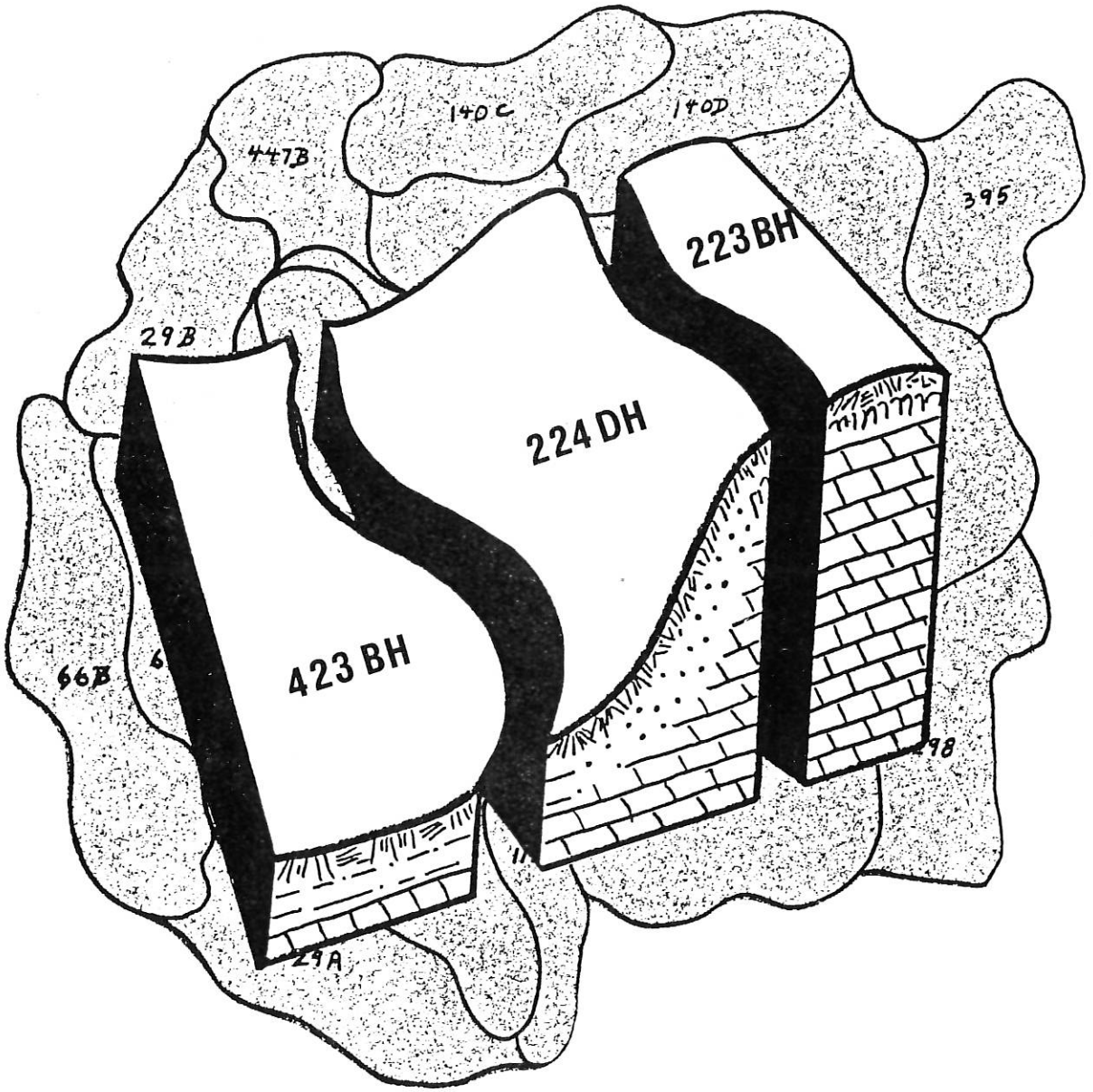
NLCC

HIGH INTENSITY SOIL MAPS FOR NEW HAMPSHIRE

STANDARDS AND ORIGINS

See Subdivision Regulations (2009) p47



1987

Sponsored by the
Society of Soil Scientists
of Northern New England

SSSNNE Special Publication No.1

SOCIETY OF SOIL SCIENTISTS
OF NORTHERN NEW ENGLAND
PO Box 986
Durham, NH 03824

Affiliated

March 2, 1987

On behalf of the Board of Directors, enclosed is a copy of SSSNNE Technical Publication No. 1. We anticipate this to be the first of a series of publications.

