	sil
8-11	A_2g	5.0	5.0	4.2	11.5	10.1	55.8	8.4	39.0	32.7	15.3	sil
11-18	B_{21}	6.7	5.5	4.4	12.5	10.2	49.9	10.8	36.1	30.6	13.9	l-sil

MONARDA SILT LOAM
S58Me-10-6

Sample Collected: Characterization study by Pedersen, Goodman, Kubota, Dever, Riley and Whitney 9/2/58. Description by Goodman.

Location: Lloyd Littlefield orchard 4 miles north of Newport on Rt. 7. Pit is in depression on south end of new orchard east of road. The profile is from part of the same glacial ridge on which a Bangor and a Dixmont characterization sample is located.

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10548	0-8	Very dark grayish brown (10YR 3/2), moderately weak granular, friable, silt loam with abrupt smooth boundary. Strongly acid, 10-20 percent coarse skeleton.
A2g 10549	8-11	Pale olive (5Y 6/3) slightly mottled with pale yellow (2.5Y 7/4), weak thin platy, friable silt loam with clear wavy boundary. Strongly acid, 10-20 percent skeleton.
B31gm 10550	11-18	Mottled light olive brown and gray (2.5Y 5/4, 5/0) weak medium platy, very firm (and brittle) silt loam with clear wavy boundary. Strongly acid, 10-20 percent coarse skeleton.
B32gm 10551	18-23	Intensely mottled gray (5Y 5/1) brown and pale brown (10YR 4/3, 6/3), and olive brown (2.5Y 3/4), strong medium platy, extremely firm silt loam with high percent silt and clay and gradual wavy boundary. Medium acid, 20-30 percent coarse skeleton.
B33gm 10552	23-35	Intensely mottled gray (5Y 5/1) pale brown and light olive brown (10YR 6/3; 2.5Y 3/4), strong fine platy, very firm silt loam with high percent silt and clay and gradual wavy boundary. Medium acid, 20-30 percent coarse skeleton.
B34gm 10553	35-44	Gray (5Y 6/1) with many mottles olive brown (2.5Y 4/4), weak thin platy, extremely firm silt loam with noticeable silt and clay and clear wavy boundary, medium acid, 40-50 percent coarse skeleton.
Cg 10554	44-52 plus	Yellowish brown (10YR 5/4) slightly mottled pale brown (10YR 6/3) weak fine subangular blocky firm gritty silt loam. Medium acid, 30-40 percent coarse skeleton.

Note: All the fragipan (Bgm) layers are extremely or very firm in place, but when excavated are brittle and break easily into fine subangular peds. These are friable and easily crushed. The B_3 layers have well-defined gray outlines of silt and clay polygons along the surface of the pit. Roots are concentrated in upper 10 inches, many to 15 inches and few or none below this.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Monarda silt loam **LOCATION** Penobscot County, Maine

SOIL NOS. S58Me-10-8 **LAB. NOS.** 10561 - 10567

DEPTH INCHES	HORIZON	PARTICLE-SIZE DISTRIBUTION (in mm.) (per cent) 1B1a								3A1	2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2 (<19mm)	

MONARDA SILT LOAM
S58Me-10-8

Sample Collected: Characterization study by Pedersen, Dever, Kubota, Riley, Whitney, and Goodman 9/3/58. Description by Goodman.

Location: 2 miles southwest of Corinna on back road to Newport on Tuttle farm. Pit is in pasture opposite house within 50 yards of the road on its east side. It occupies a gently sloping stream headwater area in deep glacial till. This is a good modal profile of Monarda silt loam as it occurs most frequently in cleared areas. When it is stony, the soil is mapped as a complex with Burnham stony silt loam.

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10561	0-7	Very dark grayish brown (10YR 3/2) weak fine granular, friable silt loam with abrupt smooth boundary. Strongly acid, 10-20 percent coarse skeleton.
A2g 10562	7-10	Light olive gray (5Y 6/2), weak thin, platy, friable silt loam with a clear wavy boundary. Strongly acid, 10-20 percent coarse skeleton.
B31gm 10563	10-15	Mottled olive and light olive brown (5Y 5/3: 2.5Y 5/4) strong thin platy firm and brittle silt loam with clear wavy boundary. Strongly acid, 10-20 percent coarse skeleton.
B32gm 10564	15-26	Intensely mottled olive gray and light olive brown (5Y 5/2: 2.5Y 5/6) with red (10R 5/8) spots, strong medium platy, extremely firm silty clay loam with gradual wavy boundary. Medium acid, brown "ghosts", and 20-30 percent coarse skeleton.
B33gm 10565	26-38	Mottled olive gray and light olive gray (5Y 5/2: 6/2), moderately strong medium platy, extremely firm silty clay loam with gradual wavy boundary. Medium acid, brown "ghosts", and 20-30 percent coarse skeleton.
B34gm 10566	38-50	Olive, mottled pale olive and gray (5Y 5/4: 5Y 6/4: 5/1) weak medium platy, very firm gritty silt loam (silty clay loam ?) with gradual wavy boundary. Medium acid, 30-40 percent coarse skeleton with a large (2-3 feet diameter) granitic boulder in the soil.
C1g 10567	50-62	Olive, slightly mottled pale olive (5Y 5/4: 6/4); many red (2.5YR 5/6) hematite concretions, weak thin platy, firm gritty silt loam (silty clay loam?) with gradual wavy boundary into olive till. This is slightly sticky and plastic when wet; medium to slightly acid, 30-40 percent coarse skeleton.

Note: The platy structure is pronounced in place but breaks into weak fine to medium subangular blocky peds when displaced. These are friable and crush easily when moist. The C_{1g} layer is slightly sticky and plastic when wet. Roots are concentrated in the upper 10 inches, a few extend to 15 inches and none below 20 inches.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Perham gravelly silt loam **LOCATION** Aroostook County, Maine

SOIL NOS. S58Me-2-5 **LAB. NOS.** 10521 - 10527

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 1B1a							3A1		2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2 (<19mm.)	
0-9	Ap	4.8	4.6	3.3	7.0	8.9	56.1	15.3	33.6	35.3	22.1	sil
9-12	A_2B_2	8.4	6.6	3.9	8.1	8.7	49.6	14.7	30.0	32.7	36.1	l-sil
12-19	A'_2	10.3	5.7	3.7	8.1	8.5	43.8	19.9	28.7	28.2	27.7	l
19-27	B'_{21}	6.2	4.2	2.8	6.4	7.3	42.5	30.6	24.6	28.8	19.1	cl
27-36	B'_{22}	6.6	4.7	3.2	5.6	8.2	43.8	27.9	25.2	29.3	26.4	cl
36-48	B'_{23}	8.0	6.1	4.0	8.3	7.9	43.9	21.8	27.1	29.4	24.9	l
48-60	B'_3	5.1	4.2	3.1	7.3	8.1	49.3	22.9	29.4	32.0	23.2	l

pH 8C1a			ORGANIC MATTER 6A1a	6B1a		6C1a	ELECTRICAL CONDUCTIVITY EC × 10^3 MILLIMHOS PER CM	$CaCO_3$ equivalent	4A1a[a]	MOISTURE TENSIONS		4B2
	1:5	1:10	ORGANIC CARBON	NITROGEN	C/N	Free Iron %			Bulk Density	1/10 ATMOS.	1/3 ATMOS.	15 ATMOS.

PERHAM GRAVELLY SILT LOAM S58Me-2-5

Sample Collected: For characterization study. September 9, 1958 by E. J. Pedersen, Bob Dever, Joe Kubota, Roy Bither, Bryce McEwen, J. Stewart Hardesty, and John R. Arno. Description written by John R. Arno.

Location: Town of Perham, Aroostook County, Maine. Walter Houston's farm called Mouse Island; on dead end road west from Perham village off Route 228. Exact location field sheet, photograph AHZ-35-35.

Present Vegetation: Hay field of clover that was plowed under a few weeks before sample was collected.

Topography: Sample collected on top of a ridge on 3 percent slope.

Drainage: Well-drained; surface runoff is medium, permeability is moderately slow.

Parent Material: Late Wisconsin glacial till developed from hard dark gray shales.

Remarks: Sample collected for series identification. Soil was called Perham before 1956; correlated as Plaisted in 1956. (Map No. 1272)

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10521	0-9	Dark yellow brown (10YR-4/4, moist) gravelly silt loam; weak fine granular structure; friable; 20 percent coarse skeleton; abrupt lower boundary; 8 to 11 inches thick.
A2B2 10522	9-12	Dark gray brown (10YR-4/2) and dark yellowish brown (10YR-4/4) silt loam; fine crumb structure, very friable; 20 to 30 percent coarse skeleton; clear wavy lower boundary; 2 to 5 inches thick.
A'2 10523	12-19	Gray brown (10YR-5/2) silt loam; weak platy structure; friable; 40 percent coarse skeleton; clear wavy lower boundary; 5 to 10 inches thick.
B'21 10524	19-27	Yellowish brown (10YR-5/6) silt loam; strong coarse subangular blocky structure; very firm; clay films on top of peds; many pores highly stained with organic matter; 20 percent coarse skeleton; clear wavy lower boundary; 6 to 15 inches thick.
B'22 10525	27-36	Dark brown (10YR-4/3) silty clay; weak subangular blocky structure; very firm; clay films on tops and sides of peds; pores lightly stained with organic matter; 30 percent coarse skeleton; clear wavy lower boundary; 8 to 12 inches thick.
B'23 10526	36-48	Dark brown (10YR-4/3) silty clay; weak subangular blocky structure; very firm; clay films on pore channels; 20 to 30 percent coarse skeleton; clear wavy lower boundary; 10 to 15 inches thick.
B'3 10527	48-60	Light olive brown (2.5Y-5/4) silty clay loam; massive; very firm; many pores with clay films around pores. 30 to 40 percent coarse skeleton; noncalcareous; lower boundary rests on gray shale bedrock.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Perham gravelly silt loam **LOCATION** Aroostook County, Maine

SOIL NOS. S58Me-2-6 **LAB. NOS.** 10528 - 10530

DEPTH		1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)							3A1	2A2	
		VERY			VERY						

PERHAM GRAVELLY SILT LOAM S58Me-2-6

Sample Collected: For characterization study. September 9, 1956 by E. J. Pedersen, Bob Dever, Joe Kubota, J. Stewart Hardesty, Roy Bither, Bryce McEwen and John R. Arno. Description written by John R. Arno.

Location: Town of Perham, Aroostook County, Maine; High Meadow Farms; on dead end road about 1½ miles west of Holt's School. Exact location on field sheet, photograph AHZ-35-37.

Present Vegetation: Field of clover plowed a few days before sample was taken.

Topography: Sample collected on 3 percent southeastern slope.

Drainage: Well-drained; surface runoff is medium; permeability is moderately slow.

Parent Material: Late Wisconsin glacial till developed from hard dark gray shales.

Remarks: Sample collected for series identification. Soil was called Perham before 1956; correlated as Plaisted in 1956. This profile is slightly shallower than normal, but Perham has been mapped as only a moderately deep soil. Map No. 1272.

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10528	0-10	Yellowish brown (10YR-5/4, moist) gravelly silt loam; weak medium granular structure; friable; 25 percent coarse skeleton; abrupt lower boundary; 9 to 11 inches thick.
B'2A2 10529	10-14	Yellowish brown (10YR-5/6) and light olive brown (2.5Y-5/4) silt loam; weak coarse, subangular blocky and weak thick platy structure; very friable; many fine pores; 20 to 30 percent coarse skeleton; clear wavy lower boundary; 3 to 10 inches thick.
B'2 10530	14-31	Dark brown (10YR-4/3) silty clay; weak coarse subangular blocky structure; very firm; clay films on peds; pores common and stained with organic matter; 20 to 30 percent coarse skeleton; there are pockets within this horizon that are olive brown (2.5Y-4/4) silt loam; massive; very firm; many pores; pores have organic staining; 30 percent coarse skeleton; the pockets range from 3 to 10 inches thick. Soil underlain with hard gray shale.

Remarks: All soil colors taken from moist soil.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Plaisted loam SOIL Nos. S55Maine-10-3 LOCATION Penobscot County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56112 - 56117

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 2mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-5	Ap	51.6	42.2	6.2	8.6	15.6	7.2	8.5	11.7	18.1	24.1	34.8	39.9			49		
5-6	Ap2	49.5	45.4	5.1	8.9	16.2	6.6	6.9	10.9	20.7	24.7	35.5	38.6			22		
6-11	B21	65.7	27.7	6.6	16.1	27.3	9.4	6.7	6.2	12.6	15.1	22.2	59.5			50		
11-15	B22	62.6	35.1	2.3	8.6	16.3	9.0	13.7	15.0	16.8	18.3	39.8	47.6			30		
15-19	C1	48.3	50.3	1.4	3.8	6.6	6.1	13.5	18.3	22.1	28.2	48.6	30.0			18		
19-32+	C2	45.8	51.8	2.4	3.8	6.2	5.7	13.0	17.1	22.3	29.5	47.5	28.7			28		

Depth (in.)	6A1e Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-5	4.11	0.266	15			1.3					29.2	9.1				5.5
5-6	0.88	0.066	13			0.7					23.9	3.6				4.7
6-11	1.61	0.105	15			2.2					25.7	10.7				5.0
11-15	0.32	0.036				0.6					14.3	3.5				5.5
15-19	0.18	0.023				0.4					17.4	2.5				5.4
19-32+	0.07	0.013				0.4					16.1	1.5				5.6

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-5	7.0	0.1	0.1	0.6	7.8	16.0	23.8			3.84	0.21	1.47		33	
5-6	2.0	tr.	tr.	0.1	2.1	9.5	11.6			2.27	0.14	0.70		18	
6-11	1.0	0.4	tr.	0.4	1.8	22.7	24.5			3.71	0.33	1.62		7	
11-15	0.6	0.1	tr.	0.3	1.0	7.1	8.1			3.52	0.26	1.52		12	
15-19	0.4	0.1	0.1	0.3	0.9	3.9	4.8			3.43	0.28	1.78		19	
19-32+	0.2	tr.	0.1	0.1	0.4	2.7	3.1			1.29	0.17	0.62		13	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Plaisted loam
Soil No.: S55Maine-10-3
Location: Penobscot County, Maine. South end of the college orchard at Orono, Maine.
Vegetation and land use: Orchard
Slope and land form: 3 to 8 percent
Drainage: Well drained
Parent Material: Firm to extremely firm or hard glacial till of Wisconsin age.
Sampled by and date: L. T. Alexander, J. S. Hardesty, and K. V. Goodman. October 11, 1955.

Horizon and Beltsville Lab. No.	
Ap 56112	0 to 5 inches. Dark brown (7.5YR 4/2), very weak medium granular, very friable loam. The boundary is abrupt and wavy.
Ap2 56113	5 to 6 inches. Light gray (N 6/), structureless, very friable loam. The boundary is clear and broken.
B21 56114	6 to 11 inches. Reddish brown (5YR 4/4), weak medium granular friable loam. The boundary is clear and irregular.
B22 56115	11 to 15 inches. Yellowish brown (10YR 5/4), weak medium granular, friable loam. The boundary is clear and wavy.
C1 56116	15 to 19 inches. Olive (5Y 5/3), structureless, firm gritty sandy loam that is quite brittle when displaced. The boundary is gradual and wavy.
C2 56117	19 to 32 inches plus. Light olive gray (5Y 6/2), weak thick platy, very firm gritty sandy loam that is quite brittle when displaced. It can readily be pressed into sandy loam particles. The boundary is diffused and wavy into a grayer and grittier sandy loam glacial till.

Notes: The roots are concentrated in the upper 20 inches and thin out somewhat in the C horizons. The stoniness is about class 3.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Plaisted stony loam SOIL Nos. S55Maine-10-4 LOCATION Penobscot County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56118 - 56122

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 - 19	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-4	A2	43.7	53.0	3.3	9.8	14.7	9.2	6.6	3.4	28.0	25.0	33.9	40.3			16		
4-8	B21	61.4	25.5	13.1	7.4	14.0	13.0	15.2	11.8	1.7	23.8	21.1	49.6			46		
8-12	B22	70.1	23.7	6.2	10.5	21.5	19.4	13.3	5.4	9.4	14.3	20.0	64.7			56		
12-26	C1	61.2	27.1	11.7	12.6	14.7	9.8	14.5	9.6	7.2	19.9	24.3	51.6			50		
26-35+	C2	71.8	25.5	2.7	18.3	17.0	9.2	15.3	12.0	11.5	14.0	31.5	59.8			51		

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-4	2.18	0.073	30			0.2							4.7				3.5
4-8	2.37	0.138	17			3.2							13.2				4.0
8-12	1.90	0.093	20			1.4							9.2				4.8
12-26	0.63	0.045	14			0.6							4.9				4.9
26-35+	0.18	0.018			tr.	0.4							2.1				5.2

Soil Type: Plaisted stony loam
Soil No.: S55Maine-10-4
Location: Penobscot County, Maine. Near the headquarters building of the Penobscot experimental forest across the river from Orono, Maine.
Vegetation and land use: Spruce, hemlock, and fir.
Slope and land form: 3 to 5 percent
Drainage: Well drained
Parent Material: Firm to extremely firm or hard glacial till of Wisconsin age.
Sampled by and date: L. T. Alexander, J. S. Hardesty, and K. V. Goodman. October 11, 1955.

Horizon and
Beltsville
Lab. No.

O2
Not Sampled — 3 to 0 inches. Very dark brown moderately strong medium granular, very friable loamy humus (mor).

A1
Not Sampled — A few charcoal fragments indicated that the floor may have been burned in the past.

A2
56118 — 0 to 4 inches. Light gray (5Y 7/1) very weak thin platy and very friable loam. The boundary is clear and broken.

B21
56119 — 4 to 8 inches. Reddish brown (5YR 4/4), weak fine granular, moderately friable loam. The boundary is abrupt and irregular.

B22
56120 — 8 to 12 inches. Yellowish brown (10YR 5/6), weak fine granular friable fine sandy loam. The boundary is gradual and wavy.

C1
56121 — 12 to 26 inches. Olive (5Y 5/3), weak fine subangular blocky, firm and gritty loam. High percent of coarse skeleton. The boundary is diffuse and wavy

[redacted]

56122 — sandy loam glacial till with a high percent of coarse skeleton. The boundary is diffuse and wavy into gray and bouldery glacial till to a considerable depth (20 feet plus). This underlying material becomes sandy and loose.

Notes: The roots of hemlock, spruce, and fir are concentrated in the upper foot of the profile where they form an interlacing mat. The stoniness in this area is about class 3 or 4.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Plaisted loam SOIL Nos. 855Maine-10-5 LOCATION Penobscot County, Maine

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56123 - 56128

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt							
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		2A2 ≥ 2	2 - 19	19 - 76
		Pct. of < 2 mm												Cm	Pct.	Pct. of < 76mm	
0-5	Ap	60.2	34.6	5.2	7.6	11.1	8.6	16.2	16.7	17.3	17.3	42.8	43.5		18		
5-6	B21	68.5	27.2	4.3	10.4	13.0	9.5	18.2	17.4	14.6	12.6	42.3	51.1		34		
6-13	B22	77.7	20.0	2.3	12.2	15.3	11.3	17.7	21.2	11.9	8.1	41.6	56.5		27		
13-18	C1	80.9	18.5	0.6	11.5	14.0	11.1	20.4	23.9	9.3	9.2	45.4	57.0		35		
18-36	C2	70.7	28.9	0.4	10.9	12.6	9.3	15.1	22.8	18.6	10.3	48.9	47.9		33		
36-58+	C3	68.4	31.3	0.3	10.8	12.6	8.9	14.5	21.6	19.9	11.4	49.5	46.8		30		

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N		6C1a Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density 4A1e ⅓ bar	Bulk density 4A1h Oven dry	4D1 COLE	Water content 4B1c ⅓ bar	Water content 4B2 15 bar	4C1 WRD	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.	In/in		
0-5	2.94	0.204	14			1.3					7.4			5.3
5-6	2.18	0.150	14			1.5					8.5			5.3
6-13	0.91	0.067	14			0.8					4.8			5.5
13-18	0.24	0.021				0.4					2.0			5.7
18-36	0.12	0.013				0.4					1.5			5.6
36-58+	0.06	0.008				0.4					1.0			5.6

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations	6G1d Ext. Al		Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g														Pct.	Pct.
0-5	2.5	0.3	0.1	0.5	3.4	17.2	20.6			3.96	0.25	1.42			16	
5-6	1.2	0.1	0.1	0.2	1.6	22.4	24.0			5.58	0.35	1.98			7	
6-13	0.6	0.1	0.1	0.2	1.0	11.5	12.5			5.43	0.35	2.09			8	
13-18	0.2	tr.	0.1	0.1	0.4	3.7	4.1			6.83	0.67	3.33			10	
18-36	tr.	0.1	0.1	0.1	0.3	2.2	2.5			6.25	1.00	3.75			12	
36-58+	tr.	tr.	0.1	0.1	0.2	1.0	1.2			4.00	1.33	3.33			17	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Plaisted loam
Soil No.: S55Maine-10-5
Location: Penobscot County, Maine. Idle field two miles west of West Old Town on the Hudson road.
Vegetation and land use: Cultivated, idle.
Slope and land form: 3 to 8 percent
Drainage: Well drained
Parent Material: Firm to extremely firm or hard glacial till of Wisconsin age.
Sampled by and date: J. S. Hardesty and K. V. Goodman. October 12, 1955.

Horizon and Beltsville Lab. No.	
Ap 56123	0 to 5 inches. Dark yellowish brown (10YR 4/4), weak medium granular, very friable loam with a dense mat of grass roots in the surface. The boundary is abrupt and smooth.
B21 56124	5 to 6 inches. Strong brown (7.5YR 5/6), very weak fine granular friable loam. The boundary is clear and wavy.
B22 56125	6 to 13 inches. Yellowish brown (10YR 5/6), very weak fine granular, very friable fine sandy loam. The boundary is clear and wavy.
C1 56126	13 to 18 inches. Light olive brown (2.5Y 5/4) moderately strong medium subangular blocky, extremely firm and gritty fine sandy loam. The boundary is gradual and wavy.
C2 56127	18 to 36 inches. Light olive gray (5Y 6/2), weak thick platy, extremely firm and gritty sandy loam. The boundary is gradual and wavy.
C3 56128	36 to 58 inches plus. Light gray (5Y 7/2) weak coarse subangular blocky, extremely firm and gritty sandy loam. This grades into a quartzitic and slaty till with granite boulders.

Notes: Roots are scattered in this profile as it was cultivated the year before this sample was taken.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Washburn silt loam **LOCATION** Aroostook County, Maine

SOIL NOS. S59Me-2-4 **LAB. NOS.** 11583 - 11587

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)								3A1 2A2	TEXTURAL
		VERY COARSE	COARSE	MEDIUM	FINE	VERY FINE					

WASHBURN SILT LOAM
S59Me-2-4

Sample Collected: For characterization study. July 27, 1959 by John R. Arno, Roy Bither, and Bryce McEwen. Description by John R. Arno.

Location: Town of Caribou, Aroostook County, Maine. Four-tenths of a mile east of Green Ridge School; 400 feet north of road. Exact location shown on field sheet, photograph AHZ-29-1.

Present Vegetation: Mostly white cedar.

Topography: Concave relief. One percent slope.

Drainage: Very poorly drained. Surface runoff slow; permeability slow.

Parent Material: Glacial till developed mainly from gray calcareous shales.

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ao	1-0	Dark brown partly decomposed cedar twigs; ferns, sedges and moss.
A1 11583	0-19	Black (10YR-2/1, moist) silt loam; moderate coarse granular structure; friable; 5 percent coarse fragments; brown root stains; abrupt wavy boundary; 9 to 17 inches. (Clod samples taken from this horizon.)
B21g 11584	19-21	Olive (5Y 5/3) gravelly silt loam with silty clay films over small stones and in small pockets; mottles common medium distinct; strong thick platy structure; firm when moist, very hard when dry; 30 percent coarse fragments; weathered limestone fragments common; very few roots; abrupt wavy boundary; 2 to 10 inches. (Clod sample from this horizon.)
B22g 11585	21-26	Olive (5Y 5/3) gravelly clay loam with pockets of silty clay; mottles common coarse distinct; moderate coarse subangular blocky structure; plastic; very hard when dry; clay films over small stones and on peds; about 50 percent coarse fragments; weathered limestone fragments common; abrupt wavy boundary; 4 to 10 inches thick.
C1g 11586	26-31	Olive (5Y 5/3) gravelly clay loam with pockets of silty clay; mottles few medium distinct; massive; plastic when wet; very hard when dry; about 50 percent coarse fragments; alkaline; abrupt wavy boundary; 2 to 8 inches thick.
C2g 11587	31-36 plus	Same as above except calcareous.

Remarks: This soil occurs only as small areas. Areas as large as two acres usually have many profiles with an A_{2g} horizon.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Washburn silt loam **LOCATION** Aroostook County, Maine

SOIL NOS. S59Me-2-5 **LAB. NOS.** 11588 - 11591

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	3A1 2A2 > 2 (<19mm.)	TEXTURAL CLASS
0-12	A_1	1.9	3.6	2.9	7.2	9.7	51.5	23.2	35.3	30.2	Tr	sil
12-20	B_{21g}	7.6	7.4	5.1	12.4	10.9	39.8	16.8	33.1	24.3	25.5	l
20-35	B_{22g}	7.3a	6.8a	5.2a	9.2a	9.7a	42.8	19.0	30.6	26.8	25.7	l
35-42	C_{1g}	7.4a	6.9a	5.1a	9.3a	9.2a	44.1	18.0	29.9	28.2	22.0	l

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3	ELECTRICAL CONDUCTIVITY EC×10³ MILLIMHOS PER CM @25°C.	6E1e $CaCO_3$ equivalent %	Bulk Density g/cc	MOISTURE TENSIONS 1/10 ATMOS. %	1/3 ATMOS. %	4B2 15 ATMOS. %
5.6			5.19	0.341	15	2.1						14.5
7.0			0.28	0.042	7	1.7		< 1				7.6
8.2			0.14	0.044		1.8		4				8.4
8.3			0.12			1.6		11				7.6

5A1a CATION EXCHANGE CAPACITY NH_4Ac	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	5B1a 6Q2a K	5C3 Base Sat. % on Sum Cations	5A3a C.E.C. Sum me/100g	MOISTURE AT SATURATION %
	← milliequivalents per 100g. soil →							
20.6	12.9	1.5	16.9	<0.1	0.3	46	31.6	
7.4	6.4	0.7	3.1	<0.1	0.1	70	10.3	
6.2	19.5	1.0	<0.1	<0.1	0.1	100	20.6	
5.0	18.3	1.0	<0.1	<0.1	0.1	100	19.4	

a. Few Carbonates $CaCO_3$?

WASHBURN SILT LOAM
S59Me-2-5

Sample Collected: For characterization study. July 27, 1959 by Bryce McEwen, John R. Arno and Roy Bither. Description written by John R. Arno.

Location: Town of Caribou, Aroostook County, Maine. One and one-quarter miles south of Green Ridge School. Three tenths of a mile from the road that runs in a north south direction from Green Ridge School. Exact location shown on field sheet, photograph AHZ-36-89.

[redacted]

Topography: Concave relief. One percent slope.

Drainage: Very poorly drained. Surface runoff slow; permeability slow.

Parent Material: Glacial till developed mainly from gray calcareous shales.

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ao	1-0	Dark brown partly decomposed cedar, spruce and fir twigs, ferns, sedges and moss.
A1 11588	0-12	Black (10YR-2/1, moist) silt loam; strong coarse granular structure; friable; 5 percent coarse fragments; brown root stains; abrupt wavy boundary; 8 to 14 inches thick. (Clod sample taken from the horizon.)
B21g 11589	12-20	Olive (5Y 5/3) gravelly silt loam with silty clay pockets; mottles common medium distinct; firm when moist, very hard when dry; 20 percent coarse fragments; weathered limestone fragments common; very few roots; abrupt wavy boundary; 3 to 10 inches thick. (Clod sample taken from this horizon.)
B22g 11590	20-35	Olive (5Y 5/3) gravelly silty clay; mottles common coarse distinct; moderate coarse subangular blocky structure to massive; plastic; very hard when dry; clay films on stones and peds; 40 percent coarse fragments; weakly calcareous; many weathered limestone fragments; abrupt wavy boundary; 10 to 20 inches thick.
C1g 11591	35-42 plus	Olive (5Y 5/3) gravelly silty clay loam; mottles few medium distinct; massive; very firm; very hard when dry; 40 percent coarse fragments; calcareous.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Agawam sandy loam SOIL Nos. 854Mass-12-6 LOCATION Plymouth County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 55284 - 55289

Depth (In.)	Horizon	1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 — Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap	77.5	19.3	3.2	4.0	12.6	17.6	31.1	12.2	10.9	8.4	36.7	65.3			7		
7-13	B21	70.1	27.9	2.0	2.4	7.4	13.6	24.0	22.7	18.3	9.6	52.4	47.4			6		
13-21	B22	67.9	30.5	1.6	1.7	6.1	12.6	20.4	27.1	21.9	8.6	59.1	40.8			5		
21-28	B23	64.8	34.2	1.0	1.0	3.6	8.8	17.4	34.0	25.6	8.6	69.2	30.8			-		
28-42	B3	65.3	33.8	0.9	0.3	1.5	4.8	19.2	39.5	25.7	8.1	80.1	25.8			-		
42-66	C	90.1	9.4	0.5	-	0.5	2.2	52.9	34.5	7.8	1.6	88.2	55.6			-		

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-7	0.92	0.07	13			0.6										4.6
7-13	0.34	0.03	11			1.3										4.6
13-21	0.16	0.02				0.1										4.6
21-28	0.15	0.02				0.8										4.6
28-42	0.07	0.01				1.0										4.6
42-66	0.01	0.008				0.5										5.2

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-7	0.1	0.1	0.1	tr.	0.3	7.4	7.7			2.41	0.19			4	
7-13	0.1	0.1	0.1	tr.	0.3	4.6	4.9			2.45	0.65			6	
13-21	0.1	tr.	tr.	tr.	0.1	3.6	3.7			2.31	0.06			3	
21-28	0.1	tr.	tr.	tr.	0.1	3.0	3.1			3.10	0.80			3	
28-42	0.1	tr.	tr.	tr.	0.1	2.5	2.6			2.89	1.11			4	
42-66	0.1	0.1	tr.	tr.	0.2	2.1	2.3			4.60	1.00			9	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Agawam sandy loam
Soil No.: S54Mass-12-6
Location: Lakeville, Plymouth County, Massachusetts. Sample accurately located on photograph of area in SCS office.
Vegetation and land use: Idle land with scattered clumps of coarse grass, some shrubs and small white pines.
Slope and land form: Nearly level.
Drainage: Slow external, rapid internal.
Parent Material: Sand from sandstones and granites.
Physiography: Glacial lakebed or end of outwash plain.
Sampled by and date: W. N. Coates, C. W. Upham, and J. H. Hartshorn. November 17, 1954.

Horizon and Beltsville Lab. No.	
Ap 55284	0 to 7 inches. Clear boundary; smooth topography; dark brown, 10YR 4/3; sandy loam; single grain; loose.
B21 55285	7 to 13 inches. Clear boundary; smooth topography; strong brown, 7.5YR 5/6-5/8; loamy sand single grain; loose.
B22 55286	13 to 21 inches. Gradual boundary; smooth topography; yellowish brown, 10YR 5/4; sand; single grain; loose.
B23 55287	21 to 28 inches. Gradual boundary; smooth topography; yellowish brown to light yellowish brown, 10YR 5/4-6/4; sand; single grain; loose.
B3 55288	28 to 42 inches. Gradual boundary; smooth topography; light yellowish brown to olive yellow, 2.5Y 6/4-6/6; sand; single grain; loose.
C 55289	42 to 66 inches. Gradual boundary; smooth topography; pale yellow 5Y 7/3 to grayish brown 2.5Y 5/2 and light yellowish brown, 2.5Y 6/4, sand; few to common coarse mottles, yellowish red. 5YR 5/8; single grain; loose.

Notes: Many roots in Ap, common in B, few in C.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Amenia silt loam SOIL Nos. S60Mass-2-3 LOCATION Berkshire County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60456-60474

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments: 2A2 > 2 Pct.	2–19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	28.2	55.3	16.5	2.5	2.4	1.8	5.6	15.9	24.7	30.6	44.6	12.3			4		
8-11	A/B	29.7	58.3	12.0	2.5	2.3	1.7	5.9	17.3	25.3	33.0	46.7	12.4			5		
11-16	B21	31.0	56.2	12.8	2.6	2.5	1.7	6.0	18.2	26.4	29.8	48.8	12.8			3		
16-19	B22g	28.2	55.5	16.3	1.0	2.0	1.6	5.9	17.7	22.3	33.2	44.1	10.5			2		
19-27	B23g	47.5	44.2	8.3	3.9	3.4	2.4	10.2	27.6	23.5	20.7	58.3	19.9			4		
27-36	C1gx	44.4	45.2	10.4	5.3	5.5	3.7	8.7	21.2	20.2	25.0	47.0	23.2			20		
36-47	C2x	36.1	51.0	12.9	6.1	4.9	3.0	6.7	15.4	19.7	31.3	39.5	20.7			26		
47-60	C3x	38.0	49.3	12.7	6.6	5.2	3.2	6.8	16.2	20.0	29.3	40.6	21.8			30		
60-70	C4g	36.2	49.8	14.0	5.5	5.2	3.1	6.7	15.7	23.3	26.5	43.4	20.5			23		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron as Fe Pct.	Bulk density g/cc	4A1e 1/3 Bar g/cc	4A1h O.D. g/cc		Water content: Pct.	4B1c 1/3 Bar Pct.	4B2 15 Bar Pct.			pH: 8C1a (1:1) H_2O		
0-8	2.24	0.207	11			1.8		1.24	1.31			33.1	9.6			5.9		
8-11	0.84	0.090	9			1.9		1.44	1.51			27.0	7.2			5.8		
11-16	0.34					2.0		1.58	1.63			18.9	6.5			5.8		
16-19	0.25					2.1		1.66	1.69			19.0	7.4			6.3		
19-27	0.14					1.8		1.70	1.72			16.7	4.7			6.3		

Soil type: Amenia silt loam
Soil No.: S60Mass-2-3
Location: Francis Bartlett farm, 100' southwest of Yokum Road, opposite drive to Bartlett farmstead, Richmond, Berkshire County, Massachusetts, aerial photo DPM 3K-177.
Vegetation: Young orchard sodded with red clover, bluegrass, orchard grass, and buttercups.
Slope: 3 Percent
Drainage: Moderately well drained.
Parent material: Glacial till derived principally from Stockbridge limestone of Ordivician Age.
Physiographic position: Rolling uplands of the Limestone Valley.
Sampled by and date: E. J. Pedersen, D. D. Bohrer, and F. A. Filios. June 7, 1960.
Described by: S. J. Zayach and D. C. Fuller.

Horizon and
Beltsville
Lab. Number

Ap
60466 — 0 to 8 inches. Very dark grayish brown (10YR 3/2) silt loam; moderate fine and medium granular structure; very friable; peds are friable; many fine and medium roots; less than 5 percent coarse skeleton mainly of fine channers of schist; evidence of much earthworm activity; pH 6.6; clear smooth boundary.

A/B
60467 — 8 to 11 inches. A mixed horizon of about 40 percent very dark grayish brown (10YR 3/2) and 60 percent olive brown (2.5Y 4/4) silt loam; weak fine and medium granular structure; very friable when moist; many fine and medium roots; less than 5 percent coarse skeleton mainly of fine channers of schist; much earthworm activity accounting for the mixing of the surface horizon with the one below; pH 6.6; clear wavy boundary.

B21
60468 — 11 to 16 inches. Olive brown (2.5Y 4/4) silt loam; weak fine subangular blocky structure; very friable when moist; fine roots are common; less than 5 percent coarse skeleton mainly of fine channers of schist; earthworms and earthworm casts and channels are common; pH 6.6; clear wavy boundary.

B22g
60469 — 16 to 19 inches. Olive brown (2.5Y 4/4) silt loam with common fine faint mottles of dark yellowish brown (10YR 4/4) and gray (5Y 5/1); very weak coarse subangular blocky structure; slightly firm in place, peds firm in the hand; fine roots are common; less than 5 percent coarse skeleton mainly of fine channers of schist; earthworms and earthworm casts and channels are common; pH 6.8; clear wavy boundary.

B23g
60470 — 19 to 27 inches. Olive brown (2.5Y 4/4) silt loam or very fine sandy loam with common fine faint mottles of olive gray (5Y 5/2-5Y 4/2) and dark yellowish brown (10YR 4/4); structureless-massive; friable when moist; few fine roots; less than 5 percent coarse skeleton mainly of fine channers of schist; earthworms and earthworm casts and channels are common; pH 6.8; clear wavy boundary.

C1gx
60471 — 27 to 36 inches. Dark grayish brown (2.5Y 4/2) gravelly loam with common fine faint olive gray (5Y 4/2) and olive brown (2.5Y 4/4) mottles; structureless-massive; firm in place and in the hand; few fine roots; 20 percent coarse skeleton of fine gravel and fine channers of

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schist and partially weathered limestone; some earthworms, earthworm casts and channels; calcareous (slight effervescence with cold, dilute HCl); clear wavy boundary.

C2x
60472 — 36 to 47 inches. Dark grayish brown (2.5Y 4/2) gravelly silt loam; structureless-massive (tendency toward weak medium platy structure); very firm in place when moist; roots absent; 35 to 40 percent coarse skeleton of fine gravel and fine channers 2 - 12 mm in diameter mainly of schist and partially weathered limestone; some earthworms and earthworm casts and channels; calcareous (slight effervescence with cold, dilute HCl); clear smooth boundary.

C3x
60473 — 47 to 60 inches. Dark grayish brown (2.5Y 4/2) gravelly loam or gravelly silt loam; structureless-massive with silt films on some fracture faces; firm in place and in the hand when moist; roots absent; 35 to 40 percent coarse skeleton of fine gravel (mostly limestone) and schist channers 2 - 12 mm in diameter; earthworms absent; calcareous (slight effervescence with cold, dilute HCl); clear smooth boundary.

C4g
60474 — 60 to 70 inches plus. Dark grayish brown (2.5Y 4/2) gravelly loam or gravelly silt loam with a few fine faint gray (5Y 5/1), olive gray (5Y 5/2), and olive brown (2.5Y 4/4) mottles; structureless-massive; firm in place and firm in hand when moist; roots absent; 25 to 30 percent coarse skeleton of fine gravel (mostly limestone) and schist channers 2 - 12 mm in diameter; calcareous (slight effervescence with cold, dilute HCl). (Sample taken with a bucket auger)

Notes: Colors refer to moist soil. The 0-8, 8-11, 11-16, and the 36-47

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Amenia silt loam SOIL Nos. S60Mass-2-4 LOCATION Berkshire County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60475-60482

Depth (In.)	Horizon	1E1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	3A1 (2–0.1)			Coarse fragments: 2A2 > 2	Coarse fragments: 2 – 19	Coarse fragments: 19 – 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-10	Ap	22.7	63.8	13.5	3.6	3.3	2.2	.5	9.1	20.3	43.5	32.2	13.6			6		
10-16	B1	22.3	66.2	11.5	3.2	3.0	2.0	4.4	9.7	20.4	45.8	32.8	12.6			10		
16-21	B21g	31.4	58.5	10.1	7.2	5.5	3.3	6.1	9.3	16.7	41.8	29.7	22.1			24		
21-32	B22gx	23.6	64.3	12.1	4.3	3.9	2.6	5.2	7.6	17.0	47.3	27.6	16.0			20		
32-40	C1gx	16.9	67.5	15.6	2.8	2.8	2.0	3.6	5.7	14.1	53.4	21.9	11.2			7		
40-48	C21gx	16.4	69.0	14.6	2.4	3.0	1.9	3.5	5.6	14.7	54.3	22.3	10.8			10		
48-60	C22gx	20.5	65.2	14.3	3.3	3.5	2.3	4.4	7.0	15.4	49.8	25.0	13.5			22		
60-70	C23gx	27.4	60.2	12.4	5.9	4.6	3.1	5.4	8.4	17.4	42.8	29.3	19.0			26		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		6E1e Carbonate as $CaCO_3$	6C1a Ext. Iron as Fe	Bulk density: 4A1e 1/3 Bar	Bulk density: 4A1h O.D.		Water content: 4E1c 1/3 Bar	Water content: 4B2 15 Bar			pH: 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.	Pct.		
0-10	3.16	0.270	12			1.5		1.10	1.19		40.0	10.6		5.8
10-16	1.48	0.133	11			1.5		1.24	1.28		33.7	7.2		6.2
16-21	0.26					1.2		1.68	1.72		19.3	3.7		6.9
21-32	0.19				8	1.1		1.76	1.80		19.5	3.8		7.8
32-40	0.14				9	1.0		1.74	1.78		20.1	5.4		8.0
40-48	0.10				11	1.0		1.76	1.80		19.4	4.1		7.9
48-60	0.10				12	1.0		1.78			19.3	3.9		8.2
60-70	0.11				13	1.0						3.8		8.1

Depth (In.)	Extractable bases: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	5H1a 6H2a Ext. Acidity	CEC: 5A3a Sum Cations	5A1b (NH_4 dist.)	Base saturation: 5C3 Sum Cations Pct.	Pct.
	meq/100 g								
0-10	9.1	1.0	0.1	0.2	12.8	23.2	15.1	45	
10-16	6.2	0.6	0.1	0.1	8.2	15.2	9.7	46	
16-21	4.6	0.6	Tr.	Tr.	2.1	7.3	3.8	71	
21-32	a.						3.6		
32-40	a.						3.8		
40-48	a.						3.5		
48-60	a.						3.0		
60-70	a.						2.5		

Depth (In.)	Clay Fraction Analysis 7Alb-d: Ver. b	Chl.	Int. Ver.-Mi.	Mi.	Kl. 7A3 DTA
	X-ray 7A2				Pct.
0-10	xxx c.	xx	xx	xx	
10-16					
16-21	xx	xx	xx	xxx	
21-32					
32-40	xx	x	x	xxx	
40-48					
48-60					
60-70	xx	xxx		xxx	

a. Carbonates present.
b. Ver. = vermiculite, Chl. = chlorite, Int. Ver.-Mi. = interlayer vermiculite-mica, Mi. = mica, Kl. = kaolinite.
c. Relative amounts.

Soil Type: Amenia silt loam
Soil No.: S60Mass-2-4
Location: Dean Ellis farm, 50 feet east of Dublin Road, 150 feet north of Stevens Corner Road, Richmond, Berkshire County, Massachusetts, aerial photo DPM-3K-125.
Vegetation: Bluegrass, wild parsnip, golden rod, ferns.
Slope: 5 percent
Drainage: Moderately well drained.
Parent Material: Glacial till derived principally from Stockbridge limestone of Ordivician Age.
Physiographic Position: Rolling uplands of the Limestone Valley.
Sampled by and date: E. J. Pedersen, D. D. Bohrer, and F. A. Filios. June 8, 1960.
Described by: S. J. Zayach and D. C. Fuller.

Horizon and Beltsville Lab. Number	
Ap 60475	0 to 10 inches. Very dark grayish brown (10YR 3/2) silt loam; moderate medium granular structure; very friable when moist; many fine and medium roots; less than 5 percent coarse skeleton of fine gravel and fine channers of schist and phyllite up to 1/2 inch in diameter; pH 6.4; abrupt smooth boundary.
B1 60476	10 to 16 inches. Very dark grayish brown (10YR 3/2) and dark grayish brown (2.5Y 4/2) silt loam; moderate fine and medium granular structure; very friable when moist; fine and medium roots are common to many; less than 5 percent coarse skeleton of fine gravels and fine channers of schist and phyllite; pH 6.6; clear smooth boundary.
B21g 60477	16 to 21 inches. Olive brown (2.5Y 4/4) toward dark grayish brown (2.5Y 4/2) gravelly silt loam with many, fine and medium, faint olive brown (2.5Y 4/4), olive gray (5Y 5/2), and dark yellowish brown (10YR 4/4) mottles; comes out in clods and crushes to weak medium granular structure; friable when moist; fine roots are common; 20 percent coarse skeleton of fine gravel and fine channers of schist and phyllite; pH 6.8; clear wavy boundary.

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structureless - massive; firm when moist; fine roots are common; few clay or silt skins in pores and discontinuous films on what appear to be large ped faces; 5 to 10 percent coarse

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Carver loamy fine sand SOIL Nos. S57Mass-12-2 LOCATION Plymouth County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 57754 - 57758

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm																
0-8	Ap	78.2	18.3	3.5	7.6	25.0	22.9	16.2	6.5	8.9	9.4	20.8	71.7			10		
8-13	B21	74.5	22.3	3.2	6.9	21.5	21.7	16.6	7.8	10.5	11.8	24.3	66.7			13		
13-24	B22	77.8	19.5	2.7	9.7	25.0	21.0	15.5	6.6	9.7	9.8	21.4	71.2			14		
24-29	B23	83.3	15.4	1.3	8.0	22.9	27.6	21.3	3.5	7.8	7.6	15.7	79.8			18		
29-41+	C2	93.2	6.0	0.8	9.5	35.1	31.8	16.3	0.5	3.2	2.8	6.5	92.7			13		

Depth (in.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	4A1e 1/3 bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content 4B1d 1/10 bar Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	0.90	0.046	20			0.8					17.6	9.3	3.0				4.7
8-13	0.45	0.044	10			0.8					21.2	10.4	3.0				5.0
13-24	0.27					0.6					17.4	8.3	2.4				5.1
24-29	0.16					0.6					10.0	4.2	3.2				5.2
29-41+	0.06					0.4					4.2	2.1	0.7				5.5

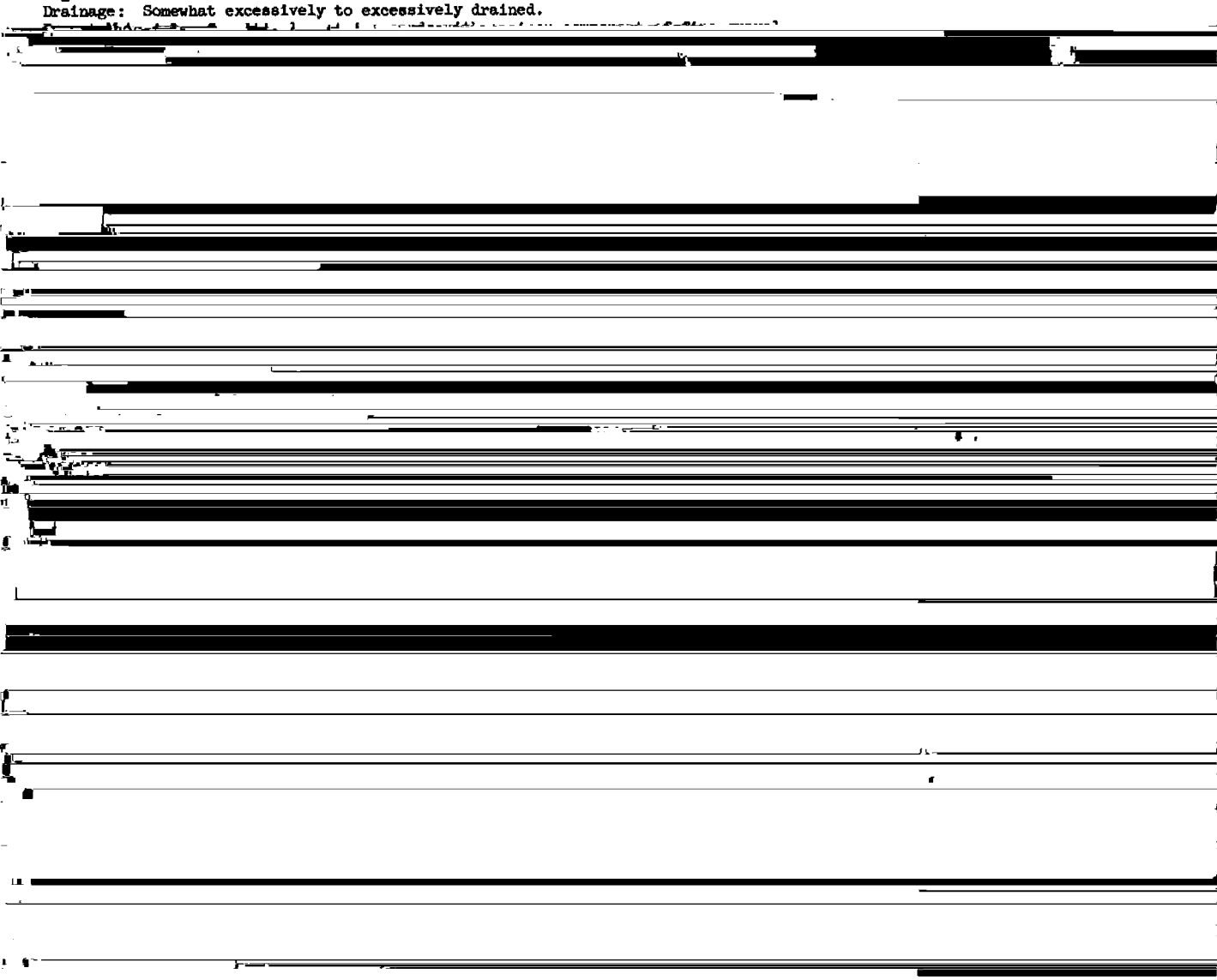
Depth (in.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations	CEC	6G1d Ext. Al			Ratios to clay 8B1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	0.1	0.1	tr.	tr.	0.2	8.9	9.1					2.60	0.23	0.86			2	
8-13	0.1	0.1	tr.	tr.	0.2	6.6	6.8					2.12	0.25	0.94			3	
13-24	tr.	0.1	tr.	tr.	0.1	5.4	5.5					2.04	0.22	0.89			2	
24-29	tr.	tr.	tr.	tr.	tr.	2.9	2.9					2.23	0.46	2.46			-	
29-41+	tr.	tr.	tr.	tr.	tr.	1.2	1.2					1.50	0.50	0.88			-	

Depth (in.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Carver loamy fine sand
Soil No.: S57Mass-12-2
Location: Plymouth County, Massachusetts. Vaughn Street, Middleboro, East of Assawompsett Indian site; pinpointed on soil survey photograph DPT 10K-56.
Vegetation and land use: Forested
Drainage: Somewhat excessively to excessively drained.



Described by: Charles W. Upham.

Horizon and Beltsville Lab. No.	
O1 Not Sampled	3/4 - 0 inches. Litter of white pine needles.
O21 Not Sampled	Trace. Partially decomposed pine needles.
O22 Not Sampled	Trace. Humus.
Ap 57754	0 to 8 inches. Dark brown (10YR 4/3) loamy fine sand; very weak fine granular structure (appears to be induced by mycelia); very friable to loose; abundant fine fibrous roots; 24°C at 7 inches depth; pH 3.8; abrupt smooth boundary.
B21 57755	8 to 13 inches. Strong brown (7.5YR 5/6) loamy sand; structureless - single grained; loose when moist; has a very narrow range of particle size; pH 3.8; clear smooth boundary.
B22 57756	13 to 24 inches. Yellowish brown (10YR 5/8) loamy medium sand; structureless - single grained; loose when moist; numerous roots; pH 4.0; clear smooth boundary.
B23 57757	24 to 29 inches. Yellowish brown (10YR 5/6) sand; structureless - single grained; loose when moist; few large roots; pH 3.8; gradual boundary.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Carver loamy fine sand SOIL Nos. 857Mass-12-5 LOCATION Plymouth County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 57770 - 57775

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	(0.05–0.02)	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		≥ 2	2 - 19	19 - 76
		Pct. of < 2 mm												Cm	Pct.	Pct. of < 76mm	
0-8	Ap	76.5	20.2	3.3	7.9	15.7	23.0	22.1	7.8	9.7	10.5	25.8	68.7		16		
8-14	B21	77.6	19.8	2.6	14.0	21.8	22.2	15.1	4.5	9.4	10.4	19.2	73.1		33		
14-21	B22	83.8	14.4	1.8	14.7	19.0	28.1	19.4	2.6	6.1	8.3	14.8	81.2		33		
21-25	B23	88.3	10.0	1.7	15.9	19.5	32.9	18.0	2.0	3.7	6.3	11.3	86.3		38		
25-44	D1u	96.5	2.6	0.9	2.3	23.1	53.8	15.7	1.6	1.3	1.3	6.0	94.9		43		
44-56+	D2u	90.5	9.0	0.5	0.1	0.5	2.7	25.1	62.1	8.4	0.6	93.7	28.4				

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density			4D1	Water content			4C1	pH		
								4A1e ⅓ bar	4A1h Oven dry		4B1d 1/10 bar	4B1c ⅓ bar	4B2 15 bar			8C1c (1:1)	8C1a (1:1)
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	COLE	Pct.	Pct.	Pct.	WRD in/in		KCl	H_2O
0-8	0.81	0.058	14			0.7					15.0	9.5	3.0				4.8
8-14	0.27					0.7					16.1	10.3	2.2				5.0
14-21	0.14					0.4					10.9	7.6	1.4				5.1
21-25	0.07					0.6					6.7	5.4	1.1				5.1
25-44	0.03					0.3					2.6	1.8	0.7				5.5
44-56+	0.02					0.4					9.8	2.4	0.9				5.8

Depth (In.)	Extractable bases 5B1a					6H2a	CEC		6G1d		Ratios to clay 8D1			8D3		Base saturation	
	6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	Ext. acidity	5A3a Sum cations		Ext. Al		CEC Sum	Ext. iron	15-bar water	Ca/Mg		5C3 Sum cations	5C1 NH_4OAc
	meq/100 g															Pct.	Pct.
0-8	0.1	0.5	0.1	0.1	0.8	8.7	9.5				2.88	0.21	0.91			8	
8-14	tr.	tr.	0.1	0.1	0.2	5.6	5.8				2.23	0.27	0.85			3	
14-21	tr.	tr.	0.1	tr.	0.1	3.3	3.4				1.89	0.22	0.78			3	
21-25	tr.	tr.	0.1	tr.	0.1	2.7	2.8				1.65	0.35	0.65			4	
25-44	tr.	0.1	tr.	tr.	0.1	0.4	0.5				0.56	0.33	0.78			20	
44-56+	tr.	tr.	tr.	0.1	0.1	1.0	1.1				2.20	0.80	1.80			9	

Depth (In.)	Clay Fraction Analysis 7A1b-d								
	Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Carver loamy fine sand
Soil No.: S57Mass-12-5
Location: Plymouth County, Massachusetts. Vaughn Street, Middleboro, East of Indian diggings; pinpointed on soil survey photograph DPT 10K-56.
Vegetation and land use: Forested
Drainage: Somewhat excessively to excessively drained.
Parent Material: Granitic lacustrine sands with a minor increment of fine gravel.
Sampled by and date: Edwood J. Pedersen, William H. Coates, Rino J. Roffinoli, and John R. Mott. July 1957.
Described by: Charles W. Upham

Horizon and Beltsville Lab. No.	
O1 Not Sampled	1 to 0 inches. Litter of white pine twigs and needles.
O21 Not Sampled	Trace. Partially decomposed pine needles.
O22 Not Sampled	Trace. Humus.
Ap 57770	0 to 8 inches. Dark yellowish brown (10YR 4/4 dry) loamy fine sand; very weak medium granular structure (appears to be induced by mycelia); very friable to loose; abundant fine roots; temperature 20.5°C at 7 inches (air temperature 25°C); pH 5.2; abrupt smooth boundary.
B21 57771	8 to 14 inches. Yellowish brown (10YR 5/6, dry) medium sand; structureless - single grained; narrow range of particle size; pH 4.8; clear smooth boundary.
B22 57772	14 to 21 inches. Brownish yellow (10YR 6/6) gravelly medium sand; structureless to very weak medium subangular blocky structure; loose to very friable; pine roots are common; temperature 19.5°C at 18 inches; pH 4.7; clear smooth boundary.
B23 57773	21 to 25 inches. Brownish yellow (10YR 6/6) medium sand and fine gravel; structureless - single grained; loose when moist; pH 4.4; abrupt smooth boundary.
D1u 57774	25 to 44 inches. Light yellowish brown (10YR 6/4) medium sand; structureless - single grained; loose when moist; temperature 15.5°C at 36 inches; pH 4.3; abrupt smooth boundary.
D2u 57775	44 to 56 inches plus. Light gray (10YR 7/1) fine sand; weak medium subangular blocky, very friable, upper part contains very fine varves of yellowish red (5YR 5/8) very fine sand; temperature 14°C at 56 inches; pH 4.0.

Notes: Colors are for moist soil unless stated otherwise.

SCS-421
10-64 (Rev. 9-65)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Carver loamy sand SOIL Nos. 359Mass-12-1 LOCATION Plymouth County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. NO. 50760 - 50767

Depth (in.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		≥ 2	2 - 19	19 - 76
		Pct. of < 2 mm												Cm	Pct.	Pct. of < 76mm	
1½-0	O2	a															
0-2	A1 & A2	88.5	9.9	1.6	8.4	40.9	27.1	9.3	2.8	7.3	2.6	12.6	85.7		tr.		
2-4	B21	84.3	13.3	2.4	7.8	35.7	25.0	11.4	4.4	9.3	4.0	17.4	79.9		tr.		
4-9	B22	77.1	17.2	5.7	8.4	33.3	20.9	9.8	4.7	10.9	6.3	18.8	72.4		tr.		
9-19	B23	83.4	10.3	6.3	10.7	30.1	18.4	19.0	5.2	3.3	7.0	21.1	78.2		14		
19-27	B24	74.6	21.5	3.9	18.1	27.1	13.1	8.2	8.1	14.8	6.7	26.0	66.5		20		
27-40	B3	95.0	3.9	1.1	6.6	41.9	34.3	11.1	1.1	3.6	0.3	7.4	93.9		1		
40-53+	C	98.6	1.1	0.3	10.5	27.4	39.6	20.6	0.5	1.0	0.1	6.1	98.1		9		

Depth (in.)	6A1a Organic carbon	6B1a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density 4A3a Field Moist	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content 4B1d 1/10 bar	4B1c ⅓ bar	4B2 15 bar	4C1 WRD	pH 8C1c (1:1)	8C1a (1:1)
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	in/in	KCl	H_2O
1½-0																3.4
0-2	2.60	0.115	23			0.3					17.1		6.5		2.9	3.4
2-4	0.89	0.048	20			0.4					11.9		3.0		3.2	3.7
4-9	0.28					0.8	1.30				13.3		3.0		4.4	4.3
9-19	0.17					0.7	1.38				15.2		3.0		4.2	4.3
19-27	0.10					0.4					13.4		1.8		4.3	4.4
27-40	0.02					0.2					3.0		0.4		4.7	4.7
40-53+	0.02					0.1					1.4		0.4		4.8	5.0

Depth (in.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al	Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g													Pct.	Pct.
1½-0															
0-2	0.2	0.2	0.1	0.2	0.7	14.9	15.6		1.9	1.19	0.19	4.06		4	
2-4	tr.	tr.	0.1	0.1	0.2	7.2	7.4		1.7	0.71	0.17	1.25		3	
4-9	tr.	tr.	0.1	0.1	0.2	5.2	5.4		1.5	0.26	0.14	0.53		4	
9-19	tr.	tr.	0.1	0.1	0.2	3.1	3.3		1.0	0.16	0.11	0.48		6	
19-27	tr.	tr.	0.1	0.1	0.1	2.3	2.5		0.8	0.20	0.10	0.46		8	
27-40	tr.	tr.	0.1	0.1	0.2	0.6	0.7		0.1	0.09	0.18	0.36		14	
40-53+	tr.	tr.	0.1	0.1	0.2	0.4	0.5		0.1	1.67	0.33	1.33		20	

Depth (in.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Organic Horizon.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Carver loamy sand
Soil No.: S59Mass-12-1
Location: Plymouth County, Massachusetts. Town of Plymouth, South Boundary Line Road in Miles Standish State Forest. Pinpointed on soil survey field sheet and on air photo 5K-195.
Vegetation and land use: Forested - overstory of pitch pine and an understory of scrub oak and lowbush blueberry.
Slope and land form: 0 to 1 percent.
Drainage: Excessively drained
Parent Material: Developed on glaciofluvium derived principally from quartzose material with an increment of less than 3 to 5 percent of dark fine grained rock fragments.
Physiographic position: Pitted outwash plains formed in conjunction with recessional moraines.
Sampled by and date: Edwood J. Pedersen, Gordon Schmidt, and Rino J. Roffinoli. August 24, 1959.
Described by: Stephen J. Zayach and Joe Kubota

Horizon and
Beltsville
Lab. No.

O1
Not Sampled — 2-1/2 to 1-1/2 inches. Litter of pitch pine needles and scrub oak and blueberry leaves.

O2
59760 — 1-1/2 to 0 inches. Dark reddish brown (5YR 2/2) partially decomposed pitch pine needles and scrub oak and blueberry leaves; many roots present.

A1 and A2
59761 — 0 to 2 inches. Black (10YR 2/1) fine and medium sands; structureless - single grained; loose when moist; roots are many to common; less than 1 percent coarse skeleton of very fine

[redacted]

B21
59762 — 2 to 4 inches. Dark reddish brown (5YR 3/2) medium sand; massive in place, crushes to single grain; slightly firm in place, very friable in the hand, nonsticky and nonplastic when wet; roots are common; less than 1 percent coarse skeleton of very fine gravel; pH 4.2; abrupt broken boundary. 0 - 2 inches thick.

B22
59763 — 4 to 9 inches. Strong brown (7.5YR 5/6) towards yellowish brown (10YR 5/6) medium sand; structureless - single grained; loose when moist, nonplastic and nonsticky when wet; roots are common; less than 1 percent skeleton of very fine gravel; pH 5.2; clear wavy boundary. 4 - 8 inches thick.

B23
59764 — 9 to 19 inches. Yellowish brown (10YR 5/6) loamy sand; massive in place, comes out in clods, crushes to weak fine and medium crumb structure; slightly firm in place, friable in the hand, nonplastic and nonsticky when wet; roots are common; 3 - 5 percent coarse skeleton of fine gravel; pH 5.0; abrupt smooth boundary. 9 - 10 inches thick.

B24u
[redacted] — 19 to 27 inches. Yellowish brown (10YR 5/4) gravelly loamy sand; structureless - massive;

59765 — slightly firm in place, friable in the hand, nonplastic and nonsticky; roots are common; 15 to 20 percent coarse skeleton of fine gravel; pH 4.6; abrupt smooth boundary. 5 - 8 inches thick.

B3
59766 — 27 to 40 inches. Light yellowish brown (10YR 6/4) medium and coarse sand; structureless - single grained; loose when moist, nonplastic and nonsticky; few roots; less than 2 percent coarse skeleton of fine gravel; pH 5.2; clear smooth boundary, 13 - 15 inches thick.

C
59767 — 40 to 53 inches plus. Light yellowish brown (2.5Y 6/4) medium and coarse sand; structureless - single grained; loose when moist, nonsticky and nonplastic; roots absent; 5 - 10 percent coarse skeleton of fine and coarse gravel; less than 3 percent dark fine grained rock fragments in the sand fraction; pH 5.4.

Notes: Colors refer to moist soil. The 4-9, 19-27, and the 40-53 inch zones were sampled for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Carver loamy sand SOIL Nos. 859Mass-12-2 LOCATION Plymouth County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59786 - 59794

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 >= 2 Pct.	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
1½-0	O2	a																
0-5½	A1	95.5	3.1	1.4	4.9	30.0	29.1	28.4	3.1	0.4	2.7	15.0	92.4			tr.		
5½-7	A2	97.1	1.9	1.0	3.0	28.9	31.3	30.8	3.1	0.1	1.8	15.4	94.0			tr.		
7-12	B21	94.4	3.0	2.6	4.9	29.1	27.6	29.3	3.5	0.4	2.6	16.0	90.9			1		
12-17	B22	93.5	3.9	2.6	4.3	26.2	28.6	30.6	3.8	0.9	3.0	17.1	89.7			4		
17-22	B23	94.4	3.2	2.4	6.8	28.8	28.3	27.5	3.0	0.7	2.5	14.4	91.4			7		
22-25	B24	94.9	3.4	1.7	6.8	28.3	28.4	28.7	2.7	0.7	2.7	14.5	92.2			7		
25-29	B3	96.9	1.6	1.5	10.1	26.9	24.6	32.8	2.5	0.1	1.5	15.3	94.4			8		
29-50+	C	97.9	1.2	0.9	4.7	24.6	34.5	31.5	2.6	0.3	0.9	14.9	95.3			4		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a Field Moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1d 1/10 bar Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
1½-0	a																3.8
0-5½	1.98	0.082	24			0.4	1.01				12.6		4.3			3.4	3.8
5½-7	0.78	0.042	19			0.3	1.29				7.1		2.7			3.4	3.8
7-12	0.14					0.6	1.31				5.5		1.1			3.9	4.2
12-17	0.16					0.5	1.32				6.3		1.3			4.3	4.6
17-22	0.06					0.4	1.45				5.2		1.1			4.2	4.5
22-25	0.04					0.4	1.49				4.0		0.9			4.3	4.6
25-29	0.04					0.3	1.52				2.6		0.6			4.4	4.6
29-50+	-					0.2	1.51				2.5		0.4			4.5	4.8

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
1½-0	a																	
0-5½	0.1	0.1	0.1	0.1	0.4	13.7	14.0		2.7			10.00	0.28	3.07			2	
5½-7	tr.	tr.	0.1	tr.	0.1	6.8	6.9		1.6			6.90	0.30	2.70			1	
7-12	tr.	tr.	0.1	tr.	0.1	3.5	3.6		1.0			1.38	0.23	0.42			3	
12-17	tr.	0.1	tr.	0.1	0.2	2.5	2.7		0.6			1.04	0.19	0.50			7	
17-22	tr.	tr.	0.1	tr.	0.1	1.6	1.7		0.4			0.71	0.17	0.46			6	
22-25	tr.	tr.	tr.	0.1	0.1	1.2	1.3		0.4			0.76	0.24	0.53			8	
25-29	tr.	tr.	tr.	tr.	-	0.8	0.9		0.3			0.60	0.20	0.40			11	
29-50+	tr.	0.1	tr.	0.1	0.2	0.8	1.0		0.2			1.11	0.22	0.44			20	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Organic Horizon.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Carver loamy sand
Soil No.: S59Mass-12-2
Location: Plymouth County, Massachusetts. Town of Wareham, 1/4 mile north of Tihonet village and 100 feet east of Tihonet Road. Pinpointed on soil survey sheet and on air photo 5K-153.
Vegetation and land use: Forested - pitch pine about 20 feet high with an understory of scrub oak and huckleberry.
Slope and land form: 2 to 3 percent
Drainage: Excessively drained
Parent Material: Developed on glaciofluvium derived principally from quartzose material with an increment of less than 3 to 5 percent of dark fine grained rock fragments.
Physiographic position: Pitted outwash plains formed in conjunction with recessional moraine.
Sampled by and date: E. J. Pedersen, G. Schmidt, J. Kubota, and R. J. Roffinoli. August 26, 1959.
Described by: S. J. Zayach and C. W. Upham.

Horizon and Beltsville Lab. No.	
O1 Not Sampled	2-1/2 to 1-1/2 inches. Litter of pitch pine needles and scrub oak leaves.
O2 59786	1-1/2 to 0 inches. Partially decomposed pitch pine needles and scrub oak leaves.
A1 59787	0 to 5-1/2 inches. Black (N 2/) medium sand; very weak medium crumb structure; loose to very friable when moist; fine and coarse roots are common; less than 1 percent coarse skeleton of very fine gravel; pH 3.8; abrupt wavy boundary.
A2 59788	5-1/2 to 7 inches. Very dark gray (10YR 3/1) medium sand; structureless - single grained; loose when moist; fine and coarse roots are common; less than 1 percent coarse skeleton of very fine gravel; pH 4.2; abrupt wavy boundary.
B21 59789	7 to 12 inches. Strong brown (7.5YR 5/6) medium sand; clods crush to single grain; very friable to loose when moist; fine and coarse roots are common; less than 1 percent coarse skeleton of very fine gravel; pH 4.6; clear smooth boundary.
B22 59790	12 to 17 inches. Yellowish brown (10YR 5/8) medium sand; very weak medium crumb structure and single grained; very friable to loose when moist; fine and coarse roots are common; less than 1 percent coarse skeleton of very fine gravel; pH 4.8; clear smooth boundary.
B23 59791	17 to 22 inches. Yellowish brown (10YR 5/8 towards 5/6) medium sand; structureless - single grained; loose when moist; fine and coarse roots are common; less than 2 percent coarse skeleton of very fine gravel and about 7 percent pebbles 1/2 to 1 inch in diameter; pH 4.8; clear smooth boundary.
B24 59792	22 to 25 inches. Yellowish brown (10YR 5/6) medium sand; structureless - single grained; loose when moist; few fine roots; 3 to 4 percent coarse skeleton of very fine gravel and some pebbles 1/2 inch in diameter; pH 4.8; clear smooth boundary.
B3 59793	25 to 29 inches. Brownish yellow (10YR 6/6) medium sand; structureless - single grained; loose when moist; very few fine roots; less than 3 percent very fine gravel; pH 5.0; clear smooth boundary.
C 59794	29 to 50 inches plus. Light yellowish brown (2.5Y 6/4) medium and coarse sands; structureless - single grained; loose when moist; roots absent; less than 3 percent coarse skeleton of very fine gravel; pH 5.0.

