INDIANA STATE DEPARTMENT OF HEALTH

GLOSSARY
SOILS FOR RESIDENTIAL ON-SITE SEWAGE DISPOSAL

SOURCES FOR DEFINITIONS:
SOILS, THE 1957 YEARBOOK OF AGRICULTURE
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ABC soil - A soil having an A, B, and C horizon.

Ablation till - Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

AC soil - A soil having only an A and a C horizon. Commonly such soil formed in recent alluvium or on steep rocky slopes.

Accumulations - Soft grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in accumulations.

Acid, soil - Generally, a soil that is acid throughout most or all of the parts of it that plant roots occupy. Commonly applied to only the surface-plowed layer or to some other specific layer or horizon of a soil. Practically, this means a soil more acid than pH 6.6; precisely, a soil with a pH value of less than 7.0. A soil having a preponderance of hydrogen over hydroxyl ions in the soil solution.

Adsorption - The attachment of compounds or ionic parts of salts to a surface or another phase. Nutrients in solution (ions) carrying a positive charge become attached to (adsorbed by) negatively charged soil particles.

Aeration, soil - The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil - Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial soils - Soils developing from transported and relatively recently deposited material (alluvium) with little or no modification of the original materials by soil forming processes. (Soils with well developed profiles that have formed from alluvium are grouped with other soils having the same kinds of profiles, not with the alluvial soils.)

Alluvium - Material, such as sand, silt, or clay deposited on land by streams.

Aquifer - A water bearing formation through which water moves more readily than in adjacent formations of lower permeability.

Association, soil - A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity) - The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3 inches
Low	3 to 6 inches
Moderate	6 to 9 inches
High	9 to 12 inches
Very High	more than 12 inches

Basal till - Unstratified compact glacial drift directly deposited by the ice and consisting of clay, silt, sand, gravel, and boulders intermingled in any proportion.

Base saturation - The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation exchange capacity.

Bedding planes - Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Bedrock - The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Blowout - A shallow depression from which all or most of the loose soil material, usually sand, has been removed by wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bottom land - The normal flood plain of a stream, subject to flooding.

Boulders - Rock fragments larger than 2 feet (60 centimeters) in diameter.

Bulk density - The mass or weight of oven dry soil per unit bulk volume, including air space. This mass in relation to the weight of a unit volume of water, was formerly called "apparent density" or "volume weight."

Calcareous soil - A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Capillary water - Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Carbon dioxide - A colorless gas (CO_2) composed of carbon and oxygen and normally found in small amounts in the air. It is one of the end products of the burning (oxidation) of organic matter, or carbon containing compounds.

Catena - A sequence, or "chain", of soils on landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation - An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity - The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Channery soil - A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a channer.

Chert - A structureless form of silica, closely related to flint, which breaks into angular fragments. Soils developed from impure limestones containing fragments of chert and having abundant quantities of these fragments in the soil mass are call cherty soils.

Chiseling - Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard compacted layers to a depth below normal plow depth.

Clay - As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film - A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan - A dense, compact layer in the subsoil having a much higher clay content than the overlying material from which it is separated by a sharply defined boundary, formed by downward movement of clay or by synthesis of clay in place during soil formation. Claypans are usually hard when dry, and plastic and sticky when wet. They usually impede movement of water and air and the growth of plant roots. Claypans are not typically found in Indiana.

Coarse fragments - If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Coarse textured soil - Sand or loamy sand.

Cobblestone (or cobble) - A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.

Colluvium - Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope - Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on the contour on a complex slope is difficult.

Complex, soil - A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions - Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil - The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

> **Loose**: Noncoherent when dry or moist; does not hold together in mass.
>
> **Friable**: When moist, crushes easily under gentle pressured between thumb and forefinger and can be pressed together into a lump.
>
> **Firm**: When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.
>
> **Plastic**: When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.
>
> **Sticky:** When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.
>
> **Hard**: When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.
>
> **Soft**: When dry, breaks into powder or individual grains under very slight pressure.
>
> **Cemented**: Hard; little affected by moistening.

Control section - The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth - Fecal material deposited in water by aquatic organisms.

Creep, soil - The downward mass movement of sloping soil. The movement is usually slow and irregular and occurs most commonly when the lower soil is nearly saturated with water.

Cutbanks cave (in soil survey manuscript tables) - The walls of excavations tend to cave in or slough.

Depth of rock (in soil survey manuscript tables) - Bedrock is too near the surface for the specified use.