The topic of this first one is standards for high intensity mapping in New Hampshire. This kind of mapping is being done by the private sector. Map scales are usually at 1 inch equals 50 feet or so. The produced maps are significantly different than the standard National Cooperative Soil Survey maps prepared for county wide publication. High intensity soil maps (HIS) are mostly used for very intensive land planning activities as siting areas for homesite septic tank absorption fields. Communities in New Hampshire are generally using the maps as a basis for lot size determination and wetland identification.

We encourage comments to improve this document as the field testing and application work continues.

Sincerely,

Sidney A.L. Pilgrim, CPSS
Vice President

SOCIETY OF SOIL SCIENTISTS
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Cover designed by June Tucker

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INTRODUCTION

The SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND is a nonprofit professional organization of soil scientists, both in the private and public sectors, that is dedicated to the advancement of Soil Science. The Society fosters the profession of soil classification, mapping and interpretation, and encourages the dissemination of information concerning soil science. With the intent of contributing to the general human welfare, the Society seeks to educate the public on the wise use of soils and the associated natural resources.

The publication HIGH INTENSITY SOIL MAPS FOR NEW HAMPSHIRE was a natural outgrowth of the Society's concern for the intelligent use of this fragile resource. As development pressures increased in the New Hampshire area, it became obvious that town officials, engineers, developers, land surveyors and others, needed intensive site-specific soils information in making their resource decisions. However, with a number of soil scientists using a variety of standards and legends, and thus presenting a variety of products, the site-specific information was difficult to interpret. A confusing jumble of information is sometimes worse than no information at all.

HIGH INTENSITY SOIL MAPS FOR NEW HAMPSHIRE is an attempt to standardize and clarify for the user this site-specific soils information. This effort in New Hampshire was supported by the private soil consultants, the State Conservation Committee, the Conservation Districts, and the Soil Conservation Service. With the intent of contributing to the wise use of soils and to the general human welfare, the SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND respectfully presents the following document for public use.

James P. Gove, CPSC
Subcommittee for
high intensity soil maps,
SOCIETY OF SOIL SCIENTISTS
OF NORTHERN NEW ENGLAND

SOCIETY OF SOIL SCIENTISTS
OF NORTHERN NEW ENGLAND

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THE ORIGIN AND USE OF HIGH INTENSITY SOIL MAP STANDARDS
1/87

High intensity soil maps have been prepared by private soil consultants for many years in New Hampshire. These maps have been used by town officials, engineers, and developers to better address the soil resources on tracts of land that are undergoing urban development. As the use of this information increased, it was found there were deficiencies in utilizing the standards of the National Cooperative Soil Survey for making these maps. At the request of town officials, private consultants, and engineers; the Society of Soil Scientists of Northern New England undertook the task of creating a new set of standards and procedures for making these special purpose soil maps. The result of this effort is the document titled: HIGH INTENSITY SOIL MAPS FOR NEW HAMPSHIRE, in which new standards, new drainage class definitions, and a new soil classification method was introduced. Below is a series of questions and answers which will hopefully clarify the intent and use of these new standards.

Q: How do these maps differ from Soil Conservation Service (SCS) soil surveys?
A: A high intensity soil (HIS) map is a soil survey made at the scale of most subdivision proposals; such as 1" = 50', 1" = 20', etc.; and shows the soil patterns in much greater detail than is commonly depicted on SCS soil surveys. Concurrent with this greater detail is the increased intensity of field observations needed to prepare a HIS map. A soil scientist may require as much time to make a HIS map on 10 acres as he would to make an SCS soil map on 200 acres.

Q: How is a HIS map used?
A: A HIS map is utilized in making site-specific land-use decisions involving development, i.e. wetland ordinances, lot size by soil type regulations, etc.

Q: Why should I use a HIS map for site-specific development decisions instead of an SCS soil map?
A: The SCS soil surveys were never intended for use in site-specific decisions involving development. The scale of the SCS maps were 1" = 1320', 1" = 1667', 1" = 2000', or smaller; thus making the smallest map unit that could be shown a size of 2.5 acres or larger. Many houselots are smaller than the minimum size of the SCS map units; which means that inclusions of soils, that would have significant impact upon development of the lot, could not be shown. By contrast, the large scale at which the HIS map is made allows these important soil inclusions to be identified and delineated.

Q: Do the HIS maps replace the SCS soil surveys?
A: By no means. The SCS soil maps are multiple-use maps; utilized

for farmland inventories, important forest soils identification, town-wide land-use planning, etc. For instance, many towns have used the SCS soil maps as the basis for their master plans and zoning.

Q: Who put together these new standards for HIS maps?
A: A subcommittee of the Society of Soil Scientists of Northern New England (SSSNNE) was formed to create standards for HIS mapping. The membership of this group included SCS soil scientists, an SCS district conservationist, private soil consultants, engineers, representation from the New Hampshire Water Supply and Pollution Control Commission, and septic system designers.