Notes: Colors are for moist soil. The 0-5½, 12-17, and the 29-50+ inch zones were sampled for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Deerfield sandy loam SOIL Nos. S59Mass-3-1 LOCATION Bristol County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59795 - 59801

Depth (In.)	Horizon	18Ib Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3BI		
		Total			Sand					Silt					2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		≥ 2	2 – 19	19 – 76
		Pct. of < 2 mm												Cm	Pct.	Pct. of < 76mm	
0-11	Ap	81.3	14.3	4.4	3.3	17.8	26.2	25.7	8.3	5.8	8.5	25.1	73.0		tr.		
11-21	B21	87.6	10.1	2.3	2.4	22.0	37.0	21.1	5.1	4.1	6.0	16.2	82.5		tr.		
21-26	B22	96.8	2.2	1.0	1.1	14.5	49.3	29.7	2.2	0.7	1.5	11.1	94.6		tr.		

Soil Type: Deerfield sandy loam
Soil No.: 859Mass-3-1
Location: Bristol County, Massachusetts. Town of Taunton, LaFleur farm, North Boundary Road, 1/4 mile south of Lake Winnecunnet. Pinpointed on soil survey sheet and on air photo DPN-7K-57.
Vegetation and land use: Idle land - blueberry, moss, ground blackberry, spirea, gray birch, and red maple.
Slope and land form: 0 to 1 percent
Drainage: Moderately well drained.
Parent Material: Developed on glaciofuvial sands derived principally from granitic material.
Physiographic position: Glaciofluvial plain.
Sampled by and date: E. J. Pedersen, G. Schmidt, and C. F. Hastings, Jr. August 26, 1959.
Described by: S. J. Zayach and J. R. Mott.

Horizon and Beltsville Lab. No.	
Ap 59795	0 to 11 inches. Very dark brown (10YR 2/2) towards black (10YR 2/1) sandy loam or loamy sand; massive in place, crushes to weak fine and medium granular structure; friable; many fine and few coarse roots; less than 1 percent coarse skeleton of very fine gravel; pH 4.6; abrupt wavy boundary.
B21 59796	11 to 21 inches. Yellowish brown (10YR 5/4) towards light olive brown (2.5Y 5/4) loamy medium sand; massive in place, crushes to weak fine and medium crumb structure; very friable; fine roots are common and few are medium; less than 1 percent coarse skeleton of very fine gravel; pH 4.8; clear smooth boundary.
B22 59797	21 to 26 inches. Olive brown (2.5Y 4/4) medium sand; very weak fine crumb structure to single grained; loose when moist; very few fine roots; less than 1 percent coarse skeleton of very fine gravel; pH 4.8; abrupt wavy boundary.
B23g 59798	26 to 37 inches. Light olive brown (2.5Y 5/4) fine and medium sands with many, medium and coarse, prominent and distinct mottles of yellowish red (5YR 4/6 and 4/8) and yellowish brown (10YR 5/6); massive in place, crushes to single grain; slightly firm in place, matrix material is loose when moist, iron bands are friable to very friable; roots not present; less than 1 percent skeleton of very fine gravel; iron bands are weakly cemented; pH 5.0; clear wavy boundary.
B1r 59799	26 to 37 inches. Sampled collected of the 2.5Y 5/4 matrix material. Sample collected of the 5YR 4/6 and 4/8 iron oxide coated soil material.
B24g 59800	37 to 47 inches. Light olive brown (2.5Y 5/4) towards grayish brown (2.5Y 5/2) medium sand with many, medium and coarse, faint and distinct mottles of grayish brown (2.5Y 5/2) and yellowish brown (10YR 5/4 and 5/8); massive in place, crushes to single grain; loose when moist; roots not present; less than 1 percent coarse skeleton of very fine gravel; pH 5.4; abrupt smooth boundary.
Cg 59801	47 to 60 inches plus. Light olive brown (2.5Y 5/4) fine and medium sands with common, medium and coarse, distinct mottles of strong brown (7.5YR 5/6) and dark yellowish brown (10YR 4/4), and few medium prominent mottles of yellowish red (5YR 4/8); massive in place, crushes to single grain; very friable, nonsticky and nonplastic; roots absent; no coarse skeleton; pH 5.6.

Notes: Colors are for moist soil. The 0-11, 11-21, and the 47-60 inch zones were sampled for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Dukes coarse sand SOIL Nos. S59Mass-1-1 LOCATION Barnstable County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59768 - 59776

Depth (In.)	Horizon	181b Size class and particle diameter (mm) 3A1													3B2	Coarse fragments 3B1		
		Total			Sand					Silt								
		Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		Cm	2A2 > 2	2 - 19	19 - 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
1½-0	O2	a																
0-5	A21	94.3	4.6	1.1	8.8	38.1	24.4	19.6	3.4	4.4	0.2	15.7	90.9			tr.		
5-6½	A22	95.7	3.6	0.7	10.0	41.7	24.1	17.5	2.4	2.7	0.9	11.8	93.3			1		
6½-10	B21	95.1	3.0	1.9	11.1	40.9	24.2	16.6	2.3	1.4	1.6	10.0	92.8			1		
10-14	B22	93.0	3.8	3.2	8.4	36.8	25.2	19.8	2.8	1.8	2.0	12.2	90.2			2		
14-24	B23	93.5	3.7	2.8	8.8	34.3	25.4	21.7	3.3	1.9	1.8	13.4	90.2			3		
24-30	B24	96.3	2.1	1.6	16.0	41.2	21.6	16.0	1.5	1.2	0.9	8.7	94.8			7		
30-36	B25	98.0	1.0	1.0	7.8	38.4	25.5	23.5	2.8	0.7	0.3	14.2	95.2			4		
36-47	C2	99.1	0.4	0.5	17.5	41.3	17.1	19.8	3.4	0.4	0.0	13.3	95.7			5		

Soil Type: Dukes coarse sand
Soil No.: S59Mass-1-1
Location: Barnstable County, Massachusetts. Town of Wellfleet, 100 yards west of route 6 and just north of Lieutenant Island Road. Pinpointed on soil survey sheet and air photo 5K-68.
Vegetation and land use: Forested - 15 to 20 foot high pitch pine and a few 1/2 to 1 foot high scrub oak. Ground cover of hog cranberry and poverty grass.
Slope and land form: 11 percent.
Drainage: Excessively drained
Parent Material: Coarse sands derived principally from quartzose material.
Physiographic position: Chiefly on rolling moraine or pitted outwash plain, or in the bottom of old glacial drainage channels that are now dry.
Sampled by and date: E. J. Pedersen, G. Schmidt, J. Kubota, and R. J. Roffinoli. August 25, 1959.
Described by: S. J. Zayach and C. W. Upham

Horizon and Beltsville Lab. No.	
O1 Not Sampled	2-1/2 to 1-1/2 inches. Litter mainly of pitch pine needles.
O2 59768	1-1/2 to 0 inches. Partially decomposed pitch pine needles containing many fine and coarse tree roots.
A21 59769	0 to 5 inches. Very dark gray (10YR 3/1) medium sand; single grained and very weak medium crumb structure; loose when moist; many fine and coarse tree roots; less than 1 percent coarse skeleton of very fine gravel; pH 4.6; clear wavy boundary. 3 to 7 inches thick.
A22 59770	5 to 6-1/2 inches. Dark gray (10YR 4/1) medium and coarse sands; structureless - single grained; loose when moist; many fine and coarse tree roots; less than 1 percent coarse skeleton of very fine gravel; pH 4.8; abrupt irregular boundary. 1 to 5 inches thick.
B21 59771	6-1/2 to 10 inches. Dark reddish brown (5YR 3/2) medium and coarse sands containing fingers of soil material from the A22 and B22 horizons; massive in place, comes out in clods, crushes to weak fine and medium crumb structure; slightly firm in place, clods friable and very friable in the hand, the sands are weakly cemented; many fine and coarse tree roots; less than 1 percent coarse skeleton of very fine gravel; pH 4.8; clear wavy boundary. 1 to 4 inches thick.
B22 59772	10 to 14 inches. Yellowish red (5YR 4/6) towards strong brown (7.5YR 5/6) medium and coarse sands; structureless - single grained; loose when moist; many fine and coarse tree roots; less than 1 percent coarse skeleton of very fine gravel; pH 5.0; clear smooth boundary.
B23 59773	14 to 24 inches. Strong brown (7.5YR 5/6) medium and coarse sands; structureless - single grained; loose when moist; many fine and coarse tree roots; less than 1 percent coarse skeleton of very fine gravel; pH 5.0; clear smooth boundary.
B24 59774	24 to 30 inches. Strong brown (7.5YR 5/6) towards yellowish red (5YR 5/6) medium and coarse sands; structureless - single grained; loose when moist; fine tree roots are common; coarse skeleton of 3 to 5 percent fine gravel and about 3 percent of pebbles 1/2 to 1 inch in diameter; pH 5.0; clear and smooth boundary.
B25 59775	30 to 36 inches. Strong brown (7.5YR 5/6) towards yellowish red (5YR 5/6) medium and coarse sands; structureless - single grained; loose when moist; few tree roots; less than 2 percent coarse skeleton of fine gravel; pH 5.2; clear smooth boundary.
C2 59776	36 to 47 inches. Yellowish brown (10YR 5/6) medium and coarse sands; structureless - single grained; loose when moist; few tree roots; less than 2 percent coarse skeleton of fine gravel; pH 5.2; abrupt smooth boundary.
B'21ir Not Sampled	47 to 55 inches plus. Upper part of horizon has a discontinuous yellowish red (5YR 5/8) coarse sand iron band layer that is up to 8 inches thick; structureless - single grained; loose when moist; roots absent; 10 to 15 percent coarse skeleton of very fine gravel; pH 5.4. Lower part of horizon is yellowish brown (10YR 5/6) medium sand; structureless - single grained; loose when moist; roots absent; less than 2 percent coarse skeleton of fine and coarse gravel; pH 5.8.

Notes: Colors are for moist soil. The 0-5, 14-24, and the 36-47 inch zones were sampled for the Bureau of Public Roads.

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10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Dukes coarse sand SOIL Nos. S59Mass-1-2 LOCATION Barnstable County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59777 - 59785

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm															
½–0	O22	a															
0–5	A2	96.7	2.3	1.0	19.9	50.2	17.0	8.2	1.4	0.9	1.4	5.2	95.3				
5–7	A3	94.0	5.6	0.4	15.2	45.8	20.4	11.2	1.4	3.1	2.5	8.5	92.6		3		
7–10	B21	94.7	4.3	1.0	17.8	46.6	19.3	9.5	1.5	1.9	2.4	6.5	93.2		5		
10–18	B22	92.3	4.0	3.7	24.9	43.2	15.1	8.0	1.1	1.2	2.8	4.9	91.2		12		
18–26	B23	94.9	2.6	2.5	16.1	47.0	22.0	9.4	0.4	0.4	2.2	2.8	94.5		15		
26–33	B24	97.9	1.0	1.1	11.4	45.5	25.9	14.4	0.7	0.2	0.8	4.6	97.2		3		
33–38	B3	98.9	0.9	0.2	15.0	51.3	24.0	8.4	0.2	0.1	0.8	1.8	98.7		5		
38–50	C	99.1	0.7	0.2	17.6	45.2	22.3	13.4	0.6	0.1	0.6	4.0	98.5		8		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N	Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A3a Field Moist	Bulk density: 4A1a ⅓ bar	Bulk density: 4A1h Oven dry	4D1 COLE	Water content: 4B1d 1/10 bar	Water content: 4B1c ⅓ bar	Water content: 4B2 15 bar	4C1 WRD	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
	Pct.	Pct.		Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	in/in		
½–0	a														3.7
0–5	0.31				0.1	1.17				4.7		1.2		3.8	4.1
5–7	0.08				0.1	1.46				4.1		0.6		4.0	4.2
7–10	0.12				0.4	1.36				5.3		0.8		3.9	4.1
10–18	0.26				0.9	1.30				6.4		2.2		4.6	4.6
18–26	0.10				0.6					4.3		1.7		4.7	4.7
26–33	0.04				0.4	1.45				2.0		0.7		4.9	4.8
33–38	0.06				0.3	1.44				1.3		0.6		5.0	5.0
38–50	0.02				0.1	1.49				0.8		0.3		5.1	4.9

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g													
½–0	a													
0–5	tr.	tr.	tr.	0.1	0.1	1.2	1.3	0.2	0.20	0.10	1.20		8	
5–7	tr.	tr.	0.1	tr.	0.1	0.8	0.9	0.3	0.75	0.25	1.50		11	
7–10	tr.	tr.	0.1	tr.	0.1	1.8	1.9	0.6	0.60	0.40	0.80		5	
10–18	tr.	tr.	0.1	0.1	0.2	5.6	5.8	0.9	0.24	0.24	0.59		2	
18–26	tr.	tr.	0.1	0.1	0.2	3.5	3.6	0.6	0.24	0.24	0.68		3	
26–33	tr.	tr.	0.1	0.1	0.2	1.4	1.5	0.3	0.27	0.36	0.64		7	
33–38	tr.	tr.	0.1	0.1	0.2	0.8	0.9	0.2	1.00	1.50	3.00		11	
38–50	tr.	tr.	0.1	tr.	0.1	0.8	0.9	0.2	1.00	0.50	1.50		11	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Organic Horizon.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Dukes coarse sand
Soil No.: S59Mass-1-2
Location: Barnstable County, Massachusetts. Town of Wellfleet, 0.7 mile east of route 6 on Ocean Beach Road - just east of power line and north of road. Pinpointed on soil survey sheet and air photo 4K-57.
Vegetation and land use: Forested - mainly scrub oak and a few pitch pine. Ground cover of teaberry, huckleberry, and bayberry.
Slope and land form: Pitted outwash plain.
Drainage: Excessively drained

Physiographic position: Chiefly on rolling moraine or pitted outwash plain, or in the bottom of old glacial drainage channels that are now dry.
Sampled by and date: E. J. Pedersen, G. Schmidt, J. Kubota, and R. J. Roffinoli. August 25, 1959.
Described by: S. J. Zayach and C. W. Upham

Horizon and Beltsville Lab. No.	
O1 Not Sampled	2-1/2 to 1/2 inch. Litter mainly of scrub oak leaves.
O21 Not Sampled	1/2 to 0 inches. Partially decomposed oak leaves.
O22 59777	1/2 to 0 inches. Discontinuous black (10YR 2/1) humus containing many fine roots.
A2 59778	0 to 5 inches. Gray (10YR 5/1) medium and coarse sands; structureless - single grained; loose when moist; many fine and coarse tree roots; less than 1 percent coarse skeleton of very fine gravel; pH 4.4. Abrupt wavy boundary.
A3 59779	5 to 7 inches. Brown (10YR 5/3) medium and coarse sands; structureless - single grained; loose when moist; fine and coarse tree roots are common; less than 1 percent coarse skeleton of very fine gravel; pH 4.6; abrupt wavy boundary.
B21 59780	7 to 10 inches. Dark brown (7.5YR 3/2) medium and coarse sands; single grained, tendency towards cloddiness; friable and loose when moist; fine and coarse tree roots are common; less than 1 percent very fine gravel; pH 4.6; abrupt wavy boundary.
B22 59781	10 to 18 inches. Brown to dark brown (7.5YR 4/4) medium and coarse sands; clods crush to single grain; very friable; fine and coarse tree roots are common to many; less than 2-3 percent coarse skeleton of very fine gravel; pH 5.0; clear smooth boundary.
B23u 59782	18 to 26 inches. Strong brown (7.5YR 5/6) gravelly medium and coarse sands; clods crush to single grain; very friable to loose when moist; fine and coarse tree roots are common; 15-20 percent coarse skeleton of fine and coarse gravel; pH 5.0; clear smooth boundary.
B24 59783	26 to 33 inches. Strong brown (7.5YR 5/6) medium and coarse sands; structureless - single grained; loose when moist; few tree roots; less than 2 percent coarse skeleton of fine gravel; pH 5.0; clear smooth boundary.
B3 59784	33 to 38 inches. Yellowish brown (10YR 5/6) towards strong brown (7.5YR 5/6) coarse sand; structureless - single grained; loose when moist; few tree roots; 5 percent coarse skeleton of very fine gravel; pH 5.2; clear smooth boundary.
C	38 to 50 inches plus. Yellowish brown (10YR 5/4) gravelly coarse sand; structureless - single

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Essex fine sandy loam SOIL Nos. S57Mass-12-1 LOCATION Plymouth County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 57747 - 57753

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1													3B2	Coarse fragments 3B1		
		Total			Sand					Silt						2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		Cm	≥ 2	2 - 19	19 - 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-8	Ap	71.6	23.5	4.9	8.6	17.3	13.0	18.7	14.0	10.3	13.2	34.9	57.6			21		
8-11	B21	72.3	23.6	4.1	10.9	15.8	13.4	18.8	13.4	10.5	13.1	34.3	58.9			25		
11-15	B22	80.1	17.6	2.3	9.6	19.4	15.6	21.3	14.2	8.5	9.1	34.4	65.9			21		
15-18	B3	81.3	16.5	2.2	7.7	19.4	18.4	23.3	12.5	6.9	9.6	31.2	68.8			22		
18-24	C1	78.2	19.9	1.9	11.9	18.6	16.2	21.3	10.2	6.8	13.1	27.6	68.0			35		
24-30	C2	67.6	28.4	4.0	8.7	16.7	13.7	18.5	10.0	8.6	19.8	28.0	57.6			14		
30-36+	C3m	67.2	25.4	7.4	8.2	15.8	13.6	18.6	11.0	8.8	16.6	29.3	56.2			14		

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density			4D1	Water content			4C1	pH		
								4A1e ⅓ bar	4A1h Oven dry		4B1d 1/10 bar	4B1c ⅓ bar	4B2 15 bar			8C1c	8C1a
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	COLE	Pct.	Pct.	Pct.	WRD in/in		(1:1) KCl	(1:1) H_2O
0-8	2.11	0.177	12			0.8					20.2	12.9	5.8				5.3
8-11	0.77	0.065	12			0.7					19.5	11.3	3.5				5.1
11-15	0.35					0.5					14.1	7.0	2.3				5.1
15-18	0.22					0.5					12.6	6.7	1.9				5.2
18-24	0.16					0.4					13.6	8.8	1.6				5.2
24-30	0.12					0.5					16.6	13.8	1.9				5.1
30-36+	0.06					0.5					14.0	11.0	2.2				5.2

Soil Type: Essex fine sandy loam
Soil No.: S57Mass-12-1
Location: Plymouth County, Massachusetts. Lehtola Red Farm, Bridgewater, pinpointed on soil survey photograph DPT 10 - 12.
Vegetation and land use: Cultivated
Drainage: Well drained
Parent Material: Granitic glacial till
Physiographic position: Drumloidal knolls and nearly level plains.
Sampled by:and date: Edwood J. Pedersen, William H. Coates, and Rino J. Roffinoli. July 1957.
Described by: Charles W. Upham

Horizon and Beltsville Lab. No.	
Ap 57747	0 to 8 inches. Brown to dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; numerous fibrous roots; pH 5.4; abrupt smooth boundary.
B21 57748	8 to 11 inches. Strong brown (7.5YR 5/6) gravelly fine sandy loam; weak fine granular structure; very friable; numerous fibrous roots; pH 5.4; abrupt smooth boundary.
B22 57749	11 to 15 inches. Strong brown (7.5YR 5/6) gravelly sandy loam; single grained; loose when moist; 30 percent coarse skeleton of subangular cobbles; pH 5.2; smooth clear boundary.
B3 57750	15 to 18 inches. Reddish yellow (7.5YR 6/6) gravelly sandy loam; structureless - single grained; loose when moist; pH 5.2; clear smooth boundary.
C1 57751	18 to 24 inches. Yellowish brown (10YR 5/8) sandy loam; structureless - single grained; loose when moist. pH 5.2; clear smooth boundary.
C2 57752	24 to 30 inches. Light brownish gray to light gray (2.5Y 6/2 - 7/2) sandy clay loam; massive breaking to weak coarse subangular blocky structure; very friable; pH 4.8; abrupt boundary.
C3m 57753	30 to 36 inches plus. Light yellowish brown (10YR 6/4) sandy clay loam; strong coarse platy structure; firm to very firm in place, hard and very friable in the hand; pH 5.0.

Notes: Colors are for moist soil.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Essex fine sandy loam SOIL Nos. S57Mass-12-3 LOCATION Plymouth County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 57759 - 57763

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1													3B2	Coarse fragments 3B1		
		Total			Sand					Silt						2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		Cm	> 2	2 - 19	19 - 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-8	Ap	67.0	25.8	7.2	8.2	20.4	14.6	15.2	8.6	10.4	15.4	26.6	58.4			15		
8-13	B21	67.4	25.6	7.0	10.1	19.1	14.4	15.0	8.8	10.2	15.4	26.4	58.6			22		
13-19	B22	67.3	26.8	5.9	10.4	19.5	14.3	14.8	8.3	10.4	16.4	25.9	59.0			19		
19-26	B23	64.2	29.1	6.7	8.6	20.8	13.7	13.3	7.8	10.8	18.3	24.8	56.4			26		
26-37+	C1gm	70.7	25.4	3.9	13.4	22.6	14.7	13.1	6.9	8.9	16.5	21.8	63.8			22		

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N		6C1a Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density		4D1	Water content			4C1	pH		
								4A1e ⅓ bar	4A1h Oven dry	COLE	4B1d 1/10 bar	4B1c ⅓ bar	4B2 15 bar	WRD	8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	in/in		
0-8	3.14	0.197	16			0.8					28.7	18.3	8.0			6.2
8-13	0.36	0.037	10			0.8					17.0	10.6	3.7			5.2
13-19	0.24					0.6					19.6	13.9	2.7			5.2

Soil Type: Essex fine sandy loam
Soil No.: S57Mass-12-3
Location: Plymouth County, Massachusetts. Pond Street, Halifax. Western slope of knoll opposite Binns place; pinpointed on soil survey photograph DPT 10K-111.
Vegetation and land use: Cultivated
Drainage: Well drained
Parent Material: Granitic glacial till
Physiographic position: Both drumloidal land forms and on nearly level plains.
Sampled by and date: Edwood J. Pedersen, William H. Coates, Rino J. Roffinoli, and John R. Mott. July 1957.
Described by: Charles W. Upham

Horizon and Beltsville Lab. No.	
Ap 57759	0 to 8 inches. Dark brown (10YR 3/3) loam; weak fine subangular blocky structure; very friable; numerous fine roots; temperature 22°C at 7 inches; pH 6.0; abrupt smooth boundary.
B21 57760	8 to 13 inches. Yellowish brown (10YR 5/4) sandy loam; weak medium subangular blocky structure; very friable; pH 5.3; clear smooth boundary.
B22 57761	13 to 19 inches. Light yellowish brown (10YR 6/4) fine sandy loam; weak coarse subangular blocky structure; friable; pH 5.2; clear smooth boundary.
B23 57762	19 to 26 inches. Light yellowish brown (2.5Y 6/4) sandy loam with a few coarse distinct yellowish red mottles in the lower part; moderate very coarse subangular blocky structure; friable; temperature 20°C at 24 inches; pH 5.2; clear smooth boundary.
C1gm 57763	26 to 37 inches plus. Light yellowish brown to pale yellow (2.5Y 6/4 - 7/4) loamy gravelly sand with few to common coarse distinct yellowish red mottles in the upper 4 inches; strong, very coarse subangular blocky structure; hard, firm; temperature 18 1/2°C at 36 inches; pH 5.4.

Notes: Colors are for moist soil.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Gloucester sandy loam SOIL Nos. S56Mass-6-6 LOCATION Franklin County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561458 - 561463

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-6	Ap	71.1	24.0	4.9	5.8	13.2	12.6	23.7	15.8	14.4	9.6	43.3	55.3			22		
6-11	B21	75.3	21.4	3.3	7.2	14.4	13.2	24.2	16.3	13.7	8.2	43.3	59.0			25		
11-17	B22	80.4	18.5	1.1	6.6	15.3	14.3	27.0	17.2	12.3	6.2	44.8	63.2			28		
17-31	B23	80.2	19.1	0.7	6.9	16.0	15.0	26.3	16.0	10.4	8.7	40.4	64.2			24		
31-35	B24	74.6	23.9	1.5	6.0	12.1	12.3	25.0	19.2	13.4	10.5	47.2	55.4			28		
35-42	C	74.7	23.6	1.7	0.5	3.2	7.6	32.5	30.9	16.3	7.3	68.7	43.8			2		

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a Field Moist Cores g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4H1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-6	1.35	0.089	15			0.4	1.11										4.5
6-11	0.51	0.035	14			0.4	1.54										4.8
11-17	0.21					tr.	1.60										4.3
17-31	0.03					0.1	-										4.4
31-35	0.06					tr.	-										4.1
35-42	-					0.9	-										4.1

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-6	0.4	tr.	0.1	0.1	0.6	11.1	11.7				2.39	0.08				5	
6-11	0.5	tr.	tr.	0.1	0.6	5.9	6.5				1.97	0.12				9	
11-17	0.4	tr.	tr.	tr.	0.4	3.6	4.0				3.64	-				10	
17-31	0.2	tr.	0.1	tr.	0.3	1.8	2.1				3.00	0.14				14	
31-35	0.2	tr.	tr.	0.1	0.3	2.4	2.7				1.80	-				11	
35-42	0.1	tr.	tr.	tr.	0.1	1.8						0.53				14	

Depth (In.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Gloucester sandy loam
Soil No.: S56Mass-6-6
Location: Franklin County, Massachusetts. Footit property, Shutesbury. Sample taken 50 feet in woods from open field and 50 feet from highway. This location 500 feet from homestead on North Leverett Road, one mile southeast of Lake Wyola Road.
Vegetation and land use: Gray birch, white pine, and red oak.
Slope and land form: 8 to 10 percent.
Sampled by and date: Edwood J. Pedersen, Steve Davidson, Frederick A Filios, Robert F. Reiske, and Hermon U. Goodell. October 4, 1956.
Described by: William H. Coates

Horizon and Beltsville Lab. No.	
O1 Not Sampled	Loose leaf litter.
O2 and A1 Not Sampled	1 inch. Partially decomposed humus and mineral material.
A2 Not Sampled	Micro-horizon developed on old Ap.
Ap 561458	0 to 6 inches. (10YR 4/2 - 4/3) dark grayish brown to dark brown sandy loam; very weak, fine granular; horizonation clear and abrupt; very friable; coarse skeleton estimated at 10-15 percent.
B21 561459	6 to 11 inches. (10YR 5/4) yellowish brown sandy loam; very weak, fine granular; horizonation clear and gradual; coarse skeleton 15 to 20 percent.
B22 561460	11 to 17 inches. (10YR 6/3 - 6/4) pale brown to light yellowish brown loamy fine sand; loose, single grain; coarse skeleton 15 to 20 percent; horizonation smooth and gradual.
B23 561461	17 to 31 inches. (10YR 6/1) light gray loamy sand to coarse loamy sand; loose, single grain; coarse skeleton 30 percent; some very weak platiness in this horizon.
B24 561462	31 to 35 inches. (10YR 6/1) light gray loamy fine sand to coarse loamy sand; loose, single grain. (10YR 6/3 - 6/4) color found in streaks 3 to 4 inches wide in this horizon thought to be mottling but found to be organic root stains; some platiness; coarse skeleton 30 percent.
C 561463	35 to 42 inches. (10YR 6/1) gray, interspersed with (10YR 5/1) gray fine sands; loose, single grain; some platiness noticeable; very low coarse skeleton noticeable in this horizon -- might be interpreted as D-horizon.

Notes: All soil colors in moist conditions.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Gloucester fine sandy loam SOIL Nos. 856Mass-6-7 LOCATION Franklin County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561464 - 561469

Depth (In.)	Horizon	Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-4	A1	65.3	20.0	14.7	5.8	14.8	11.6	20.1	13.0	16.4	3.6	40.2	52.3			45		
4-15	B21	63.7	29.1	7.2	8.4	15.0	11.2	17.7	11.4	17.4	11.7	38.4	52.3			19		
15-23	B22	83.7	13.7	2.6	11.4	22.9	15.4	22.8	11.2	8.9	4.8	31.6	72.5			67		
23-33	B23	84.7	13.2	2.1	12.3	22.2	14.8	22.3	13.1	8.9	4.3	33.8	71.6			54		
33-45	B24	86.4	12.2	1.4	12.9	20.6	14.5	26.0	12.4	7.0	5.2	33.5	74.0			19		
45+	C1	91.8	7.5	0.7	5.4	15.3	20.3	36.0	14.8	6.2	1.3	39.5	77.0			31		

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron as Fe Pct.	Bulk density 4A3a Field Moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-4	2.74	0.145	19			1.2	0.89										4.0
4-15	0.72	0.047	15			1.9	1.17										4.0
15-23	0.29					2.4	1.47										5.0
23-33	0.10					1.7	1.58										5.0
33-45	0.04					1.6	1.52										4.9
45+	0.04					1.0	1.60										5.1

Depth (In.)	Extractable bases 5B1a — 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-4	0.3	0.3	tr.	0.2	0.8	19.2	20.0				1.36	0.08				4	
4-15	0.1	0.1	tr.	0.2	0.4	8.5	8.9				1.24	0.26				4	
15-23	0.1	0.4	tr.	0.1	0.6	5.0	5.6				2.15	0.92				11	
23-33	0.1	0.1	tr.	tr.	0.2	3.6	3.9				1.86	0.81				8	
33-45	0.1	0.1	tr.	tr.	0.2	2.4	2.6				1.86	1.14				8	
45+	0.1	0.2	tr.	tr.	0.3	1.0	1.3				1.86	1.43				23	

Depth (In.)	Clay Fraction Analysis 7A1b-d — Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Gloucester fine sandy loam
Soil No.: S56Mass-6-7
[redacted]

road and 100 feet from open old field at Chestnut Loop Road intersecting with Chestnut Road.
Vegetation and land use: Red and white oaks, white pine, red maple, and gray birch.
Slope and land form: 3 to 8 percent.
Sampled by and date: Edwood J. Pedersen, Steve Davidson, Frederick A. Filios, Robert F. Reiske, and Hermon U. Goodell. October 3, 1956.
Described by: William H. Coates

Horizon and Beltsville Lab. No.	
O1 and O2	1/2 inch. Leaf litter and partially decomposed humus.
A1 561464	0 to 4 inches. (10YR 3/2) very dark grayish brown fine sandy loam; weak, fine granular; very friable; horizonation abrupt and smooth; coarse skeleton 5 percent.
B21 561465	4 to 15 inches. (7.5YR 5/6) strong brown fine sandy loam; weak, fine and medium granular with 10 to 15 percent; very weak subangular blocky; very friable; horizonation gradual and smooth; coarse skeleton 15 to 25 percent.
B22 561466	15 to 23 inches. (10YR 5/4) yellowish brown coarse sands and coarse gravelly sands, single grain, loose; horizonation gradual and smooth; coarse skeleton 25 to 30 percent.
B23 561467	23 to 33 inches. (10YR 5/3 - 5/2) brown to grayish brown gravelly coarse sand; loose, single grain; coarse skeleton 60 percent; horizonation smooth and gradual.
B24 561468	33 to 45 inches. (10YR 7/1 - 7/2) light gray to light brownish gray (10YR 6/2) banded with each other; soil rubs out to (10YR 6/3) pale brown, coarse sands; horizonation gradual, smooth; loose single grain; coarse skeleton 15 percent; brownish color in this horizon caused by deep roots; 2 to 3 inch gravel layer divides this horizon from C1 horizon below.
C1 561469	45 inches plus. (10YR 7/2 - 7/1) light gray coarse sands; loose, single grain; coarse skeleton 15 to 25 percent; pockets of fine sands found in this horizon; some clay faces noticeable.

Notes: All soil colors for moist conditions.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hinckley loamy coarse sand SOIL Nos. 856Mass-6-2 LOCATION Franklin County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561440 - 561443

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand (Pct. of < 2 mm) Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt 0.05–0.02	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct.	2 – 19	19–76 Pct. of < 76mm
0-8	Ap	81.5	14.4	4.1	11.2	36.8	16.5	11.1	5.9	7.9	6.5	18.7	75.6			13		

Soil Type: Hinckley loamy coarse sand
Soil No.: S56Mass-6-2
Location: Franklin County, Massachusetts. Wilburn property, Montague. Sample taken 300 feet northeast from intersection of Old Northfield Road and west of Mohawk Riding Club Road.
Vegetation and land use: Old field, low fertility level. Field surrounded by aspen, pitch pine, gray birch, and scrub white oaks.
Slope and land form: 0 to 3 percent.
Sampled by and date: Edwood J. Pedersen, Steve Davidson, Frederick A. Filios, and Robert F. Reiske. October 3, 1956. Described by: W. H. Coates.

Horizon and Beltsville Lab. No.	
Ap 561440	0 to 8 inches. (10YR 3/2) very dark gray brown loamy coarse sand; single grain, loose; rootlets hold soil together; small amount of gravel present; horizonation abrupt and smooth.
B2 561441	8 to 14 inches. (10YR 5/4) yellowish brown gravelly coarse sandy loam; single grain, loose; horizonation gradual and smooth; coarse skeleton 40 percent.
B3 561442	14 to 24 inches. (10YR 7/3) very pale brown coarse sand and fine gravel; single grain, loose; horizonation diffuse; coarse skeleton 20 percent.
C 561443	24 inches plus. (10YR 7/1 - 7/2 - 7/3) light gray to very pale brown; coarse sand and gravel; coarse skeleton 20 percent; coarse skeleton throughout profile mostly granitic.

Notes: All soil colors for moist conditions.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hinckley loamy coarse sand SOIL Nos. 856Mass-6-3 LOCATION Franklin County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561444 - 561447

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand (Pct. of < 2 mm) Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt 0.05–0.02	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct.	2 - 19 (Pct. of < 76mm)	19–76 (Pct. of < 76mm)
0-8	Ap	78.1	17.3	4.6	15.9	29.9	15.6	9.6	7.1	10.8	6.5	22.3	71.0					
8-16	B2	65.4	32.9	1.7	12.1	25.2	13.5	8.5	6.1	29.3	3.6	39.2	59.3					
16-29	B3	96.6	2.6	0.8	7.9	43.4	32.9	10.2	2.2	1.6	1.0	7.1	94.4					
29+	C	98.6	0.8	0.6	9.1	45.6	29.6	12.9	1.4	0.4	0.4	5.4	97.2					

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density 4A1e ⅓ bar g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content 4B1c ⅓ bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
0-8	0.32	0.079	4.0			0.6										6.0
8-16	0.20					0.4										5.4
16-29	0.05					0.3										5.5
29+	0.01					0.1										5.6

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations	6G1d Ext. Al		Ratios to clay 8D1 CEC Sum	Ratios to clay 8D1 Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g															
0-8	0.1	0.1	0.1	0.1	0.4	4.6	5.0			1.09	0.13				8	
8-16	0.2	0.1	tr.	0.2	0.5	2.4	2.9			1.70	0.24				17	
16-29	0.3	tr.	0.1	0.1	0.5	0.6	1.1			1.38	0.38				45	
29+	0.1	0.1	tr.	tr.	0.2	0.2	0.4			0.67	0.17				50	

Depth (In.)	Clay Fraction Analysis 7Alb-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Hinckley loamy coarse sand
Soil No.: S56Mass-6-3
Location: Franklin County, Massachusetts. Sirum Farm, Montague. Sample taken in cornfield, 1,000 feet south of highway 63 on Lake Pleasant Road.
Vegetation and land use: Cornfield
Slope and land form: 0 to 3 percent.
Sampled by and date: Edwood J. Pedersen, Steve Davidson, Frederick A. Filios, and Robert F. Reiske. October 3, 1956.
Described by: William H. Coates

Horizon and Beltsville Lab. No.	
Ap 561444	0 to 8 inches. (10YR 3/2) very dark gray brown loamy coarse sand; very weak fine granular to single grain, loose; horizonation clear and smooth.
B2 561445	8 to 16 inches. (10YR 5/4 - 5/6) yellowish brown, gravelly loamy coarse sand; single grain, loose; horizonation clear and smooth.
B3 561446	16 to 29 inches. (10YR 6/3 - 6/4) pale brown, light yellowish brown, medium and coarse sand and gravel; loose, single grain; horizonation gradual and smooth.
C 561447	29 inches plus. (10YR 6/2) light brownish gray medium and coarse sand and gravel; layers of stratified fine to coarse sand 2 to 3 inches thick alternating with layers high in gravel - lower substratum of sand and gravel; loose; single grain; coarse skeleton 25 to 30 percent, mostly granitic.

Notes: All soil colors for moist conditions.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Leicester stony silt loam **LOCATION** Hampshire Co., Massachusetts

SOIL NOS. S58Mass-8-4 **LAB. NOS.** 10398 - 10403

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	3A1 0.02-0.002	2A2 > 2 (<19mm.)	TEXTURAL CLASS
0-4	Ap	3.0	10.4	10.4	21.9	15.1	35.1	4.1	48.6	13.1	8	fsl
4-7	AB	2.8	9.8	10.0	21.6	16.3	37.5	2.0	50.9	14.3	10	fsl
7-15	B_{21g}	4.0	10.4	10.0	21.0	15.6	36.8	2.2	50.0	13.6	9	fsl
15-23	B_{22g}	4.2	10.8	10.1	22.0	16.1	34.8	2.0	49.6	13.0	12	fsl
23-34	B_{23g}	4.5	11.5	10.6	22.6	16.5	32.2	2.1	48.1	12.4	21	fsl
34-42+	C_g	5.2	12.6	12.9	27.7	16.8	23.5	1.3	45.8	8.9	19	ls

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3		6E1a $CaCO_3$ equivalent %	4A1a Bulk Density g/cc	MOISTURE TENSIONS 4B1a 1/10 ATMOS. %	4B1a 1/3 ATMOS. %	4B2 15 ATMOS. %
5.7			6.61	0.344	19	1.1			1.15			11.5
5.7			2.24	0.126	18	1.0			1.12			5.1
5.9			1.00	0.070	14	0.9			1.24	28.5	12.1	3.8
6.0			0.69	0.055	12	0.9			1.27	24.9	10.2	3.0
6.0			0.66	0.053	12	0.8			1.38	19.7	9.4	2.8
6.7			0.06			0.4		< 1	1.86	10.9	5.4	0.6

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5B1a BASE SAT. % Sum 5C3	5A3a Sum Ext. Cations me/100g.	MOISTURE A7 SATURATION %
	← milliequivalents per 100g. soil →							
19.8	6.4	2.9	23.8	0.1	0.2	29	33.4	
8.5	1.8	0.4	14.4	<0.1	0.1	14	16.7	
5.5	1.2	0.5	9.5	<0.1	0.1	16	11.3	
4.7	0.9	0.4	7.9	<0.1	0.1	15	9.3	
4.6	1.3	0.7	7.3	<0.1	0.1	22	9.4	
1.2	0.7	0.5	0.5	<0.1	<0.1	70	1.7	

Soil Type: Leicester stony silt loam
Soil Nos.: S58Mass-8-4
Location: Ware township, pasture on Juda farm 0.6 of a mile north of Route 9. Soil survey photograph DPB-3H-71, coordinates 9.6X - 3.7Y inches, scale 1:15840. Windsor Dam Quad. 1952, scale 1:31680. Hampshire County, Massachusetts.
Slope: Gently sloping concave 4 percent slope.
Elevation: 720 feet.
Weather: Intermittent rain.
Collected by: Edwood J. Pedersen, Joseph Kubota, and Frederick A. Filios, July 22, 1958.
Described by: Stephen J. Zayach.
Notes by: Robert F. Reiske.

Horizon and Lincoln Lab. No.	
Ap 10398	0 to 4 inches. Black (5YR 2/1) silt loam; comes out in clods, breaks to very weak medium granular structure with some fine granular peds; friable; many fine fibrous roots; pH 5.0; abrupt wavy boundary 3 to 10 inches thick.
AB 10399	4 to 7 inches. Sixty percent dark yellowish brown (10YR 4/4) and 40 percent very dark brown (10YR 2/2) tending to black (2.5Y 2/2) sandy loam; comes out in clods, breaks to weak fine and medium granular structure; friable, slightly sticky, slightly plastic; fine fibrous roots are common; pH 5.8; abrupt wavy boundary 2 to 3 inches thick.
B21g 10400	7 to 15 inches. Dark yellowish brown (10YR 4/4) to olive brown (2.5Y 4/4) sandy loam mottled with few fine distinct yellowish red (5YR 4/6) and grayish brown (2.5Y 5/2); clods break to weak medium granular structure; very friable, slightly sticky, slightly plastic; fine fibrous roots are few to common; 5 to 10 percent coarse skeleton; pH 5.8; clear wavy boundary 5 to 6 inches thick.
B22g 10401	15 to 23 inches. Dark yellowish brown (10YR 4/4) to olive brown (2.5Y 4/4) sandy loam with few fine distinct dark reddish brown (5YR 3/4) and yellowish brown (10YR 5/6) mottles; clods break to weak medium granular structure; friable; few roots; 5 to 10 percent coarse skeleton; pH 5.8; clear wavy boundary 5 to 10 inches thick.
B23g 10402	23 to 34 inches. Olive brown (2.5Y 4/3) sandy loam with common, medium to coarse, faint dark yellowish brown (10YR 4/4) mottles; structure tends to be weak medium platy or weak medium granular; friable; 5 to 10 percent coarse skeleton; pH 6.0; abrupt wavy boundary 6 to 12 inches thick.
Cg 10403	34 to 42 inches plus. Olive gray (5Y 5/2) gravelly loamy sand with many medium prominent yellowish red (5YR 4/6) and common, fine to medium, distinct dark yellowish brown (10YR 4/4) mottles; tendency towards platy structure; firm in place; no roots present; 35 percent coarse skeleton; pH 6.4.

Remarks: Leicester is a poorly-drained Low Humic Gley soil developed on glacial till derived from granites, gneisses and schists. It generally occurs in low-lying areas and receives surface runoff and seepage from upland areas. The textures are variable depending upon the kind of parent material these soils have developed on. The Leicester soils are very similar to the Ridgebury soils, which have fragipans at 14 to 18 inches. They are mapped in association with the moderately well-drained Acton and Sutton soils and very poorly-drained Whitman soils.

Other faces of the pit were mottled more than where the soil was described and the samples collected. Seepage water was continuously coming into the soil pit at a depth of 30 inches. The area sampled was somewhat better drained than the central concept of Leicester. Most of the rocks at the sample site are fine-grained granites and genisses, both containing many dark minerals.

All colors are moist.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Leicester stony loam **LOCATION** Hampshire Co., Massachusetts

SOIL NOS. S58Mass-8-6 **LAB. NOS.** 10408 - 10413

DEPTH INCHES	HORIZON	1B1a PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)									3A1 2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2 / <10mm	

Soil Type: Leicester stony loam
Soil Nos.: S58Mass-8-6
Location: Ware township, Old Andersen Hill Road. Sepanek farm, pasture in back of barn on the south side of the road. Soil survey photograph DPB-3H-1B, coordinates 6.2X - 5.7Y inches, scale 1:15840. Windsor Dam Quad. 1952, scale 1:31680. Hampshire County, Massachusetts.
Slope: Nearly level, concave.
Elevation: 650 feet.
Weather: Clear.
Collected by: Edwood J. Pedersen, Joseph Kubota, and Frederick A. Filios, July 24, 1958.
Described by: Stephen J. Zayach.
Notes by: Robert F. Reiske.

Horizon and Lincoln Lab. No.	
A1 10408	0 to 6 inches. Black (10YR 2/1) loam; clods break to weak to moderate, fine and medium, granular structure; friable, slightly sticky, slightly plastic; many fine fibrous roots; pH 6.4; abrupt and wavy boundary.
B21g 10409	6 to 10 inches. Dark yellowish brown (10YR 4/4) light loam with common fine prominent dark reddish brown (5YR 3/3) and common medium prominent dark grayish brown (2.5Y 4/2) mottles; contains common coarse distinct, very dark grayish brown (10YR 3/2) organic stains; many intrusions of black (10YR 2/1) A1 material in wormholes and casts throughout horizon; clods break to weak medium granular structure; friable; fine fibrous roots are common to few; pH 6.2; clear wavy boundary.
B22g 10410	10 to 17 inches. Dark yellowish brown (10YR 4/4) to olive brown (2.5Y 4/4) sandy loam with common to many, fine and medium, distinct dark brown to brown mottles (7.5YR 4/4) and dark yellowish brown (10YR 3/4) and few fine prominent yellowish red (5YR 3/6) mottles; massive breaking to very weak medium granular structure; friable; fine fibrous roots are common to few; fine pores are common; pH 6.2; clear wavy boundary.
C1lg or B'21g	17 to 25 inches. Dark grayish brown (2.5Y 4/2) to olive gray (5Y 4/2) very fine sandy loam (contains pockets of loamy sand) with common medium distinct dark yellowish brown (10YR 4/4) and few to common

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Lenox silt loam SOIL Nos. 860Mass2-5 LOCATION Berkshire County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60483-60489

Depth (In.)	Horizon	1H1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)	Coarse fragments 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm														
0-7	Ap	38.5	47.8	13.7	5.8	5.6	3.7	8.2	15.2	23.0	24.8	43.4	23.3	13		
7-12	B21	33.8	53.4	12.8	5.2	4.6	3.1	6.8	14.1	26.5	26.9	44.8	19.7	19		
12-19	B22	40.8	46.5	12.7	7.4	6.1	3.9	8.4	15.0	23.6	22.9	43.8	25.8	16		
19-26	C11	47.6	43.0	9.4	8.6	7.5	4.6	10.0	16.9	21.8	21.2	44.8	30.7	20		
26-32	C12	52.4	40.3	7.3	10.3	8.2	4.8	10.8	18.3	20.6	19.7	45.6	34.1	27		
32-44	C13	47.9	42.7	9.4	8.6	7.1	4.4	10.4	17.4	20.8	21.9	44.8	30.5	21		
44-55	C2	47.3	40.5	12.2	8.3	7.9	5.0	10.6	15.5	16.7	23.8	38.5	31.8	33		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		6E1e Carbonate as $CaCO_3$	6C1a Ext. Iron as Fe	Bulk density	4A1e 1/3 Bar	4A1h O.D.		Water content 4B1c 1/3 Bar	4B2 15 Bar		pH 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.	Pct.		
0-7	2.17	0.202	11			2.3		1.32	1.39		17.8	9.4		5.8
7-12	0.60	0.058	10			1.9		1.42	1.46		23.0	6.0		6.1
12-19	0.30					1.9		1.57	1.62		19.5	5.7		6.2
19-26	0.21					1.7		1.64	1.66		15.8	4.3		6.3
26-32	0.12					1.7		1.66	1.70		14.6	3.6		6.6
32-44	0.18				7	1.7		1.81	1.84		14.2	4.3		7.4
44-55	0.10				12	1.3		1.87	1.91		15.9	4.0		8.0

Depth (In.)	Extractable bases 6N2d Ca	6O2b Mg	6P2a Na	5B1a 6Q2a K	6H2a Ext. Acidity	CEC 5A3a Sum Cations	Base saturation 5C3 Sum Cations Pct.	Pct.
	meq/100 g							
0-7	6.0	0.6	0.1	0.2	9.0	15.9	43	
7-12	2.3	0.2	0.1	0.1	5.3	8.0	34	
12-19	2.4	0.1	0.1	0.1	3.8	6.5	42	
19-26	2.3	0.2	0.1	0.1	2.3	5.0	54	
26-32	3.1	0.4	0.1	0.1	1.7	5.4	68	
32-44	a.							
44-55	a.							

Clay Fraction Analysis 7A1b-d

Soil type: Lenox silt loam
Soil No.: S60Mass-2-5
Location: Don Ziegler farm, 100 feet east of Undermountain Road, 1.2 miles north of Massachusetts Route 183 at Tanglewood, Lenox, Berkshire County, Massachusetts, aerial photo DPM-3K-174.
Vegetation: Pasture grasses.
Slope: 11 percent
Drainage: Well drained.
Parent material: Glacial till derived principally from dark gray or black micaceous schist with thin calcic seams, dark and white limestone, and some phyllite.
Physiographic position: Rolling uplands of the Limestone Valley.
Sampled by and date: E. J. Pedersen, D. D. Bohrer, and F. A. Filios. June 8, 1960.
Described by: S. J. Zayach and D. C. Fuller.

Horizon and

Beltsville
Lab. Number

Ap
60483 — 0 to 7 inches. Dark brown (10YR 3/3) silt loam; weak to moderate medium granular structure; very friable when moist; many fine and medium roots; pH 6.4; abrupt smooth boundary.

B21
60484 — 7 to 12 inches. Dark yellowish brown (10YR 4/4) toward olive brown (2.5Y 4/4) heavy loam; comes out in clods that crush to weak fine and medium granules; very friable when moist; many fine roots; less than 5 percent coarse skeleton of fine gravels and fine channers mainly of schist; pH 6.6; clear wavy boundary.

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10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Lenox silt loam SOIL Nos. S60Mass-2-6 LOCATION Berkshire County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60490-60496

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9	Ap	46.9	41.7	11.4	6.2	6.2	4.4	10.9	19.2	20.1	21.6	46.1	27.7			25		
9-14	B21	60.7	33.3	6.0	9.9	9.1	5.6	13.9	22.2	16.3	17.0	47.1	38.5			23		
14-19	B22	58.5	34.4	7.1	8.3	8.2	5.4	13.5	23.1	17.9	16.5	49.4	35.4			31		
19-26	B23	59.3	32.4	8.3	9.0	9.9	6.9	14.5	19.0	13.4	19.0	41.3	40.3			34		
26-31	B3	75.1	19.1	5.8	15.7	16.8	10.3	16.8	15.5	8.0	11.1	33.0	59.6			48		
31-44	IIC1	47.8	43.9	8.3	5.0	4.5	3.6	11.2	23.5	21.5	22.4	52.2	24.3			19		
44-62	IIC2	40.2	49.4	10.4	5.1	4.8	3.3	8.1	18.9	21.0	28.4	44.9	21.3			21		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron as Fe Pct.	Bulk density: 4A1e 1/3 Bar g/cc	Bulk density: 4A1h O.D. g/cc		Water content: 4B1c 1/3 Bar Pct.	Water content: 4B2 15 Bar Pct.			pH: 8C1a (1:1) H_2O	
0-9	1.70	0.142	12			1.7	1.42	1.46		22.0	6.2			5.4	
9-14	0.36	0.031	12			1.5	1.78	1.78		12.5	3.5			5.8	
14-19	0.25					1.5	1.86	1.87		12.4	3.6			6.2	
19-26	0.20					1.7	1.78	1.81		13.8	4.4			6.5	
26-31	0.27					1.8	1.76			11.7	3.7			7.0	
31-44	0.12				1.4	1.3	1.62	1.78		17.0	4.0			7.7	
44-62	0.10				2.4	1.3	1.87	1.92		16.4	4.2			8.0	

Depth (In.)	Extractable bases: 6N2d Ca	6O2b Mg	6P2a Na	5B1a 6Q2a K	6H2a Ext. Acidity	CEC: 5A3a Sum Cations	Base saturation: 5C3 Sum Cations Pct.	Pct.
	meq/100 g							
0-9	3.2	0.7	0.1	0.2	8.9	13.1	32	
9-14	1.6	0.3	0.1	0.1	3.4	5.5	38	
14-19	2.0	0.4	0.1	0.1	2.8	5.4	48	
19-26	3.0	0.8	0.1	0.1	2.6	6.6	61	
26-31	4.2	1.1	Tr.	Tr.	2.1	7.4	72	
31-44	a							
44-62	a							

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt. b.	Ver.	Chl.	Int. Ver.-Mi.	Mi.	Kl. 7A3
	X-ray 7A2					DTA
0-9						
9-14						
14-19	Tr. c.	XX	XX	XX	XX	5
19-26						
26-31						
31-44						
44-62						

a. Carbonates present.
b. Mt. = montmorillionite, Ver. = vermiculite, Chl. = chlorite, Int. Ver.-Mi. = interlayer vermiculite-mica, Mi. = mica, Kl = kaolinite.
c. Relative amounts.

Soil type: Lenox silt loam
Soil No.: S60Mass-2-6
Location: Lisakis property, 100 yards west of West Mountain Road, 100 yards north of Lime Kiln Road, Lenox, Berkshire County, Massachusetts, aerial photo DPM-3K-126.
Vegetation: Idle land - orchard grass and red clover.
Slope: 13 percent
Drainage: Well drained.
Parent material: Glacial till derived principally from dark gray or black micaceous schist with thin calcic seams, dark and white limestone, and some phyllite.
Physiographic position: Rolling uplands of the Limestone Valley.
Sampled by and date: E. J. Pedersen, D. D. Bohrer, and F. A. Filios. June 9, 1960.
Described by: S. J. Zayach and D. C. Fuller.

Horizon and Beltsville Lab. Number	
Ap 60490	0 to 9 inches. Very dark grayish brown (10YR 3/2), crushed color is 2.5Y 3/2, loam or silt loam; moderate fine and medium granular structure; very friable when moist; many fine and medium roots; 5 to 10 percent coarse skeleton of fine gravel and fine channers mostly of phyllite and schist; pH 6.2; abrupt smooth boundary.
B21 60491	9 to 14 inches. Olive brown (2.5Y 3/4) light gravelly loam; comes out in clods that crush to weak fine and medium crumb structure; friable when moist; fine roots are common; 15 to 20 percent coarse skeleton of fine gravel and fine channers of phyllite, schist, and limestone; pH 6.4; clear wavy boundary.
B22 60492	14 to 19 inches. Very dark grayish brown (2.5Y 3/2) light gravelly loam; comes out in clods that crush to weak fine and medium crumb structure; friable when moist; fine roots are common; 20 to 25 percent coarse skeleton of fine gravel and channers up to 1/2 inch in diameter mostly of dark fine-grained rock fragments; pH 6.5; clear wavy boundary.
B23 60493	14 to 26 inches. Very dark grayish brown (2.5Y 3/2) light gravelly loam; comes out in clods that crush to weak fine and medium crumb structure; friable when moist; few fine roots; 15 to 20 percent coarse skeleton of fine gravel and fine channers of limestone and dark colored schist, there is some rotten rock - mostly micaceous schist; pH 6.8; clear wavy boundary.
B3 60494	26 to 31 inches. Dark grayish brown (2.5Y 4/2) gravelly loamy sand or gravelly sandy loam; comes out in clods that crush to weak medium crumb structure; very friable when moist; few fine roots; 30 to 40 percent coarse skeleton of fine gravel and channers of limestone and dark schist, some weathered limestone "ghosts" and much rotten micaceous schist; pH 7.2+; abrupt smooth boundary.
IIC1 60495	31 to 44 inches. Olive (5Y 4/3) loam with many moderate distinct variegations of dark brown (10YR 3/3) and olive gray (5Y 4/2) colors and dark yellowish brown (10YR 4/6) disintegrated limestone fragments; structureless - massive; friable when moist; very few fine roots; 5 to 10 percent coarse skeleton of fine gravel and channers of limestone and dark schist, some unweathered limestone and schist cobbles; pH 7.2+, fragments are calcareous; clear smooth boundary.
IIC2 60496	44 to 62 inches. Dark grayish brown (2.5Y 4/2) gravelly silt loam or gravelly loam with fine variegations of very dark grayish brown (10YR 3/2); structureless - massive; friable to firm when moist; roots absent; some silt or clay films on fractures; 15 percent coarse skeleton of fine gravel and channers of limestone and dark schist, some unweathered cobbles and stones - mostly limestone and some schist; calcareous (effervesces strongly with cold, dilute hydrochloric acid).

Notes: Colors refer to moist soils. The 0-9, 19-26, and the 44-62 inch zones were sampled for the Bureau of Public Roads. One percent by weight of fragments larger than 3 inches were discarded from the 19-26 inch zone and 5 percent by weight were discarded from the 44-62 inch zone.

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10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Marlow silt loam SOIL Nos. S55Mass-6-1 LOCATION Franklin County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB Nos. 56134 - 56141

Soil Type: Marlow silt loam
Soil No.: S55Mass-6-1
Location: Franklin County, Massachusetts. 1/2 mile north of Heath in a forest adjacent to a small field. Sample located in forest about 100 feet from a gravel road.
Vegetation and land use: Present and original are probably the same. Old growth, beech, yellow and white birch, black cherry, sugar maple, striped maple, hemlock. Probably spruce and an occasional white pine existed in the original forest.
Slope and land form: 2 percent.
Sampled by and date: L. T. Alexander, W. H. Coates, H. V. Goodell, F. A. Filios. October 13, 1955.
Described by: W. H. Lyford.

Horizon and Beltsville Lab. No.	
O1 Not Sampled	1 to 1-1/2 inches. Loose recently fallen leaves.
O2 Not Sampled	1-1/2 to 0 inches. Loose leaves from previous leaf falls, partly broken or eaten and tied together weakly by mycelium and rootlets.
A1 56134	0 to 4 inches. 10YR 2/1-2/2, very friable silt loam, very high in organic matter. Rootlets are numerous and bind the soil material together. Weak, moderate, very fine granular structure.
A2 56135	3 to 4 inches. Discontinuous. 10YR 4/1-3/2, very friable, loam with very weak thin platy structure. No pores in the plates. This horizon is discontinuous and may occur in not over 20 percent of the area.
B21 56136	4 to 6 inches. 5YR 3/4 - 4/4 very friable silt loam, with about 5 percent coarse skeleton; weak fine granular structure with very little tendency for weak subangular structure. Roots are numerous.
B22 56137	6 to 10 inches. 10YR 4/3 - 3/3 very friable loam with about 5 percent coarse skeleton. When broken out, there is about an equal amount of weak fine granular structure and very weak, very coarse subangular structure. There are no pores and no clay coats. The material is nonsticky, nonplastic, and not distinctly micaceous. Roots are numerous.
B23 56138	10 to 18 inches. 10YR 3/3 (toward 2.5Y) very friable loam with about 5 percent coarse skeleton. When broken out, about 1/2 to 3/4 weak coarse subangular blocky and the remainder, weak fine granular structure. Nonporous and with no glazing. Roots are numerous.
B24 56139	18 to 25 inches. 2.5Y 4/4 - 3/3 friable loam with about 5 percent coarse skeleton. When broken out there are about equal proportions of weak fine granular and weak coarse subangular blocky peds. Nonporous, nonsticky, nonplastic, and not distinctly micaceous.
C1 56140	25 to 34 inches. 2.5Y 3/2 firm loam till with about 10-20 percent coarse skeleton in the 1-3 inch diameter range. Slightly more olive brown than the horizon below and with very faint fine 2.5Y 4/4 mottles on a few peds. Very weak coarse platy structure with no pores or glazes on or in peds. Roots occur and tend to be partially rotted leaving dark brown stains on the surrounding soil material.
C2 56141	34 to 40 inches plus. 2.5Y 3/2 very firm gravelly loam till with 30-60 percent coarse skeleton dominantly in the 1-4 inch diameter range. Essentially massive in place with perhaps a tendency for very weak coarse platy structure. A few brown coated fine pores are faintly visible. Not distinctly micaceous, nonplastic, nonsticky.

Notes: Colors are for moist soil materials. Lithology Count of 1-3 inch coarse fragments picked at random from pile of soil beside the pit:

Coarse grained granite or gneiss...	6 fragments
Soft yellowish brown weathered gneiss-like ghosts...	2 fragments
Quartz or quartzite...	1 fragment
Flat, subrounded black garnetiferous phyllite...	20 fragments
	29 fragments

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10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Marlow stony silt loam SOIL Nos. S55Mass-8-1 LOCATION Hampshire County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56142 - 56148

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-6	A1	43.5	38.4	18.1	2.4	4.7	4.8	14.4	17.2	15.2	23.2	14.4	26.3			6		
6-12	B21	48.9	36.3	14.8	3.6	6.2	6.3	15.8	17.0	13.1	23.2	39.6	31.9			25		
12-19	B22	62.4	28.7	8.9	4.4	8.5	9.2	12.7	27.6	13.5	15.2	46.1	34.8			16		
19-28	B23	55.4	33.0	11.6	3.8	6.1	7.1	17.9	20.5	15.0	18.0	46.2	34.9			24		
28-36	C1	48.9	32.5	18.6	2.1	4.4	6.0	17.9	18.5	14.6	17.9	44.2	30.4			13		
36-43	C2	48.3	31.3	20.4	2.1	4.6	6.1	17.7	17.8	13.5	17.8	42.4	30.5			4		
43-49+	C3	49.5	32.1	18.4	2.7	4.8	6.2	17.8	18.0	13.0	19.1	41.7	31.5			7		

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-6	5.79	0.347	17			1.9										4.3
6-12	1.39	0.106	13			1.8										4.7
12-19	0.54	0.042	13			1.1										4.8
19-28	0.23	0.022				1.0										4.9
28-36	0.14	0.016				1.2										4.8
36-43	0.11	0.013				1.2										5.0
43-49+	0.13	0.013				1.2										4.9

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al		Ratios to clay 8m: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-6	2.2	0.6	0.2	0.9	3.9	25.0	28.9			1.60	0.10			13	
6-12	0.4	0.1	0.1	0.4	1.0	16.6	17.6			1.19	0.12			6	
12-19	0.2	0.1	0.1	0.3	0.7	8.7	9.4			1.06	0.12			7	
19-28	0.1	0.1	0.1	0.2	0.5	6.6	7.1			0.61	0.09			7	
28-36	1.1	0.1	0.1	0.4	1.7	6.0	7.7			0.41	0.06			22	
36-43	1.2	0.6	0.1	0.3	2.2	5.4	7.6			0.37	0.06			29	
43-49+	1.2	0.6	0.1	0.4	2.3	5.2	7.5			0.41	0.06			31	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Marlow stony silt loam
Soil No.: S55Mass-8-1
Location: Hampshire County, Massachusetts. A. E. Albert Farm, Rt. 112, approximately 1/2 mile south of Worthington Center. Sample area in forested area just down the hill from potato storage, about 200 feet in the forest.
Vegetation and land use: Present vegetation consists of pioneer or pasture species; white pine, gray birch, red maple, ash with some hemlock, spruce and highbush blueberries.
Slope and land form: 12 to 15 percent. Described by: W. H. Lyford.
Sampled by and date: L. T. Alexander, W. H. Coates, H. V. Goodell and F. A. Filios. October 13, 1955.

Horizon and Beltsville Lab. No.	
A1 56142	0 to 6 inches. 10YR 3/2-2/2 very friable silt loam with less than 5 percent coarse skeleton. Stones 1-2 feet in diameter occur on the surface at distances of 20-50 feet. In the profile, stones of this size are perhaps 6-10 feet apart; weak-moderate, medium granular structure. Many roots and a few common earthworms. There is a loose litter on the surface consisting mostly of the present year's leaf fall.
B21 56143	6 to 12 inches. 10YR 4/4-2.5Y 4/4 distinctly browner than the horizon below, very friable silt loam, with about 5 percent coarse skeleton. When broken out, 10-15 percent exhibits weak fine granular structure with the remainder, moderate medium to coarse subangular structure which crushes easily to weak fine granular. A few faint fine nonglazed pores occur in the interior of the peds. On the faces, there are glazed bridges between the sand particles on the sandpaper-like surfaces.
B22 56144	12 to 19 inches. 2.5Y 4/4 very friable loam with fine faint common mottles in and on many peds and a few dark brown manganese dioxide stains on the surfaces; 5-10 percent coarse skeleton. Freshly broken out, material exhibits 50-50 vertical and horizontal faces; weak to moderate, medium angular blocky structure.
B23 56145	19 to 28 inches. 5 Y 4/4-2.5Y 4/4 friable to firm silt loam with a few 10YR 4/4 common faint mottles on and in the peds; 5-10 percent coarse skeleton. Dominantly moderate 1/4 inch platy but with about 30 percent of peds weak fine to moderate angular blocky structure. There are a few dark brown to black manganese dioxide stains on the surface. A few dark brown soft weathered ghosts 1/2-1 inch in diameter occur in this horizon and in the horizons above and below. Nonsticky, nonplastic, not distinctly micaceous.
C1 56146	28 to 36 inches. 5Y 4/3-4/4 firm silt loam-loam till with about 5 percent coarse skeleton. Weak to moderate medium platy structure with 2.5Y 5/4 surfaces on some of the plates. Glazed

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Marlow loam SOIL Nos. 856Mass-6-4 LOCATION Franklin County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561470 - 561474

Depth	Horizon	1B1b Total Sand	Total Silt	Total Clay	Sand Very coarse	Sand Coarse	Sand Medium	Sand Fine	Sand Very fine	Silt	Int. III	Int. II			3B2	Coarse fragments 3B1 2A2 > 2	Coarse fragments 3B1 2 - 19	Coarse fragments 3B1 19-76
		Size class and particle diameter (mm) 3A1																

Soil Type: Marlow loam
Soil No.: S56Mass-6-4
Location: Franklin County, Massachusetts. Dana Malone farm, Heath. Samples taken in open hayfield approximately 100 feet south of intersection of Bray Road and Colrain Stage Road; open field adjacent to cemetery.
Vegetation and land use: Perennial hay
Slope and land form: 0 to 3 percent
Sampled by and date: Edwood J. Pedersen, Steve Davidson, Frederick A. Filios, Robert F. Reiske, and Hermon U. Goodell. October 3, 1956.
Described by: William H. Coates

Horizon and Beltsville Lab. No.	
Ap 561470	0 to 9 inches. (10YR 3/2) very dark grayish brown silt loam; weak, medium granular; very friable; horizonation abrupt, smooth.
B21 561471	9 to 13 inches. (10YR 4/2) dark gray brown silt loam; very weak, medium to coarse subangular blocky; horizonation gradual, smooth; very friable.
B22 561472	13 to 21 inches. (2.5Y 4/2 - 4/3) dark grayish brown loam; weak coarse platy; horizonation gradual, smooth; very friable; silt and clay flows on some ped faces.
B23 561473	21 to 32 inches. (5Y 4/2) olive gray loam to fine sandy loam; soil rubs out to (2.5Y 5/4); weak, medium platy; moderately firm in place; very friable when removed; horizonation gradual, smooth; clay skins prominent on ped faces.
C1m	32 to 38 inches plus. (5Y 4/2) olive gray fine sandy loam; very coarse platy; moderately firm
561474	to firm in place; friable when removed; clay skins not as evident as in B23 horizon; coarse skeleton 5 to 10 percent throughout profile consisting of schistose and phyllite gravel; occasional large stone in profile.

Notes: All soil colors for moist conditions.

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SOIL CONSERVATION SERVICE

SOIL Marlow loam SOIL Nos. S56Mass-6-5 LOCATION Franklin County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561475 - 561479

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2–19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm																
0-10	Ap	46.3	42.0	11.7	6.8	5.5	4.4	14.3	15.3	18.1	23.9	42.7	31.0			13		
10-18	B21	42.2	48.3	9.5	6.5	4.9	3.7	12.4	14.7	18.4	29.9	41.4	27.5			17		
18-24	B22	47.6	41.3	11.1	5.7	5.7	5.1	15.2	15.9	18.2	23.1	43.6	31.7			19		
24-30	B23	52.3	37.5	10.2	4.6	6.3	6.4	17.5	17.5	16.6	20.9	45.3	34.8			14		
30-40	C1	47.6	44.3	8.1	4.5	5.4	5.2	15.4	17.1	19.4	24.9	46.2	30.5			12		

Depth (In.)	6A1e Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A3a Field Moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-10	2.86	0.210	14			1.7	1.28											5.4
10-18	1.67	0.117	14			2.4	1.00											4.9
18-24	0.13					1.5	1.66											5.2
24-30	0.09					1.4	1.71											5.2
30-40	0.09					1.6	1.64											5.3

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-10	5.6	0.3	0.1	0.4	6.4	15.8	22.2				1.90	0.14				29	
10-18	0.9	0.2	tr.	0.2	1.3	20.3	21.6				2.27	0.25				6	
18-24	0.6	0.2	tr.	0.2	1.0	8.4	9.4				0.84	0.14				11	
24-30	0.6	0.2	tr.	0.2	1.0	7.7	8.7				0.85	0.14				11	
30-40	0.9	0.2	tr.	0.3	1.4	5.8	7.2				0.89	0.20				19	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Marlow loam
Soil No.: S56Mass-6-5
Location: Franklin County, Massachusetts. Riddell farm (Summerlin), Heath township. Sample taken in open field opposite cemetery entrance on the South Road.
Vegetation and land use: Corn and hayfield
Sampled by: Edwood J. Pedersen, Steve Davidson, Frederick A. Filios, Robert F. Reiske, and Hermon U. Goodell.
Described by: William H. Coates

Horizon and Beltsville Lab. No.	
Ap 561475	0 to 10 inches. (10YR 3/2) very dark gray brown silt loam; weak, medium granular; very friable; horizonation abrupt and smooth.
B21 561476	10 to 18 inches. (10YR 4/4 - 4/3) dark yellowish brown, dark brown silt loam; weak medium subangular blocky, very friable; horizonation clear and smooth.
B22 561477	18 to 24 inches. (5Y 4/2) olive gray silt loam; weak medium platy to weak medium subangular, blocky; very friable; horizonation gradual and smooth; clay flows evident in this horizon; occasional partially disintegrated lime-bearing rock found, (ghost), coarse skeleton 15 percent.
B23 561478	24 to 30 inches. (5Y 4/2 - 4/3) olive gray to olive silt loam; weak, medium, platy; very friable; clay flows evident on peds, coarse skeleton 15 percent; horizonation gradual and smooth.
C1 561479	30 to 40 inches. (5Y 4/2) olive gray silt loam; weak fine platy; friable; clay flows evident on peds; coarse skeleton 20 to 30 percent; clay flows less prominent than in B22; plates noticeably thinner than in B23; higher percentage of coarse skeleton than in horizons above.