Detailed soil map - A soil map showing the kinds of soil. The soil boundaries have been plotted on a base map or aerial photograph from observations made by soil scientists throughout their course of mapping the soils and the kinds of soil are classified and the boundaries shown in all the detail significant to soil use and management. Most of the soils shown on such maps are phases of soil types.

Diversion ditch - A small drainageway, embankment, ridge, ditch, or waterway; that is constructed across sloping soils on the contour or at a slight angle to the contour. The diversion ditch intercepts surface runoff from higher land before it can run on to the lower lying area being drained. The water either soaks into the soil or flows slowly to a prepared outlet.

Drainage class (natural) - Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

> **Excessively drained**: Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.
>
> **Somewhat excessively drained**: Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.
>
> **Well drained**: Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained: Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained: Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained: Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained: Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface - Runoff, or surface flow of water, from an area.

Drumlin - A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

Dune - A mound or ridge of loose sand piled up by the wind. Occasionally during periods of extreme drought, granulated soil material of fine texture may be piled in low dunes, sometimes called clay dunes.

Effluent - The outflowing of water from a subterranean storage space.

Effluent (septic tank sewage) - All water-carried waste derived from ordinary living processes.

Eluviation - The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material - Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion - The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep. The detachment and movement of soil or rock fragments by water, ice, wind, or gravity.

Erosion (geologic) - Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated) - Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Erosion pavement - A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Esker (geology) - A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

Evapotranspiration - The combined loss of water from a soil by evaporation and plant transpiration.

Ferrous iron - A reduced or low-valence form of iron (Fe+2), imparting a blue gray appearance to some soil horizons when saturated with water for long periods time (duration).

Fibric soil material (peat) - The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity - The moisture content of a soil, expressed as percentage of the oven dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called normal field capacity, normal moisture capacity, or capillary capacity.

Fill soil - Soil transported and deposited by man, as well as soil recently transported and deposited by natural erosion forces. Fill is evidenced by one or more of the following:

(1) No or indistinct soil horizons;
(2) Depositional stratification;
(3) Presence of a soil horizon which has been covered;
(4) Materials in a horizon such as cinders or construction debris; and
(5) Position in the landscape.

Fine textured soil - Sandy clay, silty clay, and clay.

First bottom - The normal flood plain of a stream, subject to frequent or occasional flooding.

Fissile - A property of splitting easily along closely spaced, parallel planes.

Flagstone - A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist, 6 to 15 inches (15 to 39 centimeters) long.

Flood plain - A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope - The inclined surface at the base of a hill.

Fragipan - A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly. Pieces of a fragipan slakes in water.

Frost action - Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Frost heave - The raising of a surface due to the accumulation of ice in the underlying soil.

Genesis, soil - The mode origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift (geology) - Pulverized and other rock material transported by glacial ice and then deposited. Also the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash (geology) - Gravel, sand, and silt, commonly stratified, deposited by glacial melt water.

Glacial till (geology) - Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits (geology) - Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits - Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial melt water. Many deposits are interbedded or laminated.

Gleyed soil - Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Gravel - Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material - Material that is more than 15, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.6 centimeters) in diameter.

Groundwater - Water filling all the unblocked pores of underlying material below the water table.

Gully - A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hardpan - A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by organic matter, iron oxide, silica, calcium carbonate, or other substance. The hardness does not change, especially with changes in the moisture content, and pieces of the hard layer do not slake in water.

Heavy soil - An old term formerly used for clayey or fine textured soils. (The term originated from the heavy draught on the horses when plowing.)

Hemic soil material (mucky peat) - Organic soil material intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric material.

Horizon, soil - A layer of soil or soil material approximately parallel to the land surface and differing from adjacent genetically related layers in physical, chemical, and biological properties or characteristics such as color, structure, texture, consistency, kinds and numbers of organisms present, and degree of acidity or alkalinity. The major horizons are as follows:

O horizon: An organic layer of fresh and decaying plant residue.

A horizon: The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also any plowed or disturbed surface layer.

E horizon: The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon: The mineral horizon below an (O, A, or E horizon. The B horizon is in part a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) granular, prismatic, or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon: The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying horizon. The material of a C horizon may be either like or to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon: Soft, consolidated bedrock beneath the soil.

R layer: Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus - The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups - Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or a shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illite - A series of micalike, nonexpandable, or slightly expandable alumina-silicate clay minerals in which two silica layers alternate with one alumina layer; also called hydrous micas.