Q: Why were these new standards created?
A: Because certain problems became obvious as the standards of the National Cooperative Soil Survey (NCSS) were applied to the HIS maps. Some soil series were identified as having more than one drainage class, such as being both poorly drained and somewhat poorly drained, the implication being that sometimes the soil series would be considered a wetland, but other times would not. Minimum size delineations and the amount of inclusions to be allowed in the HIS map units also do not use the standards of the NCSS.

Q: Do the HIS maps use any of the standards of the NCSS?
A: Yes, but only where the standards apply. For instance, Soil Taxonomy was extensively used in creating the new definitions for the soil drainage classes. The concept of a connotative legend used to identify soil types rather than soil series comes from an older system of soil classification at one time used by SCS. Field criteria currently used by soil scientists, the National Soils Handbook, and the latest drafts of the Soil Survey Manual were also used in developing the new standards.

Q: Who will defend these HIS mapping standards?
A: The soil scientists of SSSNNE can supply the technical backup for these standards. The Soil Conservation Service, the State Conservation Committee, and the Conservation Districts have supported these efforts.

Q: How do the HIS map units relate to hydric soils, the identification of which are part of a national procedure for classifying wetlands?
A: The poorly drained and very poorly drained soil types, as identified by HIS mapping, will meet the criteria for hydric soils.

Q: What has been the reception of these new standards?
A: Many of the private soil consultants have adopted the new system and prefer to use it. Developers and engineers have

stated they get better information when the standards are utilized. Town planning officials have found the connotative soil types easier to understand than the SCS soil series. The information that the HIS maps provide can be quickly evaluated and assists them in making better land-use decisions.

Q: When were these HIS mapping standards created?
A: The SSSNNE subcommittee members and their advisors held several work sessions from February to May of 1986. The standards were released for testing during the field season of 1986. In January of 1987, the subcommittee and their advisors met to review the standards and make corrections. The standards will continue to be reviewed at intervals to check their reliability and technical accuracy.

Prepared by : James P. Gove, CPSC

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OF NORTHERN NEW ENGLAND

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HIGH INTENSITY SOIL MAPS FOR NEW HAMPSHIRE
1/87

Purpose:
To identify soil types and their location on perimeter surveys to assist in administering Lot Size by Soil Type regulations and Wetland ordinances based on soil type.

Introduction:
Soils information has been available and used by individuals and communities in New Hampshire for many years. The National Cooperative Soil Survey Program has been the source of most of this soils information. The Soil Conservation Service as lead agency in the National Cooperative Soil Survey Program and other cooperating agencies have provided published soils surveys, generally on a county basis, or interim soil maps and reports to many of New Hampshire's towns. These soil surveys use aerial photography with scales of 1:15840, 1:20000, or 1:24000 as base maps. The soils data provided at these scales, and with the standards and procedures used by the Soil Conservation Service, is a good source of information for land use planning. Land use planning is one of the many uses of the National Cooperative Soil Survey and should continue to be in the future.

However, there is now a need in New Hampshire for more detailed soils information. This need is in the realm of land use application rather than land use planning. New Hampshire, particularly southern New Hampshire, is under development growth pressure. Many of the towns have adopted wetland ordinances based on soil type to help protect these sensitive areas from development. Many towns have also adopted Lot Size by Soil Type regulations as a means to help protect the towns subsurface and surface waters from pollution. Lot Size by Soil Type regulations is also a means of integrating development with the suitability of a parcel of land to development. Development pressures on the land and the accompanying high land values have created a need to identify the soil types on a proposed subdivision accurately and in great detail. The National Cooperative Soil Survey is a useful aid but does not meet the needs for soils information on subdivisions where the land is being utilized to its maximum development potential.

A high intensity soil map can meet the needs for soils information at an acceptable level of detail and accuracy for wetland identification based on soil properties and soil type for lot size determination for land under development.

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STANDARDS FOR A HIGH INTENSITY SOIL MAP
1/87

Criteria for High Intensity Soil Map:
1. Use of a Base Map.
2. Use of a Connotative Soil Legend (see attachment - Key To Soil Types)
3. Required Map Unit Purity.
4. Minimum Size Delineation.
5. Required accuracy of soil boundary line placement.
6. Map prepared by a Qualified Soil Scientist.

Base Map:
1. A current perimeter survey by a Licensed Land Surveyor.
2. Map scale of 1" = 100' or larger, i.e. 1" = 50', 1" = 20', etc.
3. Topography with 2 foot contour intervals or less, i.e. 1 foot contour intervals.
4. Ground control is required and shall be at the density specified by the Soil Scientist.

Connotative Soil Legend:
(see attachment - Key To Soil Types)
All map unit symbols used will be derived from the Connotative Soil Legend, with only one soil type per map unit delineation.