Notes: All soil colors for moist conditions. Note taking by Robert R. Reiske.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Marlow silt loam SOIL Nos. 856Mass-8-1 LOCATION Hampshire County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561433 - 561439

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3Bi 2A2 > 2 Pct.	2 - 19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm																
0-12	Ap	48.7	38.7	12.6	4.8	4.4	4.0	13.9	21.6	19.0	19.7	50.0	27.1			6		
12-18	B21	48.6	42.8	8.6	5.6	5.2	3.9	12.9	21.0	19.2	23.6	48.8	27.6			6		
12-18	B22	50.1	36.7	13.2	4.0	4.8	4.3	14.7	22.3	17.9	18.8	49.9	27.8			9		
18-23	A'2	49.9	35.5	14.6	4.0	4.4	4.3	14.6	22.6	18.5	17.0	50.9	27.3			9		
23-26	B'21	48.9	35.5	15.6	2.4	4.4	4.3	14.8	23.0	18.0	17.5	50.8	25.9			7		
26-33	B'22	45.1	36.0	18.9	2.9	3.7	4.0	13.7	20.8	16.0	20.0	45.7	24.3			5		
33+	C1m	44.2	36.5	19.3	2.4	3.7	3.9	13.6	20.6	18.0	18.5	47.6	23.6			6		

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N		6C1a Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density 4A3a Field Moist	Bulk density 4A1e 1/3 bar	Bulk density 4A1h Oven dry	4D1 COLE	Water content	Water content 4B1c 1/3 bar	Water content 4B2 15 bar		4C1 WRD	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		In/in		
0-12	2.43	0.191	13			2.2	1.01					22.6	8.8				5.1
12-18	1.20	0.092	13			1.5	1.27					19.7	7.2				4.7
12-18	0.74	0.060	12			1.1	1.36					-	-				5.2
18-23	0.25					1.1	1.36					20.0	7.3				4.9
23-26	0.28					1.2	1.56					16.6	7.7				4.8
26-33	0.10					1.2	1.70					14.8	6.8				4.9
33+	0.13					1.3	1.68					15.8	8.0				4.8

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations	6G1d Ext. Al			Ratios to clay 8D1 CEC Sum	Ratios to clay 8D1 Ext. iron	Ratios to clay 8D1 15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	Base saturation 5C1 NH_4OAc Pct.
	meq/100 g																
0-12	3.0	0.4	0.1	0.7	4.2	16.5	20.7				1.64	0.17	0.70			20	
12-18	0.5	0.2	0.1	0.4	1.2	18.2	19.4				2.26	0.17	0.84			6	
12-18	0.7	tr.	tr.	0.4	1.1	7.9	11.0				0.83	0.08	-			10	
18-23	0.3	0.1	0.1	0.5	1.0	7.1	8.1				0.55	0.08	0.50			12	
23-26	0.5	0.1	0.1	0.4	1.1	7.8	8.9				0.57	0.08	0.49			12	
26-33	0.9	0.2	0.1	0.4	1.6	6.2	7.8				0.41	0.06	0.36			20	
33+	1.0	0.2	0.1	0.3	1.6	6.4	8.0				0.41	0.07	0.41			20	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Marlow silt loam
Soil No.: S56Mass-8-1

[redacted]

100 feet southeast side of Farman Road, 100 feet south of Prentess Road.
Vegetation and land use: Potato field, rye cover crop.
Slope and land form: 0 to 3 percent
Sampled by and date: Edwood J. Pedersen, Steve Davidson, Frederick A. Filios, and Robert F. Reiske. October 2, 1956. Described by: W. H. Coates.

Horizon and Beltsville Lab. No.	
Ap 561433	0 to 12 inches. (10YR 3/2) very dark grayish brown silt loam; medium and fine granular; very friable; horizonation abrupt and smooth.
B21 561434	12 to 18 inches. (2.5Y 4/2 - 5/2) dark grayish brown, grayish brown loam; moderate medium platy; very friable; coarse skeleton less than 10 percent; horizonation discontinuous.
B22 561435	12 to 18 inches. (10YR 4/4 - 5/4) dark yellowish brown, yellowish brown loam; very weak medium subangular blocky; very friable; horizonation discontinuous.
A'2 561436	18 to 23 inches. (2.5Y 4/2 - 5/2) dark grayish brown, grayish brown loam; moderate medium platy; very friable; mottles very few fine and faint; coarse skeleton 15 percent; horizonation clear and smooth.
B'21 561437	23 to 26 inches. (5Y 4/2) olive gray loam; medium and coarse platy; slightly firm in place; very friable; horizonation clear and smooth; ghosts, limestone type, present; coarse skeleton 15 percent.
B'22 561438	26 to 33 inches. (5Y 4/2) olive gray fine sandy loam; strong, coarse platy moderately firm in place; friable when removed; clay skins present on some peds; horizonation smooth and gradual; coarse skeleton 15 percent.
C1m 561439	33 inches plus. (5Y 3/2 - 4/2) dark olive gray, olive gray loam; strong, coarse platy, firm in place; friable when removed; clay skins still evident.

Notes: All soil colors for moist conditions.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Merrimac fine sandy loam SOIL Nos. 856Mass-8-2 LOCATION Hampshire County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561448 - 561452

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-10	Ap	54.6	39.0	6.4	3.1	7.1	5.0	13.3	26.1	28.4	10.6	63.2	28.5			3		
10-17	B21	56.8	39.9	3.3	0.6	3.3	3.7	14.7	34.5	31.0	8.9	75.3	22.3			tr.		
17-24	B22	75.5	22.1	2.4	0.9	4.3	7.1	29.7	33.5	18.1	4.0	71.4	42.0			2		
24-31	B23	83.6	14.0	2.4	2.8	9.7	11.7	36.3	23.1	10.6	3.4	56.4	60.5			2		
31-33	B24	74.9	21.1	4.0	12.2	23.9	11.0	16.4	11.4	10.5	10.6	31.4	63.5			27		

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density 4A3a Field Moist	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content 4B1d 1/10 bar	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in		
0-10	1.03	0.088	12			0.9	1.43				30.2	14.6	4.1				5.8
10-17	0.24					0.9	1.37				36.9	13.8	3.2				5.8
17-24	0.12					0.6	1.34				20.6	7.8	2.0				5.6
24-31	0.08					0.6	1.41				9.5	4.9	1.5				5.8
31-33	0.08					0.6	1.94				-	-	-				5.9

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-10	3.2	1.0	tr.	0.4	4.6	6.5	41.1				6.42	0.14	0.64			41	
10-17	1.2	0.3	tr.	0.3	1.8	3.8	5.6				1.70	0.27	5.33			32	
17-24	0.6	tr.	tr.	0.2	0.8	2.4	3.2				1.33	0.25	0.83			25	
24-31	0.5	0.2	tr.	0.2	0.9	1.8	2.7				1.12	0.25	0.62			33	
31-33	0.8	0.1	tr.	0.3	1.2	1.8	3.0				0.75	0.15				40	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Merrimac fine sandy loam
Soil No.: S56Mass-8-2
Location: Hampshire County, Massachusetts. David E. Maxson farm, Amherst. Sample taken 150 feet south of homestead.
Vegetation and land use: Cornfield
Slope and land form: 0 to 3 percent.
Sampled by and date: Edwood J. Pedersen, Steve Davidson, Frederick A. Filios, and Robert F. Reiske. October 3, 1956.
Described by: William H. Coates

Horizon and Beltsville Lab. No.	
Ap 561448	0 to 10 inches. (10YR 3/2 - 4/3) very dark gray brown to dark brown fine sandy loam; horizonation abrupt and smooth; very weak medium and fine granular; very friable.
B21 561449	10 to 17 inches. (10YR 5/6) yellowish brown fine sandy loam; very weak medium and coarse subangular blocky breaking to very weak fine and medium granular; horizonation gradual and smooth; traffic pan present and has a coarse, platy structure.
B22 561450	17 to 24 inches. (10YR 5/4 - 6/4) yellowish brown to light yellowish brown loamy fine sand; single grain, loose; horizonation gradual and smooth.
B23 561451	24 to 31 inches. (10YR 6/4 - 7/4) light yellowish brown to very pale brown fine and medium sands; few coarse mottles; horizonation gradual and smooth.
B24 561452	31 to 33 inches. (2.5Y 5/2) grayish brown coarse sandy loam; horizonation gradual and smooth; coarse skeleton 35 to 40 percent; horizon weakly cemented; few silt and clay flows on faces of peds.
D Not Sampled	33 inches plus. Coarse sand and gravel; coarse skeleton throughout profile; 80 percent granitic, 20 percent schistose.

Notes: All soil colors for moist conditions.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Ninigret sandy loam SOIL Nos. S59Mass-3-2 LOCATION Bristol County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59802 - 59810

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	Coarse fragments 3B1: 2 – 19 Pct. of < 76mm	Coarse fragments 3B1: 19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9	Ap	68.2	22.8	9.0	5.2	12.4	14.5	24.3	11.8	12.2	10.6	37.4	56.4			8		
9-13	B21	71.3	21.1	7.6	4.2	12.6	15.8	25.8	12.9	12.3	8.8	38.7	58.4			7		
13-18	B22	73.2	21.4	5.4	6.8	14.2	15.6	23.6	13.0	13.5	7.9	39.2	60.2			10		
18-23	B23g	73.8	22.0	4.2	5.4	13.7	15.0	24.0	15.7	14.8	7.2	43.2	58.1			14		
23-41	B24g[a]	75.7	21.9	2.4	4.4	10.4	15.3	28.9	16.7	16.0	5.9	48.3	59.0			6		
23-41	B24g[b]	84.5	13.4	2.1	3.5	11.4	18.7	36.8	14.1	9.7	3.7	43.2	70.4			4		
23-41	B24g[c]	64.1	34.1	1.8	5.2	9.3	11.2	21.2	17.2	24.7	9.4	53.4	49.9			6		
41-48	B25g	95.4	4.6	0.0	2.2	11.9	21.6	41.5	18.2	3.1	1.5	43.0	77.2			tr.		
48-54+	Cg	90.3	8.7	1.0	2.0	7.7	12.6	35.3	32.7	7.7	1.0	62.6	57.6			tr.		

Depth (in.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A3a Field Moist	Bulk density: 4A1e ⅓ bar	Bulk density: 4A1h Oven dry	4D1 COLE	Water content: 4B1d 1/10 bar	Water content: 4B1c ⅓ bar	Water content: 4B2 15 bar	4B4 Field state	4C1 WRD	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	Pct.	in/in		
0-9	2.56	0.210	12			0.9	1.31		1.28		28.1		10.6	4.6		5.0	5.3
9-13	0.38	0.061	6			1.0	1.50		1.50		19.1		5.0	5.6		4.9	5.2
13-18	0.24					0.9	1.51		1.50		19.4		3.4	18.4		4.8	5.2
18-23	0.11					0.7	1.67		1.68		18.0		2.6	10.2		4.8	5.0
23-41	0.08					0.3	1.75		1.74		18.6		1.6	9.0		4.6	5.1
23-41	0.02					0.4	1.47				13.3		1.6			4.8	5.3
23-41	0.02					0.3	1.87		1.86		20.6		1.6	11.0		4.7	5.0
41-48	0.00					0.3	1.53				5.2		0.9			4.7	4.9
48-54+	0.00					0.2	1.56				9.9		1.0			4.7	5.0

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. Iron	15-bar water	8O3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	Base saturation: 5C1 NH_4OAc Pct.
	meq/100 g																
0-9	5.1	0.5	0.1	0.2	5.9	13.0	18.9		0.1		2.10	0.10	1.17			31	
9-13	0.9	tr.	tr.	0.2	1.1	5.4	6.6		0.2		0.87	0.13	0.66			17	
13-18	0.6	0.1	tr.	0.1	0.8	4.1	5.0		0.2		0.92	0.17	0.63			18	
18-23	0.3	0.1	tr.	0.1	0.5	3.5	4.1				0.98	0.17	0.62			15	
23-41	0.2	0.1	tr.	tr.	0.3	2.7	3.0		0.3		1.25	0.12	0.67			10	
23-41	0.1	0.2	0.1	0.1	0.5	2.1	2.5		0.2		1.19	0.19	0.76			16	
23-41	0.1	0.2	tr.	tr.	0.3	2.5	2.9		0.3		1.61	0.17	0.89			14	
41-48	tr.	tr.	tr.	tr.	-	1.2	1.2		0.2		-	-	-			8	
48-54+	tr.	tr.	tr.	tr.	-	1.2	1.2		0.2		1.20	0.20	1.00			8	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a B24g upper gray (59806)
b B24g(1r) 20 percent (59807)
c B24g lower gray 50 percent (59808)

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Ninigret sandy loam
Soil No.: S59Mass-3-2
Location: Bristol County, Massachusetts. Town of Attleboro, A. J. Mott farm, Lindsey Street, 1-1/2 miles north northeast of city of Attleboro. Pinpointed on soil survey sheet and on air photo DPN-1K-39.
Vegetation: Hay field - red top, some timothy and wild carrot
Slope: 1 percent
Drainage: Moderately well drained
Parent material: Developed on glaciofluvial sands derived principally from granitic material
Physiographic position: Glaciofluvial plain
Collected by and date: E. J. Pedersen, G. Schmidt, J. Kubota, and C. F. Hastings, Jr. August 27, 1959
Described by: S. J. Zayach and J. R. Mott

Horizon and
Beltsville
Lab. No.

Ap — 0 to 9 inches. Very dark brown (10YR 2/2) sandy loam; weak to moderate, fine and medium

coarse skeleton of fine gravel; pH 5.6; abrupt smooth boundary.

B21
59803 — 9 to 13 inches. Dark yellowish brown (10YR 4/4) sandy loam containing about 10-20 percent of the material from the Ap horizon; clods crush to weak fine and medium crumbs; very friable; fine grass roots are common; less than 5 percent coarse skeleton of fine gravel; pH 5.6; clear smooth boundary.

B22 — 13 to 18 inches. Yellowish brown (10YR 5/4) towards dark yellowish brown (10YR 4/4) sandy

SCS-421
10-64 (Rev. 9-65)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Paxton very stony loam SOIL Nos. S55Mass-14-1 LOCATION Worcester County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56149 - 56159

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-4	A1	58.8	31.2	10.0	5.8	9.2	9.0	18.5	16.3	14.7	16.5	40.9	42.5			4		
4-9	B21	58.8	31.7	9.5	4.5	9.6	9.7	19.8	15.2	14.8	16.9	40.7	43.6			12		
9-16	B22	63.5	31.2	5.3	5.1	9.9	10.2	22.2	16.1	14.5	16.7	43.2	47.4			11		
16-26	B23	67.4	29.3	3.3	4.8	10.6	10.7	23.4	17.9	14.4	14.9	45.5	49.5			24		
26-34	B'21	66.8	27.2	6.0	6.5	10.7	10.1	22.9	16.6	14.0	13.2	53.8	50.2			20		
34-48	B'22g	49.1	33.0	17.9	5.4	8.4	7.2	13.8	14.3	10.7	22.3	32.6	34.8			22		
48-64	B'23g	52.0	31.3	16.7	5.0	9.1	7.9	16.0	14.0	10.4	20.9	33.2	38.0			42		
10½-12½	C11	52.7	28.3	19.0	6.1	9.8	7.6	15.4	13.8	11.7	16.6	34.4	38.9			26		
12-13a	C12	52.5	27.6	19.9	6.7	9.4	7.7	15.4	13.3	11.4	16.2	33.6	39.2			18		
14½-15a	C2	52.4	27.4	20.2	6.1	9.2	7.8	15.9	13.4	11.6	15.8	34.3	39.0			17		
16½-17½	C3	52.5	27.1	20.4	6.9	10.0	7.7	14.9	13.0	11.2	15.9	33.0	39.5			20		

Depth (in.)	6A1a Organic carbon	6B1a Nitrogen	C/N		6C1a Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1a ⅓ bar	Bulk density: 4A1h Oven dry	4D1 COLE	Water content: 4B1c ⅓ bar	Water content: 4B2 15 bar		4C1 WRD	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc		Pct.	Pct.	Pct.	in/in		
0-4	7.19	0.486	15			1.5									4.5
4-9	0.96	0.085	11			1.4									4.5
9-16	0.56	0.055	10			1.0									4.9
16-26	0.27	0.029				0.7									5.3
26-34	0.09	0.018				0.8									5.5
34-48	0.11	0.021				1.3									5.7
48-64	0.09	0.012				1.4									5.7
10½-12½	0.13	0.012				1.3									6.1
12-13a	0.09	0.012				1.2									6.3
14½-15a	0.17	0.013				0.8									5.8
16½-17½	0.13	0.012				0.8									6.3

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC: Ext. Al	6G1d	Ratios to clay 8D1: CEC Sum	Ratios to clay 8D1: Ext. iron	Ratios to clay 8D1: 15-bar water	8O3 Ca/Mg	Base saturation: 5C3 Sum cations	Base saturation: 5C1 NH_4OAc
	meq/100 g													Pct.	Pct.
0-4	1.9	0.3	0.1	0.5	2.8	38.4	41.2			4.12	0.15			7	
4-9	0.4	0.1	tr.	0.3	0.8	12.3	13.1			1.38	0.15			6	
9-16	0.4	0.1	0.1	0.1	0.7	9.8	10.5			1.98	0.19			7	
16-26	0.4	0.1	0.1	0.2	0.8	6.6	7.4			2.24	0.21			11	
26-34	2.5	0.3	0.1	0.2	3.1	4.1	7.2			1.20	0.13			43	
34-48	4.0	0.9	0.1	0.2	5.2	3.9	9.1			0.51	0.07			57	
48-64	5.8	1.1	0.1	0.2	7.2	4.0	11.2			0.67	0.08		5	64	
10½-12½	3.8	1.2	0.1	0.2	5.3	2.5	7.8			0.41	0.07		3	68	
12-13a	3.9	1.4	0.1	0.2	5.6	2.1	7.7			0.39	0.06		3	73	
14½-15a	2.7	1.0	0.1	0.4	4.2	2.1	6.3			0.31	0.04		3	67	
16½-17½	2.7	1.1	0.1	0.4	4.3	1.7	6.0			0.29	0.04		2	72	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Depths are in feet.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Paxton very stony loam
Soil No. 855Mass-14-1
Location: Worcester County, Massachusetts. 20-30 feet. Deep borrow pit, west side of Rt. 31, 1/2 mile north of Charlton Depot.
Vegetation and land use: Pasture
Slope and land form: 30 percent
Sampled by and date: L. T. Alexander, W. H. Coates, R. F. Reiske. October 12, 1955.
Described by: W. H. Lyford

Horizon and Beltsville Lab. No.	
A1 56149	0 to 4 inches. 10YR 2/2 very stony loam or silt loam (feels like a silt loam in comparison with texture of horizons below) weak fine granular structure with no tendency toward cloddiness; very friable. There is no coarse skeleton except for the 1-3 inch in diameter granite and schist boulders on and in the horizon. These stones average 2 to 3 feet apart on the surface. Surface has a 1-1 1/2 foot microrelief principally related to the stones rather than to previous windthrow by trees.
B21 56150	4 to 9 inches. 10YR 4/4-5/6-5/8 very friable fine sandy loam with 10-15 percent coarse skeleton mostly in the 1/4 - 2 inch diameter range. Large stones occur at distances of about six feet. Weak fine granular structure with very little tendency for cloddiness or for subangular blocky structure. Nonsticky, nonplastic, not distinctly micaceous. This horizon has distinctly stronger chroma than the horizon below.
B22 56151	9 to 16 inches. 10YR 4/4 very friable, fine sandy loam. When removed, the soil mass consists of about 20-30 percent one inch subangular blocky peds, which crush very readily to weak, very fine granular structure. 10-15 percent coarse skeleton, not mottled, nonsticky, nonplastic, not distinctly micaceous.
B23 56152	16 to 26 inches. 2.5Y 4/4 (slightly browner than the horizon below) friable, gravelly fine sandy loam with 20-30 percent coarse skeleton. Breaks out into 1-2 inch subangular clods or very weak subangular blocky peds which crush easily to weak fine granular structure. No pores, nonsticky, nonplastic, not distinctly micaceous.
B21 56153	26 to 34 inches. 2.5Y 4/4 fine sandy loam, firm both in place and when removed; 20-30 percent coarse skeleton. Moderate medium platy with peds about 1 - 1-1/2 inches in length. A few fine glazed pores occur both on the surface and interior of the peds. Very faint dark brown manganese dioxide stains occur on a few peds. Not distinctly micaceous, nonsticky, nonplastic.
B22g 56154	34 to 48 inches. Firm, weak medium platy gravelly loam with interior of peds 2.5Y 4/4 and with 2.5Y 5/2 on exterior of most peds; 20-30 percent coarse skeleton. Fine glazed pores common on exterior of plates with fewer on the interior. Very finely micaceous, nonsticky, nonplastic, 2.5Y 5/2 surfaced, vertical cracks (polygon faces?) occur at distances of about 2-3 feet. These have a 1/4 inch wide 7.5YR 4/4 border. The cracks are not very distinct in this horizon but become more so in the horizon below.
B23g 56155	48 to 64 inches. Essentially like the horizon above but perhaps more distinctly mottled and with vertical cracks slightly more prominent. These cracks are not evident below five feet. Pores are less evident below 5 or 6 feet but the consistence and structure seem to continue unchanged to the unoxidized till at 13 1/2 feet. The 2.5Y-5Y 5/2 gray mottling also disappears below about six feet.
C11 56156	10-1/2 to 12-1/2 feet. Oxidized 10-1/2 - 11-1/2 feet (24-36 inches above contact). 5 Y 5/1-4/2 dominant color on the interior of the weak very coarse platy peds with 5YR 4/6 prominent discontinuous

of the pit; gravelly heavy loam or slightly sandy clay loam, with 20-30 percent coarse skeleton mostly in the 1/2-13 inch diameter range, but with stones or boulders at distances of 5 or 6 feet. Many

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Paxton loam SOIL Nos. S55Mass-14-2 LOCATION Worcester County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56160 - 56166

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct.	Coarse fragments 3B1 2 - 19 Pct. of < 76mm	Coarse fragments 3B1 19–76 Pct. of < 76mm
		Pct. of < 2 mm															
0-8	Ap	56.6	29.6	13.8	5.4	9.2	8.7	19.1	14.2	13.2	16.4	38.5	42.4		6		
8-14	B21	58.8	28.8	12.4	5.7	9.7	9.0	19.6	14.8	12.2	16.6	38.4	44.0		8		
14-22	B22	57.1	27.3	15.6	5.8	9.0	8.5	19.0	14.8	10.5	16.8	36.4	42.3		7		
22-32	B21	62.5	27.6	9.9	5.2	9.4	9.4	21.6	16.9	12.4	15.2	42.2	45.6		11		
32-41	B22	60.2	27.0	12.8	5.6	9.8	9.0	20.1	15.7	11.4	15.6	39.0	44.5		13		
41-48	C1g	57.9	27.3	14.8	4.9	9.8	8.6	19.5	15.1	11.4	15.9	38.2	42.8		7		
48-55	C2	57.4	27.5	15.1	5.9	9.0	8.4	19.1	15.0	11.7	15.8	37.9	42.4		15		

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density 4A1e ⅓ bar g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content 4B1c ⅓ bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
0-8	2.65	0.250	11			0.9										6.2
8-14	0.32	0.037				0.8										5.7
14-22	0.09	0.020				0.9										5.3
22-32	0.05	0.012				0.7										5.4
32-41	0.05	0.009				0.8										5.8
41-48	0.07	0.010				0.8										5.8
48-55	0.07	0.009				0.8										5.8

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6R1a Ext. acidity	CEC 5A3a Sum cations	6G1d Ext. Al		Ratios to clay 8D1 CEC Sum	Ratios to clay 8D1 Ext. Iron	Ratios to clay 8D1 15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	Base saturation 5C1 NH_4OAc Pct.
	meq/100 g															
0-8	10.3	1.5	0.2	0.9	12.9	9.6	22.5			1.63	0.06				57	
8-14	2.0	0.1	0.1	0.4	2.6	5.4	8.0			0.64	0.07				32	
14-22	2.3	0.3	0.1	0.3	3.0	4.6	7.6			0.49	0.06				39	
22-32	2.2	0.1	0.1	0.3	2.7	3.1	5.8			0.58	0.07				46	
32-41	4.0	0.3	0.1	0.1	4.5	2.9	7.4			0.58	0.06				61	
41-48	5.6	0.7	0.1	0.1	6.5	3.1	9.6			0.65	0.05				68	
48-55	5.8	0.9	0.1	0.1	6.9	3.1	10.0			0.66	0.05				69	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Paxton loam
Soil No.: S55Mass-14-2
Location: Worcester County, Massachusetts. Field opposite intersection of Dresser Hill Road and Route 31, Charlton, Dress Hill Farm.
Slope and land form: Eight percent
Sampled by and date: L. T. Alexander, W. H. Coates, R. F. Reiske. October 12, 1955.
Described by: W. H. Lyford

Horizon and Beltsville Lab. No.	
Ap 56160	0 to 8 inches. 10YR 2/2 very friable loam with 5-10 percent coarse skeleton. Weak moderate medium and fine granular structure. Earthworms common and nightcrawlers numerous. The latter penetrate vertically down to 24-30 inches but cause essentially no mixing in the B21 horizons.
B21 56161	8 to 14 inches. 2.5Y 4/4 - 10YR 4/4 friable gravelly loam with 10-20 percent coarse skeleton. As broken out, 30 percent of the material has very weak coarse subangular blocky structure and 70 percent weak fine granular structure. A few fine non-glazed pores occur in the blocky peds.
B22 56162	14 to 22 inches. 2.5Y 4/4 friable gravelly loam, with 20-30 percent coarse skeleton. Very weak moderate platy structure with a very few glazed pores. A few brown soft weathered finely micaceous ghosts occur. The soil to 22 inches was dug fairly easily with a shovel but a pick was also used.
B21 56163	22 to 32 inches. 2.5Y 4/4 firm sandy loam with 15-20 percent coarse skeleton. Weak moderate coarse platy structure with fine glazed pores common and prominent. This material felt sandy when first rubbed between the fingers but after some rubbing, felt like a loam. A pick was used to loosen the material in this horizon and in those below.
B22 56164	32 to 41 inches. Like the horizon above, water runs in from the side of the hole at about 22 inches.
C1g 56165	41 to 48 inches. 2.5Y 4/4 dominantly with about 20 percent 5Y 5/2-5/3 faint mottling on and in the peds. Heavy loam to light sandy clay loam till with 15-20 percent coarse skeleton. Firm. Weak to moderate medium platy structure with a few faint glazed pores visible on the peds.
C2 56166	48 to 55 inches. 2.5Y 4/4 faintly mottled with 5Y 5/2-5/3 very firm heavy loam to sandy clay loam with 15-20 percent coarse skeleton in the 1/2-3 inch range. Massive or perhaps very weak coarse platy structure. No pores and no glazes. Brown micaceous ghosts 1-2 inches in diameter are fairly common. Finely micaceous.

Notes: Colors are for moist soil materials. Lithology determination on 1-3 inch coarse fragments taken at random from pile of soil by the pit.

Black fine grained thin bedded gneiss or schist....	12 fragments
Granitoid.....	10 fragments
Quartz or quartzite.....	1 fragment
	23 fragments

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Pittsfield loam SOIL Nos. S60Mass-2-7 LOCATION Berkshire County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60497-60502

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2 > 2 Pct.	2 – 19 Pct. of < 2 mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm														Pct.		
0-9	Ap	49.6	40.6	9.8	7.0	7.7	5.2	11.3	18.4	20.2	20.4	45.8	31.2			23		
9-15	B21	50.0	40.7	9.3	6.6	8.0	5.7	11.7	18.0	19.8	20.9	44.9	32.0			22		
15-25	B22	59.5	34.2	6.3	9.4	9.3	6.5	14.5	19.8	17.1	17.1	45.7	39.7			29		
25-32	B3	71.7	24.7	3.6	13.6	11.4	8.0	17.2	21.5	13.6	11.1	46.0	50.2			28		
32-43	C1	65.9	30.3	3.8	11.8	10.6	7.5	15.6	20.4	16.4	13.9	46.7	45.5			26		
43-60	C21	60.7	36.1	3.2	9.0	7.5	5.4	13.0	25.8	22.1	14.0	56.0	34.9			28		
60-70	C22	No Sample																

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext Iron as Fe Pct.	Bulk density 4A1e 1/3 Bar g/cc	Bulk density 4A1h O.D. g/cc		Water content 4B1c 1/3 Bar Pct.	Water content 4B2 15 Bar Pct.			pH 8C1a (1:1) H_2O	
0-9	1.46	0.121	12			1.8	1.54	1.56		16.2	5.6			6.6	
9-15	0.29	0.030	10			2.0	1.58	1.57		13.6	4.3			6.6	
15-25	0.22					2.0	1.52	1.52		13.0	3.5			6.5	
25-32	0.12					1.6	1.64	1.64		9.9	2.4			6.6	
32-43	0.10					1.6	1.63	1.65		10.7	2.3			7.1	
43-60	0.08				22	1.2	1.69	1.69		13.5	1.9			7.7	
60-70															

Depth (In.)	Extractable bases 6N2d Ca	6O2b Mg	6P2a Na	5B1a 6Q2a K	6H2a Ext. Acidity	CEC 5A3a Sum Cations	Base saturation 5C3 Sum Cations Pct.	Pct.
	meq/100 g							
0-9	6.2	1.5	0.1	0.2	5.0	13.0	62	
9-15	2.2	0.6	0.1	0.1	3.0	6.0	50	
15-25	2.4	0.8	0.1	0.1	2.8	6.2	55	
25-32	2.2	0.7	Tr.	Tr.	1.7	4.6	63	
32-43	2.6	1.0	Tr.	Tr.	1.1	4.7	77	
43-60	a							
60-70								

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt. b	Ver.	Chl.	Int. Ver. Mi.	Mi.	Kl. 7A3
	← X-ray 7A2 →					← DTA →
0-9						
9-15						
15-25	x c	xx	xx	xx	xx	
25-32						
32-43						
43-60						
60-70						

a Carbonates present.
b Mt.= montmorillionite, Ver.= vermiculite, Chl.= chlorite, Int. Ver.-Mi.= interlayer vermiculite-mica, Mi.= mica, Kl.= kaolinite.
c Relative amounts.

Soil type: Pittsfield loam
Soil No.: S60Mass-2-7
Location: Andrew Durlack farm, 125 feet south of Cross (Seekonk) Road, 550 yards east of Old Great Barrington Road, Great Barrington, Berkshire County, Massachusetts, aerial photo DPM-3K-91.
Vegetation: Hay - red clover, brome grass, and Kentucky blue grass.
Slope: 7 percent slope
Drainage: Well drained.
Parent material: Glacial till derived principally from Stockbridge limestone of Ordivician age and some phyllite schist.
Physiographic position: Rolling uplands of the Limestone Valley.
Sampled by and date: E. J. Pedersen, D. D. Bohrer, and F. A. Filios. June 9, 1960.
Described by: S. J. Zayach and D. C. Fuller.

Horizon and
Beltsville
Lab. Number

Ap
60497 — 0 to 9 inches. Very dark grayish brown (10YR 3/2) loam; moderate fine and medium granular structure; very friable when moist; many fine and medium roots; less than 5 percent coarse skeleton mainly fine channers of schist; pH 6.8; abrupt smooth boundary.

B21
60498 — 9 to 15 inches. Dark yellowish brown (10YR 4/4) fine sandy loam to light loam; comes out in clods that crush to weak fine and medium granules; very friable when moist; fine roots are common; 5 to 10 percent coarse skeleton mainly fine channers of schist; pH 6.8; clear wavy boundary.

B22
60499 — 15 to 25 inches. Brown to dark brown (10YR 4/3) fine sandy loam; comes out in clods that crush to weak fine and medium granules; very friable when moist; fine roots are common; 10 to 15 percent coarse skeleton mainly of fine channers of schist; earthworm casts and channels are common; pH 6.8; clear smooth boundary.

B3
60500 — 25 to 32 inches. Olive brown (2.5Y 4/4) fine sandy loam; massive or very weak thick platy structure; friable to very friable when moist; fine roots are common; 10 to 15 percent coarse skeleton of fine gravel and fine channers up to one inch in diameter of schist, quartzite, and weathered limestone; numerous limestone "ghosts"; earthworms and earthworm channels and casts are common; pH 6.8; clear smooth boundary.

C1
60501 — 32 to 43 inches. Olive brown (2.5Y 4/4) gravelly fine sandy loam with strong brown (7.5YR 5/6) rotten limestone fragments; structureless - massive; friable to firm when moist (slightly

[redacted]

gravel and fine channers of schist, quartzite, and limestone that is mostly weathered; limestone "ghosts" are numerous; pH 7.2+, very weak effervescence with cold, dilute HCl believed to be from unweathered limestone fragments; clear smooth boundary.

C21
60502 — 43 to 60 inches. Olive gray (5Y 4/2) very fine sandy loam to loamy very fine sand; structureless - massive; friable when moist; roots absent; 10 to 15 percent coarse skeleton of fine gravel and channers of schist and limestone that is unweathered or only partially weathered; pH 7.2+, weak effervescence with cold, dilute HCl believed to be from unweathered limestone fragments.

C22 — [redacted]

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Pittsfield loam SOIL Nos. S60Mass-2-8 LOCATION Berkshire County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60503-60508

Soil type: Pittsfield loam
Soil No.: S60Mass-2-8
Location: Highfield farm, 100 feet south of Fairview Street, 1-1/2 miles south of West Park Street, Lee, Berkshire County, Massachusetts, aerial photo DPM-3K-231.
Vegetation: Hay - alfalfa and orchard grass.
Slope: 7 percent
Drainage: Well drained.
Parent material: Glacial till derived principally from Stockbridge limestone of Ordivician age and some phyllitic schist.
Physiographic position: Rolling uplands of the Limestone Valley.
Sampled by and date: E. J. Pedersen, D. D. Bohrer, and F. A. Filios. June 10, 1960.
Described by: S. J. Zayach and D. C. Fuller.

Horizon and Beltsville Lab. Number	
Ap 60503	0 to 7 inches. Dark brown (10YR 3/3) loam; weak to moderate medium granular structure; clods are slightly firm when moist but are friable once disturbed; many fine and medium roots; 5 percent coarse skeleton of fine gravel and channers up to 1/4 inch in diameter, mainly of schist; pH 7.0; abrupt smooth boundary.
A2 or B21 60504	7 to 11 inches. Brown to dark brown (10YR 4/3) light loam; weak thick platy structure that crushes to weak medium subangular blocks; friable when moist; fine roots are common; some thin discontinuous clay or silt films on faces and in pores; 5 to 10 percent coarse skeleton of fine gravel and channers up to 1 inch in diameter, mainly of schist; some Ap material in worm holes; pH 6.4; clear irregular boundary.
B2 60505	11 to 21 inches. Dark grayish brown (10YR 4/2) loam; weak to moderate medium and thick platy structure; friable in place and in the hand when moist; few fine roots; thin discontinuous clay or silt films on ped faces; 5 percent coarse skeleton of fine gravel and channers up to 1 inch in diameter, mainly of schist; worm channels coated with what appears to be Ap material; pH 6.6; clear smooth boundary.
B3 60506	21 to 34 inches. Dark grayish brown (10YR 4/2) loam; weak very thick platy structure that breaks to weak medium subangular blocks; firm in place and in the hand when moist; some discontinuous clay flows on ped faces; few fine roots; 10 percent coarse skeleton of fine gravel and channers of schist and limestone; some earthworms and earthworm channels; pH 6.6; gradual smooth boundary.
C11 60507	34 to 48 inches. Dark grayish brown (2.5Y 4/2) toward olive brown (2.5Y 4/4) gravelly light loam with common fine and medium streaks of olive gray (5Y 5/2) and olive brown (2.5Y 4/4); structureless-massive; slightly firm in place when moist; but friable in the hand; very few roots; 15 to 20 percent coarse skeleton of fine gravel and fine channers of schist and limestone; some earthworms and earthworm casts and channels; pH 6.8; clear smooth boundary.
C12 60508	48 to 67 inches. Dark grayish brown (2.5Y 4/2) toward olive brown (2.5Y 4/4) gravelly very fine sandy loam containing many dark yellowish brown (10YR 3/4), yellowish brown (10YR 5/6), and brown to dark brown (10YR 4/3) weathered limestone "ghosts"; structureless-massive; friable in place and in the hand when moist (somewhat more friable than horizon above); 15 to 25 percent coarse skeleton of fine gravel and channers up to 1/2 inch in diameter, mainly of schist, phyllite, and limestone; pH 7.2+.
C2	67 to 81 inches plus. Similar to horizon above except it is calcareous at 76 inches (effervesces strongly with cold, dilute hydrochloric acid). Auger boring.

Notes: Colors refer to moist soil. The 0-7, 11-21, and the 48-67 inch zones were sampled for the Bureau of Public Roads. 4% by weight of fragments larger than 3 inches were discarded from the 48-67 inch zones.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Ridgebury loam SOIL Nos. S57Mass-12-4 LOCATION Plymouth County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 57764 - 57769

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2	Coarse fragments 3B1: 2A2 ≥ 2	2 – 19	19 – 76
		Pct. of < 2 mm													Cm	Pct.	Pct. of < 76mm	
0-5	Ap	61.8	30.6	7.6	7.2	15.1	11.4	16.8	11.3	12.7	17.9	33.2	50.5			15		
5-10	B21g	65.2	32.1	2.7	6.6	13.3	11.2	18.9	15.2	16.5	15.6	42.7	50.0			21		
10-24	A'2gm	67.1	30.2	2.7	7.3	14.3	11.4	18.8	15.3	14.5	15.7	40.9	51.8			21		
24-27	B'21r	83.4	14.4	2.2	9.3	17.2	15.1	26.8	15.0	7.4	7.0	37.9	68.4			38		
27-39	B'3	85.6	12.0	2.4	13.1	21.2	16.8	22.7	11.8	6.7	5.3	30.5	73.8			35		
39-52	C2	84.4	14.2	1.4	7.5	23.7	18.2	18.3	16.7	8.8	5.4	34.6	67.7			14		

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content:	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	in/in			
0-5	4.05	0.224	18			0.7					25.0	9.1					5.2
5-10	0.42	0.036	12			0.6					13.1	2.7					5.2
10-24	0.06					0.5					10.1	1.7					5.3
24-27	0.06					0.6					6.1	1.5					5.6
27-39	0.04					0.4					5.9	1.6					5.5
39-52	0.02					0.1					4.9	0.8					5.6

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. Iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-5	2.0	0.6	0.1	0.2	2.9	20.2	23.1				3.04	0.09	1.20			12	
5-10	0.1	tr.	tr.	0.1	0.2	5.4	5.6				2.07	0.22	1.00			14	
10-24	0.3	0.3	tr.	0.1	0.7	2.1	2.8				1.04	0.18	0.63			25	
24-27	0.1	0.2	tr.	0.2	0.5	2.1	2.6				1.18	0.27	0.68			19	
27-39	tr.	0.2	tr.	0.1	0.3	2.5	2.8				1.17	0.17	0.67			11	
39-52	tr.	0.3	0.1	0.1	0.5	0.8	1.3				0.93	0.07	0.57			38	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica,

Soil Type: Ridgebury loam
Soil No.: S57Mass-12-4
Location: Plymouth County, Massachusetts. Pond Street, Halifax. At base of knoll opposite Binns farm, pinpointed on soil survey photograph DPT 10K-111.
Vegetation and land use: Cultivated
Drainage: Poorly drained
Parent Material: From granitic and schistose materials.
Sampled by and date: Edwood J. Pedersen, William H. Coates, Rino J. Roffinoli, and John R. Mott. July 1957.
Described by: Charles W. Upham

Horizon and Beltsville Lab. No.	
Ap 57764	0 to 5 inches. Very dark grayish brown (10YR 3/2) loam; weak medium granular structure; very friable; abundant fine fibrous roots; pH 5.5; abrupt smooth boundary.
B21g 57765	5 to 10 inches. Light yellowish brown (2.5Y 6/4) fine sandy loam with few fine faint reddish mottles; weak very coarse subangular blocky structure; very friable; pH 5.5; abrupt wavy boundary.
A'2gm 57766	10 to 24 inches. Light gray (2.5Y 7/2) fine sandy loam with many coarse prominent strong brown (7.5YR 5/8) mottles; massive breaking to weak very coarse subangular blocky structure; very hard, firm; strongly cemented; pH 5.5; abrupt wavy boundary; 6 to 14 inches thick.
B'21r 57767	24 to 27 inches. Light gray (2.5Y 7/2) gravelly clay loam with many coarse prominent strong brown (7.5YR 5/8) mottles; massive breaking to very coarse subangular blocky structure; indurated, extremely hard; pH 5.5; abrupt smooth boundary.
B'3 57768	27 to 39 inches. Light brownish gray (2.5Y 6/2) gravelly loamy sand with many coarse prominent yellowish red (5YR 5/8) mottles; structureless - massive; slightly hard; pH 5.6; abrupt smooth boundary.
C2 57769	39 to 52 inches plus. Grayish brown (2.5Y 5/2) sandy gravel; structureless - single grained; loose; horizon is water saturated and contains scattered small silt balls; pH 5.6.

Notes: Colors are for moist soil.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Stockbridge silt loam SOIL Nos. S60Mass-2-1 LOCATION Berkshire County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60451-60457

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2 > 2 Pct.	Coarse fragments 2 – 19 Pct. of < 76mm	Coarse fragments 19 – 76 Pct. of < 76mm
		← Pct. of < 2 mm →																
0-8	Ap	27.6	50.5	21.9	5.4	5.2	3.7	6.1	7.2	15.8	34.7	26.4	20.4			12		
8-15	B1	27.7	49.4	22.9	5.6	5.5	3.7	5.9	7.0	12.9	36.5	23.3	20.7			20		
15-22	B21	27.1	49.9	23.0	5.2	5.7	3.2	6.1	6.9	13.0	36.9	23.3	20.2			17		
22-35	B22x	26.1	48.8	25.1	5.7	5.0	3.3	5.7	6.4	11.0	37.8	20.7	19.7			16		
35-47	B23x	24.0	50.5	25.5	5.0	4.9	3.3	5.1	5.7	10.9	39.6	19.5	18.3			19		
47-60	B31x	24.3	50.3	25.4	5.4	4.8	3.3	5.1	5.7	10.2	40.1	18.8	18.6			14		
60-70	B32x	24.1	49.3	26.6	5.1	4.8	3.2	5.3	5.7	10.3	39.0	19.0	18.4			21		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron as Fe Pct.	Bulk density: g/cc	Bulk density 4A1e 1/3 Bar g/cc	Bulk density 4A1h O.D. g/cc		Water content 4B1c 1/3 Bar Pct.	Water content 4B2 15 Bar Pct.			pH 8C1a (1:1) H_2O
0-8	2.69	0.224	12			1.3		1.17	1.26		34.7	11.2			5.6
8-15	0.40	0.046	9			1.2		1.68	1.73		18.4	7.7			5.6
15-22	0.27					1.3		1.89	1.92		15.8	8.0			5.8
22-35	0.17					1.3		1.86	1.91		16.3	8.8			6.4
35-47	0.14					1.3		1.82	1.89		17.5	8.3			6.8
47-60	0.13					1.3		1.82	1.86		17.8	8.5			7.0
60-70	0.12					1.3									7.2

Depth (In.)	Extractable bases 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	6H2a Ext. Acidity	CEC 5A3a Sum Cations	Base saturation 5C3 Sum Cations Pct.	Pct.
	← meq/100 g →							
0-8	6.6	1.5	0.1	0.2	11.0	19.4	43	
8-15	2.9	0.8	0.1	0.1	5.3	9.2	42	
15-22	3.7	0.9	0.1	0.1	4.7	9.5	50	
22-35	5.4	1.6	0.1	0.1	3.4	10.6	68	
35-47	5.1	1.6	0.1	0.1	2.6	9.5	73	
47-60	5.1	1.6	0.1	0.1	2.6	9.5	73	
60-70	4.7	1.6	0.1	0.1	2.1	8.6	76	

Depth (In.)	Clay Fraction Analysis 7Alb-d Mt. a.	Ver.	Chl.	Int. Ver.-Mi.	Mi.	Kl. 7A3 DTA
	←	X-ray 7A2			→	←Pct.→
0-8		xx	xx	xx	xxx	
8-15						
15-22		xxx	x	xx	xxxx	
22-35		xxx		x	xxxx	
35-47						
47-60		xx			xxxx	
60-70						

a. Mt. = montmorillionite, Ver. = vermiculite, Chl. = chlorite, Int. Ver. Mi. = interlayer vermiculite-mica, Mi. = mica, Kl. = kaolinite.
b. Relative amounts.

Soil type: Stockbridge silt loam
Soil No.: S60Mass-2-1
Location: Donald Miller farm, 200 yards east of West Road, 1/2 mile south of Mass., Route 295, Richmond, Berkshire County, Massachusetts, aerial photo DPM 3K-51.
Vegetation: Wild hay.
Slope: 10 percent
Drainage: Well drained.
Parent material: Glacial till derived principally from Stockbridge limestone of Ordivician Age.
Physiographic position: Rolling uplands of the Limestone Valley.
Sampled by and date: E. J. Pedersen, D. D. Bohrer, and F. A. Filios. June 6, 1960.
Described by: S. J. Zayach and D. C. Fuller

Horizon and Beltsville Lab. Number	
Ap 60451	0 to 8 inches. Very dark grayish brown (10YR 3/2) silt loam; moderate fine and medium granular structure; very friable with individual peds friable; many fine and medium roots; 10 to 15 percent coarse skeleton of fine gravel; pH 6.2; abrupt smooth boundary.
B1 60452	8 to 15 inches. Olive brown (2.5Y 4/4) toward dark grayish brown (2.5Y 4/2) gravelly silt loam or gravelly silty clay loam; weak very fine and fine subangular blocky structure; friable when moist; the ped faces contain discontinuous clay films; fine and medium roots are common; 15 percent coarse skeleton of fine gravel; pH 6.4; clear smooth boundary.
B21 60453	15 to 22 inches. Olive brown (2.5Y 4/4) toward dark grayish brown (2.5Y 4/2) gravelly silty clay loam; weak fine subangular blocky structure; somewhat firm in place and firm in the hand; fine roots are common to few; discontinuous clay films on the ped faces; 15 to 20 percent coarse skeleton of fine gravel; pH 6.4; clear smooth boundary.
B22x 60454	22 to 35 inches. A gravelly silty clay with variegated colors in ped interiors of olive (5Y 4/3), olive brown (2.5Y 4/4), and dark brown (7.5YR 3/2), and grayish brown (2.5Y 5/2) on ped faces; weak thick platy structure; firm in place becoming more firm with depth, the peds are firm in the hand when moist; few fine roots; thin discontinuous clay films along faces of the plates and in the pores; 15 to 20 percent coarse skeleton of fine gravel; pH 7.0. This horizon was arbitrarily split from the one below for purposes of sampling.
B23x 60455	35 to 47 inches. Olive brown (2.5Y 4/4) gravelly silty clay with colors of gray (5Y 5/1) and olive brown (2.5Y 4/4) on the plate faces; weak medium platy structure (there is some evidence of very coarse prismatic structure); firm in place when moist becoming more firm with depth; peds are firm in the hand; very few fine roots; thin clay films on ped faces and pores; 20 percent coarse skeleton of fine gravel; pH 7.0; gradual smooth boundary.
B31x 60456	47 to 60 inches. Olive brown (2.5Y 4/4) gravelly silty clay; structureless - massive; firm in place and in the hand when moist; roots absent; dark gray (5Y 4/1) thin discontinuous clay or silt films in pores and in old earthworm and/or root channels; earthworm dens (filled with what appears to be surface soil) and earthworms are present; 20 percent coarse skeleton of gravel 2-12 mm. in diameter and some flaggy fragments; water at 60"; pH 7.0.
B32x 60457	60 to 70 inches plus. Olive brown (2.5Y 4/4) toward dark grayish brown (2.5Y 4/2) gravelly silty clay; structureless - massive; firm in place when moist; slightly sticky and slightly plastic when wet; roots absent; 20 percent coarse skeleton of fine gravel; pH 7.2. (Sample taken with an orchard auger).

Notes: Colors refer to moist soil. The 0-8, 15-22, and the 35-47 inch zones were sampled for the Bureau of Public Roads.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Stockbridge silt loam SOIL Nos. 860Mass-2-2 LOCATION Berkshire County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60458-60465

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)	Coarse fragments: 2A2 > 2 Pct.	Coarse fragments: 2 – 19 Pct. of < 76mm	Coarse fragments: 19 – 76 Pct. of < 76mm
		Pct. of < 2 mm												Pct.		
0-7	Ap	31.7	53.2	15.1	3.9	4.1	2.5	6.0	15.2	21.7	31.5	40.8	16.5	16		
7-15	B21	20.3	60.2	19.5	2.5	2.4	1.5	4.1	9.8	15.5	44.7	28.1	10.5	6		
15-24	B22	21.2	59.9	18.9	2.5	2.4	1.5	4.1	10.7	15.9	44.0	29.4	10.5	14		
24-32	B23x	17.0	63.5	19.5	1.7	2.0	1.1	3.4	8.8	17.5	46.0	28.5	8.2	8		
32-41	B24x	27.4	52.3	20.3	3.7	2.8	1.8	5.1	14.0	18.8	33.5	36.2	13.4	21		
41-51	B31x	27.4	51.8	20.8	3.8	2.8	1.8	4.9	14.1	18.8	33.0	36.2	13.3	25		
51-64	B32x	20.9	55.8	23.3	2.1	2.0	1.4	4.1	11.3	15.7	40.1	29.7	9.6	19		
64-78+	B33x	25.5	53.5	21.0	4.4	3.4	2.1	4.6	11.0	17.2	36.3	31.2	14.5	17		

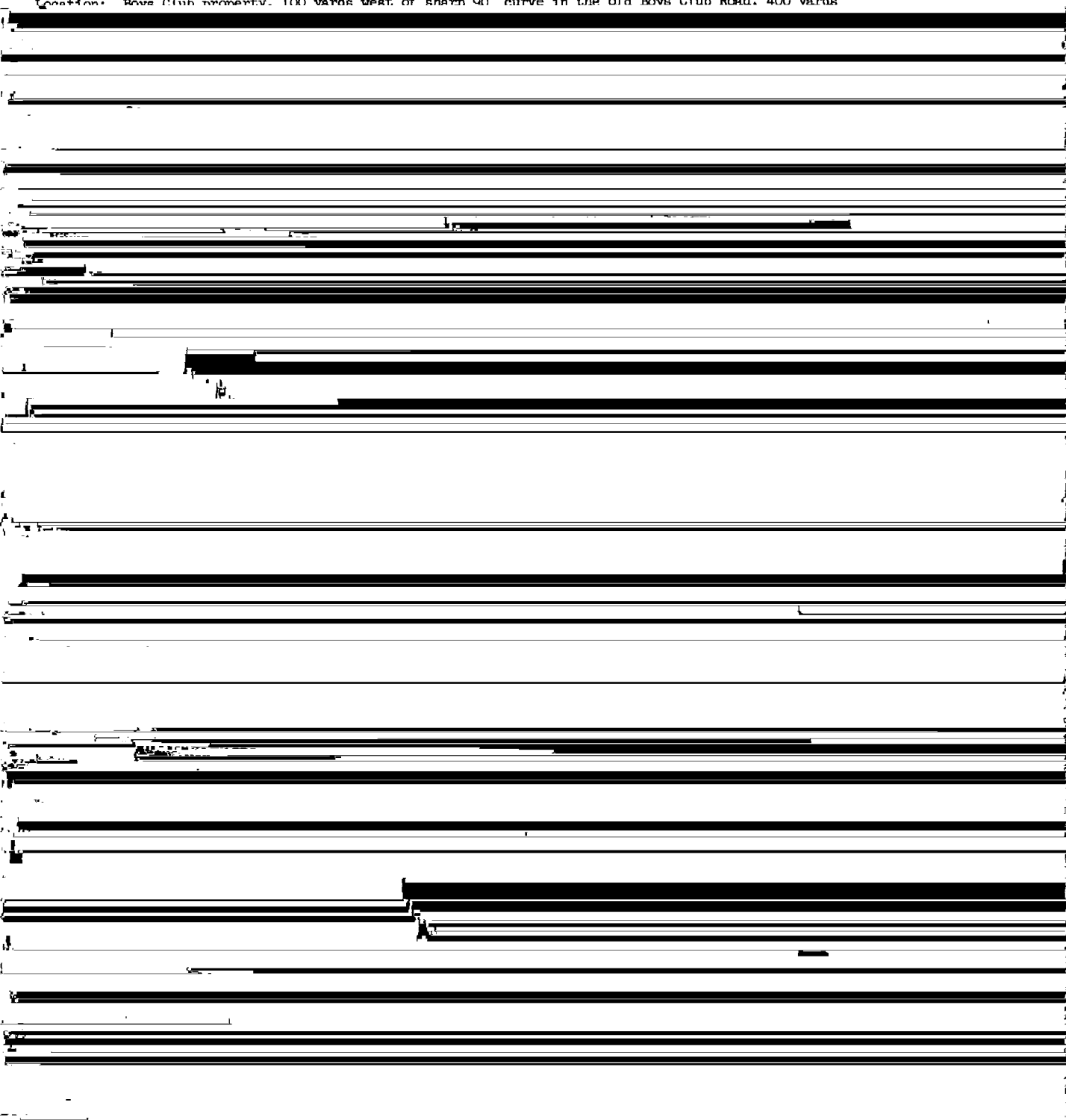
Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N	6E1e Carbonate as $CaCO_3$	6C1a Ext. Iron as Fe	Bulk density:	4A1e 1/3 Bar	4A1h O.D.	Water content:	4B1c 1/3 Bar	4B2 15 Bar	pH:	8C1a (1:1) H_2O
	Pct.	Pct.		Pct.	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.	Pct.		
0-7	1.84	0.166	11		1.5		1.21	1.29		35.4	7.7		5.1
7-15	0.29	0.046	6		1.7		1.79	1.85		18.5	7.3		6.7
15-24	0.19			17	1.5		1.68	1.70		18.9	6.1		7.6
24-32	0.15			19	1.4		1.76	1.81		19.8	6.1		8.0
32-41	0.12			21	1.5		1.84	1.92		16.9	6.4		8.0
41-51	0.10			24	1.5		1.86	1.92		17.0	6.3		7.7
51-64	0.14			19	1.5						7.6		8.0
64-78+	0.12			16							6.8		8.3

Depth (In.)	Extractable bases: 6N2d Ca	6O2b Mg	6P2a Na	5E1a 6Q2a K	6H2a Ext. Acidity	CEC: 5A3a Sum Cations	5A1b (NH_4 dist.)	Base saturation: 5C3 Sum Cations	Pct.
	meq/100 g							Pct.	
0-7	2.6	0.9	0.1	0.2	10.5	14.3	9.3	26	
7-15	4.3	1.8	0.1	0.1	2.8	9.1	4.9	29	
15-24	a.						4.0		
24-32	a.						4.0		
32-41	a.						3.4		
41-51	a.						3.3		
51-64	a.						3.9		
64-78+	a.						3.3		

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt. b.	Ver.	Chl.	Mi.	Kl. 7A3 DTA
	X-ray 7A2				Pct.
0-7					
7-15					
15-24	x c.	xx	xxx	xxxx	3
24-32					
32-41					
41-51	Tr.	xx	xxx	xxxx	3
51-64					
64-78+					

a. Carbonates present.
b. Mt. = montmorillionite, Ver. = vermiculite, Chl. = chlorite, Mi. = mica, Kl. = kaolinite.
c. Relative amounts.

Soil type: Stockbridge silt loam
Soil No.: S60Mass-2-2
Location: Boys Club property, 100 yards west of sharp 90° curve in the old Boys Club Road, 400 yards



Slope: 10 percent
Drainage: Well drained.
Parent material: Glacial till derived principally from Stockbridge limestone of Ordivician Age.
Physiographic position: Rolling uplands of the Limestone Valley.
Sampled by and date: E. J. Pedersen, D. D. Bohrer, and F. A. Filios. June 7, 1960.
Described by: S. J. Zayach and D. C. Fuller.

Horizon and Beltsville Lab. Number		
Ap	0 to 7 inches	Very dark grayish brown (10 YR 3/2) silt loam; weak to moderate fine and

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Sudbury sandy loam **LOCATION** Franklin Co., Massachusetts

SOIL NOS. S58Mass-6-2 **LAB. NOS.** 10381 - 10386

DEPTH INCHES	HORIZON	1B1a PARTICLE-SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 (<19mm.)	TEXTURAL CLASS
0-8	Ap	4.5	15.3	13.0	23.2	14.4	25.5	4.1	41.4	9.8	5	sl
8-16	B_{21}	3.3	9.1	8.6	14.3	12.6	45.7	6.4	46.4	18.5	4	fsl
16-21	B_{22}	2.6	8.9	8.3	14.6	12.3	47.2	6.1	46.7	19.7	3	fsl
21-27	A'_{2g}	5.0	10.2	9.0	18.3	24.5	31.1	1.9	57.0	8.5	9	fsl
27-34	D_{1u}	16.6	22.0	14.0	16.3	10.4	19.0	1.7	29.9	6.7	84	lcos
34-38+	D_{2u}	14.3	31.5	17.4	20.4	6.7	8.8	0.9	21.2	2.8	77	cos

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3	6E1a $CaCO_3$ equivalent %	4A3a Bulk Density g/cc	MOISTURE TENSIONS 4B1d 1/10 ATMOS. %	4B1a 1/3 ATMOS. %	4B2 15 ATMOS. %
6.6			1.99	0.143	14	1.1	< 1	1.40	18.82	15.1	4.2
6.4			0.68	0.050	14	2.0		1.30	31.25	19.1	4.8
6.2			0.37	0.034	11	1.9		1.17	28.10	18.2	4.2
6.1			0.20	0.019		0.7		1.30	24.26	10.1	2.0
6.1			0.34			1.2				9.1	2.6
6.1			0.20			0.8				3.3	1.2

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	5B1a 6Q2a K	BASE SAT. % Sum 5C3	5A3a Sum Ext. Cations me/100g.	MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →							
8.2	5.6	0.6	4.9	<0.1	0.2	57	11.3	
5.2	2.0	0.5	5.2	<0.1	0.1	33	7.8	
3.8	1.3	0.5	3.9	<0.1	0.1	33	5.8	
2.0	0.7	0.4	2.7	<0.1	0.1	31	3.9	
3.0	0.8	0.3	3.6	<0.1	0.2	26	4.9	
1.7	0.5	0.3	2.0	<0.1	0.1	31	2.9	

Soil Type: Sudbury sandy loam
Soil Nos.: S58Mass-6-2
Location: Town of Montague, Route 63, Harry De Wolf farm, 3/4 of a mile southeast of Montague Center. Pinpointed on soil survey field sheet CX1-6H-47. Franklin County, Massachusetts.
Slope: Nearly level, convex slope.
Elevation: 280 feet.
Weather: Clear - after showers.
Collected by: Elwood J. Pedersen, Joe Kubota, and Frederick A. Filios, July 23, 1958.
Described by: Stephen J. Zayach.
Notes by: Robert F. Reiske.

Horizon and Lincoln Lab. No

Ap 10381 — 0 to 8 inches. Very dark brown (10YR 2/2) sandy loam; weak to moderate fine granular structure; very friable; many fine fibrous roots; 3 to 5 percent coarse skeleton; pH 6.6; abrupt smooth boundary 8 to 10 inches thick.

B21 10382 — 8 to 16 inches. Dark yellowish brown (10YR 4/4) to brown to dark brown (7.5YR 4/4) fine sandy loam; comes out in subangular clods, breaks to weak fine granular structure; very friable; fine fibrous roots are common; less than 3 percent coarse skeleton; pH 6.4; clear wavy boundary 5 to 8 inches thick.

B22 10383 — 16 to 21 inches. Dark yellowish brown (10YR 4/4) fine sandy loam; with some slight mottles; comes out in subangular clods, breaks to weak fine granular structure; very friable; fine fibrous roots are common to few; less than 3 percent coarse skeleton; pH 6.4; abrupt wavy boundary 3 to 6 inches thick.

A'2g 10384 — 21 to 27 inches. Light olive brown (2.5Y 5/4) loamy fine sand mottled with common, fine to medium, distinct dark yellowish brown (10YR 4/4) and few medium distinct dark brown (7.5YR 3/4) colors; weak fine crumb structure; very friable; fine fibrous roots are common to few; 5 percent coarse skeleton; pH 6.2; abrupt wavy boundary 5 to 8 inches thick.

D1u 10385 — 27 to 34 inches. Dark yellowish brown (10YR 4/4) very gravelly coarse sand; structureless; single grain; loose when moist; fine fibrous roots are common; 60 percent coarse skeleton; pH 6.2; clear wavy boundary

D2u 10386 — 34 to 38 inches plus. Brown to dark brown (10YR 4/3) to olive brown (2.5Y 4/3) very gravelly very coarse sand; structureless; single grain; loose when moist; few roots; 70 percent coarse skeleton; pH 6.2.

Remarks: Sudbury sandy loam is a moderately well-drained Brown Podzolic soil developed on sandy material that is underlain by a sand and gravel substratum at a depth of 18 to 30 inches. It generally occurs on glaciofluvial plains and is mapped in association with the well-drained to somewhat excessively-drained Merrimac soils, the poorly-drained Walpole soils, and the very poorly-drained Scarboro soils. The Sudbury soils are similar to the Ninigret soils, except that the latter soils are developed on sands that are at least 3 feet deep, or deeper, to a substratum of sand and gravel.
The soil pit was 3 feet by 3½ feet by 3 feet deep. The coarse skeleton consisted mainly of gravels; 2 to 3 inches in diameter.

All colors are moist.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Westminster extremely rocky fine sandy loam SOIL Nos. 862Mass-6-1 LOCATION Franklin County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 62390 - 62392

Depth (in.)	Horizon	1B1b Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19	19 – 76 (Pct. of < 76mm)
		Pct. of < 2 mm															
0-4	A1	50.1	38.0	11.9	5.5	7.7	6.2	14.8	15.9	19.0	19.0	43.6	34.2		6		
4-10	B21	51.6	37.5	10.9	7.4	7.8	6.2	13.6	16.6	18.9	18.6	43.7	35.0		15		
10-18	B22	57.3	33.6	9.1	10.3	10.0	6.8	14.6	15.6	16.6	17.0	40.8	41.7		4		
18+																	

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-4	6.54	0.395	16			2.0		0.84	0.99			46.6	16.1				5.0
4-10	3.14	0.199	16			2.2		0.94	1.02			38.8	9.6				4.7
10-18	1.64	0.124	13			2.4		1.16	1.22			31.2	7.1				
18+																	

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-4	3.8	0.6	tr.	0.4	4.8	24.9	29.7		1.4			2.50	0.17	1.35	6		16	
4-10	1.0	0.3	tr.	0.1	1.4	20.2	21.6		2.5			1.98	0.20	0.88	3		6	
10-18	0.5	0.1	tr.	0.1	0.7	17.1	17.8		1.8			1.96	0.26	0.78	5		4	
18+																		

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Westminster extremely rocky fine sandy loam.
Soil No.: S62Mass-6-1
Location: Franklin County, Massachusetts. Town of Buckland, Bray Road, in woods east of Bray Road, 2 miles southwest of Shelburne Falls. Pinpointed on soil survey field sheet CXI-74-188; coordinates X - 5 5/8 inches, Y - 5 3/4 inches. U.S.G.S. Ashfield Quadrangle: Latitude 42° 34' 37" N, Longitude 72° 45' 25" W.
Vegetation and land use: Woods.
Slope and land form: 3 percent.
Drainage: Well drained.
Parent Material: Late Wisconsin glacial till that is shallow to bedrock. The till is derived mainly from a muscovite mica schist.
Physiographic position: Rocky upland ridges in the foothills west of the Connecticut Valley.
Sampled by and date: Klaus Flach. June 22, 1962.
Described by: Stephen J. Zayach and John R. Mott

Horizon and
Beltsville
Lab. No.

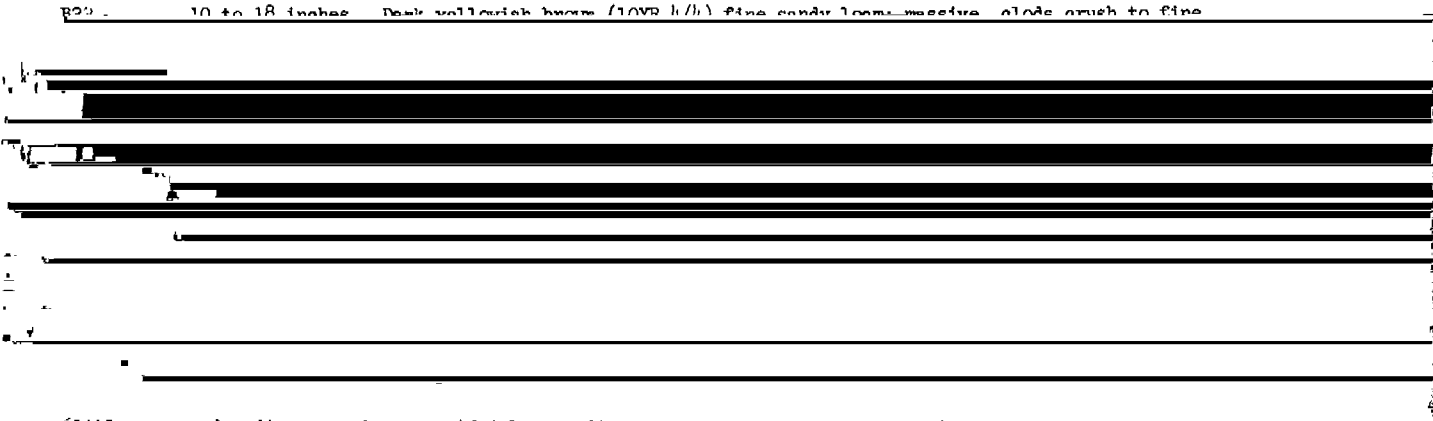
O1 — 4 to 1 inch. Litter of leaves mainly sugar maple, white birch, red oak, and white oak.
Not sampled

O2 — 1 to 0 inches. Partially decomposed litter.
Not sampled

A1
62390 — 0 to 4 inches. Black (5YR 2/1) loam; moderate and strong fine and medium granular structure; very friable; many fine and medium tree roots; 5 - 10 percent coarse skeleton of 2 mm. to 6-inch channers and some gravel; pH 4.8; abrupt wavy boundary. 2 - 5 inches thick.

B21
62391 — 4 to 10 inches. Dark yellowish brown (10YR 4/4) fine sandy loam; massive, clods crush to fine and medium granules; very friable; medium tree roots are common; 5 - 10 percent coarse skeleton of 2 mm. to 6-inch channers and some gravel; pH 4.8; clear smooth boundary. 4 - 7 inches thick.

B22 - 10 to 18 inches. Dark yellowish brown (10YR 4/4) fine sandy loam; massive, clods crush to fine



62392 — and medium granules; very friable; medium tree roots are common and a 2-inch mat of medium and coarse tree roots on the rock which underlies this horizon; 5 - 10 percent coarse skeleton of 2 mm. to 6-inch channers and some gravel; pH 4.8; abrupt wavy boundary. 6-9 inches thick.

D — 18 inches plus. Dark gray schist bedrock with hard smooth surface.
Not sampled

Notes: Colors are for moist soil

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Westminster very rocky fine sandy loam SOIL Nos. S62Mass-6-2 LOCATION Franklin County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 62386 - 62389

Depth (in.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		≥ 2	2 - 19	19 - 76
		Pct. of < 2 mm												Cm	Pct.	Pct. of < 76mm	
0-1	A1	63.6	29.5	6.9	4.8	7.6	7.4	24.5	19.3	14.2	15.3	47.8	44.3		2		
1-5	B21	62.7	30.7	6.6	6.9	7.1	6.5	22.8	19.4	15.8	14.9	48.8	43.3		17		

Soil Type: Westminster very rocky fine sandy loam.
Soil No.: S62Mass-6-2
Location: Franklin County, Massachusetts. Town of Ashfield, Emmets Road, in woods north of Emmets Road, 3/4 mile southeast of Ashfield village. Pinpointed on soil survey field sheet CXI-74-191; coordinates X - 2 3/16 inches, Y - 4 3/16 inches.
Vegetation and land use: Woods.
Slope and land form: 5 percent.
Drainage: Well drained.
Parent Material: Late Wisconsin glacial till that is shallow to bedrock. The till is derived mainly from a muscovite mica schist.
Physiographic position: Upland ridges in the foothills west of the Connecticut Valley.
Sampled by and date: Klaus Flach, June 22, 1962
Described by: Stephen J. Zayach and John R. Mott

Horizon and
Beltsville
Lab. No.

O1 — 3 to 2 inches. Loose litter of leaves, mostly red oak, sugar maple, and white birch.
Not sampled

O21 — 2 to 1 inch. Partially decomposed litter.
Not sampled

O22 — 1 to 0 inch. Black humus.
Not sampled

A1 — 0 to 1 inch. Very dark brown (10YR 2/2) fine sandy loam; weak fine and medium granular
62386 structure; very friable; many fine and medium tree roots; 5 - 10 percent coarse skeleton

[redacted]

to 2 inches thick.