Illuviation - The process of deposition or the movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil - A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration - The gradual downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity - The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate - The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Irrigation - Application of water to soils to assist in production of crops. Methods of irrigation are Border, Basin, Controlled flooding, Corrugation, Drip (or trickle), Furrow, Sprinkler, Subirrigation, or Wild flooding.

Kame (geology) - An irregular, short ridge or conical hill of stratified glacial drift deposited in contact with glacial ice..

Karst (topography) - The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Kaolin minerals - A group of nonswelling clay minerals in which one layer or sheet of silicon and oxygen alternates with a sheet made up of aluminum, oxygen, and hydrogen (1:1 crystal lattice group).

Lacustrine deposit (geology) - Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Large stones - Rock fragments 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching - The removal of soluble material from soil or other material by percolating water.

Light soil - An old term formerly used for sandy or coarse textured soils.

Loading rate - The allowable rate of application of septic tank effluent to the soil. It is expressed in gallons per day per square foot.

Loam - Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess - Fine grained material, dominantly of silt-sized particles, transported and deposited by wind.

Low strength - The soil is not strong enough to support loads.

Marl - An earthy deposit, consisting mainly of calcium carbonate commonly mixed with clay or other impurities. It is formed chiefly at the margins of fresh water lakes. It is commonly used for liming acid soils.

Mechanical analysis - The physical analysis of soil materials to determine the amounts of the various soil separates, or grain size fractions.

Medium textured soil - Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock - Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Micas - Primary alumina silicate minerals in which two silica layers alternate with one alumina layer. They separate readily into thin sheets or flakes.

Micro-organisms - Forms of life too small to be seen with the unaided eye, or barely discernible.

Microrelief - Small scaled differences in relief, such as small mounts, swales, or pits that are a few feet across and have differences in elevation of a few inches to around 3 feet that are significant to soil forming processes, to growth of plants, or to preparing the soil for cultivation.

Mineral soil - Soil that is mainly mineral material and low inorganic material. Its bulk density is more than that of organic soil.

Mineralization - The release of mineral matter from organic matter, especially through microbial decomposition.

Minimum tillage - Only that amount of tillage essential for crop production and it reduces soil erosion and damage.

Miscellaneous area - An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil - Coarse sandy loam, sandy loam, and fine sandy loam.

Moderately fine textured soil - Clay loam, sandy clay loam, and silty clay loam.

Montmorillonite - A finely platy, alumina silicate clay mineral that expands and contracts with the absorption and loss of water (2:1 expanding crystal lattice). It has a high cation exchange capacity and is plastic and sticky when moist.

Moraine (geology) - An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil - The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil - Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows:

abundance = few, common, and many;
size = fine, medium, and coarse;
contrast = faint, distinct, and prominent.

Mottles and low chroma colors were replaced in 1993 in Soil Taxonomy by redoximorphic features.

Muck - Dark colored, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation - A standard designation of color by degrees of the three simple variables hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil - A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Organic matter - Plant and animal residue in the soil in various stages of decomposition.

Organic soil - A general term applied to a soil or a soil horizon that consists primarily of organic matter, such as peat soils, muck soils, and peaty soil layers. Organic in chemistry refers to the compounds of carbon.

Outwash, glacial - Stratified sand and gravel produced by glaciers and carried, sorted and deposited by glacial melt water.

Outwash plain - A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it is generally low in relief.

Pan - A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, hardpan, fragipan, claypan, plowpan, and traffic pan.

Parent material - The unconsolidated organic and mineral material in which soil forms.

Peat - Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped - An individual natural soil aggregate, such as a granular, a prism, or a block.

Pedon - The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation - The downward movement of water through the soil.

Percs slowly (in soil survey manuscript tables) - The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	= less than 0.06 inch
Slow	= 0.06 to 0.2 inch
Moderately slow	= 0.2 to 0.6 inch
Moderate	= 0.6 to 2.0 inch
Moderately rapid	= 2.0 to 6.0 inch
Rapid	= 6.0 to 20 inches
Very rapid	= more than 20 inches

Phase, soil - A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value - A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Plowpan - A compacted layer formed in the soil directly below the plowed layer.

Ponding - Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded - Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor filter (in soil survey manuscript tables) - Because of rapid permeability the soil may not adequately filter effluent from a waste disposal system.