High Intensity Map Unit Purity:
The soil within an area enclosed by a soil boundary line (a map unit delineation) will have a minimum of 75 percent of the soil properties inferred by the soil map symbol derived from the Key To Soil Types and placed within that map unit delineation. Limiting soil type or types can make up a maximum of 15 percent of the map unit delineation. The control section for determining soil properties is from the soil surface to a depth of 40 inches.

Minimum Size Delineation:
The minimum size delineation will refer only to map units of poorly drained, very poorly drained, rock outcrop or slopes of greater than 25 percent soil types. The minimum size delineation will be 2000 square feet. Smaller areas may be shown at the discretion of the Soil Scientist.

Soil Boundary Line Placement:
Soil boundary line placement should be accurate within 20 feet.

Streams and small water bodies shown at the discretion of the Soil Scientist.

Qualified Soil Scientist:
A person qualified in soil classification and mapping, who is on the list of qualified soil scientists maintained by the New Hampshire State Conservation Committee. All high intensity soil maps will be identified with the name of the qualified soil scientist who did the mapping.

THESE ARE MINIMUM STANDARDS FOR HIGH INTENSITY SOIL MAPS.

KEY TO SOIL TYPES
1/87

This key is used in determining soil types that are utilized in high intensity soil surveys for administration of lot size by soil type and wetlands regulations. The soil types are defined as soils having the same soil characteristics of drainage class, parent material, restrictive features, and slope; and are designated by a five part symbol, the parts being A,B,C,D,E.

SYMBOL A - drainage class
- 1 - excessively drained
- 2 - well drained
- 3 - moderately well drained
- 4 - somewhat poorly drained
- 5 - poorly drained
- 6 - very poorly drained
- 7 - not determinable (to be used only with Symbol B-6)

SYMBOL B - parent material
- Glaciofluvial Deposits (outwash/terraces) - 1
- Glacial Till Material - 2
- Marine or Glaciolacustrine Deposits
  - Very fine sand and silt deposits - 3
  - Loamy/sandy over silt/clay deposits - 4
  - Silt and clay deposits - 5
- Excavated, regraded or filled - 6
- Alluvial Deposits - 7
- Organic Materials - Fresh Water - 8
- Organic Materials - Tidal Marsh - 9

SYMBOL C - restrictive feature (if more than one applies, list the most restrictive)
- 1 - none.
- 2 - bouldery, with more than 15% of the surface covered with boulders (larger than 12 inches in diameter).
- 3 - mineral restrictive layer(s) are present in the soil profile less than 40 inches below the soil surface - such as hard pan, platy structure, clayey texture. For examples of soil characteristics that qualify for restrictive layer, see Soil Manual for Site Evaluations in New Hampshire, page 2-22, figure 2-8.
- 4 - bedrock present in the soil profile 0 to 40 inches below the soil surface (bedrock is either a lithic or paralithic contact - see Soil Taxonomy p. 48-49).
- 5 - subject to flooding.
- 6 - does not meet fill standards (see addendum - Standards For Fill Material) (only to be used with symbol B-6).
- X - Areas where depth to bedrock is so variable that a single soil type cannot be applied will be mapped as a complex of soil types and will have a symbol C of X.

SYMBOL D - slope class
- B - 0 to 8%
- C - 8 to 15%
- D - 15 to 25%
- E - 25%+

SYMBOL E - high intensity soil map identifier - H. (see addendum)

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Addendum to KEY TO SOIL TYPES
1/87

1. Standards For Fill Material:

Fill material consisting of organic materials or non-soil materials such as tree stumps, sawdust, wood chips and bark, bricks, asphalt, concrete, metal, wallboard, etc., even with a soil matrix, should not be used.

The in-place fill should have less than 15% organic matter and non-soil materials by volume.

The in-place fill should not contain more than 25% by volume of cobbles (6 inch diameter) and boulders (larger than 12 inches in diameter).

The in-place fill should not have more than 27% by weight of clay size (0.002mm and smaller) particles.

The fill should be essentially homogeneous. If bedding planes and other discontinuities are present, detailed analysis is necessary.