B21 — 1 to 5 inches. Dark brown (10YR 3/3) fine sandy loam; massive, clods crush to fine and medium
62387 granules; very friable; many fine and medium tree roots; 5 - 10 percent coarse skeleton, mainly fine channers with some gravel and coarse channers; pH 4.8; clear smooth boundary. 3 - 4 inches thick.

B22 — 5 to 11 inches. Dark yellowish brown (10YR 3/4) fine sandy loam; the color appears redder to
62388 the naked eye; massive, clods crush to fine and medium granules; very friable; many fine and medium granules; very friable; many fine and medium tree roots; 5 - 10 percent coarse skeleton, mainly fine channers with some gravel and coarse channers; pH 5.2; clear smooth boundary. 6 - 8 inches thick.

B23 — 11 to 18 inches. Dark brown (10YR 3/3) fine sandy loam or loamy fine sand; massive, clods
62389 crush to fine and medium granules; very friable; many fine and medium tree roots; 5 - 10 percent coarse skeleton, mainly fine channers with some gravel and coarse channers; pH 5.2; abrupt, wavy boundary. 7 - 9 inches thick.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Windsor sandy loam SOIL Nos. S54Mass-12-5 LOCATION Plymouth County, Massachusetts

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 55279 - 55283

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2		
		Sand (2–0.05)	Silt (0.05–	Clay (< 0.002)	Very coarse	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–	Int. II (0.2–0.02)	(2–0.1)		Cm	≥ 2	2 - 19	19 - 76

Soil Type: Windsor sandy loam
Soil No.: S54Mass-12-5
Location: Plymouth County, Massachusetts. Bridgewater Township, sample site exactly located on photograph of area on file at SCS, Brockton office.
Vegetation and land use: Moss, young pines
Slope and land form: Nearly level
Drainage: Slow external, rapid internal.
Parent Material: Sand and gravel from granites, sandstones, few volcanics.
Physiographic position: Terrace

Horizon and Beltsville Lab. No.	
Ap 55279	0 to 9 inches. Clear boundary; smooth topography; dark grayish brown to brown, 10YR 3/3; sandy loam; single grain, loose.
B21 55280	9 to 12 inches. Clear boundary; smooth topography; strong brown, 7.5YR 5/6-5/8; loamy sand, single grain, loose.
B22 55281	12 to 20 inches. Gradual boundary; smooth topography; light yellowish brown to brownish yellow, 10YR 6/4-6/6; loamy sand with small amount of gravel; single grain; loose.
B23 55282	20 to 31 inches. Clear boundary; smooth topography; pale yellow, 2.5Y 7/4; loamy sand with more gravel than in B22; single grain; loose.
C 55283	31 to 41 inches. Gradual boundary; smooth topography; light gray 2.5Y 7/2 and light olive gray 5Y 6/2 to pale yellow 2.5Y 7/4; sand and gravel.

Notes: Many roots in Ap; few large tree roots in B and C horizons.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Woodbridge loam **LOCATION** Hampshire Co., Massachusetts

SOIL NOS. S58Mass-8-1 **LAB. NOS.** 10387 - 10391

DEPTH INCHES	HORIZON	1B1a PARTICLE-SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	3A1 2A2 > 2 (<19mm.)	TEXTURAL CLASS
0-10	Ap	4.3	10.5	10.0	20.1	14.5	33.8	6.8	44.9	13.6	10	fsl
10-20	B_{21}	5.8	10.9	9.7	19.5	15.0	34.1	5.0	46.7	12.6	16	fsl
20-29	B_{22g}	5.1	13.5	11.6	21.6	15.2	28.6	4.4	41.3	14.0	26	fsl
29-36	C_{21gm}	5.3	13.4	12.0	23.6	15.2	26.1	4.4	40.8	12.7	16	sl
36-42+	C_{22gm}	5.9	16.4	13.4	25.2	15.8	20.7	2.6	40.2	9.1	19	ls

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3		6E1a $CaCO_3$ equiv. %	4A1a Bulk Density g/cc	MOISTURE TENSIONS 4B1a 1/10 ATMOS. %	4B1a 1/3 ATMOS. %	4B2 15 ATMOS. %
7.0			3.27	0.228	14	1.3		< 1	1.22			8.4
6.5			0.49	0.047	10	1.4		< 1	1.43	32.3	17.0	4.5
6.2			0.24	0.022		1.0			1.79	25.1	14.6	2.9
6.2			0.15			1.0			1.83	21.9	14.3	2.8
6.3			0.05			0.8			1.81	15.9	9.7	2.2

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6N2b Ca	6G2b Mg	6H1a H	6P2a Na	5R1a 6Q2a K	BASE SAT. % Sum 5C3	5A3a Sum Ext. Cations me/100g.	MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →							
13.3	9.3	3.4	6.9	<0.1	0.2	65	19.8	
4.3	1.4	0.8	4.7	0.1	0.1	34	7.1	
3.3	1.2	0.4	4.6	0.1	0.1	28	6.4	
3.2	0.9	0.3	4.1	0.1	0.1	25	5.5	
2.9	1.0	0.2	3.1	<0.1	0.1	30	4.4	

Soil Type: Woodbridge loam
Soil Nos.: S58Mass-8-1
Location: Town of Ware, Winslow Road. Old hayfield east side of road, 0.6 of a mile south of Hampshire-Worcester county line. Pinpointed on soil survey field sheet DFB-3H-19, coordinates 7.9X - 9.5Y inches, scale 1:15840. Hampshire County, Massachusetts.
Slope: Nearly level, 2 percent slope.
Elevation: 730 feet.
Weather: Clear.
Collected by: Edwood J. Pedersen, Joe Kubota, and Frederick A. Filios, July 21, 1958.
Described by: Stephen J. Zayach.
Notes by: Robert F. Reiske.

Horizon and Lincoln Lab. No.	
Ap 10387	0 to 10 inches. Very dark brown (10YR 2/2) dark grayish brown (10YR 4/2) when dry, heavy loam; weak to moderate fine and medium granular structure; very friable; many fine fibrous roots; less than 5 percent coarse skeleton of fine gravel; pH 6.8; abrupt smooth boundary 9 to 10 inches thick.
B21 10388	10 to 20 inches. Dark yellowish brown (10YR 4/4) fine sandy loam; comes out in clods, breaks to weak medium granular structure; very friable; fine fibrous roots are common; 5 percent coarse skeleton of fine gravel; temperature 22 degrees C; pH 6.6; clear wavy boundary 7 to 10 inches thick.
B22g 10389	20 to 29 inches. Olive brown (2.5Y 4/4) sandy loam containing lenses and pockets of fine sandy loam with many medium faint dark yellowish brown (10YR 4/4) and many coarse distinct dark reddish brown (5YR 3/4) mottles; weak thick platy structure, slightly firm in place, friable in the hand with a tendency to rupture; few fine fibrous roots; 10 percent coarse skeleton of fine gravel; pH 6.4; clear wavy boundary 9 to 10 inches thick.
C1	29 to 36 inches. Olive brown (2.5Y 4/4) loamy [illegible]

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Woodbridge loam **LOCATION** Hampshire Co., Massachusetts

SOIL NOS. S58Mass-8-2 **LAB. NOS.** 10392 - 10397

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 1B1a VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 (<19mm.)	TEXTURAL CLASS
0-6	Ap	2.3	8.1	8.0	17.5	15.3	39.4	9.4	46.9	17.0	5	l
6-15	B_{21}	3.3	9.2	8.6	18.4	16.7	40.0	3.8	49.6	17.1	12	fsl
15-20	B_{22g}	3.5	9.1	8.7	19.7	16.9	36.2	5.9	46.7	17.1	12	fsl
20-25	B_{23g}	4.0	9.8	9.4	21.6	17.2	31.3	6.7	45.5	14.6	18	fsl
25-36	B'_{2gm}	5.0	11.4	10.1	20.9	16.1	27.9	8.6	41.1	14.1	16	fsl
36-46+	C_{gm}	4.5	11.0	10.1	22.3	16.1	27.5	8.5	42.1	13.4	16	fsl

pH 8C1a 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3		$CaCO_3$ equivalent %	4A1a Bulk Density g/cc	MOISTURE TENSIONS 1/10 ATMOS. %	1/3 ATMOS. %	4B2 15 ATMOS. %
5.7			5.64	0.424	13	1.4			1.08			12.9
5.0			0.77	0.064	12	1.2			1.36			5.3
6.0			0.64	0.049	13	1.1			1.47			5.2
6.0			0.32	0.035	9	1.0			1.77			4.2
6.1			0.06			1.3			1.67			7.0
6.2			0.04			0.9			1.67			4.7

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6H2b Ca	6G2b Mg	6H1a H	6P2a Na	6Q2a K	BASE SAT. % Sum 5C3	5A3a Sum Ext. Cations me/100g.	MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →							
19.0	8.2	2.4	20.0	0.1	0.3	35	28.9	
5.3	1.1	0.2	7.8	<0.1	0.2	16	9.3	
4.8	1.2	0.4	6.8	<0.1	0.3	22	8.7	
4.2	1.2	0.4	5.1	<0.1	0.3	27	7.0	
5.6	2.6	0.8	3.4	0.1	0.5	54	7.4	
3.5	2.2	0.6	1.9	<0.1	0.2	61	4.9	

Soil Type: Woodbridge loam
Soil Nos.: S58Mass-8-2
Location: Town of Ware, Fisherdick Road, Juda farm, hayfield east side of road and 1/4 mile north of power line. Pinpointed on soil survey field sheet DPB-3H-19, coordinates 1.7X - 8.4Y inches, scale 1:15840. Hampshire County, Massachusetts.

Slope: Gently sloping to nearly level 2 to 3 percent concave slope.

[redacted]

Collected by: Elwood J. Pedersen, Joe Kubota, and Frederick A. Filios, July 22, 1958.
Described by: Stephen J. Zayach.
Notes by: Robert F. Reiske.

Horizon and Lincoln Lab. No.	
Ap 10392	0 to 6 inches. Black (10YR 2/1) heavy loam; moderate fine granular structure; some medium granular peds; friable, slightly plastic; many fine fibrous roots; 3 percent coarse skeleton of fine gravel; pH 6.4; abrupt wavy boundary 3 to 6 inches thick.
B21 10393	6 to 15 inches. Dark yellowish brown (10YR 4/4) to olive brown (2.5Y 4/4) loam; comes out in clods, breaks to weak, fine and medium granular structure; friable, slightly plastic; fine fibrous roots are common; 5 percent coarse skeleton of fine gravel; earthworm channels and casts are numerous; temperature 17.5 degrees C; pH 6.0; clear wavy boundary 7 to 17 inches thick.
B22g 10394	15 to 20 inches. Olive brown (2.5Y 4/4) loam or fine sandy loam with common, fine and medium; faint dark yellowish brown (10YR 4/4) and few fine distinct yellowish red (5YR 4/6) mottles; comes out in clods, breaks to weak, fine and medium, granular structure; friable, slightly plastic, slightly sticky; roots are common; 5 to 10 percent coarse skeleton of fine gravel; earthworm channels and casts are present; pH 6.0; clear broken boundary 0 to 5 inches thick. This horizon looks darker than the horizon below.
B23g 10395	20 to 25 inches. Olive brown (2.5Y 4/4) fine sandy loam with few fine distinct brown to dark brown (7.5YR 4/4) and common, fine and medium, distinct dark yellowish brown (10YR 3/4) mottles; weak medium platy structure; friable, slightly sticky, slightly plastic, slightly firm in place, tendency to rupture under pressure; few roots; 5 to 10 percent coarse skeleton of fine gravel; pH 6.0; abrupt broken boundary 0 to 5 inches thick. (Included in the lower part of this horizon is a loamy fine sand A'2g horizon that is 0 to 1 inch thick).
B'2gm 10396	25 to 36 inches. Brown to dark brown (10YR 4/3) gravelly fine sandy loam with common, medium and coarse, distinct brown to dark brown (7.5YR 4/4) and grayish brown (2.5Y 5/2) mottles; weak thick and very thick platy structure; friable to firm, slightly sticky, slightly plastic; very firm in place, ruptures under pressure; few to no roots; 20 percent coarse skeleton of fine gravel; temperature 18.5 degrees C; pH 5.8; clear wavy boundary 7 to 11 inches thick.
Cgm 10397	36 to 46 inches plus. Grayish brown (2.5Y 5/2) to olive gray (5Y 5/2) gravelly sandy loam with common medium distinct dark yellowish brown (10YR 3/4) and common, medium and coarse, prominent dark brown (7.5YR 3/2) mottles; weak to moderate fine platy structure; firm in place, friable in hand; ruptures under pres- [redacted] pH 6.0

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Au Gres loamy sand SOIL Nos. S59NH-7-1 LOCATION Merrimack County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59871 - 59879

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		≥ 2	2 – 19	19 – 76
		Pct. of < 2 mm												Cm	Pct.	Pct. of < 76mm	
0-7	Ap	77.4	19.6	3.0	2.2	10.1	14.5	30.3	20.3	13.4	6.2	50.8	57.1		tr.		
7-10	A21g	71.8	26.7	1.5	1.9	8.7	12.6	27.5	21.1	19.3	7.4	55.8	50.7		tr.		
10-15	A22g	93.1	6.3	0.6	0.7	13.2	21.2	41.6	16.4	4.7	1.6	44.4	76.7		tr.		
15-19	B1	96.9	2.3	0.8	1.2	11.3	19.0	43.1	22.3	2.3	0.0	49.7	74.6		tr.		
19-25	B21	95.2	4.3	0.5	1.0	18.5	20.7	32.5	22.5	2.6	1.7	45.0	72.7		tr.		
25-31	B22	95.4	4.0	0.6	2.9	20.4	29.1	31.1	11.9	3.4	0.6	29.4	83.5		tr.		
31-39	B23	89.7	9.1	1.2	6.7	24.8	27.4	23.3	7.5	9.2	0.0	26.4	82.2		tr.		
39-65	B24	92.3	6.9	0.8	2.8	20.6	24.5	35.7	8.7	4.7	2.2	30.5	83.6		tr.		
65-75+	Cg	97.4	1.9	0.7	0.7	8.7	25.0	53.3	9.7	1.5	0.4	37.4	87.7		tr.		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density 4A1a Field Moist	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content 4B1a 1/10 bar	4B1c ⅓ bar	4B2 15 bar	4C1 WRD	pH 8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	in/in		
0-7	3.12	0.255	12			tr.	1.28				22.2		8.2		4.3	4.5
7-10	0.17					tr.	1.74				15.5		1.3		4.1	4.8
10-15	0.08					tr.	1.60				6.2		1.2		5.5	4.9
15-19	0.14					tr.	1.61				4.4		0.8		4.5	5.0
19-25	0.27					tr.	1.67				4.6		0.9		4.5	5.1
25-31	0.46	0.037	12			tr.	1.67				5.1		1.6		4.4	5.0
31-39	0.38	0.034	11			tr.	1.62				5.5		1.0		4.5	5.2
39-65	0.29					tr.	1.67				5.8		1.0		4.6	5.1
65-75+	0.13					0.1					2.8		0.5		3.9	4.0

Depth (In.)	Extractable bases 6B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al	Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g													Pct.	Pct.
0-7	4.7	0.8	0.1	0.1	5.7	9.4	15.1		0.1	5.03	-	2.73		38	
7-10	0.7	0.1	0.1	tr.	0.9	1.2	2.1		0.3	1.40	-	0.87		43	
10-15	0.2	tr.	tr.	tr.	0.2	0.6	0.9		0.2	1.50	-	2.00		33	
15-19	0.3	tr.	0.1	tr.	0.4	1.0	1.4		0.3	1.75	-	1.00		28	
19-25	0.4	tr.	0.1	tr.	0.5	3.7	4.2		0.3	8.40	-	1.80		12	
25-31	1.1	tr.	0.1	tr.	1.2	4.5	5.7		0.4	9.50	-	2.67		21	
31-39	1.1	0.1	tr.	tr.	1.2	3.6	4.9		0.3		-			26	
39-65	0.5	0.1	0.1	tr.	0.7	3.5	4.2		0.3		-			17	
65-75+	0.3	0.1	0.1	0.1	0.6	3.9	4.4		2.6					11	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Au Gres loamy sand
Profile No.: S59NH-7-1
Location: Webber Farm on Graham Road, E. Concord, Merrimack County, New Hampshire.
Vegetation and land use: Hayfield consisting of timothy, red clover, quack grass and swale grass.
Slope and land form: 1 percent
Erosion: None
Drainage: Poorly drained.
Parent Material: Glacial outwash, principally from granite and granitic gneiss.
Physiographic position: Outwash plain in Merrimack River Valley.
Ground Water: Watertable at 52".
Sampled by and date: E. Pedersen, B. Brasher, J. Kubota, A. Prince, D. van der Voet, E. Hutchinson.

T. Kelsey. September 14, 1959.
Described by: S. Pilgrim and H. Winkley.

Horizon and Beltsville Lab. No.	
Ap 59871	0 to 7 inches. Very dark gray (10YR 3/1) loamy sand with weak fine granular structure; very friable when moist; many roots; few faint strong brown root stains along root channels; lower boundary abrupt and smooth. Some evidence of A2 mixed with the Ap. 6 - 8 inches thick.
A21g 59872	7 to 10 inches. Gray (N 5/) loamy sand with weak, fine granular structure; very friable when moist; many roots; lower boundary abrupt and wavy. 2 - 4 inches thick.
A22g 59873	10 to 15 inches. Gray (10YR 6/1) medium sand; structureless, massive in place breaking to single grain when removed; very friable when moist; roots are common; lower boundary abrupt and smooth; at lower boundary there is a $\frac{1}{2}$" band of dark grayish brown fine sand. 4 - 6 inches thick.
B1 59874	15 to 19 inches. Dark brown (10YR 4/3) medium sand; structureless single grain; loose when moist; few roots; occasional bleached and coated sand grains; lower boundary clear and smooth. 3 - 5 inches thick.
B21 59875	19 to 25 inches. Dark reddish brown (5YR 3/4) medium sand with weak fine granular structure; firm in place, very friable when removed and moist; no roots; lower boundary abrupt and smooth. 5 - 7 inches thick.
B22 59876	25 to 31 inches. Dark reddish brown (5YR 3/3) medium sand; weak fine granular structure; very firm in place firm to friable when removed and moist; this horizon has bands of cemented coarse sand; no roots; lower boundary abrupt and smooth. 5 - 7 inches thick.
B23 59877	31 to 39 inches. Dark brown (7.5YR 3/2) sand; massive in place single grain when removed; firm in place, loose when removed and moist; no roots; lower boundary clear and smooth. 7 - 9 inches thick.
B24 59878	39 to 65 inches. Dark brown (7.5YR 3/2) medium sand; massive in place single grain when removed; friable in place, loose when removed and moist; no roots; lower boundary clear and wavy. 24 - 28 inches thick.
Cg 59879	65 to 75 inches. Dark gray (5Y 4/1) medium sand; structureless, single grain; loose when moist; no roots.

Notes: Colors are for moist soil unless indicated otherwise. The 0 to 7, 7 to 10, and the 25 to 31 inch zones were sampled for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Berkshire fine sandy loam SOIL Nos. S60NH-5-4 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60567 - 60574

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2–19	19–76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap1	55.7	41.1	3.2	4.7	7.9	7.3	14.0	21.8	21.9	19.2	51.5	33.9			11		
8-10	Ap2	55.1	41.8	3.1	5.8	7.2	7.2	12.8	22.1	22.8	19.0	52.3	33.0			10		
10-14	A2	57.3	39.4	3.3	4.8	8.1	7.9	13.2	23.3	24.8	14.6	55.9	34.0			5		
14-17	B21h	52.6	44.7	2.7	6.0	7.4	5.9	9.6	23.7	28.5	16.2	57.9	28.9			13		
17-21	B22ir	49.6	48.1	2.3	5.5	6.4	5.5	9.8	22.4	29.0	19.1	57.1	27.2			5		
21-33	B3	55.5	42.8	1.7	5.0	7.0	6.1	11.8	25.6	26.9	15.9	59.9	29.9			22		
33-42	C1	64.7	34.0	1.3	5.2	8.4	8.6	17.4	25.1	22.5	11.5	57.7	39.6			39		
42-48	C2	76.7	22.2	1.1	8.7	13.2	12.6	21.3	20.9	14.1	8.1	46.5	55.8			36		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content: Pct.	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.		in/in		
0-8	3.54	0.264	13			1.0									4.8	
8-10	3.34	0.210	16			1.0									4.7	
10-14	0.76	0.053	14			0.2									4.1	
14-17	3.86	0.181	21			2.0									4.3	
17-21	2.90	0.136	21			1.7									4.2	
21-33	1.23	0.065	19			0.4									4.6	
33-42	0.27					0.3									4.7	
42-48	0.06					0.1									4.5	

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-8	2.9	0.2	tr.	tr.	3.1	22.6	25.7		1.3	8.03	0.31			12	
8-10	3.6	0.2	0.1	tr.	3.9	22.4	26.3		1.0	8.48	0.32			11	
10-14	1.9	0.2	tr.	tr.	2.1	5.1	7.2		1.0	2.18	0.06			29	
14-17	2.4	0.3	tr.	tr.	2.7	42.0	44.7		2.4	16.56	0.74			6	
17-21	1.7	0.1	tr.	tr.	1.8	43.0	44.8		3.3	19.48	0.74			4	
21-33	0.5	0.1	tr.	tr.	0.6	17.8	18.3		1.7	10.76	0.24			3	
33-42	0.5	0.1	tr.	tr.	0.6	5.5	6.0		0.7	4.62	0.23			8	
42-48	0.1	0.1	tr.	tr.	0.2	2.1	2.2		0.3	2.00	0.09			4	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Berkshire fine sandy loam
Soil No.: S60NH-5-4
Location: Grafton County, New Hampshire. 1 1/4 mile due south of the village of Franconia on west side of Ham Branch. (Moosilauke Quadrangle) plot located on photo No. DXV-1N-180.
Vegetation and land use: Idle field, timothy, red top and quackgrass.
Slope and land form: 3 percent
Erosion: Slight
Drainage: Well drained
Parent Material: Glacial till primarily from granitic material with a schist influence.
Physiographic position: Lower slope of rolling glacial uplands.
Sampled by and date: B. Brasher, G. Schmidt, A. Prince, D. van der Voet, and T. Kelsey. June 21, 1960.
Described by: F. Vieira and S. Pilgrim.

Horizon and Beltsville Lab. No.	
Ap1 60567	0 to 8 inches. Very dark grayish brown (10YR 3/2), fine sandy loam with 3 percent coarse skeleton; weak fine granular structure; very friable; many roots.
Ap2 60568	8 to 10 inches. Very dark grayish brown (10YR 3/2); fine sandy loam with 3 percent coarse skeleton; weak fine granular structure; very friable; many roots; pH 5.1; horizon abrupt and smooth; thickness A horizon 8-11 inches. An arbitrary break for laboratory purposes.
A2 60569	10 to 14 inches. Grayish brown (2.5Y 5/2) loamy fine sand with 2 percent coarse skeleton; weak fine granular structure; very friable; roots common; pH 5.0; horizon clear and broken; 0-7 inches thick.
B21h 60570	14 to 17 inches. Black (5YR 2/1); very fine sandy loam; weak fine granular structure; very friable; roots common; pH 5.0; horizon clear and broken; 0-5 inches thick.
B22ir 60571	17 to 21 inches. Very dusky red (2.5YR 2/2); very fine sandy loam with one percent coarse skeleton; moderate medium granular structure; friable; roots common; pH 5.1; horizon clear and broken; 0-7 inches thick.
B3 60572	21 to 33 inches. Light olive brown (2.5Y 5/4); sandy loam with 5 percent coarse skeleton; moderate medium granular structure; friable; few roots; pH 5.5; horizon clear and wavy; 7-12 inches thick.
C1 60573	33 to 42 inches. Olive gray (5Y 5/2); gravelly loamy sand; massive in place, single grain removed; friable; few roots; iron staining appears to be derived from inherent coarse fraction; pH 5.3; horizon clear and wavy; 8-10 inches thick.
C2 60574	42 to 48 inches plus. Gray (5Y 5/1); loamy sand with 12 percent coarse skeleton; massive in place, single grain removed; friable; no roots; pH 5.3.

Notes: Colors refer to moist soil.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Buxton silt loam **LOCATION** Rockingham County, New Hampshire

SOIL NOS. S58NH-8-1 **LAB. NOS.** 10623-10632

General Methods: 1A, 1B1a, 2A1, 2B

PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1

Soil Type: Buxton silt loam
Soil Nos.: S58NH-8-1
Location: Greenland, New Hampshire, H. W. Parker Farm, idle pasture, 500 yards north-northeast of junction of Norton Brook and Winnicut River (Dover Quadrangle). Rockingham County, New Hampshire.
Purpose of Description: Soil characterization study.
Vegetation: Old sod, native grasses.
Parent Material: Marine silt and clay deposits.
Physiography: Marine terrace.
Relief: Nearly level to gently sloping.
Elevation: 40 feet.
Slope: 3 percent.

Collected by: E. Pedersen, G. Phibbs, J. Kubota, D. van der Voet, F. Vieira, H. Winkley, T. Kelsey, October 22, 1958.

Horizon and Lincoln Lab. No.	
Ap 10623	0 to 7 inches. Dark brown (10YR 4/3 moist) silt loam; moderate fine granular structure; friable when moist; many roots; lower boundary clear and wavy, 5 to 7 inches thick.
B21 10624	7 to 10 inches. Yellowish brown (10YR 5/4 moist) silt loam; weak medium granular structure; very friable when moist; many roots; lower boundary clear and wavy, 1 to 3 inches thick.
B22g 10625	10 to 14 inches. Mottled light olive brown (2.5Y 5/4 moist) silt loam; mottles are few, fine and faint; weak medium granular structure; friable when moist; roots are common; lower boundary clear and wavy, 3 to 5 inches thick.
A'2g 10626	14 to 18 inches. Mottled grayish brown (2.5Y 5/2 moist) silt loam; mottles are common, fine, faint and yellowish brown; moderate, coarse platy structure; firm when moist; few roots; polygons present; lower boundary clear and wavy, 3 to 5 inches thick.
B'21g 10627	18 to 29 inches. Mottled olive gray (5Y 5/2 moist) silty clay loam; mottles are common, medium distinct and yellowish red; moderate to coarse prismatic structure breaking to moderate medium platy structure; very firm in place; firm when removed; manganese stains; lower boundary clear and wavy, 9 to 11 inches thick.
B'22g 10628	29 to 35 inches. Mottled olive gray (5Y 5/2 moist) silty clay loam; mottles are common, medium, distinct and yellowish red; moderate, coarse prismatic structure breaking to weak medium irregular angular blocky structure; very firm in place, firm when removed; manganese stains; lower boundary clear and wavy, 5 to 7 inches thick.
B'23g 10629	35 to 46 inches. Similar to above horizon except manganese stains cover more of area.
	<u>The following horizon described from samples dug from bottom of pit with a spade.</u>
10630	46 to 56 inches. Olive brown (2.5Y 4/4 moist) silty clay loam; moderate coarse platy structure breaking to moderate medium irregular angular blocky structure; firm; one-eighth to one-quarter inch cracks of dark gray (5Y 4/1); common to many various-sized manganese stains of dark reddish brown.
	<u>The following horizons described from samples obtained with bucket type auger.</u>
10631	56 to 68 inches. Olive (5Y 4/3) silty clay loam; firm; few fine distinct stains or mottles of dark reddish brown. Structure could not be determined.
10632	68 to 80 inches. Mottled olive (5Y 4/3) silty clay loam; mottles are common, medium, and distinct; firm; common, medium and distinct streaks and cracks of dark gray (7.5YR 4/0); few manganese stains of dark reddish brown. Structure could not be determined.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Buxton silt loam **LOCATION** Strafford County, New Hampshire

SOIL NOS. S58NH-9-1 **LAB. NOS.** 10640-10648

General Methods: 1A, 1B1a, 2A1, 2B

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1									2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2	
0-7	A_p	1.2a	2.6a	3.0a	7.9	7.7	53.9	23.7	29.8	36.1	---	sil
7-10	B_2	1.5	3.6	4.1	10.2	8.7	52.2	19.7	33.9	32.4	---	sil
10-14	A'_{2g}	1.8	3.6	3.9	9.5	9.6	53.6	18.0	34.3	34.0	---	sil
14-19	B'_{21g}	1.1	1.8	2.0	5.4	5.0	48.0	36.7	20.5	35.3	Tr	sicl

Soil Type: Buxton silt loam
Soil Nos.: S58NH-9-1
Location: Durham, New Hampshire, University of New Hampshire Farm, cropland, south side of U. S. Route 4, two thirds of the way from B and M railroad tracks to Mast Road. (Dover Quadrangle). Strafford County.

[redacted]

Relief: Nearly level.
Elevation: 70 feet.
Slope: 2 percent.
Drainage: Moderately well drained.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Charlton loam SOIL Nos. 860NH-5-6 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60583 - 60589

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-5	Ap	55.8	39.1	5.1	6.4	5.6	4.6	12.6	26.6	22.6	16.5	57.4	29.2			13		
5-7	B21	50.3	44.6	5.1	5.2	4.9	4.2	11.4	24.6	25.0	19.6	57.0	25.7			13		
7-16	B22	51.0	45.6	3.4	2.5	4.5	4.8	12.5	26.7	25.4	20.2	60.4	24.3			14		
16-27	B3	58.7	39.0	2.3	4.3	5.9	5.3	14.1	29.1	22.7	16.3	61.3	29.6			19		
27-31	C1	66.6	31.7	1.7	8.6	8.9	6.3	15.6	27.2	18.5	13.2	55.8	39.4			41		
31-54	C2	66.2	32.5	1.3	3.5	5.3	5.0	16.7	35.7	22.7	9.8	70.0	30.5			17		
54-73	C3	72.4	25.8	1.8	6.8	7.2	6.1	19.0	33.3	17.9	7.9	63.9	39.1			29		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in		pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-5	2.77	0.234	12			1.2										4.3	
5-7	0.68	0.074	9			1.4										4.6	
7-16	0.42	0.054	8			1.2										4.9	
16-27	0.28					1.0										4.8	
27-31	0.10					0.6										4.7	
31-54	0.04					0.6										4.6	
54-73	0.05					0.7										4.5	

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-5	2.2	0.3	0.1	0.2	2.8	17.8	20.6		1.3		4.04	0.24				14	
5-7	0.9	tr.	0.1	0.1	1.1	9.1	10.2		0.5		2.00	0.27				11	
7-16	0.6	tr.	0.1	tr.	0.7	7.6	8.3		0.2		2.44	0.35				7	
16-27	0.6	tr.	0.1	tr.	0.7	5.9	6.6		0.4		2.87	0.43				11	
27-31	0.2	tr.	0.1	tr.	0.3	2.8	3.1		0.3		1.82	0.35				10	
31-54	0.7	tr.	0.1	tr.	0.8	1.7	2.5		0.2		1.92	0.46				32	
54-73	0.8	tr.	0.1	tr.	0.9	1.7	2.6		0.2		1.44	0.39				34	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Charlton loam
Soil No.: S60NH-5-6
Location: Grafton County, New Hampshire. James McQuire farm, 1 mile east of Landaff village. (Moosilauke Quadrangle). Plot located on photo DXV-7N-68.
Vegetation and land use: Hay field, red clover, timothy, red top and daisy.
Slope and land form: 5 percent
Erosion: Slight
Drainage: Well drained
Parent Material: Glacial till primarily from schistose material with a granitic influence.
Physiographic position: Rolling glacial uplands.
Sampled by and date: B. Brasher, G. Schmidt, D. van der Voet, and T. Kelsey. June 22, 1960.
Described by: F. Vieira and S. Pilgrim.

Horizon and Beltsville Lab. No.	
Ap 60583	0 to 5 inches. Dark brown (10YR 3/3); loam with 2 percent coarse skeleton; weak fine granular structure; very friable; many roots; earthworm casts; pH 5.5; horizon abrupt and smooth; 5-7 inches thick.
B21 60584	5 to 7 inches. Yellowish brown (10YR 5/6); very fine sandy loam with 3 percent coarse skeleton; moderate fine granular structure; friable; many roots; earthworm casts; pH 5.8; 0-3 inches thick. Arbitrary break at 7 inches for laboratory purposes.
B22 60585	7 to 16 inches. Yellowish brown (10YR 5/4); very fine sandy loam with 3 percent coarse skeleton; moderate medium granular structure; friable; many roots; pH 5.8; horizon clear and broken; 0-10 inches thick.
B3 60586	16 to 27 inches. Light olive brown (2.5Y 5/4); fine sandy loam with 5 percent coarse skeleton; moderate fine granular structure; friable; many roots; pH 6.2; horizon is abrupt and irregular; 7-11 inches thick.
C1	27 to 31 inches. Matrix of olive gray (5Y 4/2) with light olive gray (5Y 6/2) fine sands
60587	coating the peds and coarse fragments; sandy loam with 14 percent coarse skeleton; firm in place, friable removed; moderate medium granular structure; slight tendency toward platiness; pH 6.0; horizon clear and wavy; 4-10 inches thick.
C2 60588	31 to 54 inches. Olive gray (5Y 5/2); sandy loam with 13 percent coarse skeleton; weak fine granular structure; slight tendency toward platiness in place; friable; few root stains; pH 6.0; horizon clear and wavy; 21-25 inches thick.
C3	54 to 73 inches. Olive (5Y 5/3) sandy loam with 13 percent coarse skeleton; weak fine
60589	granular; friable; no roots; pH 6.0. Sample obtained with bucket auger from bottom of pit.

Notes: Colors refer to moist soil.

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SOIL CONSERVATION SERVICE

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Depth (in.)	Horizon	1B1b Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: (0.05–0.02)	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	52.0	42.2	5.8	5.0	5.1	4.3	12.4	25.2	23.5	18.7	56.9	26.8			11		
8-11	B1	54.3	40.5	5.2	4.6	4.6	3.8	13.4	27.9	23.2	17.3	60.3	26.4			16		
11-15	B2	58.7	37.7	3.6	3.8	5.0	4.2	15.3	30.4	21.8	15.9	62.9	28.3			19		
15-18	B31	58.9	38.2	2.9	4.5	6.1	5.5	15.1	27.7	20.7	17.5	58.3	31.2			33		
18-28	B32	60.7	34.4	4.9	4.5	5.6	5.2	15.6	29.8	19.8	14.6	60.1	30.9			27		
28-41	C1	69.3	27.8	2.9	6.9	9.9	8.1	16.6	27.8	16.6	11.2	54.7	41.5			45		
41-51	C2	75.4	22.6	2.0	10.5	12.6	10.1	18.6	23.6	15.0	7.6	49.6	51.8			57		
51-64	C3	81.9	16.7	1.4	7.0	12.7	11.0	24.5	26.7	11.5	5.2	53.4	55.2			32		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in		pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	2.76	0.277	10			1.0										5.0	
8-11	1.51	0.121	12			1.2										4.9	
11-15	0.98	0.080	12			1.5										5.0	
15-18	0.72	0.069	10			0.6										5.0	
18-28	0.21					0.4										4.6	
28-41	0.13					0.5										4.6	
41-51	0.16					0.6										4.5	
51-64	0.06					0.7										4.6	

Extractable bases 5B1a | 6H2a | CEC | 6G1d | Ratios to clay 8D1 | 8D3 | Base saturation

Soil Type: Charlton loam
Soil No.: S60NH-5-8
Location: Grafton County, New Hampshire. Meyer property located in village of Sugar Hill, .9 mile due south of Garnet Hill (Moosilauke Quadrangle). Plot located on photo No. DXV-4N-158.
Vegetation and land use: Hay field, hairy vetch, red clover, timothy, quackgrass, daisy and Indian paint brush.
Slope and land form: 6 percent
Erosion: Slight
Drainage: Well drained
Parent Material: Glacial till primarily from schistose material.
Physiographic position: Lower slope of drumloidal feature.
Sampled by and date: B. Brasher, G. Schmidt, D. van der Voet, and T. Kelsey. June 23, 1960.
Described by: F. Vieira and S. Pilgrim.

Horizon and Beltsville Lab. No.	
Ap	0 to 8 inches. Very dark grayish brown (10YR 3/2); loam with 3 percent coarse skeleton; abrupt and smooth; 6-9 inches thick.
B1 60598	8 to 11 inches. Dark yellowish brown (10YR 4/4); very fine sandy loam with 2 percent coarse skeleton; weak fine granular structure; very friable; worm casts; many roots; pH 5.8; horizon clear and broken; 0-6 inches thick.
B2 60599	11 to 15 inches. Strong brown (7.5YR 5/6); very fine sandy loam with 4 percent coarse skeleton; weak fine granular structure; very friable; worm casts; roots common; pH 5.6; horizon clear and wavy; 4-8 inches thick.
B31 60600	15 to 18 inches. Light olive brown (2.5Y 5/4); very fine sandy loam with 4 percent coarse skeleton; moderate medium granular structure; friable; worm casts; roots common; pH 6.0; horizon abrupt and smooth; 2-4 inches thick.
B32 60601	18 to 28 inches. Olive gray (5Y 4/2); gray (5Y 6/1) fine sands adhered to ped faces; fine sandy loam with 6 percent coarse skeleton; moderate medium granular structure; slight tendency to platiness in place; firm in place, friable removed; few roots; pH 5.8; horizon clear and wavy; 8-10 inches thick.
C1 60602	28 to 41 inches. Olive gray (5Y 4/2) fine sandy loam with 10 percent coarse skeleton; moderate medium granular structure; firm in place, friable removed; weathered dark brown schist fragments common; few roots; pH 5.6; horizon abrupt and wavy; 8-13 inches thick.
C2 60603	41 to 51 inches. Olive gray (5Y 4/2); gravelly loamy very coarse sand; single grain; loose; no roots; pH 5.8; horizon clear and wavy; 8-11 inches thick.
C3 60604	51 to 64 inches. Olive gray (5Y 4/2); loamy sand with 15 percent coarse skeleton; weak fine granular structure; very friable; no roots; pH 6.0. Sample obtained with bucket auger from bottom of pit.

Notes: Colors refer to moist soil.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Charlton loam SOIL Nos. S55NH-8-1 LOCATION Rockingham County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56167 - 56172

Depth (In.)	Horizon	181b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2	2 - 19	19 - 76
		Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		Cm	≥ 2	Pct. of < 76mm
		Pct. of < 2 mm													Pct.		
0-9	Ap	47.1	46.7	6.2	2.1	4.0	4.4	11.4	25.2	30.9	15.8	63.6	21.9		7		
9-16	B21	54.6	41.1	4.3	2.9	5.9	5.4	14.0	26.4	26.4	14.7	62.0	28.2		6		
16-21	B22	58.3	37.1	4.6	4.0	7.0	6.1	16.1	25.1	21.8	15.3	57.6	33.2		9		
21-30	B23	66.3	28.6	5.1	6.2	8.3	7.0	19.8	25.0	14.6	14.0	52.7	41.3		35		
30-42	C1	67.3	27.3	5.4	5.6	8.9	7.4	19.5	25.9	13.0	14.3	51.3	41.4		31		
42-50+	C2	69.6	25.5	4.9	4.3	8.3	8.0	18.7	30.3	12.4	13.1	53.7	39.3		16		

Depth (In.)	6A1a Organic carbon	6H1a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density			4D1 COLE	Water content			4C1 WRD	pH		
								4A1e ⅓ bar	4A1h Oven dry			4B1c ⅓ bar	4B2 15 bar			8C1c (1:1)	8C1a (1:1)
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	in/in		KCl	H_2O
0-9	1.94	0.164	12			0.8											5.8
9-16	0.59	0.062	10			0.7											5.6
16-21	0.52	0.066	8			0.6											5.2
21-30	0.16	0.021				0.6											5.2
30-42	0.06	0.015				0.7											5.2
42-50+	0.06	0.012				0.6											5.2

Depth (In.)	Extractable bases 5B1a					6H1a	CEC		6G1d			Ratios to clay 8D1			8D3		Base saturation	
	6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	Ext. acidity	5A3a Sum cations		Ext. Al			CEC Sum	Ext. iron	15-bar water	Ca/Mg		5C3 Sum cations	5C1 NH_4OAc
	meq/100 g																Pct.	Pct.
0-9	4.5	0.9	0.2	0.4	6.0	8.5	14.5					2.34	0.13				41	
9-16	1.1	0.3	0.1	0.2	1.7	6.2	7.9					1.84	0.16				22	
16-21	0.9	0.3	0.1	0.4	1.7	6.6	8.3					1.80	0.13				20	
21-30	0.4	0.2	0.1	0.2	0.9	5.2	6.1					1.20	0.12				15	
30-42	0.4	0.2	0.1	0.2	0.9	5.2	6.1					1.13	0.13				15	
42-50+	0.5	0.2	0.1	0.2	1.0	4.4	5.4					1.10	0.12				18	

Depth (In.)	Clay Fraction Analysis 7A1b-d								
	Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Charlton loam
Soil No.: S55NH-8-1
Location: Rockingham County, New Hampshire. John Stevens Farm, Great Hill, Brentwood, 1/4 mile south on side T road opposite the Stevens home.
Vegetation and land use: Bromegrass, Kentucky bluegrass, Ladino clover and alfalfa.
Slope and land form: 8 to 10 percent.
Sampled by and date: L. T. Alexander, L. E. Garland, D. van der Voet. October 14, 1955.
Described by: W. H. Lyford.

Horizon and Beltsville Lab. No.	
Ap 56167	0 to 9 inches. Brown to dark brown (10YR 4/3) very friable loam or very fine sandy loam with less than 5 percent coarse skeleton. Particle sizes seem to be principally very fine sand, fine sand or silt and the upper two horizons may have a substantial aeolian component. Weak to moderate fine and medium granular structure. Common earthworms and night-crawlers are present, with some night-crawlers exposed in the upper B horizon.
B21 56168	9 to 16 inches. Yellowish brown (10YR 5/6) very friable, fine sandy loam with approximately 5 percent coarse skeleton. Particle sizes are in about the same range as in the horizon above when dug out, the material is about half weak fine granular and half very weak coarse subangular blocky which crushes easily to weak fine granular structure. A few fine unglazed pores occur on the interior of the subangular blocks. This horizon is variable in depth; on about half the sides of the soil pit it was only 2-3 inches thick.
B22 56169	16 to 21 inches. Light olive brown (2.5Y 5/4) very friable fine sandy loam, with 10-20 percent coarse skeleton in the 1-3 inch diameter range. When broken out, the soil is about half weak fine granular and half very weak coarse to medium subangular blocky structure. There are a few unglazed pores. Soil not distinctly micaceous, nonsticky, nonplastic.
B23 56170	21 to 30 inches. Light olive brown (2.5Y 5/4) friable sandy loam with 10-20 percent coarse skeleton. When broken out soil material is about half weak fine granular and half weak coarse platy with a little tendency for weak coarse subangular blocky. Glazed coarse pores common, weakly brittle.
C1 56171	30 to 42 inches. Light olive brown (2.5Y 5/4) firm gravelly fine sandy loam or loamy fine sand till, 20-40 percent subrounded coarse skeleton mostly in the 1-3 inch diameter range; friable when removed, weak medium platy structure with a few glazed pores on channels visible on the plate edges but hardly visible on the plate surfaces or interiors. Surface of plates tend to be olive brown (2.5Y 4/4) and the interiors light olive brown (2.5Y 5/4), moderately brittle. The material in place resists removal with a shovel principally because the shovel blade cuts through the coarse skeleton. Not distinctly micaceous, nonsticky, nonplastic.
C2 56172	42 to 50 inches. Like the above but deeper.

Notes: Colors refer to moist soil.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Charlton stony fine sandy loam SOIL Nos. 855NH-8-3 LOCATION Rockingham County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56178 - 56182

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-1	A1	a														-		
1-8	B21	48.1	47.3	4.6	5.1	7.1	4.5	8.7	22.7	25.5	21.8	53.0	25.4			-		
8-18	B22	57.0	39.9	3.1	8.6	10.7	6.1	7.1	24.5	20.9	19.0	47.6	32.5			-		
18-28	B23	59.5	36.1	4.4	9.4	12.0	6.3	12.3	19.5	17.6	18.5	44.3	40.0			-		
28-38+	C2	68.7	26.9	4.4	10.4	12.5	8.0	17.2	20.6	13.7	13.2	44.6	48.1			-		

Depth (In.)	6A1a Organic carbon Pct.	6H1a Nitrogen Pct.	C/N		6C1a Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1a (1:5) H_2O	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-1	13.60	0.533	26			1.6									3.8		
1-8	3.41	0.164	21			2.1											4.6
8-18	0.70	0.060	12			2.5											5.0
18-28	0.47	0.055	8			3.7											5.2
28-38+	0.24	0.033				3.2											5.2

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-1	0.9	0.8	0.2	0.4	2.3	41.5	43.8							5	
1-8	0.2	0.1	0.1	0.1	0.5	18.9	19.4		4.22	0.46				2	
8-18	0.2	0.1	tr.	tr.	0.3	7.8	8.1		2.61	0.81				4	
18-28	0.3	0.1	0.2	0.1	0.7	6.8	7.5		1.70	0.84				9	
28-38+	0.3	0.1	0.1	0.1	0.6	5.0	5.6		1.27	0.73				11	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Did not run, 27.6 percent loss on ignition.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Charlton stony fine sandy loam
Soil No.: S55NH-8-3
Location: Rockingham County, New Hampshire. Approximately two miles north-northeast of Epping, 600-800 feet to the north of Route 125 on the Burleigh property.
Vegetation and land use: Principally white pine with red and sugar maple, black birch, beech and hemlock common.
Slope and land form: 5 to 10 percent.
Sampled by and date: A. B. Prince, L. E. Garland, D. van der Voet. July 22, 1955.
Described by: W. H. Lyford

Horizon and Beltsville Lab. No.	
O1 Not Sampled	3 to 2 1/2 inches. Loose litter, composed mostly of white pine needles.
O21 and O22 Not Sampled	2 1/2 to 0 inches. Partially decomposed litter, fibrous and full of fine roots. The forest floor averaged three inches in thickness.
A1 56178	0 to 1 inch. Black in the top grading to brown below with just a slight evidence of a paler brown horizon in the lower part. A fine sandy loam to loam with essentially no coarse skeleton, so thin, it was difficult to sample and obtain the amount of sample needed. Roots were numerous. In one or two places there was evidence of an old bleicherde but this was just in spots.
B21 56179	1 to 8 inches. Dark yellowish brown (10YR 4/4) friable, fine sandy loam with about a 10-20 percent coarse skeleton. The material breaks out into 1-2 inch clods which crush readily to weak fine granular structure. Roots are numerous; pH 5.2.
B22 56180	8 to 18 inches. Olive brown (2.5Y 4/4) otherwise much like the material in the horizon above. Roots are fairly few in this horizon. pH 5.4.
B23 56181	18 to 28 inches. Essentially the same as the horizon above, but deeper.
C2 56182	28 to 38 inches plus. Yellowish brown to olive brown (10YR 5/6 - 2.5Y 4/4) not mottled but rather streaked gravelly sandy loam till. More or less massive in place, firm enough so that a pick was used to dislodge it but a shovel could have been used. Very few roots. There were considerable angular particles but also considerable number of subangular 2-3 inch glacial till pebbles. There were no ghosts in this profile.
D	38 inches plus. Rusty colored, thin bedded schistose bedrock.

Notes: The 1-8, 8-18, and the 28-38 inch zones were sampled for the Bureau of Public Roads.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Charlton loam SOIL Nos. S55NH-9-1 LOCATION Strafford County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56183 - 56188

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	44.2	44.8	11.0	5.6	8.4	6.8	6.5	16.9	20.4	24.4	38.1	27.3			11		
8-16	B21	52.3	41.2	6.5	7.7	9.6	7.5	14.1	13.4	19.0	22.2	40.0	38.9			18		
16-24	B22	80.1	17.6	2.3	10.2	15.3	11.8	23.1	19.7	11.7	5.9	44.2	60.4			18		
24-31	B23	69.7	17.7	2.6	10.1	7.2	13.5	22.6	16.3	9.1	8.6	37.6	53.4			23		
31-42	C1	56.7	35.9	7.4	7.3	11.3	8.6	15.2	14.3	18.4	17.5	41.6	42.4			21		
42-49+	C2	56.1	37.7	6.2	7.0	11.4	8.5	15.4	13.8	18.4	19.3	41.2	42.3			20		

Depth (In.)	6A1a Organic carbon Pct.	6H1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-8	2.69	0.225	12			1.0										5.2
8-16	1.02	0.075	14			0.9										5.1
16-24	0.26	0.020				0.4										5.2
24-31	0.63	0.016				0.4										5.2
31-42	0.02	0.007				0.6										5.1
42-49+	-	0.008				0.6										5.2

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g															
0-8	4.0	0.4	0.1	1.0	5.5	13.6	19.1			1.74	0.09				29	
8-16	1.0	0.2	0.1	0.5	1.8	11.2	13.0			2.00	0.14				14	
16-24	0.4	0.1	0.1	0.3	0.9	3.8	4.7			2.04	0.17				19	
24-31	0.3	0.1	tr.	0.1	0.5	2.7	3.2			1.23	0.15				16	
31-42	0.6	0.1	0.1	0.2	1.0	2.7	3.7			0.50	0.08				27	
42-49+	0.5	0.1	0.1	0.2	0.9	2.1	3.0			0.48	0.10				30	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
			7A2 X-ray				7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Charlton loam
Soil No.: S55NH-9-1
Location: Strafford County, New Hampshire. O'Kane Field. University of New Hampshire property, 1/4 mile north of the Dairy Barn.
Vegetation and land use: Pasture
Slope and land form: 3 to 8 percent.
Sampled by and date: L. T. Alexander, L. E. Garland, and D. van der Voet. October 14, 1955.
Described by: W. H. Lyford.

Horizon and Beltsville Lab. No.	
Ap 56183	0 to 8 inches. Dark brown (10YR 3/3) very friable loam with approximately 5 percent coarse skeleton of 1-3 inch subrounded relatively unweathered fragments. Moderate medium to coarse granular peds which crush easily to weak fine granules. Earthworms are common with a few night-crawlers exposed in the upper B horizon. Soil material held together by grass rootlets.
B21 56184	8 to 16 inches. Dark yellowish brown (10YR 4/4) very friable loam with about 5 percent coarse skeleton, chroma strongest at top fading with depth. When broken out, 60 percent is weak fine granular, remainder is very weak coarse subangular which crushes readily to weak fine granular structure. A few faint fine unglazed pores occur in the interior of the blocks; there are none on the surface.
B22 56185	16 to 24 inches. Dark yellowish brown (10YR 4/4) slightly more olive than the above, friable gravelly sandy loam with 20-30 percent coarse skeleton in the 1-3 inch range. Very weak coarse platy structure with common unglazed interior pores. Weakly brittle.
B23 56186	24 to 31 inches. Light olive brown (2.5Y 5/4) friable, gravelly loamy coarse sand or loamy very coarse sand, single grained, with a faint tendency toward platiness; 40-50 percent coarse skeleton. In the few platy peds, there are a few glazed pores. This may be an unconforming or wave-washed till horizon.
C1 56187	31 to 42 inches. Light olive brown (2.5Y 5/4) firm gravelly sandy loam till with 20-40 percent 1-4 inch subrounded coarse skeleton. Weak coarse platy structure, few glazed interior pores, no pores on the surface. A few soft brown weathered sandy limestone ghosts were cut through in this and the adjacent horizons when the pit was dug; weakly brittle. A few coarse distinctly olive brown (2.5Y 4/4) and olive (5Y 5/2) mottles occur along the plate faces. Not enough for a "g" designation. Not distinctly micaceous, nonsticky, nonplastic.
C2 56188	42 to 49 inches plus. Like the horizon above but not mottled.

Notes: The pit was dug with shovels but considerable resistance to removal of the soil material occurred in the firm platy horizons. Perhaps most of this was because small fragments were numerous and were cut through when the material was struck with the shovel point.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Gloucester stony loamy sand SOIL Nos. 355NH-8-2 LOCATION Rockingham County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56173 - 56177

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-2	A1	80.7	16.3	3.0	7.9	18.3	15.6	24.9	14.0	7.4	8.9	34.2	66.7			-		
2-8	B21	76.6	19.9	3.5	9.6	16.4	14.4	22.4	13.8	10.0	9.9	34.9	62.8			-		
8-20	B22	76.6	21.1	2.3	11.6	16.3	15.0	21.4	12.3	11.7	9.4	35.2	64.3			-		
20-26	B23	83.5	14.7	1.8	13.4	18.1	15.3	23.3	13.4	7.5	7.2	33.3	70.1			-		
26+	C	83.1	15.5	1.4	9.7	17.4	16.4	24.6	15.0	8.1	7.4	35.6	68.1			tr.		

Depth (In.)	6A1a Organic carbon Pct.	6H1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-2	5.56	0.265	21			0.6										4.1
2-8	2.51	0.124	20			0.8										4.7
8-20	0.70	0.042	17			0.8										5.1
20-26	0.23	0.020				0.4										5.2
26+	0.08	0.010				0.1										5.2

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-2	1.1	0.6	0.1	0.2	2.0	21.6	23.6				7.87	0.20				8	
2-8	0.2	0.1	tr.	0.1	0.4	14.4	14.8				4.23	0.23				3	
8-20	0.1	0.2	tr.	tr.	0.3	7.8	8.1				3.52	0.35				4	
20-26	0.2	0.1	tr.	tr.	0.3	3.6	3.9				2.17	0.22				8	
26+	0.1	0.1	tr.	tr.	0.2	1.7	1.9				1.36	0.07				10	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Gloucester stony loamy sand
Soil No.: S55NH-8-2
Location: Rockingham County, New Hampshire. Approximately 3/4 mile northwest of Nottingham Square on the Fernald Farm.
Vegetation and land use: White pine principally.
Slope and land form: 5 to 10 percent.
Sampled by and date: A. B. Prince, D. van der Voet, L. E. Garland. July 22, 1955.
Described by: W. H. Lyford

Horizon and Beltsville Lab. No.	
O2 Not Sampled	1 1/2 to 0 inches. Forest floor, consisting of loose white pine needles on the surface underlain by partially decomposed white pine needles.
A1 56173	0 to 2 inches. Very dark grayish brown to very dark brown (10YR 3/2 - 2/2) loamy sand with marked lack of coarse skeleton as compared with the horizons below. Friable, full of roots, darker at the top than at the bottom, being black at the top and brown at the bottom. There was a trace of bleicherde at the top and also evidence of recent faunal action as noted by mounds of B21 horizon material in a few places.
B21 56174	2 to 8 inches. Brown (7.5YR 4/4) stony loamy coarse sand, friable, weak fine granular structure with many roots. Stones ranging up to 10 or 12 inches in diameter are fairly frequent in the hole; these were probably located roughly at one foot distance from each other with smaller ones in between.
B22 56175	8 to 20 inches. Yellowish brown to dark yellowish brown (10YR 5/6 - 4/4) otherwise much the same as the horizon above.
B23 56176	20 to 26 inches. Yellowish brown, light olive brown and olive brown (10YR 5/6 - 2.5Y 5/4 - 4/4) otherwise much the same as in the horizon above but with fewer roots.
C 56177	26 inches plus. Light olive brown to olive (2.5Y 5/4 - 5Y 5/3) stony gravelly coarse sand till with about 30 percent coarse skeleton of mica schist and quartzite smaller than 2-3 inches in diameter and probably 20-30 percent of greater size than this. Firm in place but very friable when removed and essentially single grained.

Notes: The 0-2, 8-20, and the 26 inch plus inch zones were sampled for the Bureau of Public Roads.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Gloucester sandy loam **LOCATION** Rockingham County, New Hampshire

SOIL NOS. S58NH-8-2 **LAB. NOS.** 10633-10639

General Methods: 1A, 1B1a, 2A1, 2B

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	3A1 0.02-0.002	2A2 > 2 (<19mm.)	TEXTURAL CLASS
0-7	A_p	5.2	7.8	9.5	34.0	20.8	20.7	2.0	53.2	8.9	6.7	lfs
7-10	B_{21}	6.2	7.9	9.3	33.6	21.0	20.6	1.4	53.3	8.4	12.9	lfs
10-18	B_{22}	5.2	8.9	10.3	32.4	21.2	20.1	1.9	52.7	8.2	15.8	lfs
18-24	B_{23}	4.5	8.4	9.8	30.2	21.8	23.8	1.5	53.7	9.6	19.2	lfs
24-28	B_3	3.4	8.3	9.5	30.5	22.9	23.8	1.6	55.9	8.6	23.0	lfs
28-36	C_{21}	5.9	9.2	9.8	28.9	22.6	22.0	1.6	52.5	8.8	15.7	lfs/ls
36-44	C_{22}	5.2	9.4	10.4	29.4	22.4	21.4	1.8	53.2	7.8	19.5	ls/lfs

8C1a pH 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3		$CaCO_3$ equivalent %	Bulk Density g/cc	MOISTURE TENSIONS 4B1a 1/10 ATMOS. %	4B1a 1/3 ATMOS. %	4B2 15 ATMOS. %
5.0			2.29	0.142	16	1.3				27.8	13.4	4.9
5.6			0.73	0.053	14	1.0				20.7	9.1	3.4
5.6			0.49	0.035	14	0.8				19.4	7.9	2.6
5.6			0.30	0.022	14	0.5				16.2	10.9	1.4
5.6			0.16			0.5				12.9	10.5	0.9
5.7			0.07			0.4				12.2	9.8	0.9
5.9			0.04			0.4				11.9	9.2	0.8

5A1a CATION EXCHANGE CAPACITY NH_4OAc	EXTRACTABLE CATIONS 6N2b Ca	6O2b Mg	6H1a H	6P2a Na	6Q2a K	5C3 Base Sat. % Sum	5A3a C.E.C. Sum	MOISTURE AT SATURATION %
←	milliequivalents per 100g. soil →						me/100g.	
8.2	0.3	0.2	13.4	<0.1	0.1	4	14.0	
5.4	0.4	0.1	6.8	<0.1	0.1	8	7.4	
4.6	0.4	<0.1	5.3	<0.1	0.1	9	5.8	
2.9	0.2	0.3	3.9	<0.1	0.1	13	4.5	
1.9	0.2	<0.1	2.2	<0.1	0.1	12	2.5	
1.5	<0.1	<0.1	1.7	<0.1	0.1	6	1.8	
1.1	<0.1	<0.1	1.0	<0.1	0.1	9	1.1	

GLOUCESTER SANDY LOAM
S58NH-8-2

Location:	Fremont, N. H. Lyford-Hasch Plots, Forested, 100 yds. northeast of crossroad 165. (Mt. Pawtuckaway Quadrangle). Rockingham County, New Hampshire.
Purpose of Description:	Soil characterization study.
Vegetation:	White Pine.
Parent Material:	Glacial till, principally from granitic materials.
Physiography:	Glacial uplands.
Relief:	Sloping.
Elevation:	185 feet.
Slope:	9 percent.
Drainage:	Well drained.
Erosion:	Moderate.
Sampled by:	E. Pedersen, G. Phibbs, J. Kubota, D. van der Voet, H. Winkley, T. Kelsey, October 22, 1958.

Gloucester Sandy Loam - forested

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Aoo	1 1/2 - 1	Loose pine needles.
Ao	1-0	Partly broken matted needles.
Ap 10633	0-7	Dark brown (10YR 4/3) (moist) sandy loam; weak moderate granular structure; friable when moist; many roots; lower boundary clear and wavy. 6 - 8 inches thick.
B21 10634	7-10	Dark brown (7.5YR 4/4) sandy loam; weak medium granular structure; very friable when moist; many roots; tendency towards an ortstein; lower boundary clear and wavy. 2 - 4 inches thick.
B22 10635	10-18	Yellowish brown (10YR 5/6) (moist) sandy loam; weak medium granular structure; very friable when moist; many roots; lower boundary clear and wavy. 7 - 9 inches thick.
B23 10636	18-24	Light yellowish brown (10YR 6/4) (moist) sandy loam; weak medium granular structure; friable when moist; roots are common; coarse skeleton is about 30 percent; lower boundary clear and wavy. 5-7 inches thick.
B3 10637	24-28	Yellowish brown (10YR 5/4) (moist) loamy sand; almost structureless yet has tendency to weak fine granular structure; very friable when moist; roots are common; coarse skeleton about 30 percent; lower boundary clear and wavy. 3-5 inches thick.
C21 10638	28-36	Gray (10YR 6/1) (moist) loamy sand; massive structure in place, slight pan-like characteristics, slight tendency to platiness, structureless when removed; firm in place; loose when removed; few roots; coarse skeleton about 30 percent; this horizon has pockets up to 4 inches in diameter of pale brown (10 YR 6/3); lower boundary clear and wavy. 7-9 inches thick.
C22 10639	36-44	Light brownish gray (10YR 6/2) (moist) loamy sand; structure is massive in place, single grained when removed; firm in place, very friable to loose when removed; few roots; coarse skeleton about 30 percent.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hadley very fine sandy loam SOIL Nos. 855NH-9-2 LOCATION Strafford County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56189 - 56193

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 >= 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-14	Ap	53.5	37.3	9.2	0.4	1.2	1.6	12.4	37.9	22.4	14.9	69.9	15.6					
14-22	B21	45.2	50.6	4.2	0.1	0.2	0.3	8.4	36.2	29.9	20.7	73.2	9.0					
22-30	B22	56.7	41.2	2.1	-	0.2	0.5	15.4	40.6	25.5	15.7	78.7	16.1					
30-40	C1	72.7	24.9	2.4	-	0.3	1.1	29.6	41.7	17.4	7.5	81.8	31.0					
40-54+	C2g	89.1	8.9	2.0	-	0.7	3.4	56.7	28.3	6.0	2.9	73.2	60.8					

Depth (In.)	6A1a Organic carbon Pct.	6H1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e 1/3 bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c 1/3 bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-14	2.55	0.117	14			1.0										5.4
14-22	1.17	0.096	12			1.4										5.6
22-30	0.64	0.064	10			1.2										5.7
30-40	0.27	0.028				0.7										5.7
40-54+	0.08	0.010				0.6										5.7

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g															
0-14	4.6	0.6	0.1	0.3	5.6	14.2	19.8			2.15	0.11				28	
14-22	1.7	0.2	0.1	0.2	2.2	14.3	16.5			3.93	0.33				13	
22-30	1.0	0.2	0.1	0.2	1.5	10.6	12.1			5.76	0.57				12	
30-40	0.6	tr.	0.1	0.1	0.8	6.8	7.6			3.17	0.29				10	
40-54+	0.4	0.2	0.1	tr.	0.7	2.7	3.4			1.70	0.30				20	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Hadley very fine sandy loam
Soil No.: S55NH-9-2
Location: Strafford County, New Hampshire. Strafford County Farm, approximately 200 feet from the Cocheco River.
Slope and land form: Nearly level
Sampled by and date: A. B. Prince, H. R. Adams, and D. van der Voet. July 7, 1955.
Described by: W. H. Lyford

Horizon and Beltsville Lab. No.	
Ap 56189	0 to 14 inches. Dark brown (10YR 3/3 moist, 6/3 dry) friable, very fine sandy loam; weak to moderate, medium and fine granular structure, well matted with grass roots. Clods 1/2 to 1 inch are common when the soil is dug out. Abrupt boundary, pH 6.0. This plow layer is deeper than common.
B21 56190	14 to 22 inches. Dark yellowish brown to yellowish brown (10YR 4/4 - 5/6) (when moist) friable, very fine sandy loam, (the color is not noticeably darker than the B22). Massive in place and held together rather firmly by grass roots, breaks out to 1-4 inch diameter angular

[redacted]

Earthworm tunnels filled with Ap material are common, one or two occurring on any 12 inch wide profile face. Night-crawlers were observed in several of these tunnels. The tunnels extend to a depth of about 20-30 inches, seldom deeper. Charcoal fragments, some as large as 1/2 inch in diameter are common, 3 or 4 inches under plow layer but do not occur deeper. Mica is present but not conspicuous.

B22 56191	22 to 30 inches. Much like the horizon above but with no charcoal and with fewer earthworm tunnels. This was not definitely lighter than the horizon above and perhaps could have been considered as the lower part of the B21 horizon. pH 6.0.
C1 56192	30 to 40 inches. Yellowish brown (10YR 5/4 moist) friable fine sand, massive in place, breaks out into 1-4 inch angular fragments which crush easily to single grains. There are no pores; roots are common. Diagonally oriented surfaces with dull pressurelike faces occur at intervals. These seem to be related to stratification and are probably inherited rather than developed. They are not visible on the vertical face but only when the soil is dug out. pH 6.0.
C2g 56193	40 to 54 inches plus. Dark yellowish brown (10YR 4/4 moist) friable, medium to fine sand with common distinct very coarse mottles of olive brown (2.5Y 4/4) with 1/16 inch borders of strong brown (7.5YR 5/6). This material is very slightly brittle. It is massive in place, breaks out into 2-4 inch angular clods and crushes to single grains. pH 6.0.

Notes: The 0-14, 22-30, and the 40-54 inch zones were sampled for the Bureau of Public Roads.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Hadley fine sandy loam **LOCATION** Merrimack County, New Hampshire

SOIL NOS. S58NH-7-1 **LAB. NOS.** 10603-10614

General Methods: 1A, 1B1a, 2A1, 2B

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)							3A1		2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2	
0-12	I_B	0.2	0.3	0.7	23.6	43.2	30.3	1.7	84.5	9.1	--	vfsl
12-15	2	0.1	0.5	1.4	18.3	38.0	39.9	1.8	77.4	14.8	--	vsfl

Soil Type: Hadley fine sandy loam
Soil Nos.: S58NH-7-1
Location: Concord, New Hampshire, State Prison Farm, cropland, floodplain, rear of farm buildings, east side of railroad tracks. Merrimack County, New Hampshire.
Purpose of Description: Soil characterization study.
Vegetation: Common hayland species, brome grass, ladino and redtop.
Parent Material: Recent alluvial deposits derived principally from granite, gneiss and mica schist.
Physiography: Floodplain (river bottom) deposits.
Relief: Level or nearly level.
Elevation: 220 feet.
Slope: 2 percent.
Drainage: Well drained.
Erosion: None.
Collected by: E. Pedersen, G. Phibbs, J. Kubota, A. Prince, D. van der Voet, A. D. Hamilton, E. Hutchinson, S. Pilgrim, F. J. Vieira, October 21, 1958.

Horizon and Lincoln Lab. No.	
1p 10603	0 to 12 inches. Very dark grayish brown (2.5Y 3/2 moist) fine sandy loam; weak fine granular structure; very friable when moist; many roots; lower boundary clear and wavy, 10 to 12 inches thick.
2 10604	12 to 15 inches. Dark grayish brown (10YR 4/2 moist) fine sandy loam; weak fine granular structure; friable when moist; many roots; some bleached particles around roots; lower boundary clear and wavy, 3 inches thick.
3 10605	15 to 17 inches. Dark grayish brown (10YR 4/2 moist) fine sandy loam; weak medium granular structure; very friable when moist; roots are common; this layer contains irregular spots of very dark grayish brown (10YR 3/2 moist); lower boundary clear and wavy, 2 to 3 inches thick.
4 10606	17 to 22 inches. Dark grayish brown (10YR 4/2 moist) fine sandy loam; weak medium granular structure; very friable when moist; few roots; lower boundary clear and wavy, 5 to 7 inches thick.
5 10607	22 to 26 inches. Dark grayish brown (10YR 4/2 moist) very fine sandy loam; weak medium granular structure; very friable when moist; few roots; this layer contains a few fine faint mottles in association with light-colored root bleachings; these mottles are not due to a drainage condition; lower boundary clear and wavy, 2 to 4 inches thick.
6 10608	26 to 30 inches. Dark grayish brown (10YR 4/2 moist) fine sandy loam; weak medium granular structure; very friable when moist; lower boundary clear and wavy, 4 to 6 inches thick.
7 10609	30 to 34 inches. Dark grayish brown (10YR 4/2 moist) fine sandy loam; weak medium granular structure; very friable when moist; this layer contains a few, fine, faint mottles in association with light-colored root bleachings; these mottles are not due to a drainage condition; lower boundary clear and wavy, 4 to 6 inches thick.
8 10610	34 to 42 inches. Dark grayish brown (10YR 4/2 moist) fine sandy loam; weak medium granular structure; very friable when moist; lower boundary clear and wavy, 6 to 10 inches thick.
9 10611	42 to 48 inches. Same as layer above.
10 10612	48 to 55 inches. Same as layer above except it contains what appears to be a piece of charcoal.
11 10613	55 to 61 inches. Dark grayish brown (10YR 4/2 moist) fine sandy loam; weak medium granular structure; very friable when moist; lower boundary clear and wavy, 4 to 7 inches thick.
12 10614	61 to 68 inches. Same as layer above.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hartland very fine sandy loam SOIL Nos. 857NH-7-3 LOCATION Merrimack County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 571023 - 571029

Soil Type: Hartland very fine sandy loam
Soil No.: S57NH-7-3
Location: Merrimack County, New Hampshire. Hookset, 300 yards SE Jct. Route 3 and 3A, east side of Merrimack River in idle field.
Vegetation and land use: Poverty grass
Slope and land form: 3 percent
Erosion: Moderate
Drainage: Well drained
Parent Material: Stream terrace deposits of fine sands
Physiographic position: Stream terrace
Sampled by and date: E. Pedersen, Dirk van der Voet, H. E. Winkley, A. D. Hamilton, and E. Hutchinson, July 31, 1957.