2. Examples of soils classified using the KEY TO SOILS TYPES.

a. An excessively drained sand and gravel soil with no restrictive features on a 9% slope would be identified as: 111CH

b. A moderaterly well drained glacial till soil with a hard pan, on a 4% slope, would be identified as: 323BH

c. A somewhat poorly drained clayey soil with firm consistence and high clay content in the substratum, on a 1% slope, would be identified as: 453BH

d. A very poorly drained organic soil located on the tidal marsh would be identified as: 691BH

e. An area of well drained glacial till where bedrock is present, and the shallow soils are so intermixed with deep soils that they cannot be separated, on a 16% slope, would be identified as: 22XDH

f. An area that was filled with sandy soil material that meets the Standards For Fill Material, on a 4% slope, and is excessively drained, would be identified as: 161BH

g. An area that was filled with stumps and concrete blocks such that the fill material would not meet the Standards For Fill Material, on a 2% slope, and the depth to a seasonal high water table could not be determined, would be identified as: 766BH

3. High Intensity Soil Map Identifier.

The H is placed at the end of the soil type to identify the area mapped as meeting the standards for high intensity soil maps. If, as a preliminary planning tool, a soil map is made that does not meet the standards, but the soil scientist still prefers to use the connotative legend to identify the soils, a P (signifying a preliminary map) will be used in place of the H, i.e. 111CP. Maps made with soil types ending with P do not meet the standards for high intensity soil maps and are not intended to be used for wetland ordinances, lot size by soil type regulations, etc.

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KEY TO SOIL DRAINAGE CLASSES
1/87

A. Soils that have an aquic moisture regime or are artificially drained and

1. Have organic soil materials that extend from the surface to a depth of 16 inches or more; or
2. Have a histic epipedon (either mineral of organic); or
3. Have an epipedon that has "n" value of greater than 0.7; are

VERY POORLY DRAINED

B. Soils that have an aquic moisture regime or are artificially drained and

1. Have an albic horizon that lies just above a horizon having hue 10YR or redder, value less than 5, chroma less than 4; and have faint to prominent mottles in the albic horizon less than 12 inches below the soil surface; or
2. Within 20 inches of the soil surface have textures of dominantly very fine sand or finer with distinct or prominent mottles less than 12 inches below the soil surface and have a subsurface horizon less than 20 inches below the soil surface that has dominant color, moist, in the matrix of chroma 2 or less, value 4 or more; or
3. Within 20 inches of the soil surface have textures of dominantly loamy fine sand or coarser with distinct or prominent mottles less than 12 inches below the soil surface and have a subsurface horizon less than 20 inches below the soil surface that has dominant color, moist, in the matrix of chroma 3 or less, value 4 or more; or
4. Have any textures with no mottles and have a subsurface horizon less than 20 inches below the soil surface that has dominant color, moist, in the matrix of chroma 1 or less, value 4 or more; or
5. Have a mineral epipedon greater than 12 inches and less than 20 inches that is underlain with a mottled subsurface horizon less than 20 inches below the soil surface that has dominant color, moist, in the matrix of chroma 2 or less, value 4 or more; are

POORLY DRAINED

C. Soils that have distinct or prominent mottles, that are not relic mottles, at a depth less than 15 inches below the soil surface; are

SOMEWHAT POORLY DRAINED

D. Soils that have distinct or prominent mottles, that are not relic mottles, between a depth of 15 inches and 40 inches below the soil surface; are

MODERATELY WELL DRAINED

E. Soils that have textures in any horizons between 10 to 40 inches of very fine sand or finer; are

WELL DRAINED

F. All other soils; are

EXCESSIVELY DRAINED

GLOSSARY
1/87

ALBIC HORIZON - one from which clay and free oxides have been removed or in which oxides have been segregated to the extent that the color of the horizon is determined by the color of the primary sand and silt particles rather than by coatings on these particles. See page 15 in KEYS TO SOIL TAXONOMY.

AQUIC MOISTURE REGIME - implies a reducing regime that is virtually free of dissolved oxygen because the soil is saturated by ground water or by water of the capillary fringe. See page 24 in KEYS TO SOIL TAXONOMY.

HIGH INTENSITY SOIL MAP UNIT - is an area defined and named in terms of its soil properties. Each individual area enclosed on the map is a delineation. Each map unit contains a map symbol and that symbol represents one soil type with a defined set of soil properties.

HISTIC EPIPEDON - is a layer, normally at the surface, that has a high volume of organic soil materials. See page 5 in KEYS TO SOIL TAXONOMY.

KEYS TO SOIL TAXONOMY - for copies write: International Soils, Department of Agronomy, Bradfield Hall, Cornell University, Ithaca, NY 14853. Include a check for $8.00 per copy made out to the Agronomy Dept., Cornell University.

LIMITING SOIL - is a soil that differs appreciably in one or more soil properties than the named soil type. The difference in soil properties is more restrictive than the named soil type. The limiting soil type is 2 or more drainage classes different from the named soil type, has 1 or more restrictive features or has slopes greater than 15% if the named soil type is B slope or C slope.

MINERAL SOIL MATERIALS - See page 1 in KEYS TO SOIL TAXONOMY.