Horizon and Beltsville Lab. No.	
Ap 571023	0 to 9 inches. Dark yellowish brown (10YR 4/4) very fine sandy loam; weak medium granular structure; friable; many roots; pH 5.4; abrupt and smooth boundary. 8-9 inches thick.
B21 571024	9 to 13 inches. Brownish yellow (10YR 6/8) very fine sandy loam; weak medium subangular blocky clods breaking to a single grained structure; very friable; many roots; worm channels; pH 5.6; clear and wavy boundary. 3-5 inches thick.
B22 571025	13 to 24 inches. Yellow (10YR 7/8) very fine sandy loam; weak medium subangular blocky clods breaking to a single grained structure; very friable; common roots; pH 6.0; clear and wavy boundary. 10-11 inches thick.
C1 571026	24 to 31 inches. Yellow (2.5Y 7/8) loamy very fine sand; weak medium subangular blocky clods breaking to a single grained structure; very friable, common roots; slight leaching; pH 6.0; clear and wavy boundary. 6-7 inches thick.
C2g 571027	31 to 38 inches. Pale yellow (2.5Y 7/4) loamy fine sand with very faint mottling; weak medium granular structure; very friable; few roots; pH 6.0; abrupt and smooth boundary. 7-8 inches thick.
C3g 571028	38 to 49 inches. Yellow (2.5Y 8/6) fine sand with many medium prominent yellowish red (5YR 5/6) mottles; weak medium subangular blocky clods breaking to a single grained structure; very friable; few roots; distinct dark red (2.5YR 3/6) iron bandings 1-5 mm thick. pH 6.2; clear, wavy boundary. 10-11 inches thick.
C4g 571029	49 to 63 inches. Light gray (2.5Y 7/2) very fine sand having a silty feel with many medium prominent dark red (2.5YR 3/6) mottles; weak medium subangular blocky clods breaking to a single grained structure; friable; pH 5.4; clear and wavy boundary. 13-14 inches thick.
D Not Sampled	63 to 69 inches plus. Layer of coarse gravel over coarse sands.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hartland very fine sandy loam SOIL Nos. S57NH-7-4 LOCATION Merrimack County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 571030 - 571035

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2	2 – 19	19 – 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-8	Ap	52.2	45.8	2.0	0.1	0.7	1.2	11.2	39.0	35.5	10.3	83.1	13.2			-		
8-14	B21	40.1	58.9	1.0	0.1	0.2	0.3	5.4	34.1	44.7	14.2	83.3	6.0			tr.		
14-20	B22	43.4	55.9	0.7	-	0.2	0.3	5.1	37.8	44.6	11.3	86.7	5.6			-		
20-30	C1	52.1	47.2	0.7	-	0.1	0.3	9.0	42.7	37.9	9.3	88.4	9.4			-		
30-44	C2	59.0	40.3	0.7	0.1	0.1	0.3	7.3	51.2	34.1	6.2	91.8	7.8			-		
47-75	C3g	91.2	8.4	0.4	-	0.2	0.9	46.0	44.1	7.9	0.5	89.8	47.1			-		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1a Field Moist	4A1e 1/3 bar	4A1h Oven dry	4D1 COLE	Water content: 4B1a 1/10 bar	4B1c 1/3 bar	4B2 15 bar		4C1 WRD	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in		
0-8	1.73	0.115	15			0.7	1.18				31.7	31.4	6.0				5.5
8-14	0.42	0.036	12			0.7	1.26				32.9	30.4	3.8				5.8
14-20	0.35	0.028	12			0.7	1.20				36.4	30.5	3.0				5.8
20-30	0.17					0.4	1.16				29.6	24.5	2.0				5.8
30-47	0.08					tr.	1.34				29.1	17.2	1.8				6.2
47-75	0.02					0.2	1.26				12.7	6.4	1.0				6.1

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g															Pct.	Pct.
0-8	3.4	0.2	0.1	0.1	3.8	13.4	47.2				23.60	0.35	3.00			22	
8-14	0.7	0.1	0.1	0.1	1.0	6.0	7.0				7.00	0.70	3.80			14	
14-20	0.6	0.1	tr.	0.2	0.9	4.8	5.7				8.14	1.00	4.28			16	
20-30	0.5	0.1	tr.	0.2	0.8	3.2	4.0				5.71	0.57	2.86			20	
30-47	0.2	0.1	0.1	0.1	0.5	2.4	3.2				4.57	-	2.57			25	
47-75	0.2	0.1	tr.	tr.	0.3	0.6	1.0				2.50	0.50	2.50			40	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Hartland very fine sandy loam
Soil No.: S57NH-7-4
Location: Merrimack County, New Hampshire. Hookset, A. E. Johnson farm on Martins Ferry Road, 200 yards rear of farm house in pasture on east side of Merrimack River.
Vegetation and land use: Blue grass, white clover and red top.
Slope and land form: 2 percent
Erosion: Moderate
Drainage: Well drained
Parent Material: Stream terrace deposits of fine sands.
Physiographic position: Stream terrace
Sampled by and date: E. Pedersen, Dirk van der Voet, H. Winkley, A. D. Hamilton, and E. Hutchinson. July 31, 1957.

Horizon and Beltsville Lab. No.	
Ap 571030	0 to 8 inches. Dark brown (10YR 3/3) very fine sandy loam; weak medium granular structure; very friable; many roots; temp. 25°C; pH 5.4; clear and wavy boundary. 8-9 inches thick.
B21 571031	8 to 14 inches. Yellowish brown (10YR 5/6) very fine sandy loam; weak medium subangular blocky clods breaking to weak medium granular structure; very friable; common roots; pH 5.2; clear and wavy boundary. 4-7 inches thick.
B22 571032	14 to 20 inches. Yellow (10YR 7/8) very fine sandy loam; weak medium subangular blocky clods breaking to weak medium granular structure; very friable; common roots; temp. 22°C; pH 5.9; clear and wavy boundary. 4-7 inches thick.
C1 571033	20 to 30 inches. Brown to pale brown (10YR 5/3 - 6/3) very fine sandy loam; weak medium subangular blocky clods breaking to a single grained structure; very friable; few roots; pH 6.0; clear and wavy boundary. 8-11 inches thick.
C2 571034	30 to 47 inches. Pale brown (10YR 6/3) loamy very fine sand; weak medium subangular blocky clods breaking to a single grained structure; very friable; pH 6.0; clear and wavy boundary. 12-14 inches thick.
C3g 571035	47 to 75 inches. Light gray (10YR 7/2) fine sand; single grained structure; loose; temp. 14°C; clear and wavy boundary 25-30 inches thick.
C4g Not Sampled	75 to 83 inches plus.

Notes: At 80 inches iron banding, loamy fine sand. In C1 horizon there were faint white spots of leaching, also root staining.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hinckley sandy loam SOIL Nos. S57NH-7-1 LOCATION Merrimack County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 571040 - 571042

Depth	Horizon	1B1b Total Sand	Total Silt	Total Clay	Sand Very coarse	Sand Coarse	Sand Medium	Sand Fine	Sand Very fine	Silt	Int. III	Int. II			3B2	Coarse fragments 3B1 2A2 > 2	2 - 19	19 - 76

Soil Type: Hinckley sandy loam
Soil No.: S57NH-7-1
Location: Merrimack County, New Hampshire. 2 miles south of Franklin, east side of U. S. Rt. 3, west side of Merrimack River, 150 yards south of Grays Garage on W. E. Glan Farm.
Vegetation and land use: Hay land, blue grass and timothy.
Slope and land form: 0 percent
Erosion: None
Drainage: Well drained
Parent Material: Stratified sands and gravel, principally granite and gneiss, some schist.
Physiographic position: Glaciofluvial terrace.
Sampled by and date: E. Pedersen, A. Prince, Dirk van der Voet, H. Winkley, A. D. Hamilton, and E. Hutchinson. July 30, 1957.

Horizon and Beltsville Lab. No.	
Ap 571040	0 to 8 inches. Dark yellowish brown (10YR 4/4) sandy loam; medium fine granular structure; very friable; many roots; temp. 22°C; pH 6.2; abrupt wavy boundary. 7-9 inches thick.
B21 571041	8 to 12 inches. Brownish yellow (10YR 6/6) loamy fine sand with 2 percent coarse skeleton; weak medium subangular blocky clods breaking to single grained structure; very friable; few roots; temp. 21.5°C; pH 5.6; clear smooth boundary. 4-5 inches thick.
B22 571042	12 to 17 inches. Light yellowish brown (2.5Y 6/4) fine sand with 30 percent coarse skeleton; weak medium subangular blocky clods breaking to single grained structure; very friable; few roots; temp. 22.5°C; pH 5.4; clear smooth boundary. 5-6 inches thick.
D1u Not Sampled	17 to 23 inches. Light yellowish brown (2.5Y 6/4) sand and gravel with 40 percent coarse skeleton; single grained structure; loose; pH 6.2; clear smooth boundary. 6-7 inches thick.
D2u Not Sampled	23 to 25 inches. Pale yellow (2.5Y 8/4) sand; single grained structure; loose; pH 6.2; clear smooth boundary. 2-3 inches thick.
D3u Not Sampled	25 to 42 inches. Light yellowish brown (2.5Y 6/4) sand and gravel with 50 percent coarse skeleton; single grained structure; loose; pH 6.2; clear smooth boundary. 17-18 inches thick.
D4u Not Sampled	42 inches plus. Yellow (10YR 8/8) sand; single grained structure; loose; temp. 20.5°C; pH 6.4.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hermon fine sandy loam SOIL Nos. S60NH-5-3 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60559 - 60566

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm																
0-7	Ap1	57.8	37.6	4.6	6.1	11.3	8.8	13.9	17.7	21.1	16.5	46.9	40.1			17		
7-9	Ap2	59.3	36.7	4.0	7.9	11.6	8.4	13.5	17.9	20.5	16.2	46.3	41.4			15		
a	A2	61.0	36.8	2.2	9.2	11.5	8.8	13.7	17.8	21.1	15.7	46.9	43.2			23		
9-11	B21ir	62.5	35.1	2.4	8.3	12.5	9.3	14.2	18.2	19.0	16.1	45.3	44.3			15		
11-16	B22ir	69.6	28.2	2.2	7.8	13.3	11.0	17.0	20.5	16.1	12.1	46.5	49.1			23		
16-22	B2	73.9	24.9	1.2	8.3	14.4	12.2	18.6	20.4	15.6	9.3	46.6	53.5			35		
22-32	C1m	78.0	20.9	1.1	9.2	17.0	13.5	19.4	18.9	13.8	7.1	43.4	59.1			31		
32-46+	C2m	77.4	21.9	0.7	7.9	16.3	13.0	19.8	20.4	14.8	7.1	46.1	57.0			34		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-7	5.11	0.337	15			0.9									4.3	
7-9	4.21	0.246	17			0.9									4.5	
a	0.70	0.054	13			0.4									4.0	
9-11	3.44	0.146	24			1.8									4.1	
11-16	2.02	0.086	23			1.3									4.6	
16-22	0.48	0.031	15			0.4									4.6	
22-32	0.14					0.3									4.7	
32-46+	0.06					0.2									4.7	

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-7	3.2	0.5	0.1	0.1	3.9	22.9	26.8		2.4	5.83	0.20			14	
7-9	3.5	0.3	0.1	0.1	4.0	19.3	23.3		1.5	5.82	0.22			17	
a	2.7	0.3	0.1	tr.	3.1	6.2	9.3		1.5	4.23	0.18			33	
9-11	2.4	0.2	0.2	tr.	2.8	30.9	33.7		3.7	14.04	0.75			8	
11-16	0.7	tr.	0.1	tr.	0.8	24.3	25.1		1.7	11.41	0.59			3	
16-22	0.4	0.1	0.1	tr.	0.6	6.8	7.4		0.8	6.17	0.33			8	
22-32	0.1	tr.	0.1	tr.	0.2	2.6	2.8		0.4	2.54	0.27			7	
32-46+	0.1	tr.	tr.	tr.	0.1	1.6	1.7		0.4	2.43	0.28			6	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

a Depth not given for pit described; discontinuous.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Hermon fine sandy loam
Soil No.: S60NH-5-3
Location: Grafton County, New Hampshire. 1 1/4 mile due north of town of Bethlehem at junction of Cherry Valley and Wing Roads. (Whitefield Quadrangle). Plot located on photo No. DXV-6N-112.
Vegetation and land use: Idle hay field, timothy, red top, quackgrass and lowgrowing mosses.
Slope and land form: 2 percent
Erosion: Slight
Drainage: Well drained
Parent Material: Glacial till primarily from granitic material with some schistose.
Physiographic position: Rolling glacial uplands
Sampled by and date: B. Brasher, G. Schmidt, A. Prince, D. van der Voet, and T. Kelsey. June 21, 1960.
Described by: F. Vieira and S. Pilgrim.

Horizon and Beltsville Lab. No.	
Ap1 60559	0 to 7 inches. Dark yellowish brown (10YR 3/4), fine sandy loam with 4 percent coarse skeleton; weak fine granular structure; very friable; many roots; pH 5.2; lower boundary abrupt and smooth; 6-9 inches thick.
Ap2 60560	7 to 9 inches. Dark brown (10YR 3/3), fine sandy loam with 8 percent coarse skeleton; weak fine granular structure; very friable; many roots; pH 5.2. An arbitrary break made in the Ap horizon for laboratory purposes.
A2 605662	a This horizon occurs as a pocket and slopes downward from the face of the pit. It extends to a depth of 15 inches at one point. Gray (10YR 6/1), loamy sand with 4 percent coarse skeleton, weak fine granular structure; very friable; few roots; pH 5.0; 0-4 inches thick.
B21ir 60561	9 to 11 inches. Dark reddish brown (5YR 2/2), fine sandy loam (with 5 percent coarse skeleton); weak fine granular structure; very friable; many roots; pH 5.2; horizon abrupt and broken; 0-3 inches thick.
B22ir 60563	11 to 16 inches. Yellowish red (5YR 5/8) matrix with very dusky red (2.5YR 2/2) enveloping the matrix; sandy loam with 12 percent coarse skeleton; moderate medium granular structure; weakly cemented; roots common; pH 5.3; horizon clear and broken; 0-7 inches thick.
B3 60564	16 to 22 inches. Light olive brown (2.5Y 5/4); gravelly sandy loam; weak fine granular structure; friable to firm; few root channels; pH 5.4; horizon abrupt and irregular; 5-8 inches thick.
C1m 60565	22 to 32 inches. Olive gray (5Y 5/2); gravelly sandy loam; massive in place, single grain removed; firm; no roots; pH 5.6; horizon clear and wavy; 10-14 inches thick.
C2m 60566	32 to 46 inches plus. Gray (5Y 5/1); gravelly loamy sand; massive in place, single grain removed; firm, but less firm than overlying horizon; no roots; pH 5.5.

Notes: a Depth not given for pit described.

Large granitic boulders 12-18 inches apart in face of pit disrupt the horizon sequence. Large pockets are common in the solum. Colors refer to moist soil.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Melrose loamy sand SOIL Nos. 855NH-9-3 LOCATION Strafford County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 56194 - 56197

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-10	Ap	83.0	12.5	4.5	1.4	9.1	16.2	33.6	22.7	7.3	5.2	49.5	60.3					
10-20	B21	93.7	4.0	2.3	1.6	8.9	17.4	42.3	23.5	3.1	0.9	50.5	70.2					
20-24	B22	69.7	23.3	7.0	0.2	2.1	3.7	25.1	38.6	12.1	11.2	69.9	31.1					
24-40+	D	23.8	45.0	31.2	0.3	1.6	2.0	6.0	13.9	13.6	31.4	31.7	9.9					

Depth (In.)	6A1a Organic carbon Pct.	6H1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-10	1.53	0.112	14			0.6										5.3
10-20	0.12	0.015				0.4										5.8
20-24	-	0.012				0.4										5.6
24-40+	-	0.021				1.0										5.1

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-10	1.3	0.3	0.1	0.1	1.8	8.9	10.7			2.38	0.13			17	
10-20	0.5	tr.	tr.	0.1	0.6	2.3	2.9			1.26	0.17			21	
20-24	0.4	0.1	tr.	0.2	0.7	3.8	4.5			0.64	0.06			16	
24-40+	3.3	1.3	0.2	0.4	5.2	8.0	13.2			0.42	0.03			39	

Depth (In.)	Clay Fraction Analysis 7Alb-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Melrose loamy sand
Soil No.: S55NH-9-3
Location: Strafford County, New Hampshire. From a pit on the Adams' field on the grass plots of the Agronomy Department, University of New Hampshire. This field is located approximately half-way between Dover and Durham, New Hampshire.
Vegetation and land use: Grass
Slope and land form: 3 to 5 percent.
Sampled by and date: A. B. Prince, H. R. Adams, D. van der Voet. July 7, 1956.
Described by: W. H. Lyford.

Horizon and Beltsville Lab. No.	
Ap 56194	0 to 10 inches. Brown (10YR 4/3 moist) friable loamy sand with weak fine granular structure and no coarse skeleton; roots are numerous. There is little tendency for the soil to clod when plowed or even when dug from the profile.
B21 56195	10 to 20 inches. Yellowish brown (10YR 5/6 moist) sand slightly darker colored in the top two inches. Massive in place, single grained when removed. Roots are common and the material is very friable. pH 5.0. This perhaps is an eroded soil and this particular horizon may be the original B22. As much as 8 or 10 inches may have been lost judging solely on the basis of an expected stronger B21 color for the noneroded soil.
B22 56196	20 to 24 inches. Light olive brown (2.5Y 5/4 moist) friable fine sand. Massive with perhaps a very weak platy tendency. Dense, no pores, very slightly brittle; roots are common, there are more in this horizon than in the horizon below. pH 6.4. At the time of sampling, this horizon was definitely more moist than the horizon above.
D 56197	24 to 40 inches. Olive gray (5Y 4/2 moist) firm to very firm silty clay. Not sticky, slightly plastic. Reddish brown coats (5YR 4/4) occur in this material. They are discontinuous 1/8 to 1/4 inch, in size and are apparently around most of the weak 1/8 to 1/4 inch angular blocks of which this horizon is composed. There are no gray mottles. Perhaps there is a weak tendency for platy structure. Medium sized glazed pores irregular in shape are common in this material. The red coats, themselves, are not especially glazed and perhaps are iron oxide rather than silicate clays. Roots occur in this horizon and do not seem to be localized in any particular place, but grown throughout the material. No tendency for prismatic structure was noted in this horizon.

Notes: The 0-10, 10-20, and the 24-40 inch zones were sampled for the Bureau of Public Roads.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Melrose silt loam SOIL Nos. S57NH-9-2 LOCATION Strafford County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 571006 - 571013

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt 0.05–0.02	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-3	Ap	47.6	39.3	13.1	4.5	10.5	8.8	13.5	10.3	12.6	26.7	30.1	37.3			3		
3-6	B2	47.3	39.8	12.9	4.3	11.0	8.7	13.5	9.8	12.5	27.3	29.5	37.5			-		
6-11	A'2	53.2	35.7	11.1	5.1	11.6	10.4	15.9	10.2	11.1	24.6	29.3	43.0			8		
11-17	B'21	68.4	23.2	8.4	3.5	13.1	14.3	24.2	13.3	8.0	15.2	34.2	55.1			5		
17-24	B'22	19.4	48.7	31.9	1.4	4.1	3.5	6.2	4.2	9.0	39.7	16.7	15.2			1		
24-31	B'23	3.6	50.8	45.6	0.1	0.5	0.6	1.2	1.2	7.6	43.2	9.5	2.4			-		
31-37	C'	2.5	55.3	42.2	0.1	0.3	0.3	0.7	1.1	10.8	44.5	12.5	1.4			-		
37-42+	C'2	2.6	52.7	44.7	0.1	0.2	0.2	0.6	1.5	12.4	40.3	14.2	1.1			-		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density 4A1a Field Moist	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH 8C1c (1:1)	8C1a (1:1)
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in	KCl	H_2O
0-3	2.70	0.182	15			1.1	0.52					32.7	13.2				4.9
3-6	2.02	0.148	14			1.1	1.03					24.7	8.2				5.1
6-11	1.21	0.089	14			1.0	1.08					25.0	7.8				5.3
11-17	0.26					0.7	1.26					12.0	3.8				6.8
17-24	0.16					1.2	1.50					20.2	7.3				5.7
24-31	0.14					1.4	1.36					24.5	9.9				6.0
31-37	0.13					1.5	1.43					28.1	6.6				6.4
37-42+	0.12					1.5											6.5

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-3	1.8	tr.	0.1	0.2	2.1	16.7	18.8				1.44	0.08	1.01			11	
3-6	1.2	0.1	0.1	0.2	1.6	13.8	15.3				1.19	0.09	0.64			10	
6-11	1.0	tr.	0.1	0.1	1.2	10.6	11.8				1.06	0.09	0.70			10	
11-17	1.0	0.2	0.1	0.1	1.4	4.6	6.0				0.71	0.08	0.45			23	
17-24	3.5	1.2	0.3	0.3	5.3	5.4	10.7				0.34	0.04	0.23			50	
24-31	6.6	3.4	0.5	0.4	10.9	5.3	16.1				0.35	0.03	0.22			67	
31-37	6.5	3.4	0.4	0.3	10.6	4.2	14.9				0.35	0.04	0.16			72	
37-42+	6.7	3.4	0.4	0.3	10.8	4.0	14.8				0.33	0.03				73	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Melrose silt loam
Soil No.: S57NH-9-2
Location: Strafford County, New Hampshire. Adjacent to Rt. 125 on southern boundary of Rochester Country Club, Rochester.
Vegetation and land use: Old sod, sweet fern, redtop, pine.
Slope and land form: 9 percent
Erosion: Moderate
Drainage: Well drained
Parent Material: Marine silt and clay deposits
Physiographic position: Rolling terrain
Sampled by and date: E. Pedersen, A. Prince, Dirk van der Voet, F. Vieira, T. Kelsey. August 1, 1957.

Horizon and Beltsville Lab. No.	
Ap 571006	0 to 3 inches. Dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; many roots; pH 5.3; abrupt smooth boundary. 3 inches thick.
B2 571007	3 to 6 inches. Dark yellowish brown (10YR 4/4) loam; weak fine granular structure; friable; many roots; pH 5; clear and wavy boundary. 2-3 inches thick.
A'2 571008	6 to 11 inches. Pale olive (5Y 6/3) fine sandy loam; weak fine granular structure; friable; common roots; pH 5.8; clear and wavy boundary. 4-6 inches thick.
B'21 571009	11 to 17 inches. Olive (5Y 4/3) fine sandy loam; weak very fine platy breaking to moderate fine subangular blocky structure; firm; few roots; pH 6.2; clear and wavy boundary. 5-7 inches thick.
B'22 571010	17 to 24 inches. Olive gray (5Y 4/2) silty clay loam; strong angular blocky structure; firm; few roots; pH 6.1; clear and wavy boundary 6-8 inches thick.
B'23 571011	24 to 31 inches. Olive gray (5Y 4/2) silty clay with gray (5Y 5/1) polygon crack; strong prismatic structure breaking to strong coarse angular blocky structure; very firm, no roots; pH 6.3; clear and wavy boundary. 6-8 inches thick.
C' 571012	31 to 37 inches. Olive (5Y 4/3) silty clay; moderate coarse platy structure breaking to strong coarse angular blocky structure; very firm; no roots; pH 6.4; clear and wavy boundary. 5-7 inches thick.
C'2 571013	37 to 42 inches plus. Olive (5Y 4/3) silty clay; strong coarse platy structure breaking to strong medium angular blocky structure; very firm; no roots; pH 6.5; clear and wavy boundary.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Ondawa fine sandy loam **LOCATION** Merrimack County, New Hampshire

SOIL NOS. S58NH-7-2 **LAB. NOS.** 10615-10622

General Methods: 1A, 1B1a, 2A1, 2B

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-9	1_p	0.1a	0.4a	0.8	25.9	43.9	27.1	1.8	83.8	6.0	---	vfsl
9-19	2	0.2a	0.2a	0.9	37.8	38.5	21.5	0.9	83.4	4.2	---	lfs
19-29	3	<0.1	0.1a	0.4	16.9	49.8	31.9	0.9	90.0	5.8	---	vfsl
29-39	4	<0.1	<0.1	0.2b	14.3	51.0	33.5	1.0	92.1	5.4	---	vfsl
39-49	5	<0.1	<0.1	0.2b	10.1	45.3	42.7	1.7	86.4	10.6	---	vfsl
49-59	6	<0.1	0.1b	0.1b	3.1	36.5	58.0	2.2	81.6	15.6	---	sil
72-92	9	<0.1	0.2b	0.5b	43.8	40.5	14.0	1.0	88.8	3.8	---	lfs/fs
92-112	10	<0.1	0.2b	0.7b	48.1	38.1	12.2	0.7	90.1	3.1	---	fs

pH 8C1a 1:1	pH 1:5	pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6C1a Free Iron % Fe_2O_3		$CaCO_3$ equivalent %	4A3a Bulk Density g/cc.	MOISTURE TENSIONS 4B1a 1/10 ATMOS. %	4B1a 1/3 ATMOS. %	4B2 15 ATMOS. %
5.9			0.91	0.064	14	0.4			1.36	24.2	6.0	2.3

ONDAWA FINE SANDY LOAM
S58NH-7-2

Location:	Concord, N. H., Hamblett Farm, cropland, floodplain, 1100 yds. east of railroad, 1100 yds, northwest of Fort Eddy (Concord Quadrangle). Merrimack County, New Hampshire.
Purpose of Description:	Soil characterization study.
Vegetation:	Oats.
Parent Material:	Recent alluvial deposits derived principally from granite, gneiss, and mica schist.
Physiography:	Floodplain (river bottom) deposits.
Relief:	Level or nearly level.
Elevation:	238 feet.
Slope:	1 percent.
Drainage:	Well drained
Erosion:	None
Sampled by:	E. Pedersen, G. Phibbs, J. Kubota, A. Prince, D. van der Voet, A. D. Hamilton, S. Pilgrim, F. Vieira.

Ondawa Fine Sandy Loam - cultivated (low bottom phase)

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
1p 10615	0-9	Very dark grayish brown (10YR 3/2) (moist) fine sandy loam; weak medium granular structure;
10616		loam; weak medium granular structure; friable when moist; many roots.
3 10617	19-29	Dark grayish brown (2.5Y 4/2) (moist) fine sandy loam; weak medium granular structure; friable when moist; few roots; very faint horizontal

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561149 - 561155

Depth (In.)	Horizon	1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 — Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9	Ap	60.5	32.1	7.4	5.6	10.6	9.9	20.0	14.4	14.9	17.2	40.3	46.1			19		
9-15	B21	63.2	31.5	5.3	5.4	10.8	9.8	21.7	15.5	16.1	15.4	44.1	47.7			12		
15-21	B22	62.3	30.8	6.9	6.6	12.0	9.2	19.6	14.9	14.5	16.3	40.8	47.4			16		
21-25	B3	58.6	33.9	7.5	6.2	12.0	8.8	17.9	13.7	14.5	19.4	38.5	44.9			12		
25-34	B21x	61.0	30.5	8.5	5.2	11.0	9.1	19.8	15.9	13.6	16.9	41.2	45.1			10		
34-43	B'22m	56.2	33.3	10.5	4.6	10.4	8.6	18.2	14.4	14.7	18.6	39.9	41.8			14		
43-52	B'23m	60.4	31.9	7.7	5.4	11.9	9.3	18.4	15.4	14.0	17.9	40.2	45.0			10		

Depth (In.)	6A1a Organic carbon Pct.	6H1a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-9	2.50	0.190	13			1.1										5.2
9-15	0.60	0.052	12			1.0										5.4
15-21	0.41	0.037	11			0.8										5.6
21-25	0.28	0.024				0.8										5.7
25-34	0.10	0.015				0.9										5.4
34-43	0.05	0.015				0.9										5.1
43-52	0.05	0.012				0.9										5.0

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g													
0-9	2.8	0.1	0.1	0.2	3.2	14.7	18.0		2.43	0.15			18	
9-15	0.5	0.1	0.1	0.1	0.8	8.2	9.0		1.70	0.19			9	
15-21	0.8	0.1	0.1	0.2	1.2	6.8	8.0		1.16	0.12			15	
21-25	0.7	0.1	0.1	0.2	1.1	5.6	6.7		0.89	0.11			16	
25-34	0.8	tr.	0.1	0.2	1.1	4.8	5.9		0.69	0.10			19	
34-43	0.7	tr.	0.1	0.2	1.0	4.6	5.6		0.53	0.08			18	
43-52	0.7	0.1	0.1	0.2	1.1	4.4	5.6		0.73	0.12			21	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Soil Type: Paxton loam
Soil No.: S56NH-7-1
Location: Merrimack County, New Hampshire. Approximately 3/4 mile east of Hart Hill on the Usilka Farm, Northfield. The pit was dug in a hayfield approximately 200 feet east of town road (dirt) and about 300 yards north of farmhouse.
Vegetation and land use: Hay
Slope and land form: 3 percent
Sampled by and date: A. Dickason, E. Hutchinson, A. D. Hamilton and E. J. Pedersen. July 19, 1956.
Described by: D. van der Voet and L. E. Garland.

Horizon and Beltsville Lab. No.	
Ap 561149	0 to 9 inches. Dark brown (10YR 3/3, moist) fine sandy loam with 5-10 percent coarse skeleton; weak medium subangular blocky clods breaking to weak fine granular structure; very friable; very many fine roots; strongly acid; clear and wavy boundary. 8-10 inches thick.
B21 561150	9 to 15 inches. Light olive brown (2.5Y 5/4, moist) fine sandy loam with 10-20 percent coarse skeleton; weak medium subangular blocky clods averaging 1-2 inches in size; friable; many fine to medium roots; medium acid; clear and wavy boundary. 5-6 inches thick.
B22 561151	15 to 21 inches. Olive brown (2.5Y 4/4, moist) fine sandy loam with 20-25 percent coarse skeleton; weak medium subangular blocky clods averaging one inch in size; friable; many fine to medium roots; medium acid; clear and wavy boundary. 5-7 inches thick.
B3 561152	21 to 25 inches. Olive brown (2.5Y 4/4, moist) fine sandy loam with 5-10 percent coarse skeleton; weak medium subangular blocky clods averaging one inch in size breaking to weak fine granular structure, friable, few roots; medium acid; abrupt and wavy boundary. 3-5 inches thick.
B21x 561153	25 to 34 inches. Olive brown (2.5Y 4/4, moist) loam with 25-35 percent coarse skeleton; moderate coarse platy structure; peds have grayish brown coatings (2.5Y 5/2, moist) on outside with interior being olive brown (2.5Y 4/4, moist); fine glazed pores common on outside of plates; very firm; no roots; pocket of fine sand occurred at 25 inch depth (approximately 8 inches deep by 14 inches wide) not sampled as part of horizon; medium acid; diffuse boundary. 8-10 inches thick. Arbitrary division for sampling purposes.
B'22x 561154	34 to 43 inches. Dark grayish brown (2.5Y 4/2, moist) loam with 25-35 percent coarse skeleton; moderate coarse platy structure; grayish brown coatings (2.5Y 5/2, moist) on outside of peds with strong dark brown manganese dioxide stains on many peds; fine glazed pores common on outside of plates; very firm; no roots; medium acid; arbitrary boundary.
B'23x 561155	43 to 52 inches. Similar description to B'22x horizon.

Notes: The B21x, B'22x, and the B'23x horizons were divided arbitrarily for sampling purposes.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Paxton loam SOIL Nos. S56NH-7-2 LOCATION Merrimack County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561156 - 561162

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap	58.7	35.9	5.4	2.5	9.2	9.1	19.0	18.9	20.2	15.7	50.0	39.8			6		
7-12	B21	60.9	35.6	3.5	3.0	8.9	8.9	19.2	20.9	22.0	13.6	53.6	40.0			10		
12-17	B22	61.4	36.2	2.4	3.7	9.6	9.1	19.3	19.7	23.0	13.2	53.8	41.7			19		
17-21	A'2x	63.3	34.4	2.3	4.3	11.1	9.7	19.5	18.7	21.4	13.0	51.0	44.6			7		
21-33	B'21x	69.4	27.0	3.6	4.3	16.8	11.9	20.2	16.2	14.3	12.7	41.8	53.2			23		
33-45	B'22x	65.1	30.6	4.3	4.9	14.5	10.1	18.4	17.2	16.2	14.4	44.3	47.9			8		
45-60	B'23x	62.9	33.0	4.1	4.8	13.1	9.2	18.3	17.5	18.5	14.5	46.9	45.4			5		

Depth (In.)	6A1a Organic carbon	6H1a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1e ⅓ bar	Bulk density: 4A1h Oven dry	4D1 COLE	Water content: 4B1c ⅓ bar	Water content: 4B2 15 bar		4C1 WRD		pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.		in/in			
0-7	3.13	0.257	12			1.2										5.0
7-12	1.24	0.113	11			0.9										5.2
12-17	0.63	0.061	10			0.9										5.4
17-21	0.21	0.018				0.4										5.5
21-33	0.10	0.012				0.4										5.6
33-45	0.05	0.008				0.4										5.8
45-60	0.05	0.006				0.4										6.0

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-7	1.6	0.3	0.1	0.3	2.3	18.1	20.4				3.78	0.22				11	
7-12	0.6	tr.	0.1	0.2	0.9	11.1	12.0				3.43	0.26				8	
12-17	0.4	0.1	0.1	0.1	0.7	7.4	8.1				3.38	0.38				9	
17-21	0.5	tr.	0.1	0.2	0.8	5.0	5.8				2.52	0.17				14	
21-33	0.5	0.2	0.1	0.2	1.0	4.2	5.2				1.44	0.11				19	
33-45	0.4	tr.	0.1	0.3	0.8	3.6	4.4				1.02	0.09				18	
45-60	0.7	0.1	0.1	0.3	1.2	3.6	4.8				1.17	0.10				85	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Paxton loam
Soil No.: S56NH-7-2
Location: Merrimack County, New Hampshire. Pit dug in hay-pasture field on L. L. Leighton Farm on east side of East Pleasant Street 1/4 mile south of farm house. Pit approximately 500 yards from crest of hill.
Vegetation and land use: Hay-pasture
Slope and land form: 4 percent
Sampled by and date: A. Dickason, E. Hutchinson, A. D. Hamilton, E. J. Pedersen, and L. E. Garland. July 20, 1956.
Described by: D. van der Voet.

Horizon and
Beltsville
Lab. No.

Ap
561156 — 0 to 7 inches. Dark brown (10YR 3/3, moist) fine sandy loam with 5-10 percent coarse skeleton; weak fine granular structure; very friable; many very fine roots; strongly acid; clear wavy boundary. 6-7 inches thick.

B21
561157 — 7 to 12 inches. Dark yellowish brown (10YR 4/4, moist) fine sandy loam with 5-10 percent coarse skeleton; weak medium subangular blocky clods 1/2 to 1 1/2 inches in size, breaking to weak, fine granular, friable, many fine roots; medium acid, clear wavy boundary. 5-7 inches thick.

B22 — 12 to 17 inches. Olive brown (2.5Y 4/4, moist) fine sandy loam with 15-25 percent coarse

[redacted]

fine granular structure; many fine to medium roots; medium acid; abrupt and wavy boundary. 4-6 inches thick.

A'2x
561159 — 17 to 21 inches. Olive (5Y 5/3, moist) fine sandy loam with 15-25 percent coarse skeleton; weak medium platy structure, clean sandy particles around plates indicating strong possibility of eluviation in down slope movement through this horizon.

B'21x
561160 — 21 to 33 inches. Olive gray (5Y 4/2, moist) fine sandy loam with 15-25 percent coarse skeleton; moderate fine platy structure, peds have grayish brown coatings (2.5Y 5/2, moist) on exterior surfaces; fine glazed pores common on outside of plates; firm; few roots; medium acid; diffuse boundary. 12 inches thick.

B'22x
561161 — Olive (5Y 4/3, moist) fine sandy loam with 20-30 percent coarse skeleton; moderate fine platy structure; peds have gray brown coatings (2.5Y 5/2, moist) on exterior surfaces; fine glazed pores common on outside of plates; firm; no roots; medium acid.

B'23x
561162 — 45 to 60 inches. Olive (5Y 4/3, moist) fine sandy loam with 20-30 percent coarse skeleton; moderate fine platy structure; peds have grayish brown coatings (2.5Y 5/2, moist) on exterior

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Paxton loam SOIL Nos. S60NH-5-5 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60575 - 60582

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1													3B2	Coarse fragments 3B1		
		Total			Sand					Silt						2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		Cm	> 2	2 - 19	19 - 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-4	Ap1	49.9	42.9	7.2	4.6	4.7	4.8	13.4	22.4	23.2	19.7	54.2	27.5			10		
4-6	Ap2	49.5	42.8	7.7	3.3	4.7	4.9	14.1	22.5	23.2	19.6	54.8	27.0			11		
6-10	B2	45.7	48.6	5.7	3.5	4.0	4.4	12.4	21.4	24.3	24.3	53.6	24.3			14		
10-19	B3	55.1	37.4	7.5	4.4	5.8	5.6	15.7	23.6	17.5	19.9	51.0	31.5			17		
19-23	C1x	54.8	36.8	8.4	5.2	5.8	5.3	15.3	23.2	17.9	18.9	50.8	31.6			15		
23-32	C2x	52.4	34.6	13.0	3.8	5.1	4.7	15.5	23.3	16.3	18.3	49.5	29.1			12		
32-53	C3x	54.1	35.6	10.3	4.4	5.2	5.0	15.8	23.7	16.2	19.4	50.0	30.4			12		
53-64	C4x	60.3	32.9	6.8	4.2	6.0	5.6	17.4	27.1	16.3	16.6	54.7	33.2			5		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density			4D1 COLE	Water content				4C1 WRD	pH	
								4A1e ⅓ bar	4A1h Oven dry			4B1c ⅓ bar	4B2 15 bar			8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in		
0-4	3.42	0.274	12			1.4										4.4	
4-6	3.42	0.251	14			1.3										4.6	
6-10	0.91	0.077	12			1.5										4.9	
10-19	0.37	0.044	8			0.8										4.7	
19-23	0.10					0.9										4.5	
23-32	0.08					1.1										4.3	
32-53	0.09					1.1										4.2	
53-64	0.05					1.3										4.3	

Soil Type: Paxton loam
Soil No.: S60NH-5-5
Location: Grafton County, New Hampshire. 1 mile due south of Bronson Hill and .9 mile east of Scotland School. (Moosilauke Quadrangle). Plot located on photo No. DXV-1N-226.
Vegetation and land use: Idle field, red top, red clover, spirea, goldenrod, Indian paint brush.
Slope and land form: 4 percent
Erosion: Slight
Drainage: Well drained
Parent Material: Glacial till primarily from schistose material with a granitic influence.
Physiographic position: Rolling glacial uplands.
Sampled by and date: B. Brasher, G. Schmidt, D. van der Voet, and T. Kelsey. June 22, 1960.
Described by: F. Vieira and S. Pilgrim.

Horizon and Beltsville Lab. No.	
Ap1 60575	0 to 4 inches. Very dark grayish brown (10YR 3/2) loam with 4 percent coarse skeleton; weak fine granular structure; very friable; many roots; pH 5.2.
Ap2 60576	4 to 6 inches. Very dark grayish brown (10YR 3/2); loam with 4 percent coarse skeleton; weak fine granular structure; very friable; many roots; pH 5.4; horizon abrupt and smooth; thickness A horizon 6-9 inches. An arbitrary break for laboratory purposes.
B2 60577	6 to 10 inches. Matrix of yellowish brown (10YR 5/4) with strong brown (7.5YR 5/6) occurring throughout horizon; very fine sandy loam with 2 percent coarse skeleton; moderate medium granular structure; friable; roots common; some worm casts; pH 5.8; horizon clear and irregular; 3-10 inches thick.
B3 60578	10 to 19 inches. Matrix light olive brown (2.5Y 5/4) with streaks of olive (5Y 5/3); fine sandy loam with 12 percent coarse skeleton; moderate medium granular structure; friable; few roots; silt caps on coarse fragments; pH 6.0; horizon clear and wavy; 3-10 inches thick.
C1x 60579	19 to 23 inches. Olive gray (5Y 4/2); fine sandy loam with 12 percent coarse skeleton; moderate medium platy structure; friable to firm; numerous clay skins; thin lenses of fine sands light gray (5Y 7/1) form a coating (1/8 inch) over coarse fragments (2-4 inches diameter); few roots; pH 6.0; horizon clear and wavy; 3-6 inches thick.
C2x 60580	23 to 32 inches. Olive gray (5Y 4/2); fine sandy loam with 12 percent coarse skeleton; strong coarse platy structure; firm; numerous clay skins; no roots; pH 5.8; horizon clear and wavy; 6-10 inches thick.
C3x 60581	32 to 53 inches. Olive gray (5Y 4/2) with common fine distinct strong brown (7.5YR 5/8) mottles; fine sandy loam with 5 percent coarse skeleton; strong medium platy structure; firm; some clay skins; no roots; pH 5.8; horizon clear and wavy; 19-23 inches thick.
C4x 60582	53 to 64 inches plus. Olive (5Y 4/3) with few fine distinct strong brown (7.5YR 5/8) mottles; fine sandy loam with 8 percent coarse skeleton; moderate medium platy structure; firm; no roots many very dusky red (10R 2/2) coatings on surface of peds; pH 5.7.

Notes: Colors refer to moist soil.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Soil Type: Paxton loam
Soil No.: S60NH-5-7
Location: Grafton County, New Hampshire. Blewer property located in village of Sugar Hill, .8 mile southeast of Garnet Hill (Moosilauke Quadrangle). Plot located on photo No. DXV-4N-158.
Vegetation and land use: Hay field, red top, red clover, hairy vetch, daisy.
Slope and land form: 6 percent
Erosion: Slight
Drainage: Well drained
Parent Material: Glacial till primarily from schistose material.
Physiographic position: Glacial uplands, drumloidal feature.
Sampled by and date: B. Brasher, G. Schmidt, D. van der Voet, and T. Kelsey. June 23, 1960.
Described by: F. Vieira and S. Pilgrim.

Horizon and Beltsville Lab. No.	
Ap 60590	0 to 7 inches. Dark brown (10YR 3/3); loam with 5 percent coarse skeleton; moderate fine granular structure; very friable; many roots; pH 5.2; horizon abrupt and smooth; 7-9 inches thick.
B2 60591	7 to 10 inches. Strong brown (7.5YR 5/6); fine sandy loam with 4 percent coarse skeleton; weak fine granular structure; very friable; roots common; worm casts; pH 5.4; horizon clear and wavy; 1-4 inches thick.
B3 60592	10 to 15 inches. Olive brown (2.5Y 4/4); fine sandy loam with 10 percent coarse skeleton; moderate medium granular structure; friable; roots common; worm casts; weathered dark brown schist fragments 1/4 - 1/2 inch in diameter; pH 5.7; horizon clear and wavy; 5-7 inches thick.
C1x 60593	15 to 23 inches. Olive gray (5Y 4/2); fine sandy loam with 10 percent coarse skeleton; moderate medium platy structure; firm; coating of light gray (5Y 6/1) fine sands adhering to peds; worm casts; few roots; pH 5.4; horizon clear and wavy; 4-8 inches thick.
C2x 60594	23 to 34 inches. Dark olive gray (5Y 3/2); very fine sandy loam with 14 percent coarse skeleton; strong coarse platy structure; firm; dark staining (manganese?) throughout; pH 5.5; horizon clear and wavy; 9-12 inches thick.
C3x 60595	34 to 48 inches. Dark olive gray (5Y 3/2); very fine sandy loam with 10 percent coarse skeleton; strong medium platy structure; firm; thin coating of light gray (5Y 7/1) fine sands adhere to larger coarse fragments; dark staining (manganese?) throughout; no roots; pH 5.7; horizon clear and wavy; 12-15 inches thick.
C4x 60596	48 to 66 inches plus. Matrix of dark grayish brown (2.5Y 4/2) with streaks of gray (5Y 5/1); common medium distinct dark brown (7.5YR 4/4) mottles envelope the gray material; very fine sandy loam with 10 percent coarse skeleton; moderate coarse platy structure; firm; weathered fine grained schist fragments; 4-6 inches length common; no roots; pH 5.4. Sample obtained with bucket auger from bottom of pit.

Notes: Colors refer to moist soil.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Peru loam **LOCATION** Sullivan County, New Hampshire

SOIL NOS. S58NH-10-1 **LAB. NOS.** 10589-10595

General Methods: 1A, 1B1a, 2A1, 2B

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1									2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2 (<19mm.)	
0-8	A_p	3.1	4.5	3.7	12.9	15.8	52.6	7.4	51.3	25.2	6.0	sil
8-11	B_{21}	4.0	5.5	4.7	15.6	17.2	47.1	5.9	50.9	23.4	6.4	fsl
11-18	B_{22}	5.9	6.7	5.1	16.9	17.5	44.1	3.8	50.1	22.2	13.7	fsl
18-21	A'_{2g}	5.5	7.2	6.4	21.8	21.5	34.8	2.8	56.3	14.2	11.0	fsl
21-28	B'_{31gm}	5.0	6.2	5.3	18.1	18.0	41.0	6.4	50.5	20.1	11.3	fsl
28-37	B'_{32gm}	4.7	6.4	5.6	19.3	18.5	38.6	6.8	50.2	19.2	15.4	fsl
37-46	C^*_{1gm}	4.9	6.1	5.3	18.5	17.6	41.6	6.0	50.2	20.5	5.4	fsl

PERU LOAM
S58NH-10-1

Location: Claremont, N. H., Peterson Farm, Cropland, 300 yds. south of intersection 631 (Claremont Quadrangle) and 200 yds. west of road. Sullivan County, New Hampshire.

Purpose of Description: Soil characterization study.

Vegetation: Common hayland species, red clover, ladino, timothy, alsike and redtop.

Parent Material: Glacial till, principally mica schist with some admixture of granite.

Physiography: Glacial uplands.

Relief: Sloping.

Elevation: 670 feet.

Slope: 11 percent.

Drainage: Moderately well drained.

Erosion: Moderate.

Sampled by: E. Pedersen, G. Phibbs, J. Kubota, D. van der Voet, A. D. Hamilton, E. Hutchinson, S. Pilgrim. October 20, 1960.

Peru Loam - Cultivated

HORIZON AND LINCOLN LAB. NO.	DEPTH (inches)	DESCRIPTION
Ap 10589	0-8	Dark brown (10YR 4/3) (moist) loam; weak medium granular structure; friable when moist; many roots; lower boundary clear and wavy. 7 - 9 inches thick.
B21 10590	8-11	Dark yellowish brown (10YR 3/4)(moist) loam; weak medium granular structure; friable when moist; many roots; lower boundary clear and wavy. 3 - 5 inches thick.
B22 10591	11-18	Mottled olive brown (2.5Y 4/4)(moist) loam; mottles are few, fine and faint; weak medium granular structure; friable when moist; roots are common; lower boundary clear and wavy. 5 - 7 inches thick.
A'2g 10592	18-21	Mottled light olive brown (2.5Y 5/4) (moist) sandy loam; mottles are few, fine and faint; weak medium subangular blocky structure breaking to weak fine granular structure; very friable when moist; few roots; lower boundary abrupt and wavy. 3 - 5 inches thick.
B'31gm 10593	21-28	Mottled dark grayish brown (2.5Y 4/2)(moist) fine sandy loam; mottles are common, fine and faint; weak medium subangular blocky structure; firm when moist; few roots; indications of polygon; lower boundary clear and wavy. 7 - 9 inches thick.
B'32gm 10594	28-37	Mottled olive gray (5Y 4/2)(moist) and dark grayish brown (2.5Y 4/2)(moist) fine sandy loam; mottles are many, medium and distinct; weak fine subangular blocky structure; firm when moist; clay films present; lower boundary clear and wavy. 8 - 11 inches thick.
C'1gm 10595	37-46	Mottled olive gray (5Y 4/2)(moist) and dark grayish brown (2.5Y 4/2)(moist) fine sandy loam; mottles are many medium and distinct; massive structure in place, when removed clods break to weak medium subangular blocky structure; firm when moist.

SOIL SURVEY LABORATORY Lincoln, Nebraska

SOIL TYPE Peru loam **LOCATION** Sullivan County, New Hampshire

SOIL NOS. S58NH-10-2 **LAB. NOS.** 10596-10602

General Methods: 1A, 1B1a, 2A1, 2B

DEPTH INCHES	HORIZON	PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)								3A1	2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2 (<19mm)	
0-7	A_p	7.1	6.5	3.7	10.5	15.2	47.6	9.4	43.3	26.0	5.4	l
7-10	B_2	11.1	7.5	3.6	9.6	14.5	48.6	5.1	42.8	26.1	20.4	fsl
10-14	B_3	3.6	5.5	4.2	13.0	21.9	48.5	3.3	54.6	24.0	17.2	fsl
14-22	A'_{2g}	2.2	4.9	4.3	15.3	26.1	44.1	3.1	61.5	18.2	6.8	vfsl
22-32	B'_{3gm}	6.2	6.2	5.1	17.8	26.9	34.5	3.3	58.7	14.3	23.6	fsl
32-40	C_{1gm}	3.9	4.5	3.7	13.2	18.8	47.8	8.1	48.8	26.2	19.7	l

PERU LOAM
S58NH-10-2

Location:	Newport, N. H., Brooks Farm, cropland, 1100 yds. west of intersection 732 (Sunapee Quadrangle) and 100 yds. south of road. Sullivan County, New Hampshire.
Purpose of Description:	Soil characterization study.
Vegetation:	Common hayland species, red clover, ladino, timothy, alsike and redtop.
Parent Material:	Glacial till, principally mica schist with some admixture of granite.
Physiography:	Glacial uplands.
Relief:	Gently sloping.
Elevation:	830 feet.
Slope:	6 percent.
Drainage:	Moderately well drained.
Erosion:	Moderate.

Peru Loam - Cultivated

HORIZON AND LINCOLN LAB. NOS.	DEPTH (inches)	DESCRIPTION
Ap 10596	0-7	Dark brown (10YR 3/3) (moist) loam; weak fine granular structure, very friable when moist; many roots; lower boundary clear and wavy. 6 - 7 inches thick.
B2 10597	7-10	Dark yellowish brown (10YR 4/4) (moist) loam; weak fine granular structure; very friable when moist; many roots; lower boundary clear and wavy. 1 - 3 inches thick.
B3 10598	10-14	Olive (5Y 5/3) fine sandy loam; very few fine faint mottles, weak fine granular structure, very friable when moist; roots are common; lower boundary clear and wavy. 5 - 9 inches thick.
A'2g 10599	14-22	Mottled olive brown (2.5Y 4/3) (moist) loamy fine sand; mottles are few. fine and faint; weak, thick platy structure; friable when moist; roots are common; bleached grains around roots; lower boundary clear and wavy. 5 - 8 inches thick.
B'3gm 10600	22-32	Mottled olive gray (5Y 4/2) (moist) very fine sandy loam, mottles are common, medium and distinct; weak thick platy structure; firm when moist; few roots; lower boundary clear and wavy. 8 - 10 inches thick.
C11gm 10601	32-40	Mottled olive (5Y 4/3) (moist) very fine sandy loam; mottles are few, fine and faint; moderate thick platy structure; extremely firm in place, very firm when removed when moist.
C12gm 10602	40-48 +	Mottled olive gray (5Y 4/2) (moist) and olive (5Y 4/3) (moist) very fine sandy loam; mottles are few fine and faint; moderate to strong thick platy structure; extremely firm in place, very firm when removed when moist; polygon runs diagonally across bottom of pit, 3/4 to 1-1/4 inches wide, olive gray (5Y 5/2) very fine sandy loam; contains some very dark gray (5Y 3/1) spots.

Sampled by: E. Pedersen, G. Phibbs, J. Kubota, D. van der Voet, A. D. Hamilton, E. Hutchinson, S. Pilgrim. October 20, 1958.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Peru loam SOIL Nos. S62NH-5-3 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 62479 - 62485

		1B1b	Size class and particle diameter (mm)	3A1

Soil Type: Peru loam
Soil No.: S62NH-5-3
Location: Grafton County, New Hampshire; Firlands Associates, 3 miles west of Sugar Hill along Rt. 117, and 1/2 mile northeast of Rt. 117.
Vegetation: Old hay field planted to spruce and fir, one to two feet tall.
Slope: 12 percent, convex, single slope.
Erosion: Moderate
Drainage: Moderately well drained
Parent material: Compact glacial till derived mostly from dark colored, fine grained metamorphic rock and some igneous rock.
Physiography: Drumlin in Connecticut River Valley uplands.
Ground Water: At 17 inches, perched above pan.
Sampled by: E. Pedersen, S. Ross, R. Bond, C. Dellinger, T. Kelsey, and D. van der Voet
Described by: H. Winkley

Horizon and Beltsville Lab. Number	
Ap 62479	0 to 7 inches. Very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; strongly acid; many roots; clear wavy boundary. 6 to 8 inches thick.
B21h or ir(?) 62480	7 to 9 inches. Dark reddish brown (5YR 3/3) loam; weak fine granular structure; very friable; strongly acid; many roots; approximately 10 percent coarse fragments less than 1/2 inch; abrupt wavy boundary. 0 to 3 inches thick.
B22 62481	9 to 17 inches. Dark grayish brown (2.5Y 4/2) loam; subangular blocky clods breaking to weak fine granular structure; very friable; strongly acid; abrupt wavy boundary. 7 to 9 inches thick.
A'2x 62482	17 to 23 inches. Olive gray (5Y 5/2) sandy loam with few medium faint mottles, (10YR 5/8); moderate thick platy structure; firm; strongly acid; clear wavy boundary. 5 to 6 inches thick.
B'21x 62483	23 to 29 inches. Dark grayish brown (2.5Y 4/2) loam; massive structure; firm; strongly acid; gradual smooth boundary. 5 to 6 inches thick.
B'22x 62484	29 to 44 inches. Dark grayish brown (2.5Y 4/2) gravelly loam; massive structure; very firm; medium acid; 15-20 percent coarse fragments less than 1/2 inch; gradual smooth boundary. 5-6 inches thick.
Cx 62485	44 to 60 inches. Dark grayish brown (2.5Y 4/2) loam; massive structure breaking to weak coarse platy structure; very firm; strongly acid.

Notes: Small remnants of A2 present in Ap horizon. Numerous earthworm holes in B22 horizon. Thin clay flows observed in B'22x horizon. Polygon streaks began in the B'21x horizon and extended through the bottom of the pit. The streaks were about one inch wide and ten inches apart. The streaks were gray (N 5/) and outlined with 1/4 inch bands of strong brown (7.5YR 5/6). B21h or ir(?) horizon is discontinuous.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Peru loam SOIL Nos. S62NH-5-4 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 62486 - 62491

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments: 2A2 > 2 <76 Pct.	2 – 19	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-6	Ap	45.8	47.0	7.2	5.1	5.1	3.5	11.3	20.8	23.6	23.4	52.0	25.0			10		
6-12	B2	47.8	45.2	7.0	7.5	6.9	4.6	11.0	17.8	20.3	24.9	45.0	30.0			18		
12-18	A'2x	48.6	44.9	6.5	5.6[a]	8.1[b]	5.8[a]	12.4[b]	16.7[c]	40.1	25.1	43.8	31.9			10		
18-26	B'21x	50.4	42.1	7.5	5.7[b]	12.6[d]	6.9[a]	11.4[b]	13.8[c]	16.6	25.5	36.9	36.6			21		
26-41	B'22x	41.8	48.4	9.8	5.8	7.0	4.5	10.0	14.5	18.0	30.4	38.5	27.3			15		
41-60+	C'x	46.3	44.5	8.2	5.9	7.9	5.4	11.4	15.7	19.3	26.2	41.9	30.6			8		

Depth	6A1a Organic	6B2a Nitrogen	C/N	Carbonate	6C1a Ext.	Bulk density: hA1e	hA1h	Water content: hB1c	hB2	pH: 8C1c	8C1a

Soil Type: Peru loam
Soil No.: S62NH-5-4
Location: Grafton County, New Hampshire; Pine Hill, 1/2 mile south of Rt. 117 at point 1 1/2 miles east of Rt. 10.
Vegetation: Permanent pasture - bluegrass, timothy and weeds.
Slope: 4 percent, convex, single slope.
Erosion: moderate
Drainage: Moderately well drained.
Parent Material: Compact glacial till derived from dark colored, fine grained, metamorphic and igneous rock.
Physiography: Hill in the Connecticut River Valley uplands.
Ground Water: At 11 inches, perched above pan. Heavy rain the night before sampling.
Sampled by: E. Pedersen, S. Ross, R. Bond, C. Dellinger, T. Kelsey, and D. van der Voet.
Described by: H. Winkley

Horizon and
Beltsville
Lab. Number

Ap 0 to 6 inches. Very dark grayish brown (2.5Y 3/2) loam; weak fine granular structure; very

62486 friable; strongly acid; many roots; abrupt wavy boundary. 5 to 7 inches thick.

B2 6 to 12 inches. Olive brown (2.5Y 4/4) silt loam to loam; weak fine granular structure; very
62487 friable; strongly acid; many roots, approximately 5 percent coarse fragments less than 1/2 inch; abrupt wavy boundary. 5 to 7 inches thick.

A'2x 12 to 18 inches. Olive gray (5Y 5/2) loam with few fine faint mottles, (10YR 5/8); moderate
62488 medium platy structure; firm; strongly acid; few roots; clear wavy boundary. 3 to 8 inches

thick.

B'21x 18 to 26 inches. Olive gray (5Y 4/2) loam; moderate medium platy structure; firm; strongly
62489 acid; few thin clay films; clear smooth boundary. 7 to 10 inches thick.

B'22x 26 to 41 inches. Olive gray (5Y 4/2) loam; moderate medium platy structure breaking to
62490 moderate very fine angular blocky structure; firm; plates are brittle, shatter when pressed;

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Podunk fine sandy loam SOIL Nos. S62NH-5-5 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 62492 - 62500

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments: 2A2 ≥ 2 <76 Pct.	Coarse fragments: 2 - 19 Pct. of < 76mm	Coarse fragments: 19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-6	Ap	56.1	40.1	3.8	0.1	0.5	1.0	17.3	37.2	24.7	15.4	75.6	18.9			-		
6-12	C1	54.8	41.5	3.7	0.1	0.4	0.8	15.9	37.6	25.5	16.0	76.1	17.2			-		
12-18	C2	55.1	41.8	3.1	-	0.2	0.8	15.6	38.5	25.4	16.4	76.6	16.6			-		
18-22	C3	76.2	21.9	1.9	0.1	0.4	3.3	36.4	36.0	13.7	8.2	75.5	40.2			-		
22-27	C4	66.1	31.9	2.0	-	0.4	1.6	25.1	39.0	19.5	12.4	77.6	27.1			-		

Soil Type: Podunk fine sandy loam
Soil No.: S62NH-5-5
Location: Grafton County, New Hampshire; Shores field, 1/4 mile north of Beebe River plant and 100 yards west of railroad tracks.
Vegetation: Hayfield - timothy, bluegrass.
Slope: 0 percent, nearly level.
Erosion: None
Drainage: Moderately well drained.
Parent Material: Moderately coarse textured sediments derived from granitic and schistose rock.
Physiography: Floodplain of Pemigewasset River.
Ground Water: At 53 inches.
Sampled by: E. Pedersen, S. Ross, A. Prince, R. Bond, C. Dellinger, and D. van der Voet.
Described by: H. Winkley

Horizon and
Beltsville
Lab. Number

Ap 0 to 6 inches. Dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure;

C1 6 to 12 inches. Dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable;

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Podunk fine sandy loam SOIL Nos. S62NH-5-6 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 62501 - 62509

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments: 2A2 ≥ 2 <76 Pct.	Coarse fragments: 2 – 19 Pct. of < 76mm	Coarse fragments: 19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap1	56.7	40.1	3.2	Tr.	0.6	1.7	13.3	41.1	25.6	14.5	77.3	15.6			Tr.		
7-12	Ap2	54.9	42.0	3.1	Tr.	0.6	1.8	13.5	39.0	27.3	14.7	77.0	15.9			Tr.		
12-14	C1	35.0	63.2	1.8	Tr.	0.3	0.8	5.8	28.1	33.6	29.6	66.0	6.9			-		
14-22	C2	68.4	29.6	2.0	-	1.1	4.5	25.6	37.2	19.7	9.9	74.3	31.2			-		
22-30	C3	62.3	37.4	0.3	-	0.2	0.6	9.3	52.2	27.9	9.5	88.4	10.1			-		
30-34	IIA1b	59.3	38.1	2.6	0.1	1.1	4.9	21.2	32.0	22.9	5.2	68.9	27.3			-		
34-45	IIIC1b	87.8	11.9	0.3	Tr.	1.8	10.2	51.3	24.5	7.2	4.7	61.6	63.3			-		
45-63	IIIC2b	87.9	11.8	0.3	Tr.	0.5	4.6	54.6	28.2	7.1	4.7	70.2	59.7			-		
63-70+	IIIC3b	81.7	18.1	0.2	-	0.3	2.5	40.4	38.5	12.3	5.8	79.7	43.2			-		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron as Fe Pct.	Bulk density: 4A1e 1/3 Bar g/cc	Bulk density: 4A1h Oven Dry g/cc		Water content: 4B1c 1/3 Bar Pct.	Water content: 4B2 15 Bar Pct.			pH: 8C1c (1:1) 1N KCl	pH: 8C1a (1:1) H_2O
0-7	2.14	0.153	14			0.4	1.28	1.30		20.2	6.2			5.1	5.6
7-12	1.64	0.147	11			0.5	1.30	1.32		16.7	5.1			5.2	5.7
12-14	0.38	0.036	10			0.4					2.3			4.8	5.7
14-22	0.68	0.066	10			0.4	1.36	1.39		9.8	2.5			4.6	5.3
22-30	0.18					0.3	1.38	1.36		4.7	1.4			4.4	5.3
30-34	1.18	0.077	15			0.5	1.48	1.48		18.0	3.5			4.3	5.1
34-45	0.21					0.3	1.38	1.38		5.4	1.3			4.5	5.6
45-63	0.15					0.3	1.32	1.34		4.8	1.2			4.5	5.1
63-70+	0.14					0.3	1.38	1.38		7.3	1.4			4.5	5.0

Depth (In.)	Extractable bases: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	5B1a 6H2a Ext. Acidity	CEC: 5A3a Sum Cations			6G1d Ext. Al						Base saturation: 5C3 Sum Cations Pct.	Pct.
	meq/100 g															
0-7	5.6	0.9	Tr.	0.2	8.8	15.5			0.1						43	
7-12	4.4	0.9	Tr.	0.3	7.9	13.5			tr.						41	
12-14	1.2	0.3	Tr.	0.4	3.7	5.6			0.2						34	
14-22	0.8	0.3	Tr.	0.2	6.3	7.6			0.4						17	
22-30	0.3	0.1	Tr.	0.1	2.9	3.4			0.4						15	
30-34	1.1	0.5	Tr.	0.1	11.1	12.8			1.1						13	
34-45	0.1	0.2	Tr.	Tr.	3.3	3.6			0.4						8	
45-63	-	0.1	Tr.	Tr.	2.7	2.8			0.3						4	
63-70+	-	0.1	Tr.	0.1	3.3	3.5			0.4						6	

Depth (In.)	Ratios to Clay 8D1 Cation Exch. Capacity	15 Atmos. Moist.
0-7	4.84	1.94
7-12	4.35	1.64
12-14	3.11	1.28
14-22	3.80	1.25
22-30	3.80	4.67
30-34	4.92	1.35

Soil Type: Podunk fine sandy loam
Soil No.: S62NH-5-6
Location: Grafton County, New Hampshire; 1 mile southeast of Holderness School on Rt. 175, and 1/4 mile southwest Rt. 175 (Plymouth Quadrangle).
Vegetation: Hayfield, alfalfa, timothy, red clover.
Slope: 0 percent, nearly level.
Erosion: None
Drainage: Moderately well drained.
Parent Material: Moderately coarse textured sediments derived from granitic and schistose rock.
Physiography: Floodplain of Pemigewasset River.
Ground Water: Deep
Sampled by: E. Pedersen, S. Ross, A. Prince, R. Bond, C. Dellinger, and D. van der Voet.
Described by: H. Winkley

Horizon and Beltsville Lab. Number	
Ap1 62501	0 to 7 inches. Very dark brown (10YR 2/2) fine sandy loam; moderate medium granular structure; very friable; slightly acid; many roots; clear smooth boundary. 6 to 7 inches thick.
Ap2 62502	7 to 12 inches. Very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; friable; slightly acid; many roots; abrupt wavy boundary. 4 to 5 inches thick.
C1 62503	12 to 14 inches. Light olive gray (5Y 6/2) very fine sandy loam; weak thin platy structure; medium acid; roots are common; abrupt wavy boundary. 2 to 3 inches thick.
C2	14 to 22 inches. Dark grayish brown (10YR 4/2) loamy fine sand with few fine faint mottles
C3 62505	22 to 30 inches. Light gray (2.5Y 7/2) fine sand; massive structure; very friable; roots are common; abrupt wavy boundary. 7 to 8 inches thick.
IIA1b 62506	30 to 34 inches. Very dark grayish brown (10YR 3/2) very fine sandy loam with few medium distinct mottles (7.5YR 5/8); moderate thin platy structure; friable; strongly acid; roots are common; abrupt wavy boundary. 3 to 4 inches thick.
IIIC1b 62507	34 to 45 inches. Light yellowish brown (2.5Y 6/4) fine sand with few medium faint mottles (10YR 5/8); massive structure; very friable; strongly acid; few roots; gradual wavy boundary. 10 to 11 inches thick.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Ridgebury loam SOIL Nos. S59NH-7-5 LOCATION Merrimack County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59902 - 59908

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9	Ap	55.1	39.4	5.5	4.2	8.6	8.3	14.8	19.2	23.3	16.1	50.8	35.9			5		
9-14	A2	57.3	39.4	3.3	4.1	8.9	9.0	15.3	20.0	25.0	14.4	53.4	37.3			11		
14-18	B21	82.0	16.4	1.6	6.9	17.2	16.7	24.8	16.4	9.7	6.7	39.0	65.6			16		
18-22	B22	78.8	19.4	1.8	7.6	15.6	14.1	23.2	18.3	11.1	8.3	42.0	60.5			19		
22-31	C1x	80.0	18.3	1.7	6.6	17.2	15.8	23.6	16.8	10.7	7.6	59.9	63.2			26		
31-49	C2x	78.5	19.5	2.0	7.6	17.6	15.8	22.1	15.4	10.7	8.8	37.4	63.1			22		
49-69+	C3	71.0	22.9	6.1	6.2	15.5	13.2	19.5	16.6	11.2	11.7	38.2	54.4			14		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1a Field Moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-9	2.66	0.220	12			0.5	1.22						8.4			5.0	5.7
9-14	0.66	0.058	11			0.1	1.48						2.5			4.6	5.7
14-18	0.37	0.036	10			0.1	1.62						1.4			4.9	5.8
18-22	0.29					0.3	1.80						1.6			5.0	5.8
22-31	0.18					0.4	1.96						1.3			5.0	5.8
31-49	0.04					0.3	2.03						0.8			5.1	6.0
49-69+	0.02					0.4	2.00						3.0			4.8	6.1

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al			Ratios to clay 8P1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-9	3.6	0.2	0.1	0.1	4.0	11.6	15.8		0.1			2.87	0.09	1.53			27	
9-14	0.6	0.1	0.1	0.1	0.9	5.6	6.4		0.6			1.94	0.03	0.76			12	
14-18	0.1	tr.	0.1	0.1	0.3	4.3	4.6		0.2			2.88	0.06	0.88			6	
18-22	0.3	0.1	0.1	0.1	0.6	4.8	5.4		0.1			3.00	0.17	0.89			11	
22-31	0.1	tr.	0.1	0.1	0.3	3.7	4.1		0.1			2.41	0.24	0.76			10	
31-49	tr.	tr.	0.1	0.1	0.2	1.2	1.4		tr.			0.70	0.15	0.40			14	
49-69+	0.1	0.3	0.1	0.1	0.6	1.2	1.8		tr.			0.30	0.06	0.49			33	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Ridgebury loam
Profile No.: S59NH-7-5
Location: Idle field, ½ mile Northeast of Rd. Jct. 414, Rt. 3 (Suncook Quadrangle), Pembroke, Merrimack County, New Hampshire
Vegetation and land use: Hardhack, white pine, and ferns.
Slope and land form: 2 percent
Erosion: None
Drainage: Poorly drained
Parent Material: Glacial till from granite and schistose materials.
Physiographic position: Lower slope of uplands.
Sampled by and date: E. Pedersen, D. van der Voet, B. Brasher, A. Prince, F. Vieira, H. Winkley, T. Kelsey, and A. D. Hamilton. September 17, 1959.

Horizon and Beltsville Lab. No.	
Ap 59902	0 to 9 inches. Very dark brown (10YR 2/2) loam with weak fine granular structure; very friable; many roots; clear and wavy boundary. 8 - 11 inches thick.
A2 59903	9 to 14 inches. Light brownish gray (2.5Y 6/2) sandy loam with pockets of loamy sand to sand and fine sandy loam; mottled with strong brown (7.5YR 5/6), and red (2.5YR 4/8), mottles are common, fine, and distinct; weak, coarse platy structure; friable; few roots; clear and wavy boundary. 4 - 7 inches thick.
B21 59904	14 to 18 inches. Light olive brown (2.5Y 5/4) loamy sand with 4 percent coarse skeleton of fine gravel; mottled with yellowish red (5YR 5/8), strong brown (7.5YR 5/8), and blotches of olive (5Y 5/3), mottles are many, coarse and distinct; weak medium granular structure; friable; few roots; clear and wavy boundary. 3 - 5 inches thick.
B22 59905	18 to 22 inches. Light yellowish brown (2.5Y 6/4) fine gravelly sandy loam with pockets of coarse sand; mottled with dark reddish brown (2.5YR 3/4) and strong brown (7.5YR 5/8), mottles are many, coarse and distinct; weak coarse platy structure; firm in place, firm to friable when removed; no roots; clear and wavy boundary. 3 - 6 inches thick.
C1x 59906	22 to 31 inches. Light yellowish brown (2.5Y 6/4) fine gravelly loamy sand; mottled with dark reddish brown (2.5YR 2/4) and yellowish red (5YR 4/8 and 5/8), mottles are many, coarse, distinct; massive in place, discontinuous moderate, coarse, platy structure when removed; firm; no roots; clear and wavy boundary. 8 - 11 inches thick.
C2x 59907	31 to 49 inches. Light yellowish brown (2.5Y 6/4) fine gravelly sand or loamy sand; mottled with dark red (2.5YR 3/6), strong brown (7.5YR 5/8), and olive (5Y 5/3), mottles are many, coarse, and distinct; massive in place; weak, coarse, platy structure when removed; firm; no roots; clear and wavy boundary. 15 - 19 inches thick.
C3 59908	49 to 69 inches. Grayish brown (2.5Y 5/2) loamy sand with 5 percent coarse skeleton of fine gravel; weak, medium, platy structure; firm in place - friable when removed; no roots.

Notes: Colors are for moist soil unless indicated otherwise. The C horizon was streaked with yellowish red (5YR 5/8). Streaks decreased in number with depth.

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10-64 (Rev. 9-65)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Ridgebury loam SOIL Nos. 859NH-7-6 LOCATION Merrimack County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59909 - 59916

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	71.0	22.9	6.1	6.2	15.5	13.2	19.5	16.6	11.2	11.7	38.2	54.4			14		
8-12	B21	75.0	22.5	2.5	8.3	17.0	14.3	20.9	14.5	12.9	9.6	38.2	60.5			25		
12-23	B22g	80.9	18.0	1.1	7.1	16.1	14.8	24.3	19.6	11.0	7.0	42.6	62.3			25		
23-35	B23	83.0	16.4	0.6	8.9	18.6	15.2	23.2	17.1	10.5	5.9	40.1	65.9			22		
35-37	A'2g	68.7	27.8	3.5	5.2	13.8	12.5	20.3	16.9	13.7	14.1	41.5	51.8			10		
37-52	C1x	76.1	21.1	2.8	6.5	17.2	14.3	21.5	16.6	11.5	9.6	39.9	59.5			11		
52-60	C2x	70.0	27.6	2.4	6.4	14.0	12.0	19.6	18.0	15.2	12.4	44.0	52.0			10		
60-73+	C3	70.7	23.5	5.8	6.0	14.8	13.2	20.5	16.2	12.0	11.5	39.2	54.5			9		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4B1a Field Moist	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content:	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH:	8C1c (1:1)	8C1e (1:1)

Soil Type: Ridgebury loam
Profile No.: S59NH-7-6
Location: Gooden Farm, 20 yds. west of road Jct. 669, Pembroke Hill (Suncook Quadrangle), Pembroke, Merrimack Co., New Hampshire.
Vegetation and land use: Kentucky blue grass, ferns, witch grass, wild strawberry, and timothy.
Slope and land form: 1 percent
Erosion: None
Drainage: Poorly drained
Parent Material: Glacial till from granite and schistose materials.
Physiographic position: Lower slope of uplands.
Sampled by and date: E. Pedersen, B. Brasher, D. van der Voet, A. Prince, F. Vieira, H. Winkley, T. Kelsey, A. D. Hamilton. September 17, 1959.

Horizon and Beltsville Lab. No.	
Ap 59909	0 to 8 inches. Very dark grayish brown (10YR 3/2) loam with coarse skeleton - 1 percent; mottled with yellowish brown (10YR 5/8) and grayish brown (2.5Y 5/2), mottles are few, fine, and faint; weak medium, granular structure; friable; many roots; clear and wavy boundary. 7-8 inches thick.
B21 59910	8 to 12 inches. Light yellowish brown (2.5Y 6/4) loamy sand with 4 percent coarse skeleton; mottled with strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6), mottles are common, medium, and distinct; weak, fine, granular structure; friable; roots common; clear and wavy boundary. 4 - 5 inches thick.
B22g 59911	12 to 23 inches. Light brownish gray (2.5Y 6/2) loamy sand with 8-10 percent coarse skeleton; mottled with yellowish red (5YR 5/8) and strong brown (7.5YR 5/8); mottles are common, fine, and distinct; weak medium subangular blocky breaking to weak fine granular structure; firm in place, friable when removed; roots few; clear and wavy boundary. 10 - 11 inches thick.
B23 59912	23 to 35 inches. Pale olive (5Y 6/3) gravelly loamy sand mottled with yellowish red (5YR 4/6 and 5/8) and strong brown (7.5YR 5/6), mottles are common, fine, and distinct; weak, coarse, platy structure; firm to friable; no roots; clear and wavy boundary. 10 - 11 inches thick.
A'2g 59913	35 to 37 inches. Gray (5Y 6/1) fine sandy loam with 2-3 percent coarse skeleton; mottled with yellowish red (5YR 4/8) and strong brown (7.5YR 5/6), mottles are common, medium and distinct; massive; firm; no roots; clear and wavy boundary. 2 - 3 inches thick.
C1x 59914	37 to 52 inches. Light olive brown (2.5Y 5/4) loamy sand with 8-10 percent coarse skeleton; mottled with red (2.5YR 4/8), yellowish red (5YR 5/8), and strong brown (7.5YR 5/6), mottles are common, medium and distinct; massive in place - weak coarse platy structure when removed; firm; no roots; clear and wavy boundary. 14 - 15 inches thick.
C2x 59915	52 to 60 inches. Light yellowish brown (2.5Y 6/4) loamy sand, coarse skeleton; 2 percent, mottled with yellowish red (5YR 5/8) and strong brown (7.5YR 5/8); mottles are common, medium, distinct; massive in place - weak, coarse platy structure when removed; firm; no roots; clear and wavy boundary. 7 - 8 inches thick.
C3 59916	60 to 73 inches. Olive gray (5Y 5/2) sandy loam with 3 percent coarse skeleton of fine gravel; mottled with strong brown (7.5YR 5/8) mottles are few, fine, and faint; moderate, medium, platy structure in upper C; firm; tendency toward some platiness in lower C but more friable than upper C.

Notes: Colors are for moist soil unless indicated otherwise. The A'2g horizon appears to be eluviated on top of the pan. The wavy boundary of this horizon follows the top of the pan.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Ridgebury loam SOIL Nos. S62NH-1-1 LOCATION Belknap County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 62448 - 62454

Depth (In.)	Horizon	1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) — Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)	Coarse fragments: 2A2 > 2 <76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm													Pct. of < 76mm	
0-6	Ap	54.7	34.9	10.4	3.3	10.4	9.8	17.2	14.0	18.1	16.8	41.9	40.7	4		
6-14	A21g	65.2	27.1	7.7	6.6	13.0	11.3	19.4	14.9	15.5	11.6	41.3	50.3	28		
14-31	A22g	68.9	24.8	6.3	8.8	13.9	11.1	20.4	14.7	12.1	12.7	37.8	54.2	12		
14-22	B21	63.2	24.3	12.5	5.3	11.4	10.8	20.7	15.0	11.4	12.9	38.1	48.2	9		
22-39	B22x	58.4	27.9	13.7	4.3	9.9	9.1	20.2	14.9	12.7	15.2	38.8	43.5	8		
39-50	B3x	51.6	34.5	13.9	4.8	8.7	7.5	16.2	14.4	15.1	19.4	38.5	37.2	7		
50-65+	Cx	47.9	39.1	13.0	3.8	7.2	6.7	15.4	14.8	17.9	21.2	42.0	33.1	5		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N	Carbonate as $CaCO_3$	6C1a Ext. Iron as Fe	Bulk density: 4A1e 1/3 Bar	4A1h Oven Dry	Water content: 4B1c 1/3 Bar	4B2 15 Bar	pH: 8C1c (1:1) 1N KCl	8C1a (1:1) H_2O
	Pct.	Pct.		Pct.	Pct.	g/cc	g/cc	Pct.	Pct.	Pct.	
0-6	3.50	0.232	15		0.7	0.96	1.14	43.2	9.6	4.0	4.7
6-14	0.10				0.6	1.74	1.74	11.0	2.3	4.0	5.1
14-31	0.06				0.6	1.92	1.91	8.8	2.4	4.2	5.3
14-22	0.11				1.3	1.87	1.88	11.5	5.1	4.1	5.2
22-39	0.02				1.2	1.90	1.92	12.5	5.8	4.2	5.3
39-50	0.07				1.0	1.90	1.92	13.7	6.2	4.2	5.4
50-65+	0.07				1.1	1.88	1.90	14.3	6.4	4.2	5.5

Depth (In.)	Extractable bases: 6N2d Ca	6O2b Mg	6P2a Na	5B1a 6Q2a K	6H2a Ext. Acidity	CEC: 5A3a Sum Cations	6G1d Ext. Al	Base saturation: 5C3 Sum Cations
	meq/100 g							Pct.
0-6	2.8	0.7	0.1	0.2	13.7	17.5	1.2	22
6-14	0.7	0.1	Tr.	Tr.	2.9	3.7	0.6	22
14-31	0.5	0.2	Tr.	Tr.	2.1	2.8	0.2	25
14-22	0.9	0.2	0.1	0.1	4.1	5.4	0.3	24
22-39	1.2	0.5	0.1	0.2	4.0	6.0	0.2	33
39-50	1.5	0.7	0.1	0.2	4.8	7.3	0.4	34
50-65+	1.7	0.8	0.1	0.2	4.7	7.5	0.3	37

Depth (In.)	Ratios to Clay: 8D1 Cation Exch. Capacity	15 Atmos. Moist.
0-6	1.68	0.92
6-14	.48	.30
14-31	.44	.38
14-22	.43	.40
22-39	.44	.42
39-50	.52	.45
50-65+	.58	.49

Soil Type: Ridgebury loam
Soil No.: S62 NH-1-1
Location: Belknap County, New Hampshire; Carlson Farm, 1-1/2 miles southeast of Loon Pond along Rt. 107, and 100 yards northeast of Rt. 107.
Vegetation: Idle field, red top, bluegrass, mowed to keep open.
Slope: 4 percent, concave single slope.
Erosion: None
Drainage: Poorly drained.
Parent Material: Compact gracial till derived from schistose and granitic rock.
Physiography: Depression in lower slope of drumlin.
Ground Water: At 34 inches.
Sampled by: E. Pedersen, S. Ross, R. Bond, D. van der Voet, and C. Breeding.
Described by: H. Winkley

Horizon and
Beltsville
Lab. Number

Ap
62448 — 0 to 6 inches. Verk dark gray (10YR 3/1) loam; moderate medium granular structure; friable; many roots; clear wavy boundary. 6 to 8 inches thick.

A21g
62449 — 6 to 14 inches. Gray (5Y 5/1) sandy loam with common fine distinct mottles (7.5YR 5/8); weak thin platy structure; friable; many roots, approximately 20 percent coarse fragments, 1/2 to 2"; clear wavy boundary, 7 to 8 inches thick.

A22g
62450 — 14 to 31 inches. Gray (5Y 6/1) loamy sand with common fine distinct mottles (7.5YR 5/8); massive structure with tendency to weak thin platy structure in lower part of horizon; friable; roots are common; abrupt irregular boundary. 9 to 17 inches thick.

B21
62451 — 14 to 22 inches. Dark grayish brown (2.5Y 4/2) loam with few fine faint mottles (7.5YR 5/8); weak fine angular blocky structure; friable; roots are common; clear, irregular boundary. 0 to 8 inches thick.

B22x
62452 — 22 to 39 inches. Dark grayish brown (2.5Y 4/2) loam; moderate medium platy structure; very firm; a few roots along prism faces; clear wavy boundary. 15 to 20 inches thick.

B3x
39 to 50 inches. Dark grayish brown (2.5Y 4/2) loam; moderate thick platy structure; very

62453 — firm; few roots; clear smooth boundary. 10 to 11 inches thick.

Cx
62454 — 50 to 65 inches. Dark grayish brown (2.5Y 4/2) loam; massive structure breaking to moderate thick platy structure; very firm; approximately 5 percent coarse fragments less than 1/2", 10 to 15 percent stones discarded between 3 to 10 inches, manganese stains between plates.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Ridgebury loam SOIL Nos. S62NH-1-2 LOCATION Belknap County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 62455 - 62462

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt (0.05–0.02)	Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			2A2 Coarse fragments >2 <76 Pct.	2 - 19 Pct. of <76mm	19 - 76 Pct. of <76mm
		Pct. of < 2 mm																
0-7	Ap	60.9	32.1	7.0	6.2	11.0	8.7	16.9	18.1	19.4	12.7	46.8	42.8			12		

Soil Type: Ridgebury loam
Soil No.: S62NH-1-2
Location: Belknap Bounty, New Hampshire; Currier Farm, 1 3/4 miles southeast Lochmere substation, 50 feet southwest of road.
Vegetation: Hayfield, timothy, bluegrass, reeds, sedges, and ferns.
Slope: 5 percent, concave, single slope.
Erosion: None to slight
Drainage: Poorly drained.
Parent material: Compact glacial till derived from schistose and granitic rock.
Physiography: Depression in drumlin.
Groundwater: 34 inches.
Sampled by: E. Pedersen, S. Ross, R. Bond, D. van der Voet, and C. Breeding.
Described by: H. Winkley

Horizon and Beltsville Lab. Number	
Ap 62455	0 to 7 inches. Very dark gray (10YR 3/1) loam; moderate fine granular structure; friable; medium acid; many roots, approximately 5 percent coarse fragments less than 1/4 inch, reddish brown root stains along roots; abrupt wavy boundary. 6 to 8 inches thick.
A2 62456	7 to 12 inches. Light gray (5Y 6/1) sandy loam with many medium prominent mottles (5YR 4/8); moderate medium platy structure; friable; roots are common; abrupt wavy boundary. 4 to 6 inches thick.
B21 62457	12 to 18 inches. Light olive brown (2.5Y 5/4) sandy loam with many medium prominent mottles (5Y 6/1 and 7.5YR 5/8); weak medium platy structure; friable; roots are common; clear wavy boundary. 5 to 7 inches thick.
B22x 62458	18 to 23 inches. Light olive brown (2.5Y 5/4) gravelly sandy loam; massive structure; very firm; few roots along faces of prism, approximately 25 percent coarse fragments less than 1/2 inch; clear wavy boundary. 4 to 6 inches thick.
B31x 62459	23 to 32 inches. Light olive brown (2.5Y 5/4) gravelly sandy loam; moderate medium platy structure; very firm; 20 percent coarse fragments less than 1/4 inch; clear wavy boundary. 8 to 10 inches thick.
B32x 62460	32 to 40 inches. Light olive brown (2.5Y 5/4) gravelly sandy loam; moderate medium platy structure; very firm; 20 percent coarse fragments less than 1/2 inch; clear wavy boundary. 7 to 8 inches thick.
B33x 62461	40 to 50 inches. Olive brown (2.5Y 4/4) gravelly sandy loam; moderate medium platy structure; very firm; 20 percent coarse fragments less than 1/4 inch; clear wavy boundary. 9 to 11 inches thick.
Cx 62462	50 to 61 inches. Olive brown (2.5Y 4/4) gravelly sandy loam; moderate medium platy structure; very firm; 20 percent coarse fragments less than 1/4 inch.

Notes: Many gray polygon streaks started in the B22x and extended through the bottom of the pit. The streaks were 5Y 6/1 outlined with 5YR 4/8. About 20 percent of the B31x had gray streaks. Ten percent of the B32x and the B33x had gray streaks. The Cx had about 5 percent gray streaks. There were manganese stains between the plates in the Cx horizon. Twenty-five percent of the stones, greater than 3" and less than 10" were discarded in the B33x horizon.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Saugatuck loamy sand SOIL Nos. S59NH-7-2 LOCATION Merrimack County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59880 - 59887

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-10	Ap	69.7	24.9	5.4	0.7	8.5	16.4	27.8	16.3	13.4	11.5	44.1	53.4			tr.		
10-19	A2g	86.5	10.1	3.4	0.8	11.7	25.5	36.4	12.1	6.1	4.0	35.1	74.4			5		
19-23	B21ir	96.2	2.8	1.0	6.9	34.9	34.8	17.5	2.1	0.9	1.9	8.4	94.1			5		
23-29	B22ir	96.1	2.8	1.1	2.0	23.9	40.2	25.9	4.1	1.3	1.6	14.5	92.0			2		
29-37	B31	97.9	1.4	0.7	0.1	16.4	39.6	37.1	4.7	0.7	0.7	20.1	93.2			tr.		
37-45	B32	97.8	1.5	0.7	0.2	22.8	39.5	31.2	4.1	0.6	0.9	16.0	93.7			tr.		
45-59	B33	98.3	1.1	0.6	-	15.1	41.6	38.4	3.2	0.8	0.3	17.0	95.1			tr.		
59-63+	C	88.5	10.6	0.8	13.2	31.3	17.3	16.9	9.8	6.1	4.6	24.2	78.7			9		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1a Field Moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B1a 1/10 bar Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-10	2.55	0.161	16			0.1	1.48						5.5			3.9	4.1
10-19	0.38	0.051	7			0.3	1.62				8.3		2.3			4.3	4.5
19-23	0.64	0.043	15			1.0	1.84				7.6		2.6			4.7	4.8
23-29	0.33					1.1	1.76				4.7		1.4			4.8	4.8
29-37	0.19					0.6	1.73				2.7		1.3			4.8	5.0
37-45	0.16					0.4	1.74				2.1		1.1			4.8	4.9
45-59	0.14					0.3	1.75				2.0		1.0			4.8	5.0
59-63+	0.06					0.3					5.6		1.3			4.8	4.8

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-10	0.7	1.0	0.3	0.1	1.2	8.2	9.3		1.2		1.72	0.02	1.02			12	
10-19	0.1	tr.	0.1	tr.	0.2	4.5	4.8		1.0		1.41	0.09	0.68			4	
19-23	0.1	tr.	0.1	tr.	0.2	8.1	8.3		0.5		8.30	1.00	2.60			2	
23-29	tr.	tr.	0.1	tr.	0.1	5.4	5.5		0.3		5.00	1.00	1.27			2	
29-37	tr.	tr.	0.1	tr.	0.1	3.3	3.4		0.2		4.86	0.86	1.86			3	
37-45	tr.	tr.	0.1	tr.	0.2	3.7	3.9		0.2		5.57	0.57	1.57			5	
45-59	tr.	tr.	0.1	tr.	0.1	2.7	2.8		0.2		4.67	0.50	1.67			4	
59-63+	tr.	tr.	0.1	tr.	0.1	1.6	1.7		0.2		2.12	0.38	1.62			6	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Saugatuck loamy sand
Soil No.: S59NH-7-2
Location: Merrimack County, New Hampshire. Currier Farm, 1/4 mile south of Route 28 at east side of Route 3, Allenstown
Vegetation and land use: Sedges
Slope and land form: 2 percent.
Erosion: None
Drainage: Poorly drained
Parent material: Glacial outwash, principally from granite and granitic gneiss
Physiographic position: Depression in outwash plain
Collected by and date: E. Pedersen, B. Brasher, J. Kubota, A. Prince, D. van der Voet, E. Hutchinson, T. Kelsey. September 14, 1959
Described by: S. Pilgrim and H. Winkley

Horizon and Beltsville Lab. Nos.	
Ap 59880	0 to 10 inches. Very dark gray (10YR 3/1) loamy fine sand with weak fine granular structure; friable when moist; common reddish brown root stains along root channels; many roots; lower boundary abrupt and smooth with occasional tongues of Ap extending into the A2. 9-10 inches thick.
A2g 59881	10 to 19 inches. Gray (10YR 5/1) loamy fine sand with common reddish brown root stains along root channels; weak fine granular structure; friable when moist; few roots; lower boundary is abrupt and smooth. 8-10 inches thick.
B21ir 59882	19 to 23 inches. Dark reddish brown (2.5YR 3/4) medium sand banded with yellowish brown (10YR 5/8); massive structure; extremely firm in place, very firm when removed and moist; no roots; lower boundary clear and wavy. 3-6 inches thick.
B22ir 59883	23 to 29 inches. Dark reddish brown (2.5YR 3/4) medium sand banded with yellowish brown (10YR 5/8); massive structure; extremely firm in place, very firm when removed and moist; no roots; lower boundary clear and wavy. 5-7 inches thick.
B31 59884	29 to 37 inches. Strong brown (7.5YR 5/8) medium sand spotted with many fine dark brown spots; massive structure; very firm in place, firm when removed and moist; no roots; lower boundary clear and wavy. 6-9 inches thick.
B32 59885	37 to 45 inches. Brownish yellow (10YR 6/8) medium sand spotted with many fine dark brown spots; massive structure; very firm in place, firm when removed and moist; no roots; lower boundary abrupt and smooth. 6-9 inches thick.
B33 59886	45 to 59 inches. Brownish yellow (10YR 6/6) medium sand spotted with many fine dark brown spots; massive structure; firm when moist; no roots; lower boundary clear and wavy. 12-16 inches thick.
C 59887	59 to 63 inches. Light yellowish brown (2.5Y 6/4) medium sand with 3 percent coarse fragments 2mm-1/4 inch in size, mottled with strong brown (7.5YR 5/8), mottles are common, medium and distinct; weak fine granular structure; friable when moist; no roots.

Notes: Colors are for moist soil unless indicated otherwise. The 0 to 10, 19 to 23, and the 29 to 37 inch zones were sampled for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Scituate fine sandy loam SOIL Nos. 856NH-9-1 LOCATION Strafford County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561163 - 561170

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm															Pct. of < 76mm	
0-7	Ap	65.9	28.0	6.1	4.2	12.7	11.7	21.5	15.8	14.0	14.0	41.4	50.1			11		
7-13	B21	68.6	27.3	4.1	4.4	12.9	11.0	21.8	18.5	14.8	12.5	45.9	50.1			8		
13-18	B22g	76.7	20.5	2.8	5.2	13.1	12.6	25.6	20.2	13.2	7.3	48.3	56.5			12		
18-24	B'21gx	72.4	23.5	4.1	4.9	13.2	12.0	23.9	18.4	13.9	9.6	45.7	54.0			13		
24-33	B'22gx	73.3	23.1	3.6	5.3	14.2	12.0	23.0	18.8	13.2	9.9	45.3	54.5			10		
33-42	B'23gx	71.1	25.1	3.8	4.0	13.8	12.0	23.5	17.8	15.6	9.5	46.6	53.3			14		
42-55	B'24gx	72.2	23.9	3.9	5.1	13.4	12.0	23.7	18.0	13.5	10.4	45.4	54.2			10		
55-62	B'25gx	75.8	20.8	3.4	6.2	14.7	12.4	24.2	18.3	12.9	7.9	45.0	57.5			18		

Depth (In.)	6A1a Organic carbon	6H1a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1e ⅓ bar	Bulk density: 4A1h Oven dry	4D1 COLE	Water content: 4B1c ⅓ bar	Water content: 4B2 15 bar		4C1 WRD	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.	Pct.	in/in		
0-7	3.21	0.204	16			0.7									5.2
7-13	0.73	0.057	13			0.6									5.2
13-18	0.25	0.028				0.4									5.5
18-24	0.07	0.010				0.4									5.6
24-33	0.05	0.009				0.4									5.6
33-42	0.02	0.005				0.4									5.8
42-55	0.02	0.006				0.5									5.8
55-62	0.02	0.007				0.4									5.9

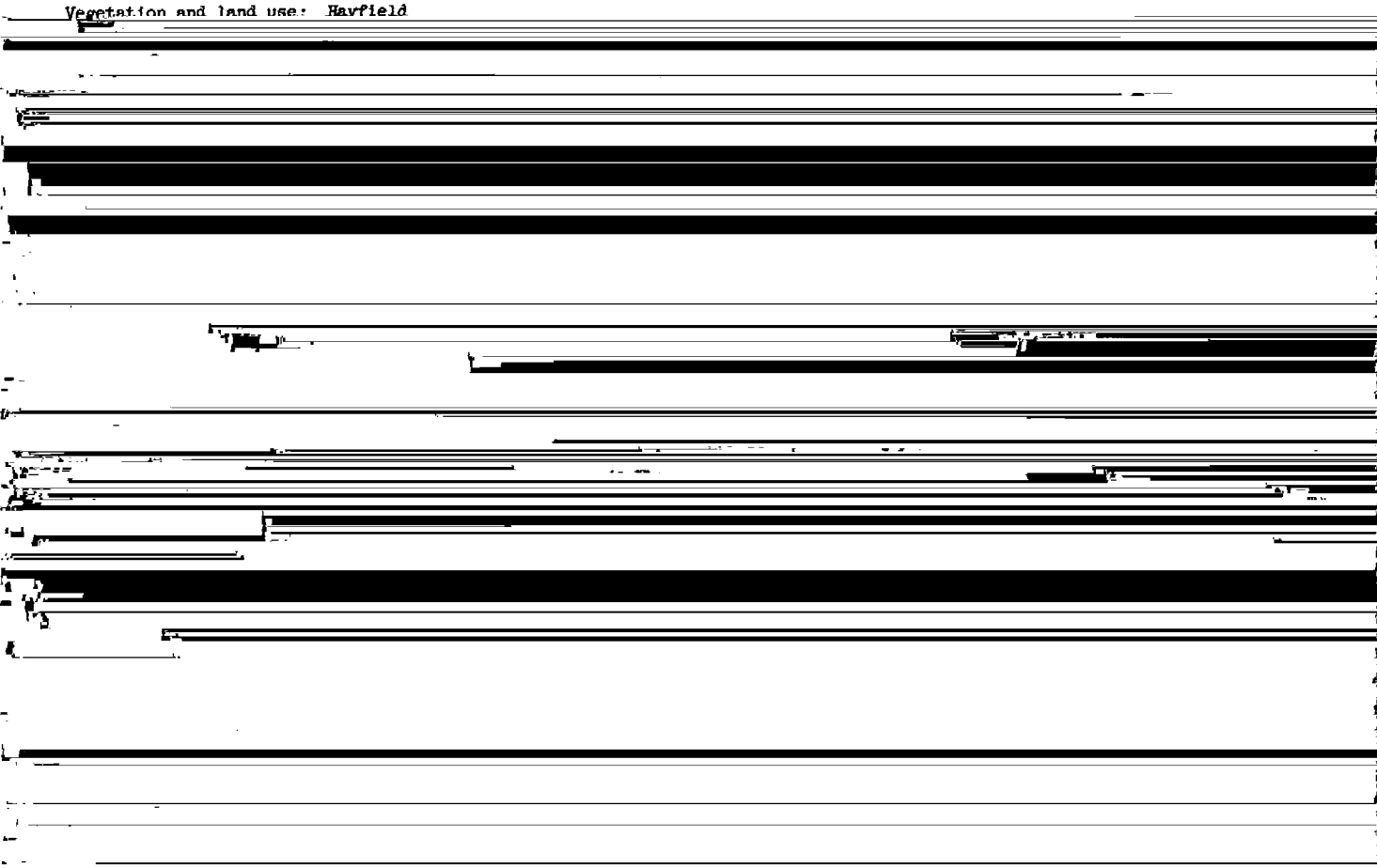
Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g															Pct.	
0-7	2.0	0.1	0.1	0.2	2.4	17.5	19.9				3.26	0.11				12	
7-13	0.2	tr.	0.1	0.1	0.4	9.0	9.4				2.29	0.15				4	
13-18	0.4	0.2	0.1	0.1	0.8	3.8	4.6				1.64	0.14				17	
18-24	0.2	0.2	tr.	0.1	0.5	3.2	3.7				0.90	0.10				14	
24-33	0.6	tr.	tr.	0.1	0.7	2.8	3.5				0.97	0.11				20	
33-42	0.6	0.1	0.1	0.1	0.9	1.8	2.7				0.71	0.10				33	
42-55	0.7	0.2	0.1	0.1	1.1	1.8	2.9				0.76	0.13				38	
55-62	0.6	0.1	0.1	0.1	0.9	1.6	2.5				0.74	0.12				36	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Scituate fine sandy loam
Soil No.: S56NH-9-1
Location: Strafford County, New Hampshire. Samples collected on the George Pray farm on the Salmon Falls Road. Pit was dug in a hayfield directly behind the barn approximately 50 feet from eastern edge of the field above woods.
Vegetation and land use: Hayfield



Described by: H. E. Winkley, L. H. Gile, Jr., and L. E. Garland.

Horizon and Beltsville Lab. No.	
Ap 561163	0 to 7 inches. Dark brown (10YR 3/3, moist) fine sandy loam with 5-10 percent coarse skeleton; weak medium granular structure; friable, many roots; clear and wavy boundary; 6-8 inches thick.
B21 561164	7 to 13 inches. Dark yellowish brown (10YR 4/4, moist) fine sandy loam with 5-10 percent coarse skeleton; weak medium subangular blocky clods averaging 1-2 inches in size; friable; roots common; clear and wavy boundary; 7-9 inches thick.
B22g 561165	13 to 18 inches. Yellowish brown (10YR 5/8, moist) fine sandy loam with 10-20 percent coarse skeleton; weak medium subangular blocky clods averaging 1-2 inches in size; friable; matrix is yellowish brown (10YR 5/8, moist) with common medium distinct mottles of yellowish red (5YR 4/8, moist) with common medium distinct mottles of yellowish red (5YR 4/8, moist); few roots; abrupt and wavy boundary; 5-7 inches thick.
B'21gx 561166	18 to 24 inches. Light brownish gray (10YR 6/2, moist) sandy loam with 20-30 percent coarse skeleton; weak medium platy structure; firm; matrix is light brownish gray (10YR 6/2, moist) with many coarse distinct mottles of dark yellowish brown (10YR 4/8, moist); no roots; diffuse boundary; 10-14 inches thick.
B'22gx 561167	24 to 33 inches. Grayish brown (2.5Y 5/2, moist) sandy loam with 20-30 percent coarse skeleton; moderate medium platy structure; coatings of light olive brown (2.5Y 5/4, moist) on exterior of plates; firm; no roots; diffuse boundary; 12 inches thick.
B'23gx 561168	33 to 42 inches. Slightly grayer than above horizon (2.5Y 5/1, moist) sandy loam with 20-30 percent coarse skeleton; moderate medium platy structure; coatings of very dusky red (2.5YR 2/2, moist) on ped faces; firm; no roots; diffuse boundary; 10 inches thick.
B'24gx 561169	42 to 55 inches. Grayish brown (2.5Y 5/2, moist) sandy loam with 20-30 percent coarse skeleton; strong medium platy structure; some of ped faces have 2 coatings of brown (10YR 5/3, moist) and light olive brown (2.5Y 5/4, moist) over a matrix of grayish brown (2.5Y 5/2, moist).
B'25gx	55 to 62 inches. Similar to horizon above.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Scituate fine sandy loam SOIL Nos. 859NH-7-3 LOCATION Merrimack County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59888 - 59894

Depth (In.)	Horizon	18l b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap	55.4	40.3	4.3	3.0	7.5	6.7	15.7	22.5	23.3	17.0	52.1	32.9			6		
7-11	B21	65.4	32.9	1.7	5.8	12.3	10.6	16.3	20.4	20.8	12.1	50.5	45.0			10		
11-19	B22	69.3	28.9	1.8	6.9	13.7	11.3	18.1	19.3	17.6	11.3	46.8	50.0			11		
19-30	IIA'2g	85.1	14.7	0.2	6.7	16.8	16.5	26.5	18.6	9.2	5.5	41.7	66.5			19		
30-34	IIC1	86.6	13.4	0.0	9.6	19.6	17.2	24.6	15.6	1.1	12.3	29.6	71.0			28		
34-39	IIC2x	75.3	21.9	2.8	8.4	15.3	13.8	21.3	16.5	18.3	3.6	46.8	58.8			13		
39-55+	IIC3x	77.3	17.1	5.6	9.7	18.2	13.8	22.7	12.9	8.9	8.2	35.1	64.4			16		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1a Field Moist g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	401 COLE	Water content: 4B1a 1/10 bar Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-7	3.85	0.305	10			0.9	0.99				37.7		9.4			4.5	4.6
7-11	0.64	0.069	9			0.6	1.45				22.3		4.2			5.2	5.4
11-19	0.39	0.059	7			0.4	1.45				19.9		3.6			5.3	5.4
19-30	0.10					0.2	2.04				7.9		1.3			5.2	5.5
30-34	0.08					0.1	1.95				7.5		0.8			5.2	5.6
34-39	0.04					0.1	2.08				10.8		1.6			5.2	5.4
39-55+	0.02					0.2	2.04				11.3		2.7			4.9	5.4

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-7	0.4	0.1	0.1	0.2	0.8	19.7	20.5		0.3		4.77	0.21	2.19			4	
7-11	0.2	tr.	0.1	0.1	0.4	6.6	7.0		0.1		4.11	0.35	2.47			6	
11-19	0.2	tr.	0.1	0.1	0.4	5.8	6.2		tr.		3.44	0.22	2.00			6	
19-30	tr.	tr.	tr.	0.1	0.1	2.1	2.2		tr.		11.00	1.00	6.50			4	
30-34	tr.	tr.	tr.	0.1	0.1	1.2	1.3		tr.		-	-	-			8	
34-39	tr.	tr.	0.1	0.1	0.1	1.6	1.7		tr.		0.61	0.04	0.57			6	
39-55+	0.1	tr.	0.1	0.1	0.3	2.6	2.9		0.2		0.52	0.04	0.48			10	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Scituate fine sandy loam
Profile No.: S59NH-7-3
Location: Chickering Farm, on Pembroke Hill, ½ mile Northwest of CR. 669 (Suncook Quadrangle), Pembroke, Merrimack County, New Hampshire.
Vegetation and land use: Hayfield, consisting of mosses, wild strawberry, ferns, hardhack and bluegrass.
Slope and land form: 5 percent.
Erosion: Moderate
Drainage: Moderately well drained
Parent Material: Glacial till, from granitic and schistose materials.
Physiographic position: Glacial uplands
Sampled by and date: E. Pedersen, B. Brasher, J. Kubota, A. Prince, D. van der Voet, T. Kelsey, F. Vieira. September 16, 1959.
Described by: A. Hamilton and H. Winkley.

Horizon and Beltsville Lab. No.	
Ap 59888	0 to 7 inches. Dark brown (10YR 3/3) with streaks of very dark brown (10YR 2/2) 2 percent coarse fragments 2mm - 1/4 inch in size, very fine sandy loam with weak, fine, granular structure; friable when moist; many roots; lower boundary abrupt and wavy. 6 - 9 inches thick.
B21 59889	7 to 11 inches. Yellowish brown (10YR 5/4) sandy loam with 5 percent coarse fragments about 4 inches in diameter; weak, fine granular structure; very friable when moist; many roots; lower boundary clear and wavy. 0 - 5 inches thick. This horizon was discontinuous on four faces of pit.
B22 59890	11 to 19 inches. Dark yellowish brown (10YR 4/4) sandy loam with 10 percent coarse fragments 2mm to 1/2 inches in size; weak, fine granular structure; friable when moist; roots are common; lower boundary clear and wavy. 6-9 inches thick.
II A'2g 59891	19 to 30 inches. Light brownish gray (2.5Y 6/2) fine gravelly loamy sand with streaks of strong brown (7.5YR 5/6); 20 percent coarse fragments of fine gravel; massive in place breaking to weak coarse platy structure when removed; friable when moist; few roots; lower boundary clear and wavy. 9 - 12 inches thick.
IIC1 59892	30 to 34 inches. Light brownish gray (2.5Y 6/2) fine gravelly coarse sand with streaks of strong brown (7.5YR 5/6); weak, medium granular structure; very friable when moist; no roots; lower boundary abrupt and smooth. 3 - 4 inches thick.
IIC2x 59893	34 to 39 inches. Olive gray (5Y 5/2) fine gravelly loamy sand with moderate, coarse platy structure; extremely firm in place, very firm when removed, moist; no roots; lower boundary clear and wavy. 4 - 6 inches thick.
IIC3x 59894	39 to 55 inches. Olive gray (5Y 5/2) fine gravelly loamy sand; massive in place weak, medium platy structure when removed; extremely firm in place, very firm when removed, moist; no roots.

Notes: Colors are for moist soil unless indicated otherwise. The 0 to 7, 11 to 19, and 39 to 55 inch zones were sampled for the Bureau of Public Roads. Stones throughout the profile have caps of fine sand and silt. The bottom of the stones are clean.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Scituate fine sandy loam SOIL Nos. 859NH-7-4 LOCATION Merrimack County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59895 - 59901

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt 0.05–0.02	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-10	Ap	62.8	31.0	6.2	5.8	12.4	10.8	18.2	15.6	19.6	11.4	44.6	47.2			20		
10-17	B21	75.5	21.9	2.6	5.5	14.4	13.7	23.4	18.5	14.0	7.9	45.7	57.0			19		
17-22	B22	81.9	16.3	1.8	7.1	17.1	15.7	24.7	17.3	10.7	5.6	41.1	64.6			13		
22-33	B3	81.6	16.2	2.2	6.3	15.5	15.7	25.9	18.2	1.6	14.6	33.6	63.4			8		
33-42	C1x	76.7	20.7	2.6	8.4	17.0	14.3	21.4	15.6	10.8	9.9	37.6	61.1			16		
42-62	C2x	80.4	16.7	2.9	11.7	19.7	15.1	21.1	12.8	8.4	8.3	32.0	67.6			18		
62-70+	C3	84.2	13.1	2.7	9.2	18.6	17.6	24.9	13.9	7.4	5.7	34.0	70.3			37		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density 4A1a Field Moist g/cc	Bulk density 4A1e ⅓ bar g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content 4B1a 1/10 bar Pct.	Water content 4B1c ⅓ bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
0-10	2.23	0.226	9			0.8	1.30				28.0		8.7			5.5	5.7
10-17	0.52	0.061	8			0.4	1.51				14.1		2.8			5.5	5.9
17-22	0.20					0.1	1.77				8.6		1.4			5.4	5.9
22-33	0.13					0.1	2.00				8.8		1.1			5.2	5.9
33-42	0.08					0.1	1.99				10.8		1.1			5.3	5.9
42-62	0.06					0.1	2.08				9.1		0.8			5.2	6.0
62-70+	0.06					0.2					7.8		1.1			5.3	5.8

Depth (in.)	Extractable bases 5B1a 6N2d Ca meq/100 g	6O2b Mg meq/100 g	6P2a Na meq/100 g	6Q2a K meq/100 g	Sum meq/100 g	6H2a Ext. acidity meq/100 g	CEC 5A3a Sum cations meq/100 g	CEC	6G1d Ext. Al meq/100 g		Ratios to clay 8D1 CEC Sum	Ratios to clay 8D1 Ext. iron	Ratios to clay 8D1 15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	Base saturation 5C1 NH_4OAc Pct.
0-10	4.1	0.4	0.1	0.1	4.7	13.2	17.9		tr.		2.89	0.13	1.40			26	
10-17	1.3	0.1	tr.	0.1	1.5	5.1	6.6		tr.		2.54	0.15	1.08			23	
17-22	0.4	0.1	tr.	0.1	0.6	2.7	3.3		tr.		1.83	0.06	0.78			18	
22-33	0.2	tr.	tr.	0.1	0.3	2.1	2.4		tr.		1.09	0.04	0.50			12	
33-42	0.1	tr.	0.1	0.1	0.3	1.9	2.1		tr.		0.81	0.04	0.42			11	
42-62	0.2	0.1	0.1	0.1	0.5	1.0	1.4		tr.		0.48	0.03	0.28			27	
62-70+	0.1	tr.	0.1	0.1	0.3	1.2	1.5		tr.		0.56	0.07	0.41			20	

Depth (in.)	Clay Fraction Analysis 7A1b-d Mt. (7A2 X-ray)	Chl. (7A2 X-ray)	Vm. (7A2 X-ray)	Mi. (7A2 X-ray)	Int. (7A2 X-ray)	Qtz. (7A2 X-ray)	Kl. (7A3)	Gibbsite (7A3)	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Scituate fine sandy loam
Profile No.: S59NH-7-4
Location: Idle field, on Church Road, ½ mile Northeast of Road Jct. 414, Rt. 3, (Suncook Quadrangle), Pembroke, Merrimack County, New Hampshire.
Vegetation and land use: Idle field consisting of hardhack, goldenrod, bluegrass, white pine 4 feet in height.
Slope and land form: 4 percent
Erosion: Moderate
Drainage: Moderately well drained
Parent Material: Glacial till from granitic and schistose materials.
Physiographic position: Lower slope of uplands.
Sampled by and date: E. Pedersen, B. Brasher, J. Kubota, A. Prince, D. van der Voet, T. Kelsey, F. Vieira.
Described by: A. Hamilton and H. Winkley.

Horizon and Beltsville Lab. No.	
Ap 59895	0 to 10 inches. Dark brown (10YR 3/3) fine sandy loam with weak fine granular structure; very friable when moist; many roots; lower boundary abrupt and wavy. 8 - 10 inches thick.
B21 59896	10 to 17 inches. Dark brown (7.5YR 4/4) in upper part of horizon grading to strong brown (7.5YR 5/6) in lower part of horizon sandy loam, 3 percent coarse fragments 2mm to 2 inches in size with weak fine granular structure; very friable when moist; roots are common; lower boundary clear and wavy. 0 - 7 inches thick.
B22 59897	17 to 22 inches. Light yellowish brown (2.5Y 6/4) fine gravelly loamy sand with spots of very dark brown (10YR 2/2), mottled with yellowish brown (10YR 5/8), mottles are many medium and faint; weak, fine granular structure; very friable when moist; few roots; lower boundary clear and wavy. 4 - 6 inches thick.
B3 59898	22 to 33 inches. Light yellowish brown (2.5Y 6/4) fine gravelly loamy sand, mottled with strong brown (7.5YR 5/8) mottles are many, coarse and distinct; massive in place, weak fine granular structure when removed; friable when moist; no roots; lower boundary clear and wavy. 10 - 12 inches thick.
C1x 59899	33 to 42 inches. Light brownish gray (2.5Y 6/2) gravelly loamy sand, mottled with strong brown (7.5YR 5/8) mottles are many, medium and distinct; weak, medium, platy structure; firm to friable when moist; no roots; lower boundary clear and wavy. 8 - 10 inches thick.
C2x 59900	42 to 62 inches. Light brownish gray (2.5Y 6/2) fine gravelly sandy loam, with lenses of coarse sand, mottled with yellowish brown (10YR 5/8), mottles are common, medium and faint; weak, coarse platy structure; very firm in place, firm when removed; no roots; lower boundary clear and smooth. 19 - 20 inches thick.
C3 59901	62 to 70 inches. Dark grayish brown (2.5Y 4/2) gravelly coarse sand, with occasional pockets of very fine sandy loam; weak fine granular structure; very friable when moist; no roots.

Notes: Colors are for moist soil unless indicated otherwise. Stones throughout the pit had caps of silt and fine sand. Bottoms of the stones were clean. The 0 to 10, 17 to 22, and 42 to 62 inch zones were sampled for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Suffield silt loam SOIL Nos. 957NH-9-1 LOCATION Strafford County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 571014 - 571022

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 - 19 Pct. of < 76mm	19 - 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9	Ap	52.5	37.0	10.5	1.4	6.9	8.8	18.8	16.6	19.3	17.7	46.1	35.9			2		
9-11	A2	45.3	42.3	12.4	1.1	5.7	7.0	16.4	15.1	19.4	22.9	44.1	30.2			2		
11-15	B21	39.9	46.7	13.4	1.0	4.1	5.4	14.6	14.8	21.1	25.6	44.3	25.1			1		
15-18	B22g	42.6	45.5	11.9	0.9	4.1	5.4	15.5	16.7	22.8	22.7	48.6	25.9			2		
18-22	A'2	28.4	47.6	24.0	0.3	2.1	3.0	9.9	13.1	18.4	29.2	37.4	15.3			tr.		
22-30	B'21	10.8	47.4	41.8	0.1	0.6	0.8	3.4	5.9	11.7	35.7	19.6	4.9			-		
30-38	B'22	7.2	44.7	48.1	0.0	0.3	0.3	1.6	5.0	10.1	34.6	16.1	2.2			-		
38-45	C	6.6	46.9	46.5	0.0	0.2	0.3	1.6	4.5	11.4	35.5	17.0	2.1			-		
45-55+	C2	9.0	45.5	45.5	0.0	0.2	0.3	1.9	6.6	12.6	32.9	20.6	2.4			-		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1a Field Moist	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content:	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH: 8C1c (1:1)	8C1a (1:1)
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		in/in	KCl	H_2O
0-9	2.06	0.170	12			1.0	1.00					26.2	6.7				5.3
9-11	1.21	0.090	13			1.0	1.06					24.5	6.5				5.6
11-15	0.49	0.042	12			0.9	1.26					23.7	7.0				5.7
15-18	0.30					0.7	1.48					20.3	7.9				5.7
18-22	0.11					0.8	1.56					18.7	6.0				5.7
22-30	0.13					1.0	1.50					24.6	13.4				6.2
30-38	0.12					1.1	1.48					25.8	16.4				6.4
38-45	0.12					1.0	1.41					27.3	16.4				6.6
45-55+	0.06					1.0											6.7

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-9	2.4	0.3	0.1	0.1	2.9	14.0	16.9				1.61	0.10	0.64			17	
9-11	1.3	0.2	0.2	0.1	1.8	10.9	12.7				1.02	0.08	0.52			14	
11-15	1.1	0.3	0.2	0.1	1.7	8.9	10.6				0.79	0.07	0.52			16	
15-18	1.4	0.2	0.2	0.1	1.9	6.6	8.5				0.77	0.06	0.72			22	
18-22	3.2	1.2	0.2	0.2	4.8	5.0	9.8				0.41	0.03	0.25	3		49	
22-30	6.2	3.6	0.3	0.3	10.4	5.3	15.7				0.38	0.02	0.32	2		66	
30-38	6.8	4.4	0.4	0.4	12.0	4.2	16.1				0.33	0.02	0.34	2		74	
38-45	6.5	4.2	0.4	0.4	12.5	4.0	15.4				0.33	0.02	0.35	1		74	
45-55+	6.6	4.2	0.3	0.4	11.5	3.5	15.0				0.33	0.02		2		77	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Suffield silt loam
Soil No.: S57NH-9-1
Location: Strafford County, New Hampshire. Janetos Farm, Pasture, 200 yards N. E. to Pear Yard School, Rollinsford.
Vegetation and land use: Old sod, native grasses, permanent pasture.
Slope and land form: 9 percent
Erosion: Moderate
Drainage: Well drained
Parent Material: Marine silt and clay deposits.
Physiographic position: Rolling terrain.
Sampled by and date: E. Pedersen, A. Prince, Dirk van der Voet, F. Vieira and T. Kelsey. July 29, 1957.

Horizon and Beltsville Lab. No.	
Ap 571014	0 to 9 inches. Grayish brown (2.5Y 5/2) (dry) silt loam; moderate medium granular structure; slightly hard, many roots; temp. 22°C; pH 5.2; abrupt smooth boundary. 8-10 inches thick.
A2 571015	9 to 11 inches. Light gray (5Y 7/2) silt loam; weak fine platy structure; slightly hard; common roots; pH 5.5; clear and wavy boundary. 1-2 inches thick.
B21 571016	11 to 15 inches. Light yellowish brown (2.5Y 6/4) very fine sandy loam; weak medium granular structure; slightly hard; common roots; pH 5.2; clear and wavy boundary. 4-5 inches thick.
B22g 571017	15 to 18 inches. Pale olive (5Y 6/3) with common medium distinct mottles, yellowish red (5YR 5/8) very fine sandy loam; moderate medium granular structure; slightly hard; few roots; pH 5.3; clear and wavy boundary. 3-4 inches thick.
A'2 571018	18 to 22 inches. Light olive brown (2.5Y 5/4) silt loam; moderate medium platy structure; firm; temp. 19.5°C; pH 5.8; clear and wavy boundary. 3-5 inches thick.
B'21 571019	22 to 30 inches. Olive gray (5Y 5/2) with common medium distinct mottles, yellowish red (5YR 4/6 - 5/6) silt loam; moderate medium angular blocky structure; very firm; pH 6.1; clear and wavy boundary. 7-9 inches thick. Clay flows present.
B'22 571020	30 to 38 inches. Olive gray (5Y 5/2) silty clay loam; strong coarse prismatic structure breaking to strong coarse platy structure breaking to moderate medium angular blocky structure; very firm; pH 6.3; clear and wavy boundary. 7-9 inches thick. Portion of polygon face. Manganese stains on surfaces of peds and clods.
C 571021	38 to 45 inches. Olive gray (5Y 5/2) silty clay loam; strong coarse platy structure breaking to strong medium angular blocky structure; very firm; pH 6.4; gradual boundary. 6-8 inches thick. Numerous manganese stains. Clay flows present.
C2 571022	45 to 55 inches plus. Olive gray (5Y 4/2) silty clay; strong coarse platy structure breaking to angular blocky structure; very firm; pH 6.6. Peds not as well developed as in the above horizon.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Waumbek fine sandy loam SOIL Nos. 860NH-5-1 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60545 - 60551

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap	72.1	23.8	4.1	3.1	8.5	11.9	26.3	22.3	14.9	8.9	53.0	49.8			4		
7-9	A2	71.8	26.0	2.2	2.7	7.9	11.6	27.0	22.6	15.4	10.6	53.9	49.2			4		
9-11	B21h	71.1	25.7	3.2	3.2	7.8	11.7	26.5	21.9	15.0	10.7	52.4	49.2			8		
11-17	B221r	73.4	24.2	2.4	4.1	9.5	12.4	25.2	22.2	15.5	8.7	52.1	51.2			11		
17-20	B3	72.7	25.5	1.8	1.9	7.5	11.0	27.1	25.2	17.6	7.9	58.5	47.5			10		
20-29	C1	78.0	20.7	1.3	2.8	7.5	11.7	30.2	25.8	15.4	5.3	58.6	52.2			17		
29-40	C2	77.5	21.6	0.9	5.1	10.0	11.6	26.9	23.9	15.5	6.1	54.9	53.6			20		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density:	4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content:	4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.		In/in			
0-7	3.42	0.224	15			0.9		1.03	1.14			37.0	8.5				3.8	4.5
7-9	2.52	0.120	21			1.2		1.12	1.21			28.2	6.0				3.8	4.7
9-11	3.52	0.133	26			2.0		0.82	0.94			55.5	8.9				4.4	4.7
11-17	2.38	0.101	24			2.6		0.81	0.96			52.6	6.4				4.3	4.9
17-20	1.28	0.060	21			0.4		1.04	1.04			29.5	3.5				4.6	4.8
20-29	0.14					0.1		1.74	1.76			10.4	1.0				4.4	4.9
29-40	0.04					0.1		1.86	1.88			6.0	0.7				4.5	4.9

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	5A1a (NH_4)	6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-7	1.1	0.1	0.1	tr.	1.3	19.9	21.2	12.5	2.0					6	
7-9	1.5	0.2	0.4	tr.	2.1	17.9	20.0	11.6	1.8					10	
9-11	1.2	0.2	0.1	tr.	1.5	32.0	33.5	19.0	2.4					4	
11-17	0.4	tr.	tr.	tr.	0.4	22.9	23.3	13.8	1.6					2	
17-20	0.4	tr.	tr.	tr.	0.4	14.3	14.7	7.1	1.0					3	
20-29	tr.	tr.	tr.	tr.	tr.	3.0	3.0	1.4	0.3						

Soil Type: Waumbek fine sandy loam
Soil No.: S60NH-5-1
Location: Grafton County, New Hampshire. Atwell Hill, 1/4 mile East of Atwell Hill School (Rumney Quadrangle). Plot located on photo No. DXV-7N-96.
Vegetation and land use: Idle hay field, close growing mosses, red top, daisy, Indian paint brush.
Slope and land form: 2 percent
Erosion: Slight
Drainage: Moderately well drained
Parent Material: Glacial till, from granitic and schistose material.
Physiography: Glacial uplands
Sampled by and date: A. Prince, B. Brasher, G. Schmidt, D. Hamilton, H. Winkley, and T. Kelsey. June 20, 1960.
Described by: F. Vieira and S. Pilgrim.

Horizon and Beltsville Lab. No.	
Ap 60545	0 to 7 inches. Very dark brown (10YR 2/2), medium fine sandy loam with 2 percent coarse fragments; moderate granular structure; friable; many roots; pH 5.1; lower boundary abrupt and smooth. 5-9 inches thick.
A2 60546	7 to 9 inches. Light brownish gray (10YR 6/2) loamy fine sand; weak fine granular structure; very friable; many roots; tongues of dark reddish brown (5YR 2/2) throughout this horizon; pH 5.4. This horizon was discontinuous throughout the pit faces; lower boundary abrupt and broken. 0-3 inches thick.
B21h 60547	9 to 11 inches. Dark red (2.5YR 3/6) sandy loam with one percent coarse skeleton; weak fine granular structure; friable; roots common; pH 5.4. This horizon was discontinuous throughout the pit faces; lower boundary clear and broken. 0-4 inches thick.
B22ir 60548	11 to 17 inches. Yellowish brown (10YR 5/8), fine sandy loam with 2 percent coarse skeleton. Mottled with red (2.5YR 4/8); mottles are common fine and faint; weak fine granular structure; very friable; roots are common; pH 5.4; worm casts; lower boundary clear and wavy. 4-6 inches thick.
B3 60549	17 to 20 inches. Olive brown (2.5Y 4/4) sandy loam with 5 percent coarse skeleton; very friable; very faint mottling; weak fine granular structure; few roots; pH 5.6; lower boundary clear and wavy. 2-3 inches thick.
C1 60550	20 to 29 inches. Olive gray (5Y 5/2), loamy sand with 10 percent coarse skeleton; mottled with strong brown (7.5YR 5/6); mottles are common, medium and distinct; weak fine granular structure; friable; very few fine roots; pH 5.7; lower boundary clear and wavy. 7-11 inches thick.
C2 60551	29 to 40 inches. Olive gray (5Y 5/2), gravelly loamy sand; mottled with yellowish brown (10YR 5/6); mottles are common medium and distinct; pH 5.8; weak fine granular structure; friable; no roots; lower boundary clear and wavy. 10-12 inches thick.
C3	40 to 45 inches. Gray (5Y 5/1) loamy sand with 3 percent coarse fragments; mottled with strong brown (7.5YR 5/6); mottles are common medium and distinct; weak medium granular structures; slightly sticky (wet) non plastic; pH 5.3.

Notes: Colors refer to moist soil. Silt caps were noted on several cobble size fragments throughout the profile. Water seep at 40 inches. The B3 horizon appeared to be relatively finer in place than the underlying C horizons.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Waumbek fine sandy loam SOIL Nos. S60NH-5-2 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 60552 - 60558

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	69.3	27.9	2.8	5.0	8.0	11.0	23.7	21.6	16.1	11.8	51.6	47.7			7		
8-12	A2[a]	69.2	28.9	1.9	2.7	7.2	11.4	25.4	22.5	17.5	11.4	54.5	46.7			2		
8-9	B21h	66.2	30.2	3.6	2.4	6.7	10.5	24.0	22.6	17.1	13.1	54.0	43.6			8		
9-14	B221r	70.4	27.0	2.6	3.1	7.6	11.0	24.5	24.2	17.5	9.5	56.1	46.2			17		
14-20	B23	73.2	24.9	1.9	4.4	8.7	11.5	25.1	23.5	16.1	8.8	54.1	49.7			15		
20-24	B2	75.3	22.9	1.8	3.9	9.0	12.9	26.4	23.1	13.7	9.2	51.9	52.2			14		
24-48	C	77.9	20.7	1.4	3.3	9.6	14.2	28.5	22.3	13.2	7.5	51.8	55.6			12		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH:	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	4.69	0.250	19			1.0											4.0	
8-12	0.73	0.042	17			0.2											4.0	
8-9	4.98	0.195	26			2.3											4.0	

Soil Type: Waumbek fine sandy loam
Soil No.: S60NH-5-2
Location: Grafton County, New Hampshire. Nichols Hill, 1.2 mile Southeast of southern tip of lower Baker Pond. (Rumney Quadrangle). Plot located on photo No. DXV-7N-98.
Vegetation and land use: Idle hay field, red top, hardhack, blueberry (low bush), trembling aspen.
Slope and land form: 2 percent
Erosion: Slight
Drainage: Moderately well drained
Parent Material: Glacial till from granitic and schistose material.
Physiography: Glacial uplands
Sampled by and date: B. Brasher, G. Schmidt, A. Prince, D. Hamilton, H. Winkley, and T. Kelsey. June 20, 1960.
Described by: F. Vieira and S. Pilgrim.

Horizon and Beltsville Lab. No.	
Ap 60552	0 to 8 inches. Very dark brown (10YR 2/2), fine sandy loam with one percent coarse skeleton; weak fine granular structure; friable; many roots; pH 5.1; lower boundary abrupt and wavy. 6-9 inches thick.
B21h 60553	8 to 9 inches. Dark reddish brown (5YR 3/4), loam; weak fine granular structure; friable, many roots; pH 5.0; small remnant pockets of A2 gray (10YR 5/1) in this horizon; lower boundary abrupt and irregular. 1-6 inches thick.
B22ir 60555	9 to 14 inches. Dark reddish brown (5YR 3/4) with tongues of very dusky red (2.5YR 2/2), fine sandy loam with 3 percent coarse skeleton; 1/8 inch diameter orstein pellets; weak fine [illegible] structure; roots common; pH 5.2; lower boundary clear and irregular. 5-9 inches thick.
B23 60556	14 to 20 inches. Matrix yellowish brown (10YR 5/6) with small pockets of yellowish red (5YR 4/6); loamy sand with 10 percent coarse skeleton; common fine faint yellowish red (5YR 5/8) mottles; weak fine granular structure; very friable; root staining; roots common; pH 5.2; lower boundary clear and irregular. 5-7 inches thick.
B3 60557	20 to 24 inches. Olive brown (2.5Y 4/4), loamy sand with 12 percent coarse skeleton; mottled with strong brown (7.5YR 5/8); mottles are common medium and distinct; weak fine granular; very friable; root staining; few roots; pH 5.4; lower boundary clear and wavy. 3-4 inches thick.
C 60558	24 to 48 inches. Gray (5Y 5/1), loamy sand with 6 percent coarse skeleton; mottled with strong brown (7.5YR 5/8), mottles are common, coarse and distinct; massive in place breaking to weak medium granular structure when removed; friable; no roots; pH 5.4.

Notes: Colors refer to moist soil. Silt caps noted on several cobble size fragments in the profile.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Winooski silt loam SOIL Nos. S62NH-5-1 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 62463 - 62469

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)	Coarse fragments: 2A2 ≥ 2 <76 Pct.	Coarse fragments: 2 - 19 Pct. of < 76mm	Coarse fragments: 19 - 76 Pct. of < 76mm
		Pct. of < 2 mm														
0-9	Ap	4.4	86.1	9.5	0.1	0.4[a]	0.5[b]	1.1[b]	2.3[a]	20.8	65.3	23.8	2.1	Tr.		
9-15	C1	2.3	88.4	9.3	-	0.1[a]	0.2[a]	0.4[a]	1.6[b]	19.9	68.5	21.7	0.7	Tr.		
15-19	C2g	2.5	87.1	10.4	0.1[a]	0.1[a]	0.1[a]	0.7[a]	1.5[b]	21.8	65.3	23.7	1.0	-		
19-25	C3g	12.0	82.5	5.5	-	0.2[a]	0.3[a]	1.0[c]	10.5	40.2	42.3	51.3	1.5	-		
25-33	C4g	26.3	69.5	4.2	-	0.2[a]	0.4[a]	1.6[d]	24.1	43.5	26.0	68.8	2.2	-		
33-44	C5g	43.6	53.4	3.0	-	0.2[a]	0.4[a]	5.6[d]	37.4	35.6	17.8	77.7	6.2	-		
44-62+	IIC6g	64.4	32.9	2.7	-	0.2	0.7	22.5	41.0	23.0	9.9	83.0	23.4	-		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N	Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron as Fe Pct.	Bulk density: 4A1e 1/3 Bar g/cc	Bulk density: 4A1h Oven Dry g/cc	Water content: 4B1c 1/3 Bar Pct.	Water content: 4B2 15 Bar Pct.	pH: 8C1c (1:1) 1N KCl	pH: 8C1a (1:1) H_2O
0-9	2.16	0.140	15		1.2	1.15	1.22	39.8	10.2	5.3	6.1
9-15	0.61	0.053	12		1.2	1.19	1.23	40.2	5.9	4.3	5.5
15-19	0.38	0.056	7		1.1	1.40	1.42	30.7	5.2	4.4	5.6
19-25	0.07				1.0	1.52	1.53	25.5	4.2	4.5	5.8
25-33	0.12				0.9	1.54	1.56	23.1	3.5	4.6	5.9
33-44	0.12				0.7	1.62	1.62	21.6	3.1	4.6	5.8
44-62+	0.10				0.6				2.4	4.6	5.9

Depth (In.)	Extractable bases: 6N2d Ca	Extractable bases: 6O2b Mg	Extractable bases: 6P2a Na	5B1a 6Q2a K	6R2a Ext. Acidity	CEC: 5A3a Sum Cations	6G1d Ext. Al	Base saturation: 5C3 Sum Cations Pct.	Base saturation Pct.
	meq/100 g								
0-9	8.4	0.3	0.1	0.1	12.5	21.4	0.1	42	
9-15	2.2	0.2	0.1	0.1	11.8	14.4	0.9	18	
15-19	2.4	0.2	0.1	0.1	8.4	11.2	0.5	25	
19-25	2.7	0.3	0.1	0.1	4.9	8.1	0.2	40	
25-33	2.5	0.2	0.1	0.1	4.1	7.0	0.2	41	
33-44	2.2	0.2	0.1	0.1	3.6	6.2	0.2	42	
44-62+	2.0	0.1	Tr.	Tr.	2.6	4.7	0.2	45	

Depth (In.)	Ratios to Clay: 8D1 Cation Exch. Capacity	Ratios to Clay: 8D1 15 Atmos. Moist.
0-9	2.25	1.07
9-15	1.55	.63
15-19	1.08	.50
19-25	1.47	.76
25-33	1.67	.80
33-44	2.06	1.03
44-62+	1.74	.89

a 75% Aggregates
b 50% Aggregates
c 25% Aggregates
d 10% Aggregates

Soil Type: Winooski silt loam
Soil No.: S62NH-5-1
Location: Grafton County, New Hampshire; Walter Morris Farm, one mile northeast of Piermont - Haverhill town line, 1/4 mile west of Route 10.
Vegetation: Plowed hay field, recently limed.
Slope: 0 percent, nearly level.
Erosion: None
Drainage: Moderately well drained.
Parent Material: Medium textured sediments derived mainly from schists, gneiss, granite, slate, and shale.
Physiography: Connecticut River floodplain.
Groundwater: 50 inches.
Sampled by: E. Pedersen, S. Ross, A. Prince, R. Bond, C. Dellinger, and T. Kelsey.
Described by: H. Winkley

Horizon and Beltsville Lab. Number	
Ap 62463	0 to 9 inches. Very dark grayish brown (2.5Y 3/2) silt loam; moderate fine granular structure; friable; many roots; abrupt wavy boundary. 7 to 10 inches thick.
C1 62464	9 to 15 inches. Light olive brown (2.5Y 5/4) silt loam; massive structure; friable; roots are common; clear smooth boundary. 6 to 7 inches thick.
C2g 62465	15 to 19 inches. Grayish brown (2.5Y 5/2) silt loam with many medium prominent mottles, (5YR 4/4); massive structure; friable; roots are common; clear smooth boundary. 4 to 5 inches thick.
C3g 62466	19 to 25 inches. Gray (5Y 5/1) silt loam with many medium prominent mottles, (5YR 4/8); massive structure; friable; roots are common; clear smooth boundary. 5 to 6 inches thick.
C4g 62467	25 to 33 inches. Gray (5Y 5/1) very fine sandy loam with many medium prominent mottles, (5YR 3/3); massive structure; friable; roots are common; clear smooth boundary. 7 to 8 inches thick.
C5g 62468	33 to 44 inches. Gray (5Y 5/1) very fine sandy loam with many medium prominent mottles, (5YR 3/3); massive structure; nonsticky, friable; few roots; clear smooth boundary. 11 to 12 inches thick.
IIC6g 62469	44 to 62 inches. Gray (5Y 5/1) loamy fine sand with many medium prominent mottles, (5YR 3/3); massive structure; nonsticky; few roots.