MOTTLES - refers to spots of contrasting colors in a horizon, with both high chroma and low chroma represented in the variegated colors. The term mottling also means that the horizon is saturated with water at some period of the year or the soil is artificially drained. It is also implicit in the meaning that the temperature of the horizon is above the biologic zero during at least a part of the time that the horizon is saturated.

MOTTLE CONTRAST - refers to the degree of visual distinction that is evident between associated colors. Contrast may be described as faint, distinct, or prominent:

Faint : Evident only on close examination. Faint mottles

commonly have the same hue as the color to which they are compared and differ by no more than 1 unit of chroma or 2 units of value. Some faint mottles of similar but low chroma and value differ by 2.5 units (one page) of hue.

Distinct : Readily seen but contrast only moderately with the color to which they are compared. Distinct mottles commonly have the same hue as the color to which they are compared but differ by 2 to 4 units of chroma or 3 to 4 units of value; or differ from the color to which they are compared by 2.5 units (one page) of hue but no more than 1 unit of chroma or 2 units of value.

Prominent : Contrast strongly with the color to which they are compared. Prominent mottles are commonly the most obvious color feature of the section described. Prominent mottles that have medium chroma and value commonly differ from the color to which they are compared by at least 5 units (two pages) of hue if the chroma and value are the same; at least 4 units of value or chroma if the hue is the same; or at least 1 unit of chroma or 2 units of value if hue differs by 2.5 units (one page).

Hue, value, and chroma are described in the Munsell Soil Color Charts, as printed by Munsell Color, 2441 North Calvert Street, Baltimore, Maryland 21218.

"N" VALUE - refers to the relation between the percentage of water under field conditions and the percentages of inorganic clay and of humus. See page 20 in KEYS TO SOIL TAXONOMY.

NON-LIMITING SOIL - is a soil type that has most soil properties common to the named soil type. The non-limiting soil is 1 drainage class different, has a different parent material or is any slope class lower than the named soil type, and has no additional restrictive features.

ORGANIC SOIL MATERIALS - See page 33 in the KEYS TO SOIL TAXONOMY.

RELIC MOTTLES - are reddish brown layers that are relics of an earlier water table situation. Commonly, relic mottles appear as thin reddish brown horizontal layers below 3 to 4 feet. They are quite common on exposed faces in sand and gravel pits. The origin of these "iron layers" may be related to a water table situation entirely different than exists today. The water table was perhaps considerably higher than the present water table.

SOIL SURFACE - is the top part of the O horizon that has decomposed so much that most of the original material cannot be recognized with the naked eye. The O horizons are layers dominated by organic soil materials.

SOIL TEXTURE - are classes based on different combinations of

sand, silt, and clay. The amount of each soil separate contained in a soil sample will determine its texture.

Prepared by : James P. Gove, CPSC
and
Gerald L. Rosenberg

Listed below, in alphabetical order, are the members/advisors of the original SSSNNE subcommittee on high intensity soil mapping that met on May 21, 1986, to create the new standards. Included in the listing are their working titles and their affiliation:

Bredberg, Anthony, Qualified Soil Scientist, NH Soil Consultants
Cogswell, Denise, Soil Scientist, Rockingham Co. Conservation District
Cuomo, Michael, Qualified Soil Scientist, Olde Barwick Management Corp.
Durgin, Paul, P.E. and L.L.S., Durgin/Schofield Associates
Gove, James, Soil Scientist, SCS
Hayden, James, District Conservationist, SCS
Kelsea, Russell, Soil Scientist, SCS
Marceau, David, Soils Engineer, NHWSPCC
Merrill, John, District Supervisor, Rockingham Co. Conservation District
Mitchell, Eric, P.E. and L.L.S., Eric C. Mitchell Assoc.
Morse, Lawrence, Qualified Soil Scientist, NH Soil Consultants
Pilgrim, Sidney, State Soil Scientist, SCS
Rosenberg, Gerald, Soil Scientist, SCS
Rowe, Gene, P.E. and L.L.S., Seacoast Engineering
Rutherford, Robert, Qualified Soil Scientist, Self-employed
Vieira, Frank, Qualified Soil Scientist, Self-employed

CORRELATION CHART FOR INTENSIVE MAPPING SYMBOLS VS. WSPCC SOIL GROUPS

GROUP I	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 6 *Until Disproven On Site Review
111's	221's	213's	114's	411's	175's	166's
112's	222's	223's	11X's	412's	275's	266's
121's	231's	233's	124's	413's	375's	366's
122's	261's	241's	12X's	414's	475's	466's
161's		243's	~~161's~~	41X's	575's	566's
211's		251's	164's	421's	611's	666's
212's		253's	214's	422's	612's	761's
		263's	21X's	423's	613's	762's
		311's	224's	424's	614's	763's
		312's	22X's	42X's	615's	764's
		313's	234's	431's	616's	766's
		314's	244's	432's	61X's	
		31X's	24X's	433's	621's	
		321's	254's	434's	622's	
		322's	25X's	43X's	623's	
		323's	264's	441's	624's	
		324's	26X's	442's	62X's	
		32X's		443's	631's	
		331's		444's	632's	
		333's		44X's	633's	
		334's		451's	634's	
		33X's		453's	641's	
		341's		454's	642's	
		343's		45X's	643's	
		344's		461's	644's	
		351's		463's	651's	
		354's		464's	652's	
		361's		46X's	653's	
		363's		511's	654's	
		364's		512's	675's	
		36X's		513's		
				514's		
				51X's		
				521's		
				522's		
				523's		
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				554's		

Society of Soil Scientists of Northern New England

SSSNNE

PO Box 986

Durham NH 03824

Rapid Permeability + Coarse sand and gravel (Require additional distance between septic system and water)

Hinckley
HvB
HsA
HsB
HsC

Colton
CoA
CoB
CoC
CtB

1st Digit Drainage class
1 - well drained
5 - poorly
6 - very "

2nd Digit Sand type

3rd Digit Restriction or sub
3 = hard pan.

B 0-8
C 8-15
D 15-25

slopes

H is [illegible]

Russ Kelsea
Soil Scientist
USDA SCS

225-6401

SOIL LEGEND

The first capital letter is the initial letter of the soil name. A second capital letter, A, B, C, D, or E, shows the slope. Some symbols without a slope letter are for nearly level soils, such as Saco silt loam, but some are for soils or land types that have a considerable range of slope.

SYMBOL	NAME
AcB	Acton fine sandy loam, 0 to 8 percent slopes
AdB	Acton very stony fine sandy loam, 0 to 8 percent slopes
AdC	Acton very stony fine sandy loam, 8 to 15 percent slopes
AfA	Agawam very fine sandy loam, 0 to 3 percent slopes
AfB	Agawam very fine sandy loam, 3 to 8 percent slopes
AgA	Au Gres fine sandy loam, 0 to 3 percent slopes
AgB	Au Gres fine sandy loam, 3 to 8 percent slopes
AuB	Au Gres loamy sand, 0 to 8 percent slopes
BcB	Belgrade silt loam, 0 to 8 percent slopes
CaC	Canaan-Hermon very rocky sandy loams, 3 to 15 percent slopes
CaD	Canaan-Hermon very rocky sandy loams, 15 to 25 percent slopes
ChD	Canaan-Hermon extremely rocky sandy loams, 8 to 25 percent slopes
ChE	Canaan-Hermon extremely rocky sandy loams, 25 to 60 percent slopes
CoA	Colton loamy sand, 0 to 3 percent slopes
CoB	Colton loamy sand, 3 to 8 percent slopes
CoC	Colton loamy sand, 8 to 15 percent slopes
CtE	Colton gravelly loamy sand, 15 to 60 percent slopes
DuB	Duane fine sandy loam, 0 to 8 percent slopes
GcB	Gloucester sandy loam, 3 to 8 percent slopes
GcC	Gloucester sandy loam, 8 to 15 percent slopes
GcD	Gloucester sandy loam, 15 to 25 percent slopes
GrB	Gloucester very stony sandy loam, 3 to 8 percent slopes
GrC	Gloucester very stony sandy loam, 8 to 15 percent slopes
GrD	Gloucester very stony sandy loam, 15 to 25 percent slopes
GrE	Gloucester very stony sandy loam, 25 to 60 percent slopes
GsD	Gloucester extremely stony sandy loam, 8 to 25 percent slopes
GsE	Gloucester extremely stony sandy loam, 25 to 60 percent slopes
Gv	Gravel pits
HmB	Hermon sandy loam, 3 to 8 percent slopes
HmC	Hermon sandy loam, 8 to 15 percent slopes
HmD	Hermon sandy loam, 15 to 25 percent slopes
HnB	Hermon very stony sandy loam, 3 to 8 percent slopes
HnC	Hermon very stony sandy loam, 8 to 15 percent slopes
HnD	Hermon very stony sandy loam, 15 to 25 percent slopes
HoD	Hermon extremely stony sandy loam, 8 to 25 percent slopes
HoE	Hermon extremely stony sandy loam, 25 to 60 percent slopes
HrE	Hinckley gravelly loamy sand, 15 to 60 percent slopes
HsA	Hinckley loamy sand, 0 to 3 percent slopes
HsB	Hinckley loamy sand, 3 to 8 percent slopes
HsC	Hinckley loamy sand, 8 to 15 percent slopes
Lm	Limerick silt loam, high bottom
Ma	Made land
Mh	Marsh
MmA	Merrimac sandy loam, 0 to 3 percent slopes
MmB	Merrimac sandy loam, 3 to 8 percent slopes
MmC	Merrimac sandy loam, 8 to 15 percent slopes
Mn	Mixed alluvial land
Mp	Muck and Peat
NnA	Ninigret very fine sandy loam, 0 to 3 percent slopes
Of	Ondawa fine sandy loam
Oh	Ondawa fine sandy loam, high bottom
PaB	Paxton loam, 0 to 8 percent slopes
PaC	Paxton loam, 8 to 15 percent slopes
PaD	Paxton loam, 15 to 25 percent slopes
PnB	Paxton very stony loam, 3 to 8 percent slopes
PnC	Paxton very stony loam, 8 to 15 percent slopes
PnD	Paxton very stony loam, 15 to 25 percent slopes
PnE	Paxton very stony loam, 25 to 60 percent slopes
Po	Podunk fine sandy loam
RbA	Ridgebury loam, 0 to 3 percent slopes
RbB	Ridgebury loam, 3 to 8 percent slopes
RdA	Ridgebury and Whitman very stony loams, 0 to 3 percent slopes
RdB	Ridgebury and Whitman very stony loams, 3 to 8 percent slopes
Rh	Riverwash
Ro	Rock outcrop
Ru	Rumney fine sandy loam
Sa	Saco silt loam
Sc	Scarboro fine sandy loam
SgB	Shapleigh-Gloucester sandy loams, 3 to 8 percent slopes
SgC	Shapleigh-Gloucester sandy loams, 8 to 15 percent slopes
ShC	Shapleigh-Gloucester very rocky sandy loams, 3 to 15 percent slopes
ShD	Shapleigh-Gloucester very rocky sandy loams, 15 to 25 percent slopes
SoD	Shapleigh-Gloucester extremely rocky sandy loams, 8 to 25 percent slopes
SoE	Shapleigh-Gloucester extremely rocky sandy loams, 25 to 60 percent slopes
SuA	Sudbury fine sandy loam, 0 to 3 percent slopes
SuB	Sudbury fine sandy loam, 3 to 8 percent slopes
Sy	Suncook loamy sand
WdA	Windsor loamy sand, 0 to 3 percent slopes
WdB	Windsor loamy sand, 3 to 8 percent slopes
WdC	Windsor loamy sand, 8 to 15 percent slopes
WdE	Windsor loamy sand, 15 to 60 percent slopes
WoB	Woodbridge loam, 0 to 8 percent slopes
WoC	Woodbridge loam, 8 to 15 percent slopes
WvB	Woodbridge very stony loam, 0 to 8 percent slopes
WvC	Woodbridge very stony loam, 8 to 15 percent slopes