Notes: The C3g horizon had vertical cleavage faces of more reduced color, (5Y 4/1). There was a layer of manganese concretions and staining in the central part of the horizon. Old root channels with reduced colors extended from 19 to 62 inches. The IIC6g horizon was wet. Recently spread lime was on the surface.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Winooski silt loam SOIL Nos. S62NH-5-2 LOCATION Grafton County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 62470 - 62478

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)			Coarse fragments: 2A2 >2 <76 Pct.	Coarse fragments: 2–19 Pct. of <76mm	Coarse fragments: 19–76 Pct. of <76mm
		Pct. of < 2 mm																
0-12	Ap	11.0	80.2	8.8	0.2	0.2	0.4	1.5	8.7	31.4	48.8	41.2	2.3			Tr.		
12-14	A1b	7.5	83.1	9.4	Tr.	0.2[a]	0.4[a]	1.3[a]	5.6[b]	27.1	56.0	33.5	1.9			-		
14-18	C1	6.5	84.4	9.1	-	0.1[a]	0.1[a]	0.8[a]	5.5[b]	27.0	57.4	33.0	1.0			-		
18-22	C2g	9.6	81.4	9.0	-	0.1[a]	0.1[a]	0.8[a]	8.6[b]	30.5	50.9	39.7	1.0			-		
22-26	C3g	6.9	82.0	11.1	-	0.2[a]	0.2[a]	0.8[b]	5.7[c]	28.4	53.6	34.6	1.2			-		
26-31	C4g	7.8	82.0	10.2	-	0.1[a]	0.1[a]	0.8[b]	6.8[c]	27.8	54.2	35.2	1.0			-		
31-40	C5g	16.3	79.0	4.7	-	0.2[b]	0.3[a]	1.1[a]	14.7[c]	42.3	36.7	57.7	1.6			-		
40-50	C6g	39.5	57.2	3.3	0.1	0.2[b]	0.4[a]	4.0[d]	34.8[c]	36.9	20.3	75.1	4.7			-		
50-62+	IIC7g	50.1	47.0	2.9	-	0.1	0.3	8.2	41.5	32.5	14.5	81.2	8.6			-		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N	Carbonate as $CaCO_3$	6C1a Ext. Iron as Fe	Bulk density: 4A1e 1/3 Bar	Bulk density: 4A1h Oven Dry	Water content: 4B1c 1/3 Bar	Water content: 4B2 15 Bar	pH: 8C1c (1:1) 1N KCl	pH: 8C1a (1:1) H_2O
	Pct.	Pct.		Pct.	Pct.	g/cc	g/cc	Pct.	Pct.		
0-12	1.77	0.113	16		1.0	1.24	1.28	38.1	8.3	4.4	5.4
12-14	2.20	0.148	15							5.0	5.0
14-18	1.01	0.071	14		1.2	1.16	1.20	42.7	6.1	4.2	5.4
18-22	0.55	0.078	7		0.7	1.18	1.20	37.8	5.3	4.3	5.5
22-26	0.46	0.044	10		1.0	1.24	1.28	36.5	5.4	4.1	5.5
26-31	0.35	0.079	4		0.5	1.40	1.44	30.4	5.0	4.1	5.6
31-40	0.17				1.1	1.49	1.50	25.7	4.1	4.2	5.5
40-50	0.13				0.8	1.54	1.56	23.0	3.3	4.3	5.6
50-62+	0.10				0.8	1.43	1.44	19.7	2.8	4.2	5.8

Depth (In.)	Extractable bases 6N2d Ca	6O2b Mg	6P2a Na	5B1a 6Q2a K	6H2a Ext. Acidity	CEC 5A3a Sum Cations	6G1d Ext. Al	Base saturation 5C3 Sum Cations
	meq/100 g							Pct.
0-12	4.0	0.2	0.1	0.1	14.1	18.5	0.3	24
12-14	2.9	0.1	0.1	0.1	21.8	25.0	1.9	13
14-18	2.1	Tr.	0.1	Tr.	13.7	15.9	1.2	14
18-22	1.1	Tr.	0.1	Tr.	9.1	10.3	1.0	12
22-26	2.1	0.1	0.1	0.1	9.3	11.7	0.9	21
26-31	1.8	0.1	0.1	0.1	7.6	9.7	0.9	22
31-40	1.6	0.2	0.1	Tr.	5.4	7.3	0.4	26
40-50	1.2	0.1	0.1	Tr.	4.3	5.7	0.3	25
50-62+	1.1	0.1	0.1	Tr.	2.8	4.1	0.3	32

Depth (In.)	Ratios to Clay 8D1 Cation Exch. Capacity	15 Atmos. Moist.
0-12	2.10	.94
12-14	2.66	
14-18	1.75	.67
18-22	1.14	.59
22-26	1.05	.49
26-31	.95	.49
31-40	1.55	.87
40-50	1.73	1.00
50-62+	1.41	.96

a 75% Aggregate
b 50% Aggregate
c 10% Aggregate

Soil Type: Winooski silt loam
Soil No.: S62NH-5-2
Location: Grafton County, New Hampshire; Keyes Farm, 2-1/2 miles south of North Haverhill Village, 1/2 mile Northwest Rt. 10.
Vegetation: Pasture - bluegrass, white clover, timothy.
Slope: 0 percent, nearly level.
Erosion: None
Drainage: Moderately well drained.
Parent Material: Medium textured sediments derived mainly from schist, gneiss, granite, slate and shale.
Physiography: Connecticut River Floodplain.
Groundwater: Deep
Sampled by: E. Pedersen, S. Ross, A. Prince, R. Bond, C. Dellinger, and T. Kelsey.
Described by: H. Winkley

Horizon and Beltsville Lab. Number	
Ap 62470	0 to 12 inches. Very dark grayish brown (2.5Y 3/2) silt loam; moderate fine granular structure; friable; many roots; abrupt wavy boundary. 10 to 12 inches thick.
A1b 62471	12 to 14 inches. Very dark gray (10YR 3/1) silt loam; moderate fine granular structure; friable; many roots; abrupt wavy boundary. 2 to 3 inches thick.
C1 62472	14 to 18 inches. Olive brown (2.5Y 4/4) silt loam with few medium faint mottles, (10YR 5/8); massive structure; friable; roots are common; abrupt wavy boundary. 4 to 5 inches thick.
C2g 62473	18 to 22 inches. Gray (5Y 5/1) silt loam with few medium faint mottles, (10YR 5/8); massive structure; friable; roots are common; abrupt wavy boundary. 4 to 5 inches thick.
C3g 62474	22 to 26 inches. Olive gray (5Y 5/2) silt loam with many medium prominent mottles, (5YR 3/4); massive structure; friable; roots are common; abrupt wavy boundary. 4 to 5 inches thick.
C4g 62475	26 to 31 inches. Gray (5Y 5/1) silt loam with common medium distinct mottles (10YR 5/8); massive structure; friable; few roots; abrupt wavy boundary. 5 to 6 inches thick.
C5g 62476	31 to 40 inches. Olive gray (5Y 5/2) very fine sandy loam with many medium prominent mottles, (5YR 3/4); massive structure; firm; few roots; clear wavy boundary. 9 to 10 inches thick.
C6g 62477	40 to 50 inches. Olive gray (5Y 5/2) very fine sandy loam with many medium prominent mottles, (5YR 3/4); massive structure; friable; clear wavy boundary. 10 to 11 inches thick.
IIC7g 62478	50 to 62 inches. Olive gray (5Y 5/2) loamy fine sand with many medium prominent mottles, (5YR 3/4); massive structure; friable.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Woodbridge fine sandy loam SOIL Nos. S56NH-9-2 LOCATION Strafford County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561171 - 561178

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt (0.05–0.02)	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9	Ap	66.5	27.4	6.1	4.4	15.3	15.1	20.6	11.1	13.4	14.0	34.5	55.4			9		
9-13	B21	68.8	28.2	3.0	5.2	16.2	15.0	20.8	11.6	12.6	15.6	34.4	57.2			11		
13-16	B22	73.7	23.9	2.4	5.2	18.2	16.9	21.8	11.6	11.5	12.4	33.8	62.1			8		
16-24	B'21gx	63.6	31.2	5.2	4.5	12.7	13.0	20.0	13.4	14.6	16.6	38.3	50.2			10		
24-36	B'22gx	64.7	29.8	5.5	6.1	13.6	10.6	18.5	15.9	14.6	15.2	40.7	48.8			10		
36-48	B'23gx	69.8	25.0	5.2	5.2	16.0	11.6	20.6	16.4	14.2	10.8	42.1	53.4			9		
48-64	B'24gx	66.3	29.1	4.6	3.6	10.2	10.4	22.6	19.5	17.1	12.0	49.9	46.8			5		
64-83	B'25gx	63.2	26.9	9.9	3.7	10.3	10.6	21.8	16.8	13.9	13.0	43.2	46.4			6		

Depth (in.)	6A1a Organic carbon	6H1a Nitrogen	C/N		6C1a Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density: 4A1e ⅓ bar	4A1h Oven dry	4D1 COLE	Water content: 4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.	Pct.	In/In		
0-9	2.61	0.227	11			1.0									5.4
9-13	0.80	0.062	13			0.9									5.7
13-16	0.51	0.044	12			0.8									5.7
16-24	0.10	0.028	-			0.7									5.8
24-36	0.08	0.030	-			0.7									5.4
36-48	0.03	0.007	-			0.5									5.5
48-64	0.03	0.006	-			0.4									5.6
64-83	0.01	0.006	-			0.4									6.0

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-9	3.7	0.3	0.1	0.2	4.3	12.9	17.2			2.82	0.16			25	
9-13	0.7	0.2	0.1	0.2	1.2	6.7	7.9			2.63	0.30			15	
13-16	0.4	0.2	0.1	0.1	0.8	4.8	5.6			2.33	0.33			14	
16-24	0.6	0.1	0.1	0.1	0.9	3.0	3.9			0.75	0.13			23	
24-36	0.4	0.2	0.1	0.2	0.9	3.0	3.9			0.71	0.13			23	
36-48	1.3	0.2	0.1	0.2	1.8	2.8	4.6			0.88	0.10			39	
48-64	1.1	0.2	0.1	0.2	1.6	2.0	3.6			0.78	0.09			44	
64-83	1.5	0.2	0.2	0.2	2.1	1.6	3.7			0.37	0.04			57	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Woodbridge fine sandy loam
Soil No.: S56NH-9-2
Location: Strafford County, New Hampshire. Samples collected on the George Pray farm on the Salmon Falls Road. Pit was dug in a hayfield 400 feet south of barn and approximately 200 feet southwest of Salmon Falls Road.
Vegetation and land use: Hay
Slope and land form: Level
Sampled by and date: R. Wheeler, F. J. Vieira, A. Carmarge, E. J. Pedersen. July 23, 1956.
Described by: H. F. Winkley, L. H. Gile, Jr., and J. E. Garland.

Horizon and Beltsville Lab. No.

Ap 561171 — 0 to 9 inches. Dark yellowish brown (10YR 3/4, moist) fine sandy loam with 5-10 percent coarse skeleton; weak medium granular structure; friable, many roots; clear and wavy boundary. 7-9 inches thick.

B21 561172 — 9 to 13 inches. Strong brown (7.5YR 5/8, moist) sandy loam with 5-10 percent coarse skeleton; weak medium subangular blocky clod averaging 1-2 inches in size; friable; roots common; clear and wavy boundary. 3-5 inches thick.

B22g 561173 — 13 to 16 inches. Yellowish brown (10YR 5/4, moist) sandy loam with 15-25 percent coarse skeleton; weak medium subangular blocky clods averaging 1-2 inches in size; friable; few fine

inches thick.

B'21gx 561174 — 16 to 24 inches. Olive (5Y 5/3, moist) sandy loam with 20-30 percent coarse skeleton; weak coarse platy structure appearing massive in places; very firm in place and firm when crushed;

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Woodbridge fine sandy loam SOIL Nos. 856NH-9-3 LOCATION Strafford County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561179 - 561185

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		Cm	> 2	2 – 19	19 – 76
		Pct. of < 2 mm													Pct.	Pct. of < 76mm	
0-8	Ap	56.9	37.5	5.6	5.9	10.9	9.4	16.9	13.8	18.2	19.3	41.3	43.1			9		
8-13	B21	57.7	38.8	3.5	5.0	10.8	9.4	17.4	15.1	17.1	21.7	42.0	42.6			12		
13-18	B22g	64.1	33.1	2.8	6.0	12.4	10.7	19.9	15.1	14.8	18.3	41.1	49.0			12		
18-22	B3g	65.5	31.4	3.1	5.0	12.5	11.4	21.3	15.3	14.4	17.0	41.5	50.2			12		
22-31	B'22gx	65.3	31.1	3.6	6.3	13.7	11.2	19.7	14.4	14.8	16.3	40.3	50.9			9		
31-48	B'22gx	65.4	30.7	3.9	4.7	14.5	11.3	19.6	15.3	14.7	16.0	40.9	50.1			5		
48-68	B23gx	61.0	33.9	5.1	4.8	11.9	10.3	18.5	15.5	15.6	18.3	41.5	45.5			8		

Depth (In.)	6A1a Organic carbon	6H1a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density		4D1	Water content			4C1	pH	
							4A1a ⅓ bar	4A1h Oven dry	COLE	4B1c ⅓ bar	4B2 15 bar		WRD	8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.	Pct.	In/in		
0-8	2.95	0.195	15			0.6									4.9
8-13	0.88	0.069	13			0.6									5.3
13-18	0.39	0.034	-			0.4									5.4
18-22	0.21	0.019	-			0.3									5.4
22-31	0.06	0.006	-			0.3									5.5
31-48	0.03	0.004	-			0.3									5.6
48-68	-	0.006				0.4									5.8

Depth (In.)	Extractable bases 5B1a					6H1a	CEC		6G1d		Ratios to clay 8D1			8D3	Base saturation	
	6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	Ext. acidity	5A3a Sum cations		Ext. Al		CEC Sum	Ext. iron	15-bar water	Ca/Mg	5C3 Sum cations	5C1 NH_4OAc
	meq/100 g														Pct.	Pct.
0-8	0.7	0.2	0.1	0.2	1.2	15.7	16.9				3.02	0.11			7	
8-13	0.1	0.2	tr.	0.1	0.4	8.6	9.0				2.57	0.17			4	
13-18	0.1	0.3	tr.	0.1	0.5	5.6	6.1				2.18	0.14			8	
18-22	0.1	0.1	0.1	0.1	0.4	4.2	4.6				1.48	0.10			9	
22-31	0.3	0.3	0.1	0.1	0.8	2.4	3.2				0.89	0.08			25	
31-48	0.8	0.4	0.1	0.1	1.4	1.2	2.6				0.67	0.08			54	
48-68	1.4	0.2	0.1	0.1	1.8	1.0	2.8				0.55	0.08			64	

Depth (In.)	Clay Fraction Analysis 7A1b-d								
	Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Woodbridge fine sandy loam
Soil No.: S56NH-9-3
Location: Strafford County, New Hampshire. Samples collected on the Vachon farm in the town of Farmington. Pit was dug in hayfield adjacent to dirt road approximately fifty feet from Rochester-Farmington town line.
Vegetation and land use: Hay
Slope and land form: 3 percent
Sampled by and date: R. Wheeler, H. E. Winkley, A. Carmargo, and E. J. Pedersen. July 24, 1956.
Described by: E. J. Vieira, L. H. Gile, Jr., and L. E. Garland.

Horizon and Beltsville Lab. No.	
Ap 561179	0 to 8 inches. Dark brown (10YR 3/3, moist) fine sandy loam with 5-10 percent coarse skeleton; weak medium granular structure; friable; many roots; clear and wavy boundary. 7-9 inches thick.
B21 561180	8 to 13 inches. Yellowish brown (10YR 5/8, moist) fine sandy loam with 5-10 percent coarse skeleton; weak medium subangular blocky clods averaging 1-2 inches in size; friable; few fine and faint mottles in lower part of horizon of yellowish red (5YR 4/8, moist) roots common; clear and wavy boundary. 3-6 inches thick.
B22g 561181	13 to 18 inches. Light olive brown (2.5Y 5/4, moist) sandy loam with 5-10 percent coarse skeleton; weak medium granular structure; friable; many roots; clear and wavy boundary. 7-9 inches thick.
B3g 561182	18 to 22 inches. Light olive brown (2.5Y 5/4, moist) sandy loam with 10-20 percent coarse skeleton; weak coarse platy structure; friable; discontinuous streaks of iron oxide; few fine distinct mottles of yellowish red (5YR 4/8, moist); few roots; gradual wavy boundary. 4-8 inches thick.
B'21gx 561183	22 to 31 inches. Olive gray (5Y 5/2, moist) sandy loam with 15-25 percent coarse skeleton; weak coarse platy with some sections appearing massive structure; firm; occasional irregular leached layers of 1/4-2 inches in width with light gray (5Y 7/1, moist); several pockets of light gray (5Y 7/1, moist) averaging 3-4 inches in diameter; below leached layers are 1/16 inch layers of strong brown (7.5YR 5/6, moist); many fine glazed pores and clay flows evident; clear and wavy boundary. 8-11 inches thick.
B'22gx 561184	31 to 48 inches. Grayish brown (2.5Y 5/2, moist) sandy loam with 20-30 percent coarse skeleton; weak medium platy structure; firm; coatings of yellowish brown (10YR 5/6, moist) and yellowish red (5YR 4/8, moist) on external surfaces of peds; no roots; diffuse and wavy boundary. 13-15 inches thick.
B'23gx 561185	48 to 68 inches. Grayish brown (2.5Y 5/2, moist) sandy loam with 20-30 percent coarse skeleton; weak medium platy structure; friable to firm; no roots.

Notes: The B'22gx and the B'23gx horizons were arbitrarily split for sampling purposes.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Woodbridge loam SOIL Nos. S59NH-10-1 LOCATION Sullivan County, New Hampshire

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59917 - 59923

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																

Soil Type: Woodbridge loam
Profile No.: S59NH-10-1
Location: 1½ miles Northeast of village of Langdon on the Arthur Gude Farm, 50 yards west of gravel road. Sullivan County, New Hampshire.
Vegetation and land use: Brome grass
Slope and land form: 6 percent.
Erosion: None to moderate
Drainage: Moderately well
Parent Material: Glacial till, principally mica schist with some admixture of granite.
Physiographic position: Glacial uplands, drumlin
Sampled by and date: E. Pedersen, F. Vieira, B. Brasher, E. Hutchinson, T. Kelsey, A. D. Hamilton, September 18, 1959.

Horizon and Beltsville Lab. No.	
Ap 59917	0 to 9 inches. Very dark grayish brown (10YR 3/2) loam to silt loam with weak, medium granular structure; very friable; many roots; clear and wavy boundary. 7 - 10 inches thick.
B21 59918	9 to 13 inches. Dark yellowish brown (10YR 4/4) silt loam with 2 percent coarse skeleton of fine gravel; moderate, medium, subangular blocky breaking to weak, fine, granular structure; friable; roots common; clear and wavy boundary. 2 - 5 inches thick.
B22 59919	13 to 17 inches. Light olive brown (2.5Y 5/4) mixed with some olive gray (5Y 5/2) silt loam with 3 percent coarse skeleton of fine gravel; weak, medium platy breaking to weak, fine, subangular blocky structure; friable; roots common; clear and wavy boundary. 3 - 5 inches thick.
B31 59920	17 to 23 inches. Olive (5Y 4/3) clay loam with moderate, medium platy breaking to moderate fine subangular blocky structure; firm; roots common; clear and wavy boundary. 5 - 8 inches thick.
B32gm 59921	23 to 36 inches. Olive (5Y 4/3) clay loam with 5-7 percent coarse skeleton of fine gravel; mottled with strong brown (7.5YR 5/6), mottles are common, fine and distinct; moderate, coarse platy structure; firm when removed but less firm in place than the B33gm; polygon streaks occur irregularly and run vertically, are 1-1½" wide, olive gray (5Y 5/2), very fine sandy loam; roots few and fine and occur in polygon.
B33gm 59922	36 to 51 inches. Olive (5Y 4/3) clay loam with 5 percent coarse skeleton of fine gravel; mottled with red (2.5YR 4/8) and black (10YR 2/1), mottles are common, medium and distinct in the case of 10YR 2/1, few, fine, distinct (2.5YR 4/8); moderate, medium platy structure; very firm in place, firm when removed; no roots.
B34gm 59923	51 to 58 inches plus. Olive (5Y 4/3) clay loam with 2 percent coarse skeleton of fine gravel; mottled with dark brown (7.5YR 4/4) and some red (2.5YR 4/8), mottles are common, medium and distinct; moderate, medium platy structure; very firm in place - firm when removed; no roots; polygon streaks occur irregularly and run vertically, are 1 - 1-1/4" wide, greenish gray (5GY 5/1) and some black (5Y 2/1), very fine sandy loam.

Notes: Colors are for moist soil unless indicated otherwise. The B horizon from 23 to 58 inches was split arbitrarily for sampling purposes. Numerous clay skins were noticed in the B32gm and B33gm horizons.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Bridgehampton silt loam SOIL Nos. S58RI-5-2 LOCATION Washington County, Rhode Island

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 581000-581006

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-10	Ap	23.9	72.1	4.0	0.4	0.7	0.8	1.8	20.2	49.4	22.7	70.8	3.7			tr.		
10-21	B21	21.9	76.0	2.1	0.1	0.2	0.3	0.9	20.4	51.9	24.1	72.9	1.5			-		
21-31	B22g	20.6	75.2	4.2	-	0.2	0.3	1.0	19.1	50.3	24.9	70.0	1.5			-		
31-38	B23g	21.9	76.6	1.5	0.1	0.2	0.3	0.9	20.4	65.4	11.2	86.3	1.5			tr.		
38-40	A'2	29.5	69.3	1.2	2.3	1.8	1.3	1.9	22.2	49.9	19.4	73.2	7.3			6		
40-43	Duir	83.7	15.6	0.7	17.4	29.6	17.8	12.7	6.2	10.4	5.2	21.4	77.5			35		
43-52	Du	96.7	2.7	0.6	26.7	38.5	19.3	10.7	1.5	2.3	0.4	7.2	95.2			37		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-10	3.20	0.224	14			1.0	1.08				25.3	8.2				4.7
10-21	0.33	0.035	9			0.8	1.27				20.4	4.4				5.0
21-31	0.30					0.9	1.34				21.2	4.4				5.3
31-38	0.09					0.7	1.44				15.2	2.6				5.5
38-40	0.14					0.3	1.47				12.3	1.5				5.5
40-43	0.42					0.7					5.1	1.2				5.4
43-52	0.19					0.3					1.6	0.7				5.3

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6Q2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al	Ratios to clay: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-10	2.3	0.4	0.1	0.4	3.2	25.0	28.2			7.05	0.25	2.05		11	
10-21	0.8	0.3	tr.	0.3	1.4	5.8	7.2			3.43	0.38	2.10		19	
21-31	0.8	0.3	tr.	0.3	1.4	4.9	6.3			1.50	0.21	1.05		22	
31-38	0.2	0.2	tr.	0.3	0.7	3.4	4.1			2.73	0.47	1.73		17	
38-40	0.2	0.1	tr.	0.2	0.5	2.4	2.9			2.42	0.25	1.25		17	
40-43	0.3	0.1	tr.	0.2	0.6	1.3	1.9			2.71	1.00	1.71		32	

Soil type: Bridgehampton silt loam
Soil No.: S58RI-5-2
Location: Washington County, Rhode Island. .4 mile east of Slocum in the town of North Kingston
Vegetation: Cultivated area used for potatoes
Slope: 1 percent
Drainage: Moderately well
Collected by and date: E. J. Pedersen, M. A. Puchalski, W. Gonick, and Prof. J. B. Smith, University of Rhode Island. November 11, 1958
Described by A. E. Shearin

Horizon and Beltsville Lab. Nos.	
Ap 581000	0 to 10 inches. Very dark brown (10YR 2/2) silt loam; moderate coarse granular; very friable; boundary abrupt.
B21 581001	10 to 21 inches. Yellowish brown (10YR 5/6) silt loam; slightly compact due to traffic and breaks into coarse prismatic-like peds that are very friable when disturbed; boundary clear and wavy.
B22g 581002	21 to 31 inches. Light olive brown (2.5Y 5/4) with pockets of olive (5Y 5/3) and streaks of yellowish brown (10YR 5/6) silt loam; breaks into soft, coarse blocky peds that are very friable when disturbed; boundary clear.
B23g 581003	31 to 38 inches. Olive gray (5Y 5/2) mottled or streaked with yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) silt loam; breaks into soft, coarse subangular peds when disturbed; very friable; boundary abrupt.
A'2 581004	38 to 40 inches. Gray (5Y 5/1) with a few mottles of yellowish brown (10YR 5/6) silt loam or very fine sandy loam; very weak coarse platy; very friable; boundary abrupt.
Duir 581005	40 to 43 inches. Dark yellowish brown (10YR 4/4) gravelly coarse loamy sand; loose; boundary abrupt.
Du 581006	43 to 52 inches. Olive gray (5Y 4/2) and olive (5Y 5/3) coarse sand with 10-15 percent fine and medium gravel; loose.

Note: Wormholes with material from the Ap horizon common in the B21 and B22g horizons.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Bridgehampton silt loam SOIL Nos. 858RI-5-3 LOCATION Washington County, Rhode Island

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 581007 - 581015

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 >= 2 Pct.	2 - 19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm																
0-10	Ap	23.3	70.5	6.2	0.7	1.5	2.1	4.1	14.9	46.9	23.6	64.2	8.4			1		
10-14	B21	16.9	78.0	5.1	0.1	0.4	0.6	1.2	14.6	48.3	29.7	63.6	2.3			tr.		
14-19	B22	17.3	78.5	4.2	0.2	0.4	0.4	1.1	15.2	47.6	30.9	63.5	2.1			tr.		
19-26	A'2	19.6	78.0	2.4	-	0.2	0.2	0.7	18.5	52.8	25.2	71.6	1.1			tr.		
26-32	B'21ir	24.7	72.9	2.4	0.1	0.2	0.5	1.8	22.1	51.6	21.3	74.8	2.6			tr.		
32-38	B22g	53.8	44.6	1.6	1.0	2.7	4.3	11.2	34.6	34.2	10.4	75.6	19.2			8		
38-41	A'2	76.3	22.9	0.8	7.4	12.6	10.7	18.5	27.1	17.7	5.2	55.6	49.2			49		
41-50	Duir	85.6	13.5	0.9	19.0	31.8	15.1	11.0	8.7	8.8	4.7	22.8	76.9			72		
50-56	Du	93.4	5.9	0.7	24.0	33.1	13.4	16.0	6.9	4.2	1.7	18.8	86.5			72		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e 1/3 bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE		Water content: 4B1c 1/3 bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in		pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-10	5.16	0.282	18			1.1		1.11			26.8	10.5					4.6
10-14	0.90	0.085	10			1.3		1.20			21.8	6.9					4.5
14-19	0.48	0.039	12			1.2		1.19			20.9	6.0					4.5
19-26	0.37	0.035	11			0.4		1.33			18.4	3.7					4.7
26-32	0.23					1.1		1.36			16.8	3.2					4.8
32-38	0.12					0.7		1.63			9.1	1.7					5.0
38-41	0.24					0.4		1.74			4.2	1.0					5.4
41-50	0.22					0.6					4.2	0.9					5.2
50-56	0.12					0.4					1.7	0.6					5.3

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ratios to clay 8D1: Ext. iron	Ratios to clay 8D1: 15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g															
0-10	1.5	0.3	0.1	0.2	2.1	26.4	28.5			4.60	0.18	1.69			7	
10-14	0.5	0.2	tr.	0.1	0.8	20.6	21.4			4.20	0.25	1.35			4	
14-19	0.4	0.2	tr.	0.1	0.7	7.7	8.4			2.00	0.28	1.43			8	
19-26	0.2	0.1	tr.	0.1	0.4	6.0	6.4			2.67	0.17	1.54			6	
26-32	0.2	0.2	tr.	0.1	0.5	5.4	5.9			2.46	0.46	1.33			8	
32-38	0.2	0.2	tr.	tr.	0.4	3.2	3.6			2.25	0.44	1.06			11	
38-41	0.2	0.2	tr.	0.1	0.5	1.2	1.7			2.12	0.50	1.25			29	
41-50	0.2	0.1	tr.	tr.	0.3	1.0	1.3			1.44	0.67	1.00			23	
50-56	0.2	0.1	tr.	tr.	0.3	0.4	0.7			1.00	0.57	0.86			43	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Bridgehampton silt loam
Soil No.: S58RI-5-3
Location: Washington County, Rhode Island. About 1/2 mile east of Asa Pond in the town of South Kingston.
Vegetation and land use: Quackgrass, redtop, goldenrod, wild cherry and viburnum
Slope and land form: 1 percent
Drainage: Probably intermediate between well and moderately well drained
Collected by and date: E. J. Pedersen, M. A. Puchalski, W. Gonick, Dr. Bell, University of Rhode Island, and Dave Hill. November 12, 1958
Described by: A. E. Shearin

Horizon and Beltsville Lab. Nos.	
Ap 581007	0 to 10 inches. Very dark grayish brown (10YR 3/2) grading to dark brown (10YR 3/3) silt loam; upper 4 inches moderate coarse granular and the lower 6 inches breaks into soft [illegible]
B21 581008	10 to 14 inches. Dark yellowish brown (10YR 4/4) silt loam; breaks into soft, coarse blocky peds; very friable; boundary clear and wavy.
B22 581009	14 to 19 inches. Olive brown (2.5Y 4/4) silt loam; breaks into soft, coarse blocky peds; very friable; boundary clear and wavy.
A'2 581010	19 to 26 inches. Olive (5Y 5/3) finely mottled with grayish brown (2.5Y 5/2) and light olive brown (2.5Y 5/4) silt loam; mottles are few, fine and faint; breaks into soft, coarse blocky peds; very friable; boundary clear and wavy.
B'21ir 581011	26 to 32 inches. Strong brown (7.5YR 5/8) in the center, grading to yellowish brown (10YR 5/6-5/8) in the upper and lower parts of the horizon; texture silt loam; breaks in soft, coarse blocky peds; very friable; boundary clear and wavy.
B'22g 581012	32 to 38 inches. Mottled olive gray (5Y 5/2), olive brown (2.5Y 4/4) and yellowish brown (10YR 5/6) very fine sandy loam or loamy very fine sand; mottles are many medium and distinct; very friable; boundary abrupt.
A'2 581013	38 to 41 inches. Gray (5Y 5/1) and dark gray (5Y 4/1) gravelly coarse sand with a few dark brown (10YR 3/3) iron or organic stains; very friable; boundary abrupt.
Duir 581014	**41 to 50 inches. Coarse sand and gravel with pockets of coarse sandy loam; numerous iron stains on gravels and in pockets; slightly firm in place but loose when disturbed; boundary diffuse.**
Du 581015	50 to 56 inches. Same as overlying horizon with only a very few iron stains.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Newport silt loam SOIL Nos. 858RI-3-1 LOCATION Newport County, Rhode Island

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 581016 - 581020

Depth (In.)	Horizon	1B1b Size class and particle diameter (mm) 3A1												3B2	Coarse fragments 3B1		
		Total			Sand					Silt					2A2		
		Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	Cm	> 2	2 – 19	19 – 76
		Pct. of < 2 mm													Pct.	Pct. of < 76mm	
0-10	Ap	49.2	43.2	7.6	3.1	6.1	7.9	18.3	13.8	21.1	22.1	45.0	35.4		13		
10-14	B21	42.2	50.8	7.0	3.7	5.7	6.3	12.2	14.3	22.1	28.7	43.4	27.9		19		
14-21	B22	42.8	50.6	6.6	3.0	5.7	6.4	13.0	14.7	23.0	27.6	45.4	28.1		24		
21-25	C1	46.4	47.8	5.8	4.3	6.8	7.0	13.9	14.4	21.6	26.2	44.1	32.0		18		
25-34	C2m	49.7	45.0	5.3	6.1	7.5	7.5	14.4	14.2	19.7	25.3	42.5	35.5		13		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		6C1a Carbonate as $CaCO_3$	Ext. iron as Fe	Bulk density			4D1 COLE	Water content			4C1 WRD	pH		
								4A1e ⅓ bar	4A1h Oven dry			4B1c ⅓ bar	4B2 15 bar			8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	in/in			
0-10	1.65	0.149	11			1.1		1.50					5.0				4.9
10-14	0.87	0.065	13			1.0		1.42					4.3				5.1
14-21	0.33	0.039	8			1.0		1.49									5.0
21-25	0.23					0.8		1.73					2.7				5.1
25-34	0.22					0.5		1.86					2.2				5.2

Depth (In.)	Extractable bases 5B1a					6H2a Ext. acidity	CEC		6G1d Ext. Al		Ratios to clay 8n1			8D3 Ca/Mg	Base saturation	
	6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum		5A3a Sum cations				CEC Sum	Ext. iron	15-bar water		5C3 Sum cations	5C1 NH_4OAc
	meq/100 g														Pct.	Pct.
0-10	2.1	0.3	tr.	0.5	2.9	12.5	15.4				2.03	0.14	0.66		19	
10-14	0.9	0.3	tr.	0.3	1.5	6.4	7.9				1.13	0.14	0.61		19	
14-21	0.7	0.2	tr.	0.2	1.1	4.8	5.9				0.89	0.15			19	
21-25	0.4	0.1	tr.	0.2	0.7	3.3	4.0				0.69	0.14	0.46		18	
25-34	0.3	0.1	tr.	0.1	0.5	2.3	2.8				0.53	0.09	0.42		18	

Depth (In.)	Clay Fraction Analysis 7A1b-d								
	Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Newport silt loam
Soil No.: S58RI-3-1
Location: Newport **County,** Rhode Island in the town of Middletown. About 1 mile east of Howland School.
Vegetation: Cultivated field used for potatoes, cauliflower and cabbage in 1958.
Slope: 2 percent grade
Drainage: Well drained
Collected by and date: E. J. Pedersen, M. A. Puchalski, W. Gonick, Dr. Bell, University of Rhode Island, and Dave Hill. November 12, 1958.
Described by: A. E. Shearin

Horizon and Beltsville Lab. Nos.	
Ap 581016	0 to 10 inches. Very dark grayish brown (10YR 3/2) silt loam; coarse clods crush easily to weak coarse granular; friable to very friable; coarse skeleton 10 to 15 percent; boundary abrupt.
B21 581017	10 to 14 inches. Olive brown (2.5Y 4/4) silt loam; soft blocky and subangular clods; very friable; coarse skeleton 10 to 15 percent; boundary clear and wavy.
B22 **581018**	14 to 21 inches. Olive (5Y 4/3) silt loam; breaks into coarse blocky and subangular clods; very friable; coarse skeleton 10 to 15 percent; boundary clear and wavy.
C1 581019	21 to 25 inches. Dark greenish gray (5GY 4/1) finely mottled with olive gray (5Y 4/2) and olive (5Y 4/3) gravelly sandy loam; massive in place and breaks into coarse blocky peds; slightly firm in place; boundary gradual.
C2m 581020	25 to 34 inches. Dark greenish gray (5GY 4/1) mottled with 5 percent olive brown (2.5Y 4/4) and 5 percent yellowish brown (10YR 5/8) gravelly sandy loam; massive; very firm in place but crushes easily when disturbed.
D Not sampled	34 to 38 inches. Olive gray (5Y 5/2) and olive (5Y 5/3) with streaks and pocks of yellowish brown (10YR 5/8) silt loam and coarse sandy loam. Yellowish brown (10YR 5/8) streaks and pockets appear to be rotten sandstone in places. The material below these horizons is similar to C2m horizon.

Notes: Roots well distributed in the A and B horizons. None or very few roots in the C horizons. Worm-holes filled with material from Ap horizon common in B21.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Newport silt loam SOIL Nos. 858RI-5-1 LOCATION Washington County, Rhode Island

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58994 - 58999

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 >2 Pct.	2–19 Pct. of <76mm	19–76 Pct. of <76mm
		Pct. of < 2 mm																
0-7	Ap	42.3	51.9	5.8	2.6	4.0	4.2	10.0	21.5	32.2	19.7	59.6	20.8			6		
7-12	B12	43.8	51.8	4.4	3.1	4.5	4.6	10.9	20.7	31.8	20.0	59.2	23.1			9		
12-17	B22	48.4	47.0	4.6	3.4	5.8	5.8	13.9	19.5	27.3	19.7	55.5	28.9			13		
17-22	B23	58.2	37.2	4.6	5.4	8.4	8.0	17.9	18.5	19.6	17.6	49.0	39.7			18		
22-30	C1	60.2	34.9	4.9	4.7	8.5	8.4	19.9	18.7	16.9	18.0	47.5	41.5			23		
30-40	C2m	64.8	29.1	6.1	10.8	11.8	9.3	17.9	15.0	12.8	16.3	38.2	49.8			24		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-7	3.15	0.200	16			1.0		1.10			19.9	8.7				4.3
7-12	1.12	0.066	17			0.8		1.30			16.6	4.0				4.7
12-17	0.73	0.045	16			0.7		1.33			16.5	3.5				4.8
17-22	0.51	0.028	18			0.6		1.63			14.2	2.8				5.0
22-30	0.23					0.7		2.03			13.4	3.0				5.2
30-40	0.27					0.7		2.03			13.3	2.9				5.0

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8p1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-7	0.1	0.2	tr.	0.2	0.5	17.2	17.7				3.05	0.17	1.50			3	
7-12	0.1	0.2	tr.	0.1	0.4	6.4	6.8				1.54	0.18	0.91			6	
12-17	tr.	0.2	tr.	0.1	0.3	5.2	5.5				1.20	0.15	0.76			5	
17-22	0.1	0.2	tr.	0.1	0.4	3.4	3.8				0.83	0.13	0.61			11	
22-30	0.1	0.2	tr.	0.1	0.4	2.6	3.0				0.61	0.14	0.61			13	
30-40	0.2	0.1	tr.	0.1	0.4	2.6	3.0				0.49	0.11	0.48			13	

Depth (in.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Newport silt loam
Soil No.: S58RI-5-1
Location: Washington County, Rhode Island. 1.4 mile N.E. Wakefield Post Office just east of Hwy.1A
Vegetation: Idle area consisting mainly of bayberry, viburnum, wild cherry, poison ivy, broomsedge and redtop
Slope: 1 to 2 percent
Drainage: Well drained
Collected by and date: E. J. Pedersen, M. A. Puchalski, W. Gonick, and John B. Smith. Nov. 11, 1958.
Described by: A. E. Shearin

Horizon and Beltsville Lab. Nos.	
Ap 58994	0 to 7 inches. Very dark grayish brown (10YR 3/2) silt loam; breaks into coarse clods that crush to weak coarse granular; very friable; coarse skeleton 5 to 8 percent; boundary abrupt.
B21 58995	7 to 12 inches. Olive brown (2.5Y 4/4) silt loam; very weak medium and coarse subangular blocky; very friable; coarse skeleton 5 to 8 percent; boundary clear.
B22 58996	12 to 17 inches. Olive (5Y 4/3) silt loam; very weak medium and coarse subangular blocky; very friable; coarse skeleton 8-10 percent; boundary gradual.
B23 58997	17 to 22 inches. Olive gray (5Y 4/2) grading toward olive (5Y 4/3) fine sandy loam; breaks into very soft subangular clods; very friable; coarse skeleton 10-15 percent; boundary clear.
C1 58998	22 to 30 inches. Very dark gray (5Y 3/1) and dark olive gray (5Y 3/2) with pockets of olive gray (5Y 4/2) gravelly sandy loam; massive; slightly firm but friable when disturbed; boundary gradual.
C2m 58999	30 to 40 inches. Intermingled dark olive gray (5Y 3/2) and olive gray (5Y 4/2) gravelly sandy loam; very weak coarse platy; very firm in place but crushes easily when disturbed.

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is probably a thin stratum. This horizon contains a rather high proportion of coarse fragments ranging from 2 to 5 inches in diameter. A few silt or very fine sand films are present around some gravel and rock fragments.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Benson rocky silt loam SOIL Nos. S56Vt-7-2 LOCATION Grand Isle County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 561242-561244

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-9	Ap	18.5	51.4	30.1	1.5	3.1	3.8	7.0	3.1	11.2	40.2	17.3	15.4			8		
9-16	B2	19.3	57.3	23.4	3.1	5.2	2.2	4.8	4.0	14.5	42.8	21.2	15.3			1		
16-21	C2	22.9	53.3	23.8	7.7	5.9	2.1	3.9	3.3	13.9	39.4	19.3	19.6			75		

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N		6E1e Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density g/cc	Bulk density 4A1e ⅓ bar g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content 4B1c ⅓ bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH 1:3 H_2O	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.												
0-9	4.40	0.466	9		-	1.7		1.00				39.1	14.3					6.8
9-16	1.24	0.282	4		tr.	2.0		1.02				40.2	8.7					7.6
16-21	1.17	0.309	4		7	2.0						36.8	8.4			7.8		7.8

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H1a Ext. acidity	CEC 5A3a Sum cations	6G1d Ext. Al		Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g															
0-9	26.6	0.6	0.1	0.3	27.6	4.9	32.5			1.08	0.06	0.48			85	
9-16	a									-	0.08	0.37			-	
16-21	a									-	0.08	0.35			-	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

a Calcareous

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Benson rocky silt loam
Soil No.: S56Vt-7-2
Location: Grand Isle County, Vermont. Alburg town, one mile southwest of Alburg Center. Air photo FEA 3-678R.
Vegetation and land use: Hay, alfalfa, and bromegrass.
Slope and land form: 4 percent
Drainage: Somewhat excessively drained.
Permeability: Moderate
Sampled by and date: J. R. Gingrich, E. J. Pedersen, S. E. Davidson, S. J. Zayach, J. A. Ferwerda, and M. Howard, Jr. October 9, 1956.
Described by: J. A. Ferwerda, S. J. Zayach, and M. Howard, Jr.

Horizon and Beltsville Lab. No.	
Ap 561242	0 to 9 inches. Very dark grayish brown (10YR 3/2) silt loam; strong fine and medium granular structure; friable to very friable; very many grass roots; estimated 10 percent by volume coarse fragments of channery limestone up to one inch in length, some leached fragments; pH 6.8; abrupt wavy boundary. 8 to 9 inches thick.
B2 561243	9 to 16 inches. Dark yellowish brown (10YR 3/4) channery silt loam; strong very fine subangular blocky structure; friable; common to many grass roots; estimated 30 percent by volume coarse fragments of channery limestone up to one inch in length, some leached fragments; pH 7.0; clear wavy boundary. 6 to 10 inches thick.
C2 561244	16 to 21 inches. Dark grayish brown (10YR 4/2) very channery silt loam or heavy loam; weak fine and very fine granular structure; very friable; grass roots common; estimated 95 percent by volume coarse fragments of limestone channers and flagstones; slight effervescence of soil material with cold dilute hydrochloric acid; abrupt broken boundary. 0 to 10 inches thick.
Dr Not sampled	21 inches plus. Soft, dark gray limestone bedrock; few grass roots in cracks; strong effervescence with cold dilute hydrochloric acid.

Notes: Colors refer to moist soil.

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10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Buckland silt loam SOIL Nos. S61Vt-12-11 LOCATION Washington County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61429 - 61434

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 - 19 Pct. of <76mm	19 - 76 Pct. of <76mm
		Pct. of < 2 mm																
0-7	Ap	42.4	48.8	8.8	4.0	6.5	3.8	10.2	17.9	24.4	24.4	48.6	24.5			5		
8-10	A2	43.4	51.5	5.1	5.0	5.1	3.1	9.5	20.7	25.5	26.0	52.2	22.7			9		
7-10	B2	41.8	51.6	6.6	6.4	6.2	3.6	8.9	16.7	24.2	27.4	46.1	25.1			11		
10-15	A'2	45.7	48.6	5.7	6.0	7.0	4.6	11.0	17.1	23.0	25.6	46.5	28.6			7		
15-26	C1mg	36.7	50.8	12.5	3.4	4.6	3.5	10.0	15.2	20.6	30.2	41.5	21.5			3		
26-45+	C2m	32.0	54.3	13.7	3.2	3.9	2.7	8.3	13.9	21.1	33.2	39.9	18.1			3		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron as Fe Pct.	Bulk density: 4A1e ⅓ bar g/cc	Bulk density: 4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar Pct.	Water content: 4B2 15 bar Pct.		4C1 WRD in/in	pH: $CaCl_2$ 1:1	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
0-7	3.20	0.251	13			1.5	1.14	1.22			33.4	9.5			4.7	4.1	4.8
8-10	0.68	0.053	13			0.8						2.9			4.5	3.9	5.0
7-10	0.74	0.066	11			1.5	1.28	1.31			28.9	5.0			4.9	4.6	5.2
10-15	0.38	0.039	10			1.0	1.40	1.44			22.2	3.8			4.9	4.6	5.5
15-26	0.13					1.3	1.76	1.80			16.5	6.1			5.1	4.5	5.6
26-45+	0.13					1.3	1.70	1.76			18.9	6.7			5.1	4.4	5.6

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	6G1d Ext. Al			Ratios to clay 8m1: CEC Sum	Ext. Iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-7	3.7	0.6	0.1	0.3	4.7	17.2	21.9	1.0			2.49	0.17	1.08			21	
8-10	1.5	0.1	tr.	tr.	1.6	6.0	7.6	1.2			1.49	0.16	0.57			21	
7-10	0.9	0.1	tr.	tr.	1.0	10.8	11.8	0.9			1.79	0.23	0.76			8	
10-15	0.6	0.1	tr.	tr.	0.7	6.4	7.1	0.6			1.24	0.18	0.67			10	
15-26	1.6	0.1	0.1	0.1	1.9	4.5	6.4	0.4			0.50	0.10	0.48			30	
26-45+	2.5	0.5	0.1	0.1	3.2	4.9	8.1	0.4			0.59	0.09	0.49			40	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Buckland silt loam
Soil No.: S61Vt-12-11
Location: Washington County, Vermont. Barre town, 1 mile west of Barre City reservoir, 3/4 mile west of Orange County line, Delbert farm. Air photo DCC 1-126.
Vegetation and land use: Pasture-Kentucky blue grass, buttercups, Canada thistle.
Slope and land form: 10 percent
Drainage: Moderately well drained. Runoff is estimated to be medium. Internal drainage is estimated to be slow to medium.
Permeability: Estimated to be rapid in the solum, slow in the C horizons

[redacted]

Physiographic position: A glaciated upland plateau.
Sampled by and date: E. J. Pedersen, G. W. Allen, and M. Howard, Jr. June 21, 1961.

Horizon and Beltsville Lab. No.	
Ap 61429	0 to 7 inches. Very dark grayish brown (10YR 3/2) silt loam; strong very fine, fine, and medium granular structure; very friable when moist, slightly sticky and nonplastic when wet, penetrometer 2.25 (2.00-2.50) [a] ; many grass roots; estimated 5 to 10 percent by volume coarse fragments; pH 6.4; abrupt smooth boundary.
A2 61430	8 to 10 inches. Gray (N 5/) loam; weak fine granular structure; very friable when moist, slightly sticky and nonplastic when wet, no penetrometer readings; grass roots are common; estimated 5 to 10 percent by volume coarse fragments; pH 6.2; abrupt wavy boundary.
B2	[redacted]
61431	weak fine granular structure; very friable when moist; slightly sticky and slightly plastic when wet, penetrometer 2.95 (2.00-4.25); grass roots are common; estimated 5 to 10 percent by volume coarse fragments; pH 6.4; abrupt smooth boundary.
A'2 61432	10 to 15 inches. Olive (5Y 4/3) loam with few fine faint mottles of browner colors; moderate thin platy structure; very friable when moist, slightly sticky and nonplastic when wet, penetrometer 2.45 (1.75-2.75); estimated 10 to 15 percent by volume coarse fragments; pH 6.6; abrupt smooth boundary.
C1mg 61433	15 to 26 inches. Olive gray (5Y 4/2) silt loam with common medium and coarse faint mottles of slightly browner colors; strong medium platy structure; firm in place, friable in the hand when moist, slightly sticky and nonplastic when wet, penetrometer 3.25 (2.25-4.50+); few grass roots; estimated 10 percent by volume coarse fragments, contains dark reddish brown (2.5YR 2/4) limestone "ghosts" that crush between the fingers to a fine sandy loam; pH 6.6; clear smooth boundary.
C2m 61434	26 to 45 inches plus. Between dark gray (5Y 4/1) and olive gray (5Y 4/2), silt loam; moderate thick platy structure at the top of the horizon grading to very weak thick platy structure at the bottom of the exposure; firm in place, friable in the hand when moist, slightly sticky and slightly plastic when wet, penetrometer 3.45 (3.00-3.75); a very few grass roots in the upper few inches, none below; estimated 10 percent by volume coarse fragments, contains dark reddish brown (2.5YR 2/4) limestone "ghosts" that crush between the fingers to a fine sandy loam; pH 6.6.

Notes: [a] Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CL - 700 pushed

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Cabot silt loam SOIL Nos. S59Vt.9-1 LOCATION Orange County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59924-59929

Depth (In.)	Horizon	1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2 > 2 Pct.	2 – 19	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	34.4	56.0	9.6	3.0	3.7	2.6	7.4	17.7	26.4	29.6	48.8	16.7			6		
8-12	A2g	45.0	47.6	7.4	4.9	5.1	3.6	10.5	20.9	25.6	22.0	53.3	24.1			6		
12-18	B21gm	37.2	54.8	8.0	5.0	4.5	3.0	8.2	16.5	24.0	30.8	45.5	20.7			8		
18-27	B22gm	37.0	55.4	7.6	5.6	5.3	3.0	7.9	15.2	22.8	32.6	43.2	21.8			8		
27-36	C1g	38.4	53.9	7.7	7.2	5.7	3.2	8.0	14.3	22.5	31.4	41.8	24.1			12		
36-45+	C2g	39.7	53.7	6.6	6.1	5.4	3.3	8.6	16.3	23.3	30.4	45.0	23.4			15		

[redacted]

Soil type: Cabot silt loam
Soil No.: S59 Vt-9-1
Location: 1 1/4 miles west of North Randolph, Orange County, Vermont, precisely located on air photo CLW 4-111.
Vegetation: Hay - timothy, some sedge and redtop.
Slope: Smooth convex, 3 percent.
Drainage: Somewhat poorly drained. Runoff and internal drainage estimated to be slow.
Permeability: Rapid in the Ap, moderately rapid in the A2, slow in the B, and moderate in the C horizons.
Physiography: An upland till plain on a broad plateau.
Ground water: About 6 feet deep.
Sampled by and date: R. J. Bartlett, E. J. Pedersen, K. W. Flach, B. R. Brasher, A. H. Kodess. September 21, 1959.
Described by: M. Howard, Jr.

Horizon and Beltsville Lab. Number	
Ap 59924	0 to 8 inches. Dark olive gray (5Y 3/2) when moist, gray (5Y 5/1) when dry, silt loam; moderate fine and medium granular structure; friable when moist, slightly sticky and slightly plastic when wet, penetrometer 1.80 (1.50-2.75)[a]; many grass roots; estimated 5 percent by volume coarse fragments; pH 6.2; abrupt smooth boundary. 7 to 8 inches thick. No coarse fragments discarded.
A2g 59925	8 to 12 inches. Dark gray (N 4/) with few fine and medium distinct very dark gray (5Y 3/1) mottles when moist, gray (5Y 5/1) with few fine and medium distinct olive (5Y 5/4) mottles when dry, loam; moderate fine granular structure with some weak thick platy structure; friable when moist, slightly sticky and slightly plastic when wet, penetrometer 3.70 (2.00-4.50); grass roots common; estimated 10 percent by volume coarse fragments; pH 6.6; clear wavy boundary. 3 to 6 inches thick.
B21gm 59926	12 to 18 inches. Dark gray (N 4/) with many medium distinct very dark gray (5Y 3/1) mottles, and ghosts of brown to dark brown (7.5YR 4/4) and very dusky red (2.5YR 2/2) colors, when moist, gray (5Y 5/1) with many medium distinct olive (5Y 5/4) mottles when dry, silt loam; weak medium subangular blocky structure with common discontinuous thin clay skins; firm in place, slightly firm in hand when moist, slightly sticky, and slightly plastic when wet, penetrometer 4.50 (4.50-4.50); few grass roots; estimated 10 to 15 percent by volume coarse fragments; pH 6.6; gradual wavy boundary. 3 to 6 inches thick.
B22gm 59927	18 to 27 inches. Dark gray (N 4/) with many medium distinct very dark gray (5Y 3/1) mottles, and ghosts of brown to dark brown (7.5YR 4/4) and very dusky red (2.5YR 2/2) colors when moist. Gray (5Y 5/1) with many medium distinct olive (5Y 5/4) mottles when dry, heavy silt loam; weak fine subangular blocky structure, with few discontinuous thin clay skins; firm in place, slightly firm in hand when moist, slightly sticky and slightly plastic when wet, penetrometer 4.3 (4.25-4.50); very few grass roots; estimated 10 to 15 percent by volume coarse fragments; pH 6.6; gradual wavy boundary. 8 to 12 inches thick. Estimated 1 percent by weight coarse fragments greater than 3 inches and less than 10 inches discarded.
C1g 59928	27 to 36 inches. Very dark gray (5Y 3/1) with many medium distinct dark gray (N 4/) mottles when moist, olive (5Y 5/4) with many medium distinct gray (5Y 5/1) mottles when dry, loam; weak thick platy structure to structureless, massive; friable when moist, slightly sticky and nonplastic when wet, penetrometer 3.10 (2.00-4.25); no grass roots; estimated 15 percent by volume coarse fragments; pH 6.6; gradual wavy boundary. 8 to 12 inches thick.
C2g 59929	36 to 45+ inches. Very dark gray (5Y 3/1) with common medium distinct dark gray (N 4/) mottles when moist, olive (5Y 5/4) with common medium distinct gray (5Y 5/1) mottles when dry, loam; weak thick platy structure; friable when moist, slightly sticky and nonplastic when wet, penetrometer 1.55 (.25-2.50); no grass roots; estimated 15 percent by volume coarse fragments; pH 6.6. Estimated 1 percent by weight coarse fragments greater than 3 inches and less than 10 inches discarded. This horizon is thought to be partially weathered glacial till.

Notes: Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CL - 700 pushed vertically in the Ap and C2 horizons, and horizontally in the remaining horizons exposed on the face sampled. First figure given is the average of 5 readings, the figures in parentheses are the range of values obtained. Values are for moist soil. The values represent unconfined compressive strength, tons per square foot and kilograms per square centimeter. The figure is the same for both systems. The 36 to 45 inch zone was sampled for the Bureau of Public Roads.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Cabot silt loam SOIL Nos. 859Vt,9-3 LOCATION Orange County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59936-59940

Depth (In.)	Horizon	1H1b Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)			Coarse fragments: 2A2 > 2 Pct.	Coarse fragments: 2 – 19 Pct. of < 76mm	Coarse fragments: 19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	45.1	46.8	8.1	6.8	5.9	3.6	10.6	18.2	22.8	24.0	48.0	26.9			11		
8-12	A2g	41.8	49.6	8.6	5.4	5.7	3.4	10.3	17.0	21.2	28.4	45.5	25.8			10		
12-24	B2gm	42.6	49.4	8.0	6.4	5.8	3.6	10.7	16.1	21.0	28.4	43.9	26.5			9		
24-31	C1g	44.9	47.5	7.6	8.8	6.6	3.6	9.4	16.5	21.5	26.0	44.0	28.4			15		
31-42	C2g	38.5	50.5	11.0	5.6[a]	5.5	3.1	8.7	15.6	21.7	28.8	42.8	22.9			19		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron Oxide Fe_2O_3 Pct.	Bulk density: 4A1e 1/3 Bar g/cc			Water content: Pct.	4B1c 1/3 Bar Pct.	4B2 15 Bar Pct.			pH: 8C1c 1:1 1N KCl	pH: 8C1a (1:1) H_2O
0-8	3.72	0.276	13			2.2		1.18			30.8	12.4				5.7	6.3
8-12	0.30	0.037	8			2.0		1.80			16.2	4.7				5.6	7.0
12-24	0.16					1.8		1.80			18.0	4.7				6.0	7.1
24-31	0.14					1.5		1.80			17.3	4.0				5.9	7.2
31-42	0.12					1.3		1.78			18.0	4.7				6.1	7.4

Depth (In.)	Extractable bases: 6N2d Ca meq/100 g	6O2b Mg meq/100 g	6P2a Na meq/100 g	5H1a 6Q2a K meq/100 g	6H2a Ext. Acidity meq/100 g	CEC 5A3a Sum cations meq/100 g	Ratios to clay 8D1: CEC Sum	EXT. Iron	15 Bar Water	Base saturation 5C3 Sum cations Pct.	Pct.
0-8	11.6	0.7	tr	0.1	8.4	20.8	2.57	0.27	1.53	60	
8-12	3.3	0.4	tr	0.1	1.9	5.7	0.66	0.23	0.55	67	
12-24	3.2	0.4	tr	0.1	1.5	5.2	0.65	0.22	0.59	71	
24-31	3.4	0.4	tr	0.1	1.1	5.0	0.66	0.20	0.53	78	
31-42	3.2	0.3	tr	0.1	1.1	4.7	0.43	0.12	0.43	76	

Depth (In.)

a. Sand fraction contained sand-root hair mats - did not break up on shaking.

Soil type: Cabot silt loam
Soil No.: S59 Vt-9-3
Location: 1 mile east of Randolph Center, Orange County, Vermont, precisely located on air photo C1W 4-110.
Vegetation: Hay - sedge and timothy.
Slope: Smooth convex, 7 percent.
Drainage: Poorly drained. Runoff and internal drainage estimated to be slow.
Permeability: Estimated to be slow.
Physiography: An upland till plain on a broad plateau.
Sampled by and date: F. L. Pedersen, K. W. Flach, R. R. Brasher, A. H. Kodess, September [illegible], 1959

Described by: M. Howard, Jr.

Horizon and
Beltsville
Lab. Number

Ap 0 to 8 inches. Very dark grayish brown (2.5Y 3/2) when moist, dark grayish brown (2.5Y 4/2)
59936 when dry, silt loam; strong fine and medium granular structure; friable when moist, slightly

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10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Calais loam SOIL Nos. S59Vt.9-2 LOCATION Orange County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59930-59935

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2 > 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap	36.9	55.4	7.7	5.4	4.9	2.6	7.4	16.6	26.0	29.4	47.4	20.3			5		
7-9	B2	36.3	58.7	5.0	4.8	4.7	2.8	7.4	16.6	26.6	32.1	48.0	19.7			8		
9-13	B31	32.2	61.4	6.4	3.4	4.3	2.6	6.6	15.3	24.3	37.1	43.9	16.9			5		
13-22	B32	32.1	59.3	8.6	4.2	5.2	2.8	6.3	13.6	23.6	35.7	41.3	18.5			7		
22-31	C1	39.9	52.2	7.9	8.7	6.5	2.9	6.9	14.9	21.8	30.4	41.1	25.0			7		
31-40	C2	40.0	53.3	6.7	7.0	6.3	3.1	7.2	16.4	23.5	29.8	44.6	23.6			11		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron Oxide Fe_2O_3 Pct.	Bulk density g/cc	4A1c 1/3 Bar g/cc	g/cc		Water content 4B1c 1/3 Bar Pct.	4B2 15 Bar Pct.			pH 8C1c 1:1 1N KCl	8C1a (1:1) H_2O
0-7	2.26	0.180	12			2.0		1.22				28.6	8.5			4.7	5.7
7-9	1.23	0.100	12			1.8		1.22				29.3	6.6			4.8	5.6
9-13	0.58	0.066	9			1.5		1.46				23.6	4.6			4.6	5.8
13-22	0.28					1.3		1.71				17.6	5.1			4.5	5.8
22-31	0.20					1.7		1.72				18.4	5.0			4.7	5.7
31-40	0.16					1.2		1.68				18.4	4.5			4.8	5.7

Depth (In.)	Extractable bases 6N2d Ca	6O2b Mg	6P2a Na	5H1a 6Q2a K	6H2a Ext. Acidity	CEC 5A3a Sum Cations			Pyro.-dith. C Pct.	Fe Pct.	6C4 C+Fe clay	Ratios to clay 8D1 CEC Sum	EXT. Iron	15 Bar Water		Base saturation 5C3 Sum Cations Pct.	Pct.
	meq/100 g																
0-7	4.7	0.3	tr	0.1	12.0	17.2			0.98	1.04	0.26	2.23	0.26	1.10		30	
7-9	1.9	1.1	tr	0.1	13.0	16.2			0.82	0.98	0.36	3.24	0.36	1.32		20	
9-13	1.1	tr	0.1	0.1	7.1	8.4						1.31	0.23	0.72		15	
13-22	1.0	tr	tr	0.2	4.9	6.1						0.71	0.15	0.59		20	
22-31	1.0	0.1	0.1	0.2	4.7	6.0						0.76	0.22	0.63		22	
31-40	1.0	0.1	tr	0.2	3.6	4.9						0.73	0.18	0.67		26	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm. (7A2 X-ray)	Mi.	Int. Vm. Mi.	Qtz.	Kl. (DTA 7A3)	Gibbsite	DTA
0-7		x	tr.	x	-		-		
7-9									
9-13									
13-22		xx	-	xx	-		-		
22-31									
31-40									

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil type: Calais loam
Soil No.: S59Vt 9-2
Location: 1 1/4 miles west of North Randolph, Orange County, Vermont, precisely located on air photo ClW 4-111.
Vegetation: Hay, timothy and red top.
Slope: Smooth convex, 7 percent.
Drainage: Well drained. Runoff and internal drainage are estimated to be medium.
Permeability: Estimated to be moderate.
Physiography: An upland till plain on a broad plateau.
Sampled by and date: R. J. Bartlett, E. J. Pedersen, K. W. Flach, B. R. Brasher, A. H. Kodess. September 22, 1959.
Described by: M. Howard, Jr.

Horizon and
Beltsville
Lab. Number

Ap 0 to 7 inches. Very dark grayish brown (2.5Y 3/2) when moist, olive (5Y 5/3) when dry, loam;

59930 strong medium granular structure; very friable when moist, nonsticky and slightly plastic when wet, penetrometer 2.40 (2.25-2.75)[a]; many grass roots; estimated 5 percent by volume coarse fragments; pH 5.6; abrupt wavy boundary. 6 to 8 inches thick. No coarse fragments discarded.

B2 7 to 9 inches. Olive brown (2.5Y 4/4) when moist, olive (5Y 5/3) when dry, loam; weak fine
59931 and medium granular structure; very friable when moist, nonsticky and slightly plastic when wet, penetrometer 1.55 (1.25-2.00); many grass roots; estimated 5 percent by volume coarse fragments; pH 5.6; clear wavy boundary. 0 to 3 inches thick.

B31 9 to 13 inches. Between dark olive gray (5Y 3/2) and very dark grayish brown (2.5Y 3/2) when
59932 moist, between gray (5Y 5/1) and gray to light gray (5Y 6/1) when dry, loam; weak medium platy structure; plate faces have what appear to be very fine, very thin discontinuous clay skins; friable when moist, slightly sticky and slightly plastic when wet, penetrometer 3.65 (2.50-4.50); grass roots common; estimated 5 percent by volume coarse fragments; pH 6.2; clear wavy boundary. 2 to 5 inches thick.

B32 13 to 22 inches. Dark olive gray (5Y 3/2) when moist, gray to light gray (5Y 6/1) when dry,
59933 loam; weak medium and thick platy structure; slightly firm in place and friable in the hand when moist, slightly sticky and slightly plastic when wet, penetrometer 4.15 (3.25-4.50); few grass roots; estimated 10 percent by volume coarse fragments; pH 6.4; gradual wavy boundary. 7 to 12 inches thick. No coarse fragments discarded.

C1 22 to 31 inches. Dark olive gray (5Y 3/2) when moist, gray to light gray (5Y 6/1) when dry,
59934 loam; weak thick platy structure; somewhat firm in place and friable in the hand when moist;

15 percent by volume coarse fragments; pH 6.2; gradual wavy boundary. 8 to 11 inches thick.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Calais loam SOIL Nos. 859Vt. 9-4 LOCATION Orange County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59941-59945

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt (0.05–0.02)	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2 > 2 Pct.	2–19 Pct. of < 2mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm														Pct.		
0-7	Ap	39.5	53.9	6.6	7.4	6.4	3.2	7.5	15.0	21.3	32.6	41.1	24.5			12		
7-11	B2	39.5	55.8	4.7	8.3	6.3	3.2	6.8	14.9	26.3	29.5	45.5	24.6			25		
11-18	B31	47.6	47.2	5.2	12.5	9.0	3.8	7.6	14.7	20.6	26.6	39.9	32.9			31		
18-30	B32m	32.7	57.5	9.8	5.0	5.4	2.8	6.0	13.5	22.6	34.9	39.8	19.2			13		
30-40	C	32.7	58.6	8.7	4.1	5.0	2.7	6.8	14.1	23.9	34.7	42.4	18.6			16		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. Iron Oxide Fe_2O_3 Pct.	Bulk density g/cc	4A1e 1/3 Bar g/cc	g/cc		Water content Pct.	4B1c 1/3 Bar Pct.	4B2 15 Bar Pct.			pH 8C1c (1:1) 1N KCl	8C1a (1:1) H_2O
0-7	2.95	0.213	14			2.1		1.19				27.0	9.3			5.2	6.0
7-11	1.43	0.100	14			2.0		1.14				27.2	6.7			5.1	5.8
11-18	0.53	0.044	12			1.5		1.36				24.7	4.1			5.0	5.8
18-30	0.27					1.8		1.69				19.7	5.7			4.7	5.8
30-40	0.25					1.4		1.61				18.7	5.2			4.5	5.6

Depth (In.)	Extractable bases 6N2d Ca	6O2b Mg	6P2a Na	5B1a 6Q2a K	6H2a Ext. Acidity	CEC 5A3a Sum Cations			Pyro.-dith. C Pct.	Fe Pct.	6C4 C+Fe clay	Ratios to clay CEC Sum	EXT. Iron	8D1 15 Bar Water			Base saturation 5C3 Sum Cations Pct.	Pct.
	meq/100 g																	
0-7	6.3	0.3	tr	0.2	13.2	20.0			1.12	1.04	0.33	3.03	0.32	1.41			34	
7-11	2.1	0.1	tr	0.1	16.6	19.0			0.93	1.14	0.44	4.04	0.42	1.42			13	
11-18	0.7	0.1	tr	0.1	6.7	7.7						1.48	0.29	0.79			13	
18-30	1.0	0.1	0.1	0.2	4.5	5.9						0.60	0.18	0.58			24	
30-40	0.9	0.1	tr	0.2	3.8	5.0						0.57	0.16	0.60			24	

Depth (In.)

Soil type: Calais loam
Soil No.: S59 Vt-9-4
Location: 1 mile east of Randolph Center, Orange County, Vermont, precisely located on air photo C1W 4-110.
Vegetation: Hay, timothy and brome.
Slope: Smooth convex, 7 percent.
Drainage: Well drained. Runoff and internal drainage are estimated to be medium.
Permeability: Estimated to be rapid in the Ap, moderate in the B2 and slow in the B32m horizons.
Physiography: An upland till plain on a broad plateau.
Sampled by and date: E. J. Pedersen, K. W. Flach, B. R. Brasher, A. H. Kodess. September 22, 1959.
Described by: M. Howard, Jr.

Horizon and
Beltsville
Lab. Number

Ap
59941 — 0 to 7 inches. Very dark grayish brown (2.5Y 3/2) when moist, dark grayish brown (2.5Y 4/2) when dry, loam; weak to moderate fine and medium granular structure; very friable when moist, slightly sticky and slightly plastic when wet, penetrometer 1.65 (1.00-2.25)[a] ; many grass roots; estimated less than 5 percent by volume coarse fragments; pH 6.0 abrupt smooth boundary. 6 to 7 inches thick. No coarse fragments discarded.

B2
59942 — 7 to 11 inches. Olive brown (2.5Y 4/3, interpolated) when moist, between olive brown (2.5Y 4/4) and light olive brown (2.5Y 5/4) when dry, loam; weak to moderate fine and medium granular structure; very friable when moist, slightly sticky and slightly plastic when wet, penetrometer 2.50 (1.75-3.50); many grass roots; estimated less than 5 percent by volume coarse fragments; pH 6.0; abrupt wavy boundary. 0 to 8 inches thick.

B31
59943 — 11 to 18 inches. Dark olive gray (5Y 3/2) when moist, no dry colors recorded, loam; very weak medium and thick platy structure; friable when moist, slightly sticky and slightly plastic when wet, penetrometer 2.65 (2.25-2.75); grass roots common; estimated 20 to 30 percent by volume coarse fragments; pH 6.2; clear wavy boundary. 4 to 10 inches thick. Estimated 5 percent by weight of coarse fragments greater than 3 inches and less than 10 inches discarded.

B32m
59944 — 18 to 30 inches. Very dark gray (5Y 3/1) when moist, no dry colors recorded, loam; very weak medium and thick platy structure; firm in place, and firm in hand when moist, slightly sticky and slightly plastic when wet, penetrometer 4.50 (4.50-4.50); no grass roots; estimated by volume 20 to 30 percent coarse fragments; pH 6.4; gradual smooth boundary. 12 to 14 inches thick. Estimated 5 percent by weight of coarse fragments greater than 3 inches and less than 10 inches discarded.

C1
59945 — 30 to 40 inches. Very dark gray (5Y 3/1) when moist, no dry colors recorded, with many limestone ghosts, loam; structureless, massive; friable when moist, slightly sticky and slightly plastic when wet; penetrometer 4.30 (4.25-4.50); no grass roots; pH 5.8. This horizon thought to be partially weathered glacial till.

Dr — 40+ inches. Parent material of shattered rock.

Notes: [a] Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CL - 700 pushed horizontally into each horizon exposed on the face sampled. First figure given is the average of 5 readings, the figures in parentheses are the range of values obtained. Values are for moist soil. The values represent unconfined compressive strength, tons per square foot and kilograms per square centimeter. The figure is the same for both systems. The 0 to 7 inch zone was sampled for the Bureau of Public Roads.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Colrain fine sandy loam SOIL Nos. 859Vt.9-5 LOCATION Orange County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59946-59950

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	3A1 Int. II (0.2–0.02)	(2–0.1)			Coarse fragments: 2A2 > 2 Pct.	2–19 Pct. of < 76mm	19–76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap	57.3	32.8	9.9	3.4	5.7	6.8	22.4	19.0	15.6	17.2	48.7	37.3			17		
7-10	B21	58.5	35.0	6.5	3.0	6.0	7.4	22.5	19.6	17.1	17.9	50.4	38.9			9		
10-15	B22	61.7	30.4	7.9	4.0	6.7	7.5	22.8	20.7	15.2	15.2	50.2	41.0			11		
15-19	B3	60.4	30.6	9.0	3.6	6.8	7.7	22.0	20.3	13.6	17.0	47.3	40.1			9		
19-30	C	59.2	33.6	7.2	4.2	7.3	7.3	20.7	19.7	13.8	19.8	46.1	39.5			8		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe_2O_3 Pct.	Bulk density: 4A1e 1/3 Bar g/cc			Water content: 4B1c 1/3 Bar Pct.	4B2 15 Bar Pct.			pH: 8C1c 1:1 1N KCl	8C1a (1:1) H_2O
0-7	2.20	0.180	12			2.0		1.19			22.8	8.9			4.9	5.5
7-10	0.65	0.057	11			1.9		1.26			21.8	5.5			4.9	5.6
10-15	0.58	0.046	13			2.0		1.28			16.2	5.2			5.0	5.8
15-19	0.43	0.032	13			2.0		1.54			15.8	5.2			4.8	5.8
19-30	0.21					2.1		1.53			17.0	5.8			4.7	5.9

Depth (In.)	Extractable bases: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	5B1a 6H2a Ext. Acidity	CEC: 5A3a Sum Cations			Pyro.-dith.: C	Fe	6C4 C+Fe / clay	Ratios to clay: CEC Sum	EXT. Iron	8m 15 Bar Water		Base saturation: 5C3 Sum Cations Pct.	
	meq/100 g								Pct.	Pct.							
0-7	2.8	0.4	tr	0.2	12.8	16.2			1.16	0.94	0.21	1.64	0.20	0.90		21	
7-10	0.6	0.1	0.1	0.1	8.0	8.9			0.36	0.84	0.18	1.37	0.29	0.85		10	
10-15	0.7	tr	0.1	0.1	6.3	7.2			0.25	0.71	0.12	0.91	0.25	0.66		12	
15-19	1.0	tr	0.1	0.1	4.7	5.5						0.61	0.22	0.58		22	
19-30	1.9	tr	0.1	0.1	4.3	6.4						0.89	0.29	0.80		33	

Depth (In.)

Soil No.: 859 Vt-9-5
Location: 2 miles west of Chelsea Village, Orange County, Vermont, precisely located on air photo C1W 7-48.
Vegetation: Hay - timothy, weeds, a few alfalfa plants.
Slope: A strongly dissected 18 percent upland slope.
Drainage: Well drained. Runoff and internal drainage are estimated to be rapid.
Permeability: Estimated to be rapid in the solum, moderately rapid in the C horizon.
Physiography: An upland till plain.
Sampled by and date: E. J. Pedersen, K. W. Flach, B. R. Brasher, A. H. Kodess, W. J. Sheehan. September 23, 1959.
Described by: M. Howard, Jr.

Horizon and Beltsville Lab. Number

Ap 59946 — 0 to 7 inches. Very dark grayish brown (10YR 3/2) when moist, grayish brown (10YR 5/2) when dry, fine sandy loam; moderate fine and medium granular structure; friable when moist, nonsticky and slightly plastic when wet, penetrometer 1.30 (1.00-1.75) [a]; many grass roots, estimated 5 percent by volume coarse fragments, pH 5.8; clear smooth boundary. 6 to 8 inches thick. No coarse fragments discarded.