WORK

Highways and roads

Dual .....

Good motor .....

Poor motor .....

Trail .....

Highway markers

National Interstate

U. S. .....

State .....

Railroads

Single track .....

Multiple track .....

Abandoned .....

Bridges and crossings

Road .....

Trail, foot .....

Railroad .....

Ferries .....

Ford .....

Grade .....

R. R. over .....

R. R. under .....

Tunnel .....

Buildings .....

School .....

Church .....

Summer cottage ...

Mines and Quarries .....

Mine dump .....

Pits, gravel or other .....

Power lines .....

Pipe lines .....

Cemeteries .....

Dams .....

Levees .....

Tanks .....

Sawmill .....

Forest fire or lookout sta

STATE OF NEW HAMPSHIRE

INTER—DEPARTMENT COMMUNICATION

DATE August 13, 1987
AT (OFFICE)

FROM Jay Berry ,Soils Engineer II

SUBJECT Subdivision lot size by soil type: Soil Groups

TO Subsurface Staff

Ws 1004.06(b) when test pits indicate conditions better than those implied by the Soil Conservation Service soil maps, a staff member of the commission shall look at the test pits to determine the soil capability. When the owner reports conditions worse than those indicated by the Soil Conservation Service soil maps, then the owners data shall be used as a basis for calculating minimum lot size.

Group I: SHWT 40" +. perc. rate 2 min/inch or faster.

Group II: SHWT 40" + perc. rate slower than 2 min/inch.

Group III: a) SHWT 40" + with restrictive layer (see chapter 2 page 22 Soil Manual for Site Evaluations in New Hampshire for definitions of "restrictive layers") and, b) Soils with SHWT between 15 and 40 inches with or without a restrictive layer.

Group IV: Bedrock encountered at less than eight feet.

Group V: SHWT between six and fifteen inches.

Group VI: a) Flood plain soils (50 year)
b) SHWT above 6".

On HIS may be required to confirm SCS conditions

Aquifer - May want to zone - Do before land

5000 sq. ft. lot No Sewer / Well