B21 59947 — 7 to 10 inches. Between dark brown (10YR 4/3) and dark yellowish brown (10YR 4/4) when moist, yellowish brown (10YR 5/4) when dry, fine sandy loam; weak fine granular structure; very friable when moist, nonsticky and nonplastic when wet, penetrometer 1.65 (1.25-2.00); many grass roots; estimated 5 percent by volume coarse fragments; pH 5.6; gradual smooth boundary. 2 to 4 inches thick.

B22 59948 — 10 to 15 inches. Between dark brown (10YR 4/3) and dark yellowish brown (10YR 4/4) when moist, light olive brown (2.5Y 5/4) when dry, fine sandy loam; weak fine granular structure; friable when moist, nonsticky and nonplastic when wet, penetrometer 1.30 (1.00-1.75); many grass roots; estimated 5 percent by volume coarse fragments; pH 6.0; clear wavy boundary. 4 to 6 inches thick. No coarse fragments discarded.

B3 59949 — 15 to 19 inches. Olive brown (2.5Y 4/4) when moist, between olive brown (2.5Y 4/4) and light olive brown (2.5Y 5/4) when dry, fine sandy loam; weak fine granular structure; friable when moist, nonsticky and nonplastic when wet, penetrometer 2.30 (1.25-3.75); grass roots common; estimated 5 percent by volume coarse fragments; pH 6.2; gradual wavy boundary. 1 to 6 inches thick.

C 59950 — 19 to 35 inches. Very dark grayish brown (2.5Y 3/2) when moist, grayish brown (2.5Y 5/2) when dry, a large dark yellowish brown (10YR 4/4) ghost present in this horizon, fine sandy loam; structureless, massive; friable when moist, nonsticky and slightly plastic when wet, penetrometer 3.70 (1.75-4.50); few grass roots; estimated 10 percent by volume coarse fragments; pH 6.2. No coarse fragments discarded. This horizon is thought to be partially weathered glacial till.

Notes: [a] Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CL - 700 pushed horizontally into each horizon exposed on the face sampled. First figure given is the average of 5 readings, the figures in parentheses are the range of values obtained. Values are for moist soil. The values represent unconfined compressive strength, tons per square foot and kilograms per square centimeter. The figure is the same for both systems. The 10 to 15 and the 19 to 35 inch zones were collected for the Bureau of Public Roads.

SCS-421
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Colrain fine sandy loam SOIL Nos. 859Vt.9-6 LOCATION Orange County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 59951-59956

Depth (In.)	Horizon	1H1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)			Coarse fragments 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	70.6	21.9	7.5	4.1	9.0	13.9	28.4	15.2	10.7	11.2	40.2	55.4			11		
8-11	B21	73.9	21.3	4.8	3.7	10.6	17.1	29.5	13.0	11.4	9.9	38.7	60.9			12		
11-14	B22	68.2	27.4	4.4	4.7	9.0	12.3	25.2	17.0	15.8	11.6	46.3	51.2			8		
14-20	B3	74.0	23.9	2.1	6.0	9.9	12.6	27.2	18.3	12.6	11.3	45.7	55.7			17		
20-32	C	71.5	23.2	5.3	5.2	9.3	11.8	27.0	18.2	12.3	10.9	45.4	53.3			15		
32+	ROCK →																	

Depth (In.)	6A1a Organic carbon Pct.	6H2a Nitrogen Pct.	C/N		6H1e Carbonate as $CaCO_3$ Pct.	6C1a Ext Iron Oxide Fe_2O_3	Bulk density g/cc	4A1e 1/3 Bar g/cc	g/cc	Water content Pct.	4H1c 1/3 Bar Pct.	4B2 15 Bar Pct.			pH 8C1a (1:1) H_2O
0-8	2.49	0.184	14		0.9	1.4		1.24			19.6	11.0			7.0
8-11	0.95	0.073	13		0.3	1.7		1.30			13.7	6.8			7.0
11-14	0.64	0.050	13		0.8	1.0		1.32			15.2	5.1			6.9
14-20	0.46	0.036	13		1.1	1.8		1.38			18.7	4.5			7.0
20-32	0.26				1.2	1.3		1.73			15.4	4.1			7.1
32+					55.0										

Depth (In.)	Extractable bases 5H1a 6N2d Ca b	602b Mg	6P2a Na	6Q2a K	6H2a Ext. Acidity meq/100 g	Ratios to clay 8m. CEC Sum	EXT. Iron	15 Bar Water	Base saturation Pct.	Pct.
0-8	14.6	0.3	0.1	0.4	6.6		0.19	1.47		
8-11	5.6	0.1	0.1	0.2	6.4		0.35	1.42		
11-14	4.4	tr	0.1	0.2	4.0		0.23	1.16		
14-20	7.3	0.1	0.1	0.1	3.0		0.86	2.14		
20-32	7.5	tr.	0.1	0.1	1.9		0.24	0.77		
32+										

Depth (In.)	Clay Mineralogy 7A1b-d Chlorite	7A2 Vermiculite	Int. Verm. Mica	Mica	Kaolinite 7A3 DTA
	X-ray				DTA
0-8					
8-11	-	t	t	t	-
11-14					
14-20	t	x	x	x	-
20-32					
32+					

a. One fragment.
b. Extractable Ca partially derived from solution of carbonates.

Soil type: Colrain fine sandy loam
Soil No.: S59 Vt-9-6
Location: 2 1/2 miles northeast of North Tunbridge, Orange County, Vermont, precisely located on air photo C1W 4-111.
Vegetation: Hay - timothy and red clover.
Slope: Smooth convex, 15 percent
Drainage: Well drained. Runoff and internal drainage are estimated to be rapid.
Permeability: Estimated to be rapid.
Physiography: An upland till ridge.
Sampled by and date: E. J. Pedersen, K. W. Flach, B. R. Brasher, A. H. Kodess, W. J. Sheehan. September 23, 1959.
Described by: M. Howard, Jr.

Horizon and
Beltsville
Lab. Number

[redacted]

59951 when dry, fine sandy loam; moderate fine and medium granular structure; friable when moist, nonsticky and nonplastic when wet, penetrometer 1.50 (.75-2.25) [a] ; many grass roots, estimated 5 percent by volume coarse fragments; pH 6.8; abrupt smooth boundary. Uniformly 8 inches thick. No coarse fragments discarded.

B21 8 to 11 inches. Between dark brown (10YR 4/3) and dark yellowish brown (10YR 4/4) when moist,
59952 between dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) when dry, fine sandy loam; weak fine granular structure; friable when moist, nonplastic and nonsticky when wet, penetrometer 2.10 (1.75-2.50); grass roots common; estimated 5 percent by volume coarse fragments; pH 6.8; gradual wavy boundary. 2 to 4 inches thick.

B22 11 to 14 inches. Olive brown (2.5Y 4/4) when moist, light olive brown (2.5Y 5/4) when dry,
59953 fine sandy loam; weak fine granular structure; friable when moist, nonsticky and nonplastic when wet, penetrometer 2.05 (1.00-2.50); grass roots common; estimated 5 percent by volume coarse fragments; pH 6.8; gradual wavy boundary. 1 to 4 inches thick.

B3 14 to 20 inches. Dark brown (10YR 3/3) when moist, olive (5Y 5/3) when dry, fine sandy loam;
59954 structureless, massive; friable when moist, nonsticky and nonplastic when wet, penetrometer 1.80 (.75-2.25); grass roots common; estimated 10 percent by volume coarse fragments; pH 6.8; gradual smooth boundary. 5 to 7 inches thick. No coarse fragments discarded.

C 20 to 32+ inches. Very dark grayish brown (2.5Y 3/2) when moist, grayish brown (2.5Y 5/2) when
59955 dry, with many dark reddish brown (5YR 3/3) ghosts, fine sandy loam, structureless, massive; friable when moist, nonsticky and nonplastic when wet, penetrometer 1.95 (1.00-2.25); few grass roots; estimated 10 percent by volume coarse fragments; pH 6.8. No coarse fragments discarded. This horizon is thought to be a partially weathered glacial till.

Notes: [a] Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CT. - 700

pushed horizontally into each horizon exposed on the face sampled. First figure given is the average of 5 readings, the figures in parentheses are the range of values obtained. Values are for moist soil. The values represent unconfined compressive strength, tons per square foot and kilograms per square centimeter. The figure is the same for both systems. The 0 to 8 inch zone was collected for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-65)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hadley very fine sandy loam[a] SOIL Nos. 861Vt12-7 LOCATION Washington County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61408 - 61412

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt 0.05–0.02	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 Pct. of	2 – 19	19 – 76
																<76		

Soil Type: Hadley very fine sandy loam[a]
Soil No.: S61Vt-12-7
Location: Washington County, Vermont. Moretown town, flood plain of the Winooski River, south side of

river, 1 mile southeast of Middlesex village. Air photo DCC 6-197.
Vegetation and land use: Hay-Alfalfa, red and alsike clover, quack grass.
Slope and land form: 0 to 1 percent
Drainage: Well drained
Permeability: Moderate
Physiographic position: Second terrace above the Winooski River.
Sampled by and date: R. J. Bartlett, E. J. Pedersen, G. W. Allen, and M. Howard, Jr. June 16, 1961

Horizon and Beltsville Lab. No.	
Ap 61408	0 to 9 inches. Between very dark grayish brown (2.5Y 3/2) and dark olive gray (5Y 3/2), between light brownish gray (2.5Y 6/2) and light olive gray (5Y 6/2) dry, very fine sandy loam or loam; moderate very fine and fine granular structure; slightly hard when dry, friable, slightly sticky and nonplastic when wet, penetrometer 2.05 (1.25-2.75)b ; many grass and legume roots; pH 6.8; clear smooth boundary.
C1 61409	9 to 15 inches. Very dark grayish brown (2.5Y 3/2), light brownish gray (2.5Y 6/2) dry, very fine sandy loam or loam; structureless, massive; slightly hard when dry, friable when moist, nonsticky and nonplastic when wet; penetrometer 2.65 (2.00-3.25); grass and legume roots are common; pH 7.0; clear smooth boundary.
C2 61410	15 to 30 inches. Dark grayish brown (2.5Y 4/2), light brownish gray (2.5Y 6/2) dry, very fine sandy loam or loam; structureless, massive; slightly hard when dry, friable when moist, slightly sticky and slightly plastic when wet, penetrometer 1.50 (1.00-2.50); grass and legume roots are common; pH 7.0; abrupt smooth boundary.
D1 61411	30 to 40 inches. Dark grayish brown (2.5Y 4/2) light brownish gray (2.5Y 6/2) dry, very fine sandy loam; structureless, massive; slightly hard dry, friable when moist, slightly sticky and nonplastic when wet, penetrometer 2.00 (1.50-2.25); few grass and legume roots; pH 7.0; abrupt smooth boundary.
D2 61412	40 to 55 inches plus. Between olive (5Y 4/3) and dark grayish brown (2.5Y 4/2), light brownish gray (2.5Y 6/2) dry, very fine sandy loam or loamy very fine sand; structureless, massive; slightly hard when dry, very friable when moist, nonsticky and nonplastic when wet, penetrometer 2.05 (1.25-2.50); few grass and legume roots; pH 7.0.
	Three inches below the top of the D2 horizon there is a one inch thick layer which is described as follows: Very dark grayish brown (2.5Y 3/2), light brownish gray (2.5Y 6/2) dry, very fine sandy loam; structureless, massive; slightly hard when dry, friable when moist, nonsticky and nonplastic when wet; pH 6.8.

Notes: a Above overflow phase.
b Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CL-700 pushed horizontally into each horizon exposed on the face sampled. First figure given is the average of 5 readings, the figures in parentheses are the range of values obtained. Values are for moist soil unless indicated otherwise. The values represent unconfined compressive strength, tons per square foot or kilograms per square centimeter. The figure is the same for both systems.

Colors refer to moist soil unless indicated otherwise. The 0-9, 15-30 and the 40-55 inch zones were sampled for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hadley very fine sandy loam[a] SOIL Nos. S61Vt-12-8 LOCATION Washington County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61413 - 61417

Depth (in.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 - 19	19 - 76
		Pct. of < 2 mm														Pct. of < 76mm		
0-8	Ap	64.0	27.8	8.2	0.1	0.6	3.8	24.1	35.4	16.3	11.5	68.7	28.6			tr.		
8-12	C1	61.5	30.2	8.3	0.1	0.6	4.2	21.3	35.3	17.7	12.5	68.0	26.2			tr.		
12-31	C2	70.9	21.7	7.4	-	0.6	5.2	30.7	34.4	12.7	9.0	67.2	36.5			tr.		
31-40	C3	64.2	27.6	8.2	-	0.3	2.7	25.8	35.4	15.7	11.9	69.3	28.8			tr.		
40-50	C4	58.2	32.9	8.9	-	0.2	1.4	19.7	36.9	18.8	14.1	70.4	21.3			tr.		

Depth (in.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		6N1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD In/in	pH: $CaCl_2$ 1:1	8C1c (1:1) KCl	8C1e (1:1) H_2O
0-8	0.75	0.072	10		1.1	0.8		1.40	1.42			13.7	4.2			6.5	6.2	6.9
8-12	0.73	0.063	12		1.1	0.9		1.40	1.41			15.1	3.8			6.3	6.3	7.1

Soil Type: Hadley very fine sandy loam[a]
Soil No.: S61Vt-12-8
Location: Washington County, Vermont. Moretown town, 1 mile southeast of Middlesex village. Air photo DCC 6-197
Vegetation and land use: Hay-Alfalfa, red and alsike clover, quack grass.
Slope and Land form: 0 to 1 percent
Drainage: Well drained
Permeability: Moderate
Physiographic position: First terrace above the Winooski River.
Sampled by and date: R. J. Bartlett, E. J. Pedersen, G. W. Allen, and M. Howard, Jr., June 16, 1961

Horizon and Beltsville Lab. No.

Ap 0 to 8 inches. Grayish brown (2.5Y 5/2) dry, very dark grayish brown (2.5Y 3/2), very fine

61413 sandy loam or loam; moderate fine and very fine granular structure; friable when moist, slightly sticky and slightly plastic when wet; penetrometer 3.45 (2.75-3.75)[b]; many grass and legume roots; pH 6.8; clear smooth boundary.

C1 61414 8 to 12 inches. Light gray to gray (10YR 6/1) dry, very dark gray (10YR 3/1), very fine sandy loam or loam; structureless, massive with some worm casts; friable when moist, slightly sticky and slightly plastic when wet, penetrometer 2.00 (1.50 - 2.25); grass and legume roots are common; pH 6.8; abrupt smooth boundary.

C2 61415 12 to 31 inches. Grayish brown (2.5Y 5/2) dry, very dark grayish brown (2.5Y 3/2), very fine sandy loam; structureless massive; very friable when moist, nonsticky and nonplastic when wet, penetrometer 1.90 (1.25-3.00); grass and legume roots are common; pH 6.8; clear smooth boundary.

C3 61416 31 to 40 inches. Grayish brown (2.5Y 5/2) dry, very dark grayish brown (2.5Y 3/2), very fine sandy loam; structureless, massive; very friable when moist, nonsticky and nonplastic when wet, penetrometer 1.85 (1.75-2.25); few grass and legume roots; pH 6.8; clear smooth boundary.

This horizon contains 4 or 5 layers of fine sand 2 to 5 mm thick.

C4 61417 40 to 51 inches. Grayish brown (2.5Y 5/2) dry, very dark grayish brown (2.5Y 3/2), very fine sandy loam; structureless, massive; very friable when moist, nonsticky and nonplastic when wet, penetrometer 2.35 (2.00-2.75); no grass or legume roots; pH 6.8.

Notes: a Overflow phase.

b Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CL - 700 pushed horizontally into each horizon exposed on the face sampled. First figure given is the average of 5 readings, the figures in parentheses are the range of values obtained. Values are for moist soil unless indicated otherwise. The values represent unconfined compressive strength, tons per square foot or kilograms per square centimeter. The figure is the same for both systems.

The 0-8, 12-31, and the 40-51 inch zones were sampled for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hadley very fine sandy loam[a] SOIL Nos. S61Vt-12-9 LOCATION Washington County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61418 - 61422

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 Pct.	2 – 19	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-8	Ap	71.2	25.2	3.6	0.2	1.3	4.1	30.5	35.1	17.2	8.0	74.0	36.1			tr.		
8-20	C1	72.1	21.1	6.8	0.5	2.0	4.1	27.1	38.4	12.8	8.3	70.4	33.7			tr.		
20-34	C2	73.9	18.8	7.3	-	0.7	6.5	33.5	33.2	10.6	8.2	64.7	40.7			tr.		
34-44	C3	84.7	9.0	6.3	0.1	1.8	7.0	47.0	28.8	4.6	4.4	63.0	55.9			tr.		
44-55	C4	79.1	14.5	6.4	0.1	1.9	7.6	37.6	31.9	8.2	6.3	63.0	47.2			tr.		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: $CaCl_2$ 1:1	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-8	0.62	0.058	11			0.9		1.51	1.52			9.5	3.8			5.5	5.0	6.0
8-20	0.49	0.040	12			0.7		1.54	1.55			9.3	3.0			6.1	5.6	6.7
20-34	0.38	0.032	12			0.8		1.40	1.41			10.2	2.5			6.1	5.6	6.4
34-44	0.31					0.6		1.36	1.38			7.3	2.1			6.2	5.6	6.6
44-55	0.39					0.7		1.36	1.36			7.1	2.8			6.2	5.8	6.6

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ex. Al			Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-8	3.5	0.5	tr.	0.1	4.1	2.7	6.8		tr.			1.89	0.25	1.06			60	
8-20	3.2	0.4	tr.	tr.	3.6	1.6	5.2		tr.			0.76	0.10	0.44			69	
20-34	3.0	0.3	tr.	tr.	3.3	1.6	4.9		tr.			0.67	0.11	0.34			67	
34-44	2.6	0.1	tr.	tr.	2.7	1.4	4.1		tr.			0.65	0.10	0.33			66	
44-55	3.2	0.2	tr.	tr.	3.4	1.2	4.6		tr.			0.72	0.11	0.44			74	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

a Overflow phase.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Hadley very fine sandy loam[a]
Soil No.: S61Vt-12-9
Location: Washington County, Vermont. Waterbury town, first farm northwest of Waterbury village on U. S. Highway No. 2, John Farr farm. Air photo DCC 6-102.
Vegetation and land use: Corn
Slope and land form: 0 to 1 percent.
Drainage: Well drained
Permeability: Moderate
Physiographic position: First terrace above the Winooski River.
Sampled by and date: E. J. Pedersen and G. W. Allen. June 17, 1961.

Horizon and Beltsville Lab. No.	
Ap 61418	0 to 8 inches. Grayish brown (2.5Y 5/2) dry, mixed very dark grayish brown (10YR 3/2) and very dark gray (10YR 3/1), very fine sandy loam containing some coarser textured recently deposited material; moderate fine and very fine granular structure; soft when dry, friable, slightly sticky and nonplastic when wet; many roots; pH 6.2; clear smooth boundary.
C1 61419	8 to 20 inches. Light brownish gray (2.5Y 6/2) dry, very dark grayish brown (2.5Y 3/2), very fine sandy loam; structureless, massive intergrading to weak fine subangular blocky structure; soft when dry, friable, slightly sticky and nonplastic when wet; roots are common; pH 6.4; clear wavy boundary.
C2 61420	20 to 34 inches. Grayish brown (2.5Y 5/2) dry, very dark grayish brown (10YR 3/2), very fine sandy loam containing pockets of fine sand and lenses of gravelly fine sand; structureless, massive; soft when dry, friable, slightly sticky and nonplastic when wet; roots are common; pH 6.6; clear wavy boundary.
C3 61421	34 to 44 inches. Light brownish gray (2.5Y 6/2) dry, dark grayish brown (2.5Y 4/2), very fine sandy loam mixed with loamy fine sand and containing lenses of fine sand; structureless, massive; soft when dry, very friable, slightly sticky and nonplastic when wet; few roots; pH 6.8; clear wavy boundary.
C4 61422	44 to 55 inches. Grayish brown (2.5Y 5/2) dry, dark grayish brown (2.5Y 4/2), very fine sandy loam containing lenses of fine sand; structureless, massive; soft when dry, friable, slightly sticky and nonplastic when wet; few roots; pH 6.8.

Notes: a Overflow phase.

The 0-8, 20-34, and the 44-55 inch zones were collected for the Bureau of Public Roads.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Hadley very fine sandy loam[a] SOIL Nos. 861Vt-12-15 LOCATION Washington County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61450 - 61454

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2	2 – 19	19 – 76
		Pct. of < 2 mm														<76 Pct.	Pct. of < 76mm	
0–10	Ap	56.6	37.4	6.0	0.6	2.5	5.7	18.4	29.4	21.4	16.0	62.1	27.2			2		
10–12	Ap-C1	47.5	47.0	5.5	-	0.2	0.6	9.3	37.4	26.1	20.9	71.5	10.1			tr.		
12–19	C1	65.9	27.7	6.4	0.8	0.9	2.5	18.1	43.6	19.2	8.5	76.0	22.3			-		
19–21	C2	56.6	36.0	7.4	6.2	9.9	7.4	15.4	17.7	14.4	21.6	41.0	38.9			-		
21–54+	C3	55.5	39.7	4.8	7.5	8.5	6.4	14.4	18.7	17.1	22.6	44.2	36.8			-		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1e ⅓ bar	Bulk density: 4A1h Oven dry	4D1 COLE	Water content:	Water content: 4B1c ⅓ bar	Water content: 4B2 15 bar	4C1 WRD	pH: $CaCl_2$ 1:1	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc		Pct.	Pct.	Pct.	in/in			
0–10	1.14	0.103	11			0.9	1.56	1.58			17.5	4.8		5.9	5.7	6.5
10–12	0.56	0.056	10			1.0	1.50	1.52			20.9	3.5		5.7	5.4	6.5
12–19	0.32	0.036	9			1.0	1.44	1.44			18.6	2.7		5.6	5.3	6.5
19–21	0.30					1.0	1.40	1.38			18.1	2.7		5.8	5.4	6.4
21–54+	0.23					1.1	1.40	1.40			21.2	3.4		5.7	4.9	6.1

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	CEC	6G1d Ext. Al	Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations	5C1 NH_4OAc
	meq/100 g													Pct.	Pct.
0–10	8.0	0.2	tr.	0.1	1.1	2.7	11.0		tr.	1.83	0.15	0.80		75	
10–12	4.8	0.1	tr.	tr.	4.9	3.3	8.2		tr.	1.49	0.18	0.64		60	
12–19	2.7	tr.	tr.	tr.	2.7	2.9	5.6		tr.	0.88	0.16	0.42		48	
19–21	2.4	0.1	tr.	tr.	2.5	2.9	5.4		tr.	0.73	0.14	0.36		46	
21–54+	1.9	0.1	tr.	tr.	2.0	3.3	5.3		tr.	1.10	0.23	0.71		37	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

a Above overflow phase.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Hadley very fine sandy loam,[a]
Soil No.: S61Vt-12-15
Location: Washington County, Vermont. Waterbury town, first farm northwest of Waterbury village on U. S. Highway No. 2, John Farr farm. Air photo DCC 6-102.
Vegetation and land use: Hay-timothy, blue grass alfalfa.
Slope and land form: 0 to 1 percent.
Drainage: Well drained.
Permeability: Moderate
Physiographic position: Second terrace above the Winooski River.
Sampled by and date: R. J. Bartlett, E. J. Pedersen, G. W. Allen, and M. Howard, Jr. June 23, 1961.

Horizon and Beltsville Lab. No.	
Ap 61450	0 to 10 inches. Very dark grayish brown (10YR 3/2) very fine sandy loam; weak medium platy structure breaking to moderate fine and very fine granular structure; friable, slightly sticky and slightly plastic when wet; penetrometer 2.65 (1.25-4.00)[b]; many grass and legume roots; pH 6.8; abrupt smooth boundary.
Ap-C1 61451	10 to 12 inches. Between very dark grayish brown (2.5Y 3/2) and dark grayish brown (2.5Y 4/2), very fine sandy loam; structureless, massive; very friable, slightly sticky and slightly plastic when wet, penetrometer 3.45 (2.25-4.50+); grass and legume roots are common, pH 6.8, abrupt smooth boundary.
C1 61452	12 to 19 inches. Very dark grayish brown (2.5Y 3/2) very fine sandy loam; structureless, massive; very friable, slightly sticky and nonplastic when wet, penetrometer 2.75 (2.00-3.75); grass and legume roots are common; pH 6.8; abrupt smooth boundary.
C2 61453	19 to 21 inches. Dark grayish brown (2.5Y 4/2) very fine sandy loam; structureless, massive; very friable, slightly sticky and slightly plastic when wet, penetrometer 1.95 (1.75-2.25); grass and legume roots are common; pH 6.8; abrupt smooth boundary.
C3 61454	21 to 54 inches plus. Dark grayish brown, (between 10YR 4/2 and 2.5Y 4/2) loam or very sandy loam, with wavy streaks of a browner color throughout the horizon; structureless, massive; very friable, slightly sticky and slightly plastic when wet penetrometer 1.70 (1.50-2.00); few grass and legume roots; pH 6.8.
	The C3 horizon contains small lenses of grayish brown (2.5Y 5/2) very fine sandy loam or loamy very fine sand which are structureless, massive and very friable when moist, pH 6.8. Near the top of the C3 horizon one of these lenses is 12 inches in diameter.

Notes: [b] Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CL - 700 pushed horizontally into each horizon exposed on the face sampled. First figure given is the average of 5 readings, the figures in parentheses are the range of values obtained. Values are for moist soil. The values represent unconfined compressive strength, tons per square foot or kilograms per square centimeter. The figure is the same for both systems.

Colors refer to moist soil.

The 0-10, 12-19, and the 21-54 inch zones were sampled for the Bureau of Public Roads.

a Above overflow phase.

SCS-421
10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Marlow extremely stony loam SOIL Nos. S61Vt-12-12 LOCATION Washington County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61435 - 61438

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand Very coarse (2–1)	Sand Coarse (1–0.5)	Sand Medium (0.5–0.25)	Sand Fine (0.25–0.1)	Sand Very fine (0.1–0.05)	Silt 0.05–0.02	Silt Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1 2A2 ≥ 2 <76 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
1-5	A2	49.3	45.1	5.6	5.0	8.8	5.8	12.5	17.2	24.3	20.8	47.8	32.1			14		
5-11	B2	44.5	52.0	3.5	4.0	6.8	4.7	10.9	18.1	26.6	25.4	51.4	26.4			22		
11-18	C1	53.6	42.3	4.1	6.2	8.8	6.2	13.4	19.0	19.9	22.4	46.4	34.6			14		
18-37+	C2m	60.1	35.1	4.8	6.2	11.5	8.5	16.1	17.8	17.3	17.8	43.6	42.3			11		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH $CaCl_2$ 1:1	8C1c (1:1) KCl	8C1a (1:1) H_2O
1-5	1.73	0.122	14			0.7							5.1			4.1	3.8	
5-11	2.40	0.160	15			1.8		0.88	1.00			42.8	8.2			4.5	4.4	4.8
11-18	0.76	0.056	14			0.9		1.48	1.50			18.5	4.5			4.9	4.5	5.4
18-37+	0.25					0.6		1.68	1.69			15.1	3.6			5.0	4.4	5.4

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations		6Q1d Ext. Al			Ratios to clay 8D1 CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
1-5	0.6	tr.	tr.	tr.	0.6	13.5	14.1		3.0			2.52	0.12	0.91			4	
5-11	0.8	tr.	tr.	tr.	0.8	30.7	31.5		1.8			9.00	0.51	2.34			3	
11-18	0.5	tr.	tr.	tr.	0.5	12.6	13.1		0.8			3.20	0.22	1.10			4	
18-37+	0.3	0.1	tr.	0.1	0.5	5.5	6.0		0.6			1.25	0.12	0.75			8	

Depth (In.)	Clay Fraction Analysis 7Alb-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Marlow extremely stony loam
Soil No.: S61Vt-12-12
Location: Washington County, Vermont. Marshfield town, approximately three fourths mile north of Groton State Forest, on road leading to Forest from U. S. Highway No. 2, 85 feet west of road. Air photo GSG 2-52.
Vegetation and land use: Northern hardwoods, white ash, sugar maple, yellow birch, beech, occasional red spruce and balsam fir. Trees vary in DBH from 1 to 10 inches.
Slope and land form: 25 percent
Drainage: Well drained
Permeability: Moderate above the C2m horizon, slow in the C2m horizon.
Physiographic position: A glaciated upland.
Sampled by and date: E. J. Pedersen, G. W. Allen, and M. Howard Jr. June 21, 1961

Horizon and Beltsville Lab. No.	
O1 Not Sampled	1/2 to 1/4 inches. Litter of last year's leaves.
O2 Not sampled	1/4 to 0 inches. Partially decomposed leaves.
A1 Not Sampled	0 to 1 inch. Black (5YR 2/1) gravelly loam or gravelly silt loam; strong very fine granular structure; friable, nonsticky and slightly plastic when wet; very many tree roots; pH 5.0; abrupt smooth boundary.
A2 61435	1 to 5 inches. Dark gray (10YR 4/1) gravelly loam; weak fine granular structure; very friable, slightly sticky and slightly plastic when wet, penetrometer 1.55 (1.00-2.00) [a] ; many tree roots; pH 5.4; abrupt wavy boundary. 0 to 4 inches thick.
B2 61436	5 to 11 inches. Dark yellowish brown (10YR 3/4) gravelly loam; moderate very fine and fine granular structure; very friable, slightly sticky and slightly plastic when wet, penetrometer 1.15 (.50-2.00); many tree roots; pH 5.6; clear wavy boundary.
C1 61437	11 to 18 inches. Dark grayish brown (2.5Y 4/2) gravelly fine sandy loam; structureless, massive; very friable, slightly sticky and slightly plastic when wet, penetrometer 1.85 (1.00-2.75); [illegible] pH 6.2; clear smooth boundary.
61438	fine sandy loam; structureless, massive; firm in place and friable in the hand when moist, slightly sticky and nonplastic and wet, penetrometer 3.55 (1.75-4.50+); few tree roots; pH 6.4 at top of horizon, pH 6.6 at bottom of exposure.

Notes: [a] Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CL-700 pushed horizontally into each horizon exposed on the face sampled. First figure given is the average of 5 readings, the figures in parentheses are the range of values obtained. Values are for moist soil. The value represents unconfined compressive strength, tons per square foot or kilograms per square centimeter. The figure is the same for both systems.

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10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Paxton very stony loam SOIL Nos. 861Vt-12-13 LOCATION Washington County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61439 - 61444

Depth (In.)	Horizon	1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 <76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm														Pct.	Pct. of < 76mm	
0-1	A1	48.4	45.6	6.0	5.0	6.2	3.6	10.6	23.0	28.7	16.9	57.9	25.4			8		
1-7	A2-B2	43.0	53.0	4.0	2.6	2.7	2.0	6.6	29.1	35.1	17.9	68.6	13.9			6		
7-10	A2	42.6	55.0	2.4	1.6	1.9	1.4	5.9	31.8	37.2	17.8	73.0	10.8			2		
10-13	B2 or B21	46.6	50.9	2.5	3.2	3.8	2.7	7.8	29.1	36.0	14.9	70.1	17.5			6		
13-21	C1 or B22	55.0	42.5	2.5	6.8	6.8	4.6	13.0	23.8	27.6	14.9	59.4	31.2			12		
21-35+	C2m	58.8	37.8	3.4	7.2	9.4	6.3	16.0	19.9	21.3	16.5	51.0	38.9			13		

Depth (In.)	6A1a Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1e ⅓ bar	4A1h Oven dry	4D1 COLE		Water content: 4B1c ⅓ bar	4B2 15 bar		4C1 WRD	pH: $CaCl_2$ 1:1	8C1c (1:1) KCl	8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc		Pct.	Pct.	Pct.	in/in			
0-1	3.68	0.309	12			1.4							10.5		4.3	4.2	4.6
1-7	0.80	0.064	12			1.3		1.29	1.31			18.0	4.1		4.6	4.2	4.9
7-10	0.44	0.044	10			0.6		1.38	1.38			14.0	2.1		4.5	4.2	4.7
10-13	0.76	0.060	13			1.8		1.16	1.20			18.7	4.2		4.6	4.3	4.8
13-21	0.36	0.040	9			1.2		1.40	1.42			14.9	3.4		4.6	4.5	5.2
21-35+	0.13					1.1		1.81	1.81			10.9	2.8		4.9	4.4	5.7

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																

[redacted]

Soil Type: Paxton very stony loam
Soil No.: S61Vt-12-13
Location: Washington County, Vermont. 1-1/2 miles southeast of East Calais village, 1/4 mile west of Calais-Marshfield town line. Air photo GSG 2-76.
Vegetation and land use: An open stand of mature sugar maple with reproduction of sugar maple, hophornbean, balsam fir, and hemlock. Lesser vegetation of golden rod, blue grass, buttercups, quack grass, and mosses.
Slope and land form: 12 percent
Drainage: Well drained
Permeability: Estimated to be moderate above the C2m horizon, slow in the C2m horizon.
Physiographic position: A glaciated upland.
Sampled by and date: R. J. Bartlett, E. J. Pedersen, G. W. Allen, and M. Howard, Jr. June 22, 1961.

Horizon and Beltsville Lab. No.	
O2 Not sampled	1/2 to 0 inches. Partially decayed organic matter with many roots.
A1 61439	0 to 1 inch. Very dark grayish brown (10YR 3/2) loam; moderate fine and medium granular structure; very friable, nonsticky and nonplastic when wet, penetrometer 1.15 (.50-1.75)[a] ; many tree roots; estimated 10 to 15 percent by volume coarse fragments of decayed schist and granite; pH 4.8; abrupt smooth boundary. 1 - 1 1/2 inches thick.
A2-B2 61440	1 to 7 inches. Yellowish brown (10YR 5/4) loam; structureless, massive; very friable, slightly sticky and nonplastic when wet penetrometer 1.70 (1.25-2.00); many tree roots; coarse fragments as in horizon above; pH 5.6; abrupt wavy boundary. 5 - 7 inches thick.
A2 61441	7 to 10 inches. This horizon did not occur on the face of the pit from which the other samples were collected. It was sampled from an adjoining face of the pit. Light brownish gray (10YR 6/2) very fine sandy loam; structureless, massive; very friable, slightly sticky and nonplastic when wet, penetrometer 1.30 (1.00-1.75); tree roots are common; coarse fragments as in horizons above; pH 5.6; abrupt broken boundary. 0 - 4 inches thick.
B2 or B21 61442	7 to 13 inches. Dark yellowish brown (10YR 4/4) loam; structureless, massive; very friable, slightly sticky and nonplastic when wet, penetrometer 1.15 (1.00-1.25); many tree roots; coarse fragments as in horizons above; pH 5.6; clear smooth boundary. 5 - 7 inches thick.
C1 or B22 61443	13 to 21 inches. Olive brown (2.5Y 4/4) gravelly loam; structureless, massive; friable, slightly sticky and nonplastic when wet, penetrometer 1.60 (1.50-2.00); tree roots are common; estimated 20 to 25 percent by volume coarse fragments as in horizons above; pH 5.8; clear smooth boundary. 7 - 8 inches thick.
C2m 61444	21 to 35 inches plus. Very dark grayish brown (2.5Y 3/2) gravelly fine sandy loam; structureless, massive firm in place and friable in hand when moist, slightly sticky and nonplastic when wet, penetrometer 4.10 (2.50-4.50+); few tree roots in upper few inches, none below; estimated 30 to 40 percent by volume coarse fragments as in horizons above; pH 5.8.

Notes: [a] Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CL - 700 pushed horizontally into each horizon exposed on the face sampled. First figure given is the average of 5 readings, the figures in parentheses are the range of values obtained. Values are for moist soil. The values represent unconfined compressive strength, tons per square foot or kilograms per square centimeter. The figure is the same for both systems.

Colors refer to moist soil.

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10-64 (Rev. 9-66)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Shelburne loam SOIL Nos. 861Vt-12-14 LOCATION Washington County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61445 - 61449

Depth (In.)	Horizon	Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05) 1B1b	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 <76 Pct.	2 – 19	19 – 76
		Pct. of < 2 mm															Pct. of < 76mm	
0-9	Ap	52.9	40.9	6.2	4.2	7.6	6.6	16.2	18.3	23.1	17.8	51.2	34.6			8		
9-11	A2-B2	46.8	49.0	4.2	2.8	6.1	6.0	13.6	18.3	27.9	21.1	54.2	28.5			4		
11-16	B2	55.0	39.8	5.2	3.7	8.2	7.8	16.6	18.7	21.1	18.7	49.3	36.3			8		
16-19	C1	61.4	33.8	4.8	3.8	9.2	8.7	19.3	20.4	16.8	17.0	48.8	41.0			9		
19-33+	C2m	61.1	34.3	4.6	4.2	9.3	8.3	18.8	20.5	17.7	16.6	49.0	40.6			6		

Depth (In.)	6A1e Organic carbon	6B2a Nitrogen	C/N		Carbonate as $CaCO_3$	6C1a Ext. iron as Fe	Bulk density: 4A1e ⅓ bar	Bulk density: 4A1h Oven dry	4D1 COLE	Water content: Pct.	Water content: 4B1c ⅓ bar	Water content: 4B2 15 bar	4C1 WRD	pH: $CaCl_2$ 1:1	pH: 8C1c (1:1) KCl	pH: 8C1a (1:1) H_2O
	Pct.	Pct.			Pct.	Pct.	g/cc	g/cc	g/cc	Pct.	Pct.	Pct.	in/in			
0-9	2.53	0.219	12			1.3		1.31	1.28		20.4	9.8		5.3	4.9	5.7
9-11	0.51	0.046	11			1.0		1.53	1.52		15.9	4.2		5.0	4.5	5.6
11-16	0.74	0.062	12			1.4			1.32		19.2	5.9		4.8	4.5	5.3
16-19	0.15					0.8			1.58		12.7	3.9		4.9	4.5	5.4
19-33+	0.19					0.8			1.92		14.5	4.5		4.8	4.3	5.5

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations	CEC:	6G1d Ext. Al			Ratios to clay 8D1: CEC Sum	Ext. Iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																	
0-9	6.1	0.3	tr.	0.1	6.5	13.9	20.4		0.1			3.29	0.21	1.58			32	
9-11	0.6	0.2	tr.	tr.	0.8	7.8	8.6		0.7			2.05	0.24	1.00			9	
11-16	0.5	tr.	tr.	tr.	0.5	13.3	13.8		0.7			2.65	0.27	1.13			4	
16-19	0.3	tr.	tr.	0.1	0.4	5.4	5.8		0.5			1.21	0.17	0.81			7	
19-33+	0.6	0.1	tr.	0.1	0.8	4.3	5.1		0.7			1.11	0.17	0.98			16	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						7A3	

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Shelburne loam
Soil No.: S61Vt-12-14
Location: Washington County, Vermont. Marshfield town, 300 feet east of Holts Mill, 156 feet north of road. Air photo GSG 2-37
Vegetation and land use: Runout hay field-timothy, quack grass, blue grass, some red clover and vetch, paint brush, butter cups, and golden rod.
Slope and land form: 9 percent
Drainage: Well drained. Runoff and internal drainage are estimated to be medium.
Permeability: Estimated to be rapid above the C2m horizon, slow in the C2m horizon.
Physiographic position: Glaciated upland plateau.
Sampled by and date: R. J. Bartlett, R. A. Farrington, E. J. Pedersen, G. W. Allen, and M. Howard, Jr. June 22, 1961.

Horizon and Beltsville Lab. No.	
Ap 61445	0 to 9 inches. Very dark grayish brown (2.5Y 3/2) loam; strong fine granular structure; very friable, slightly sticky and nonplastic when wet, penetrometer 2.40 (1.75-3.50) [a] ; many grass roots; estimated 5 percent by volume fine gravel, fine channery fragments, and limestone "ghosts"; pH 6.8; abrupt smooth boundary, 7 to 9 inches thick.
A2-B2 61446	9 to 11 inches. Between dark olive (5Y 3/3) estimated and olive (5Y 4/3), loam weak fine granular structure; very friable, slightly sticky and slightly plastic when wet, penetrometer 3.00 (2.75-3.50); many grass roots; coarse fragments as in horizon above; pH 6.0; abrupt irregular boundary. 0 to 2 inches thick.
B2 61447	11 to 16 inches. Olive brown (2.5Y 4/4) loam; moderate fine granular structure; friable, slightly sticky and slightly plastic when wet, penetrometer 1.50 (1.25-1.75); many grass roots; estimated 10 percent by volume coarse fragments as in horizon above; pH 6.0; clear irregular boundary. 4 to 6 inches thick.
C1 61448	16 to 19 inches. Olive (5Y 4/4) loam; structureless, massive; friable when moist, slightly sticky and slightly plastic when wet, penetrometer 2.95 (2.00-3.50); grass roots are common; estimated 15 percent by volume coarse fragments as in horizon above; pH 6.2; clear smooth boundary. 4 to 5 inches thick.
C2m 61449	19 to 33 inches. Olive (5Y 4/3) gravelly loam; moderate thin platy structure with streaks of olive brown (2.5Y 4/4) on plate faces; very firm in place, friable in hand when moist, slight-

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Shelburne loam SOIL Nos. 861Vt-12-16 LOCATION Washington County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61455 - 61458

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt (0.05-0.02)	Silt Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)		3B2 Cm	Coarse fragments 3B1 2A2 > 2 <76 Pct.	2-19 Pct. of < 76mm	19-76 Pct. of < 76mm
		Pct. of < 2 mm																
0-7	Ap	53.6	42.2	4.2	5.0	6.6	5.4	12.9	23.7	21.1	21.1	52.5	29.9			8		
7-12	B2	49.3	45.2	5.5	5.9	6.2	4.9	12.4	19.9	26.5	18.7	53.8	29.4			7		
12-22	C1	54.3	40.5	5.2	6.3	8.0	6.2	14.9	18.9	18.8	21.7	46.7	35.4			12		
22-44+	C2m	55.2	36.6	8.2	5.8	9.1	7.2	15.2	17.9	17.0	19.6	44.2	37.3			11		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density g/cc	Bulk density 4A1e 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	4D1 COLE	Water content Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct.		4C1 WRD in/in	pH $CaCl_2$ 1:1	pH 8C1c (1:1) KCl	pH 8C1a (1:1) H_2O
0-7	2.03	0.172	12			1.3		1.20	1.20			19.7	7.7			5.0	5.1	6.0
7-12	0.79	0.063	12			1.3		1.41	1.38			15.1	4.7			5.2	4.5	5.5
12-22	0.35	0.030	12			1.2		1.60	1.59			13.6	3.5			5.1	4.5	5.6
22-44+	0.14					1.3		1.73	1.73			14.0	4.5			4.8	4.3	5.5

Depth (In.)	Extractable bases 5B1a 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC 5A3a Sum cations	CEC	6G1d Ext. Al			Ratios to clay 8D1 CEC Sum	Ratios to clay 8D1 Ext. iron	Ratios to clay 8D1 15-bar water	8D3 Ca/Mg		Base saturation 5C3 Sum cations Pct.	Base saturation 5C1 NH_4OAc Pct.
	meq/100 g																	
0-7	6.4	0.2	tr.	0.1	6.7	11.0	17.7		0.1			4.21	0.31	1.83			38	
7-12	0.3	tr.	tr.	tr.	0.3	10.2	10.5		0.6			1.91	0.24	0.85			3	
12-22	0.8	0.2	tr.	tr.	1.0	6.6	7.6		0.6			1.46	0.23	0.67			13	
22-44+	0.5	0.1	tr.	0.1	0.7	5.2	5.9		0.7			0.72	0.16	0.55			12	

Depth (In.)	Clay Fraction Analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
	7A2 X-ray						7A3		

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Shelburne loam
Soil No.: S61Vt-12-16
Location: Washington County, Vermont. Barre town, lower Websterville, Paul Lupien farm. Air photo DCC 3-197.
Vegetation and land use: Pasture - A heavily grazed stand of Kentucky bluegrass and white clover.
Slope and land form: 8 percent
Drainage: Well drained.
Permeability: Estimated to be rapid above the C2m horizon, slow in the C2m horizon.
Physiographic position: A glaciated upland plateau.
Sampled by and date: G. W. Allen and M. Howard, Jr. June 26, 1961.

Horizon and Beltsville Lab. No.	
Ap 61455	0 to 7 inches. Very dark grayish brown (10YR 3/2) loam; strong fine granular structure; friable, slightly sticky and slightly plastic when wet, penetrometer 4.00 (3.00-4.25) [a] ; many grass roots; estimated 5 to 10 percent by volume coarse fragments; pH 6.8; abrupt smooth
	boundary. 6 to 7 inches thick.
B2 61456	7 to 12 inches. Olive brown (2.5Y 4/4) loam or very fine sandy loam; weak to moderate fine granular structure; friable, slightly sticky and nonplastic when wet, penetrometer 2.80 (2.50-3.00); many grass roots; estimated 10 percent by volume coarse fragments; pH 6.0; clear irregular boundary. 0 to 5 inches thick.
C1 61457	12 to 22 inches. Very dark grayish brown (2.5Y 3/2) fine sandy loam; structureless, massive; friable, slightly sticky and nonplastic when wet, penetrometer 2.60 (1.00-4.00); grass roots are common; coarse fragments as in the horizon above; pH 6.0; clear smooth boundary. 4 to 9 inches thick.
C2m 61458	22 to 40 inches plus. Between very dark grayish brown (2.5Y 3/2) and dark olive gray (5Y 3/2), loam, moderate thin platy structure; very firm in place, friable in hand when moist, slightly sticky and slightly plastic when wet, penetrometer 3.15 (1.25-4.50); few grass roots; estimated 10 to 15 percent by volume coarse fragments including numerous limestone "ghosts"; pH 5.8.

Notes: [a] Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CL - 700 pushed horizontally into each horizon exposed on the face sampled. First figure given is the average of 5 readings, the figures in parentheses are the range of values obtained. Values are for moist soil. The values represent unconfined compressive strength, tons per square foot or kilograms per square centimeter. The figure is the same for both systems.

Colors refer to moist soil. The 0-7, 7-12, and the 22-40 inch zones were sampled for the Bureau of Public Roads.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Vergennes clay SOIL Nos. 858Vt-1-5 LOCATION Addison County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58883 - 58888

Depth (In.)	Horizon	Size class and particle diameter (mm) 3A1 — Total: Sand (2–0.05)	Total: Silt (0.05–0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: (0.05–0.02)	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-6	Ap	4.1	16.3	79.6	0.1	0.4	0.5	1.1	2.0	3.1	13.2	5.7	2.1			-		
6-16	B21g	1.6	5.5	92.9	0.1	0.2	0.2	0.4	0.7		5.7	0.7	0.9			-		
16-25	B22g	2.7	14.5	82.8b	a	a	a	2.7a	a	4.5	10.0	4.5				-		
25-29	B23ca	0.9	10.4	88.7	0.1	0.1	0.2	0.2	0.3	0.5	9.9	0.9	0.6			-		
29-35	C1ca	0.5	14.3	85.2	-	0.1	0.1	0.2	0.1	1.3	13.0	1.6	0.4			-		
35-47+	C2	0.5	24.9	74.6	-	-	-	0.2	0.3	1.5	23.4	1.8	0.2			-		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1a Field state g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B4 Field Moist. Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD in/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-6	1.28	0.130	10			1.5	1.48		1.58		23.0	35.7	21.2				5.8
6-16	0.74	0.122	6			1.5	1.45		1.60		25.8	38.1	22.9				6.0
16-25	0.38	0.096	4		2	1.3	1.48		1.59		23.2	43.0	27.5				7.5
25-29	0.29	0.085			4	1.3	1.50		1.54		24.0	45.9	28.2				7.8
29-35	0.26	0.072			4	1.3	1.46		1.54		29.4	47.1	28.5				7.9
35-47+	0.19	0.068			5	1.3	1.44		1.54		27.4	46.7	25.2				8.0

Depth (in.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al	Ratios to clay 8m: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg	Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g														
0-6	10.5	8.6	0.2	0.7	20.0	9.1	29.1			0.36	0.02	0.27	1	69	
6-16	9.4	12.7	0.3	0.8	23.2	6.9	30.1			0.32	0.02	0.25	-	77	
16-25	c										0.02	0.33			
25-29	c										0.01	0.32			
29-35	c										0.02	0.33			
35-47+	c										0.02	0.34			

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int. Vm. Mi.	Qtz.	Kl.	Gibbsite
		7A2 X-ray					DTA 7A3	
0-6			x	xxx	xx		tr.	
6-16		tr.	x	xxx	xx		tr.	
16-25								
25-29		x	tr.	xxx	x		tr.	
29-35								
35-47+		x	x	xxx	x		tr.	

a Mainly aggregates.

b Rerun on 5g sample - 10g sample did not disperse.

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

c Free carbonates.

Soil Type: Vergennes clay
Soil No.: S58Vt-1-5
Location: Addison County, Vermont. Weybridge Town, Stanley James farm. Air photo DCC 3-137.
Vegetation and land use: Hayfield - alfalfa, orchard grass, fescues, Kentucky bluegrass.
Slope and land form: 0 to 3 percent
Drainage: Moderately well drained
Sampled by and date: R. J. Bartlett, J. A. Ferwerda, J. E. Griggs, M. Howard, Jr., J. Kubota, E. J. Pedersen, and G. Phibbs. October 16, 1958.
Described by: J. A. Ferwerda

Horizon and Beltsville Lab. No.	
Ap 58883	0 to 6 inches. Dark grayish brown (between 2.5Y 4/2 and 10YR 4/2) clay; strong fine and medium angular blocky structure in the soil mass and strong fine granular structure **along the roots: very firm, plastic, sticky; very many fibrous roots; pH 5.8; abrupt smooth boundary. 5 to 6 inches thick.**
B21g 58884	6 to 16 inches. Dark grayish brown (between 2.5Y 4/2 and 10YR 4/2) clay, with few fine faint dark yellowish brown (10YR 4/4) mottles; weak coarse prismatic structure breaking to strong medium angular blocky structure; very firm, plastic, sticky; many fibrous roots; pH 6.0; clear wavy boundary. 8 to 11 inches thick.
B22g 58885	16 to 25 inches. Very dark grayish brown (2.5Y 3/2) clay; weak coarse prismatic structure breaking to strong thick platy structure which breaks to strong thin platy structure; very firm, plastic, sticky; common fibrous roots along ped faces; few fine manganese patches; clay skins; pH 6.8; abrupt wavy boundary. 9 to 12 inches thick.
B23ca 58886	25 to 29 inches. Dark grayish brown (2.5Y 4/2) clay; moderate coarse prismatic structure breaking to weak thin, medium and thick platy structure; very firm, plastic, sticky; roots common along ped faces; many fine manganese patches; clay skins; grayish brown (2.5Y 5/2) and pale brown (10YR 6/3) lime seams; slight effervesence with cold dilute HCl along ped faces; abrupt smooth boundary. 4 to 8 inches thick.
C1ca 58887	29 to 35 inches. Dark gray (10YR 4/1) clay varves interbedded with olive brown (2.5Y 4/3) and grayish brown (2.5Y 5/2) silt varves; strong very thick platy structure breaking to weak very thin and thin platy structure; very firm; roots common along ped faces; many fine manganese patches in the silt varves and many coarse manganese patches in the clay varves; weakly varved; clay varves show slight effervesence with cold dilute HCl, **silt varves show strong effervesence with cold dilute HCl**; abrupt smooth boundary. 5 to 6 inches thick.
C2 58888	35 to 47 inches plus. Dark gray (10YR 4/1) and olive brown (2.5Y 4/4) clay varves interbedded with olive brown (2.5Y 4/3) and grayish brown (2.5Y 5/2) silts; strong very thick platy structure breaking to weak thin and very thin platy structure; very firm; fibrous roots common; clay varves 9 to 12 mm thick and silt varves 1 to 5 mm thick; estimated (by counting the

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Vergennes clay SOIL Nos. 858Vt-1-6 LOCATION Addison County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 58889 - 58895

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: (0.05–0.02)	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 ≥ 2 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-5	Ap	6.2	28.1	65.7	0.2	0.9	1.3	2.0	1.8	4.5	23.6	7.4	4.4					
5-11	B21g	0.9	12.9	86.2	-	0.1	0.2	0.3	0.3	1.4	11.5	1.9	0.6					
11-15	B22g	0.1	21.1	78.8	a	a	a	a	a	0.4	20.7	0.4						
15-20	B3ca	0.2	23.4	76.4	-	-	-	0.1	0.1	0.6	22.8	0.8	0.1					
20-24	C1ca	-	17.7	82.3	-	-	-	-	-	0.5	17.2	0.5	-					
24-37	C21	-	20.1	79.9	-	-	-	-	-	0.7	19.4	0.7	-					
37-47+	C22	-	28.8	71.2	-	-	-	-	-	10.2	18.6	10.2	-					

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		6E1e Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: 4A1a Field state g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: 4B4 Field Moist. Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD In/in	pH: 8C1c (1:1) KCl	8C1a (1:1) H_2O
0-5	2.20	0.206	11			1.8	1.43		1.50		18.6	36.0	20.3				5.8
5-11	0.76	0.127	6			1.6	1.59		1.74		20.1	35.8	22.1				6.2
11-15	0.50	0.104	5		1	1.3	1.58		1.66		18.2	35.1	21.8				7.6
15-20	0.29	0.081			7	1.1	1.60		1.66		19.0	36.1	23.4				8.1
20-24	0.28	0.080			11	1.0	1.54		1.60		22.7	38.5	24.5				8.2
24-37	0.21	0.066			12	1.0	1.57		1.61		23.3	32.6	26.3				8.2
37-47+	0.22	0.072			7	1.0	1.44		1.57		31.7	35.5	29.0				8.2

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-5	8.4	8.1	0.1	0.8	17.4	10.0	27.4				0.42	0.03	0.31	1		64	
5-11	8.0	15.6	0.4	0.7	24.7	6.0	30.6				0.35	0.02	0.26	-		80	
11-15	b											0.02	0.28				
15-20	b											0.01	0.31				
20-24	b											0.01	0.30				
24-37	b											0.01	0.33				
37-47+	b											0.01	0.41				

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite	
			7A2 X-ray		Vm. Mi.		DTA 7A3		
0-5									
5-11									
11-15			x	xx	xxx		tr.		
15-20									
20-24									
24-37									
37-47+									

a Total sand = 0.1

b Free carbonates

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = Interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Vergennes clay
Soil No.: S58Vt-1-6
Location: Addison County, Vermont. Shoreham Town, Dubois Farm. Air photo, DCC 3-50.
Vegetation and land use: Hayfield, alfalfa, red clover, brome, orchard grass, some chicory.
Slope and land form: 4 to 5 percent
Drainage: Moderately well drained. **Described by: J. A. Ferwerda.**
Sampled by and date: R. J. Bartlett, Vt. Agr. Exp. Sta., J. E. Griggs, SCS, M. Howard, Jr., SCS, J. Kubota, SCS, E. J. Pedersen, SCS, and G. Phibbs, SCS. October 17, 1958.

Horizon and Beltsville Lab. No.	
Ap 58889	0 to 5 inches. Dark grayish brown (10YR 4/2) clay with few fine faint dark yellowish brown (10YR 4/4) mottles along root channels; strong fine granular structure along roots, soil mass has a **weak** medium subangular blocky structure; friable to firm, very plastic, very sticky; many fibrous roots; pH 6.4; abrupt wavy boundary. 5 to 8 inches thick.
B21g 58890	5 to 11 inches. Between dark grayish brown (10YR 4/2) and brown to dark brown (10YR 4/3) clay, with few to common faint dark yellowish brown (10YR 4/4) mottles; moderate coarse prismatic structure breaking to **moderate** fine and medium prismatic structure which breaks to moderate medium angular blocky structure; firm to friable, very plastic, very sticky; common fibrous roots; clay skins; pH 6.8; clear smooth boundary. 3 to 6 inches thick.
B22g 58891	11 to 15 inches. Dark grayish brown (between 2.5Y 4/2 and 10YR 4/2) clay; moderate coarse prismatic structure breaking to moderate fine and medium prismatic structure which breaks to **weak** very fine to medium angular blocky structure; friable to firm, very plastic, very sticky; fibrous roots common; clay skins; few fine pores; slight effervesence with cold dilute HCl in spots, pH 7.0; clear smooth boundary. 3 to 4 inches thick.
B3ca 58892	15 to 20 inches. Dark grayish brown (between 2.5Y 4/2 and 10YR 4/2) clay; massive breaking to weak to moderate medium subangular blocky structure; very firm in place, friable in hand, very plastic, very sticky; common to few fibrous roots; few slickensides; few fine pores; slight effervesence with cold dilute HCl in spots, pH 7.2; clear wavy boundary. 5 to 7 inches thick.
C1ca 58893	20 to 24 inches. Dark grayish brown (2.5Y 4/2) clay with few fine faint brown to dark brown (10YR 4/3) mottles in ped interiors; massive in place breaking to moderate fine to coarse subangular **blocky** structure; firm in place, very plastic, very sticky; few fibrous roots; few fine faint manganese patches; few fine pores; light brownish gray (10YR 6/2) lime seams; lime seams show strong effervesence with cold dilute HCl, matrix shows slight effervesence with cold dilute HCl; abrupt smooth boundary. 4 to 6 inches thick.
C21 58894	24 to 37 inches. Olive brown (2.5Y 4/3) clay with few fine faint dark gray (10YR 4/1) mottles which have dark gray (N 4/) centers along root channels; massive in place breaking to weak thick platy structure which breaks to weak coarse subangular blocky structure; very firm, very plastic, very sticky; few fibrous roots; common fine to coarse manganese patches; light olive brown (2.5Y 5/6 and 2.5Y 5/4) and grayish brown (2.5Y 5/2) lime seams; remnants of varves present; lime seams show strong effervesence with cold dilute HCl, soil mass shows slight effervesence with cold dilute HCl; clear wavy boundary. 13 to 15 inches thick.
C22 58895	37 to 47 inches plus. Olive brown (2.5Y 4/3) clay with common medium and coarse dark gray (10YR 4/1) to dark yellowish brown (10YR 4/4) mottles with dark gray (N 4/) centers along root channels; moderate very thick platy structure; very firm, very plastic, few fibrous roots; grayish brown (2.5Y 5/2) lime seams; soil mass shows slight effervesence with cold dilute HCl, lime seams show strong effervesence with cold dilute HCl.

Notes: Colors refer to moist soil. The 0-5, 15-20, and the 24-37 inch zones were collected for the Bureau of Public Roads.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL Woodbridge silt loam substratum SOIL Nos. S61Vt-12-10 LOCATION Washington County, Vermont

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 61423 - 61428

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)		3B2 Cm	Coarse fragments 3B1: 2A2 > 2 < 76 Pct.	2 – 19 Pct. of < 76mm	19 – 76 Pct. of < 76mm
		Pct. of < 2 mm																
0-4	Ap1	39.8	46.9	13.3	3.4	3.9	3.5	9.8	19.2	21.2	25.7	46.8	20.6			8		
4-7	Ap2	40.6	47.1	12.3	3.8	3.7	3.6	10.1	19.4	21.0	26.1	47.0	21.2			7		
7-13	B2	49.9	41.0	9.1	4.7	5.3	4.9	12.4	22.6	21.1	19.9	51.3	27.3			22		
13-17	A'2a	44.0	43.1	12.9	4.0	4.4	4.2	10.7	20.7	18.5	24.6	46.1	23.3			10		
17-27	C1gm	35.4	50.1	14.5	2.9	3.2	3.3	8.7	17.3	19.7	30.4	42.5	18.1			9		
27-45+	C2gm	31.5	58.3	10.2	1.7	3.0	2.4	8.0	16.4	23.4	34.9	44.3	15.1			5		

Depth (In.)	6A1a Organic carbon Pct.	6B2a Nitrogen Pct.	C/N		Carbonate as $CaCO_3$ Pct.	6C1a Ext. iron as Fe Pct.	Bulk density: g/cc	4A1e ⅓ bar g/cc	4A1h Oven dry g/cc	4D1 COLE	Water content: Pct.	4B1c ⅓ bar Pct.	4B2 15 bar Pct.		4C1 WRD In/in	pH: $CaCl_2$ 1:1	8C1c (1:1) KCl	8C1a (1:1) H_2O
0-4	2.48	0.186	13			1.5		1.08	1.18			34.3	7.6			4.5	4.5	4.7
4-7	1.66	0.159	10			1.5		1.32	1.38			29.1	6.8			4.7	4.4	5.0
7-13	0.81	0.070	12			1.3		1.34	1.38			23.5	3.5			4.7	4.2	5.1
13-17	0.15					1.2		1.84	1.87			14.3	3.8			4.8	4.2	5.1
17-27	0.13					1.0		1.92	1.94			13.6	4.4			4.8	4.3	5.4
27-45+	0.13					1.1		1.80	1.84			17.1	4.7			4.7	4.0	5.4

Depth (In.)	Extractable bases 5B1a: 6N2d Ca	6O2b Mg	6P2a Na	6Q2a K	Sum	6H2a Ext. acidity	CEC: 5A3a Sum cations		6G1d Ext. Al		Ratios to clay 8D1: CEC Sum	Ext. iron	15-bar water	8D3 Ca/Mg		Base saturation: 5C3 Sum cations Pct.	5C1 NH_4OAc Pct.
	meq/100 g																
0-4	3.3	0.3	tr.	0.2	3.8	14.8	18.6		0.9		1.40	0.11	0.57			20	
4-7	2.2	0.1	0.1	0.1	2.5	13.0	15.5		1.0		1.26	0.12	0.55			16	
7-13	1.0	0.1	tr.	0.1	1.2	9.0	10.2		0.8		1.12	0.14	0.38			12	
13-17	0.7	tr.	tr.	0.1	0.8	3.9	4.7		0.5		0.36	0.09	0.29			17	
17-27	1.2	tr.	tr.	0.1	1.3	3.7	5.0		0.5		0.34	0.07	0.30			26	
27-45+	1.0	0.2	tr.	0.1	1.3	4.5	5.8		0.8		0.57	0.11	0.46			22	

Depth (In.)	Clay Fraction Analysis 7A1b-d: Mt.	Chl.	Vm.	Mi.	Int.	Qtz.	Kl.	Gibbsite
	7A2 X-ray						DTA 7A3	
0-4								
4-7								
7-13	-	x	-	x	-	-	-	-
13-17	-	xx	-	xxx	-	-	-	-
17-27								
27-45+	-	xxx	-	xxx	-	-	-	-

Mt. = Montmorillonite, Chl. = chlorite, Vm. = Vermiculite, mi = mica, Int. = interstratified layer, Qtz. = quartz, Kl. = Kaolinite

Relative amounts: blank = not determined, dash = not detected, tr. = trace, x = small, xx = moderate, xxx = abundant, xxxx = dominant.

Soil Type: Woodbridge silt loam substratum
Soil No.: S61Vt-12-10
Location: Washington County, Vermont. Berlin town, one quarter mile east of Barre-Montpelier airport, Harold Woodbury farm. Air photo DCC 1-46.
Vegetation and land use: Hay - Brome grass, timothy, blue grass. An old stand in a field of rather low fertility.
Slope and land form: 8 percent
Drainage: Moderately well drained. Runoff is estimated to be medium. Internal drainage is estimated to be slow to medium.
Permeability: Estimated to be rapid in the Ap and B horizons, moderate in the A'2g horizon, and slow in the C horizons.
Physiographic position: A glaciated upland plateau

Sampled by and date: E. J. Pedersen, G. W. Allen, and M. Howard, Jr. June 20, 1961.

Horizon and Beltsville Lab. No.	
Ap1 61423	0 to 4 inches. Very dark grayish brown (10YR 3/2) silt loam; strong fine and medium granular structure; very friable, slightly sticky and nonplastic when wet, penetrometer 1.85 (1.00-3.50)[a] ; many grass roots; estimated 5 to 10 percent by volume coarse fragments; pH 5.6; abrupt smooth boundary. Estimated 5 percent by weight coarse fragments greater than three inches and less than 10 inches discarded.
Ap2 61424	4 to 7 inches. Very dark grayish brown (2.5Y 3/2) loam; strong fine and medium granular structure; very friable when moist, slightly sticky and nonplastic when wet; penetrometer 3.60 (2.75-4.50); many grass roots; estimated 5 to 10 percent by volume coarse fragments; pH 5.6; abrupt wavy boundary.
B2 61425	7 to 13 inches. Brown to dark brown (10YR 4/3) loam; weak fine subangular blocky structure; very friable when moist, slightly sticky and nonplastic when wet, penetrometer 3.15 (1.75-4.25); grass roots common; estimated 5 to 10 percent by volume coarse fragments; pH 5.6; abrupt smooth boundary.
A'2g 61426	13 to 17 inches. Olive gray (between 5Y 4/2 and 5Y 5/2) loam with common medium distinct mottles of olive brown (2.5Y 4/4); strong medium platy structure with a coating of sand grains on plate surfaces; firm in place and in the hand when moist, nonsticky and nonplastic when wet, penetrometer 4.45 (4.25-4.50+); a few grass roots; estimated 10 to 15 percent by volume coarse fragments; pH 5.6; abrupt smooth boundary.
C1gm 61427	17 to 27 inches. Dark grayish brown (2.5Y 4/2) loam with few medium faint mottles of olive brown (2.5Y 4/4) and few medium distinct mottles of dark yellowish brown (10YR 3/4); strong thick and medium platy structure with clay skins on plate surfaces and in pores; very firm in place and firm in the hand when moist, slightly sticky and slightly plastic when wet, penetrometer 4.50+ for all 5 readings; few grass roots; estimated 10 to 15 percent by volume coarse fragments; pH 5.6; clear smooth boundary. This horizon seems to be in polygons about one foot in diameter which are separated by vertical streaks about 1 to 2 inches wide. These streaks are gray (5Y 5/1) with dark reddish brown (5YR 3/3) edges about 5 to 10mm. wide and are pH 5.8. Penetrometer readings when penetrometer was pushed vertically into polygons were 4.50+ in each case. Estimated 15 percent by weight coarse fragments greater than 3 inches and less than 10 inches discarded.
C2gm 61428	27 to 45 inches plus. Olive gray (5Y 4/2) silt loam or loam with common coarse distinct mottles of gray (N 5/) and olive brown (2.5Y 4/4); structureless, massive; very firm in place; firm in the hand when moist, slightly sticky and slightly plastic when wet, penetrometer 4.45 (4.25-4.50+); few grass roots and only in streaks between polygons; estimated 5 to 10 percent by volume coarse fragments; pH 5.6; polygons and streaks as in horizon above. Estimated 5 percent by weight coarse fragments greater than 3 inches and less than ten inches discarded, one cobble.

Notes: [a] Penetrometer values given were obtained with Soiltest pocket penetrometer, Model CL - 700 pushed horizontally into each horizon exposed on the face sampled. First figure given is the average of 5 readings, the figures in parentheses are the range of values obtained. Values are for moist soil. The values represent unconfined compressive strength, tons per square foot or kilograms per square centimeter. The figure is the same for both systems.

Colors refer to moist soil. The 0-4, 17-27, and the 27-45 inch zones were sampled for the Bureau of Public Roads.

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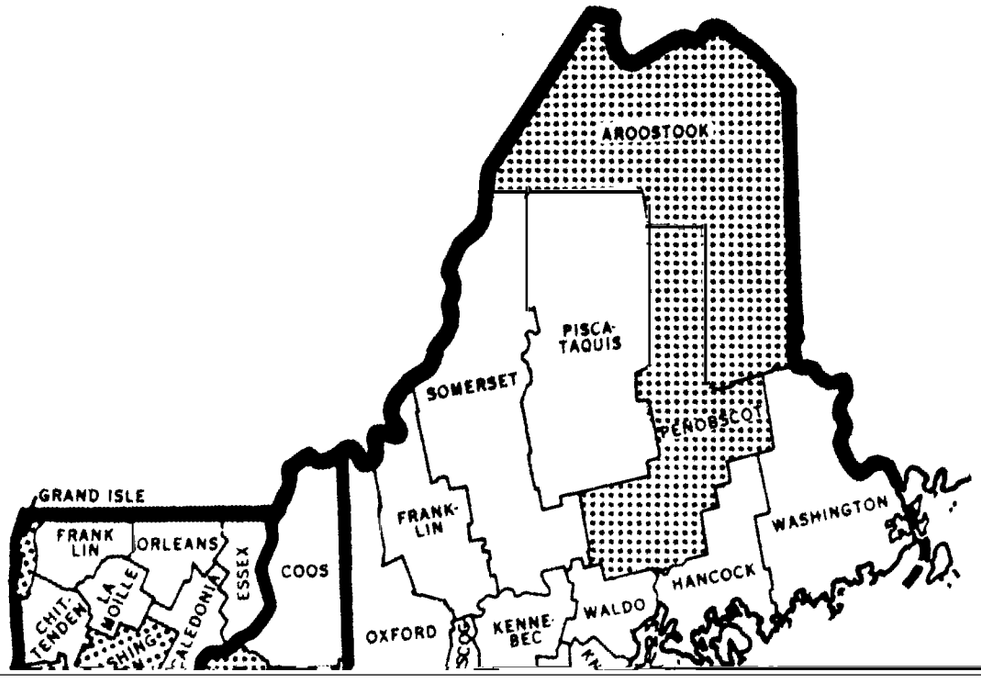
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