Poor outlets (in soil survey manuscript tables) - Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Profile, soil - A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil - A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as pH:

	pH
Extremely acid	= below 4.5
Very strongly acid	= 4.5 to 5.0
Strongly acid	= 5.1 to 5.5
Medium acid	= 5.6 to 6.0
Slightly acid	= 6.1 to 6.5
Neutral	= 6.6 to 7.3
Mildly alkaline	= 7.4 to 7.8
Moderately alkaline	= 7.9 to 8.4
Strongly alkaline	= 8.5 to 9.0
Very strongly alkaline	= 9.1 and higher

Redoximorphic features - These features are formed by the process of reduction, translocation, and oxidation of Fe and Mn oxides. "Mottles" technically include carbonate accumulations and organic stains that do not indicate saturation and reduction. Redoximorphic features, on the other hand, are those formed by the reduction and oxidation of Fe and Mn compounds in seasonally saturated soils.

Regolith - The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief - The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material) - Unconsolidated, weathered, or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill - A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rippable - Bedrock or hardpan which can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 draw bar horsepower rating.

Rock fragments - Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Runoff - The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand - As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone - Sedimentary rock containing dominantly sand-size particles.

Sapric soil material (muck) - The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Sedimentary rock - Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in soil survey manuscript tables) - The movement of water through the soil. Seepage adversely affects the specified use.

Sequum - A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil - A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale - Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion - The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell (in the soil survey manuscript tables) - The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica - A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio - The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the crops, generally have a low ratio.

Silt - As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone - Sedimentary rock made up of dominantly silt-sized particles.

Sinkhole - A depression in the landscape where limestone has been dissolved.

Slickensides - Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage (in soil survey manuscript tables) - Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope, geologic - The degree of deviation of a surface from horizontal, measured in a numerical ratio or percentage. The first number is the vertical distance (rise) and the second number is the horizontal distance (run), as 2:1 or 200 percent. Expressed in degrees, it is the angle of the slope from the horizontal plane with a 90^0 slope being vertical (maximum) and a 45^0 slope being a 1:1 slope and equal to a 100 percent slope.

Slope (in soil survey manuscript tables) - Slope is great enough that special practices are required to insure satisfactory performance of the soil for a specific use.

Sloughed till - Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

Slow intake (in soil survey manuscript tables) - The slow movement of water into the soil.

Small stones (in soil survey manuscript tables) - Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil - A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil scientist - An individual with a baccalaureate degree with a major in agronomy, soils, or a closely allied field of science who is proficient in the application of the principles of pedology to soil classification, investigation, education, and consultation and on the effect of measured, observed and inferred soil properties and their use.

Soil separates - Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

Very coarse sand	= 2.0 to 1.0 millimeters
Coarse sand	= 1.0 to 0.5 millimeters
Medium sand	= 0.5 to 0.25 millimeters
Fine sand	= 0.25 to 0.10 millimeters
Very fine sand	= 0.10 to 0.05 millimeters
Silt	= 0.05 to 0.002 millimeters
Clay	= Less than 0.002 millimeters

Soil Survey - A general term for the systematic examination of soils in the field and in the laboratories, their description and classification, the mapping of the kinds of soil, and the interpretation of soils according to their adaptability for various crops, grasses, and trees, their behavior under use or treatment for plant production or for other purposes, and their productivity under different management systems.

Solum - The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Sprinkler - Irrigation water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Stone line - A concentration of coarse fragments in a soil. Generally it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It is generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones - Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter, if rounded, and 6 to 15 inches (15 to 38 centimeters) in length, if flat.

Stony (in soil survey manuscript tables) - Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stratified - Composed of, or arranged in, strata, or layers, such as stratified alluvium. The term is confined to geological materials. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Structure, soil - The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), and granular. Structureless soils are either single grained (each grain by itself, as in dune sand) or massive (the particles adhering without any regular cleavage, as in many hardpans).

Subirrigation - Irrigation water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Subsoil - Technically, the B horizon; roughly the part of the solum below plow depth.

Subsoiling - Breaking up a compact subsoil by pulling a special chisel through the soil.

Substratum - The part of the soil below the solum.

Subsurface layer. Technically, the AB, E, EB, or BE horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer - The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts - Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terminal moraine - A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace - An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic) - An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil - The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in soil survey manuscript tables) - Otherwise suitable soil material too thin for the specified use.

Till plain - An extensive flat to undulating area underlain by glacial till.

Tilth, soil - The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope - The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil - The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Unstable fill (in soil survey manuscript tables) - Risk of caving or sloughing on banks of fill material.

Upland (geology) - Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill - In glaciated regions, material deposited in stream valleys by glacial melt water. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variant, soil - A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.

Variegation - Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve - A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by melt water streams, in a glacial lake or other body of still water in front of a glacier.

Water table - The upper limit of the part of the soil or underlying rock material that is wholly saturated with water. In some places an upper, or perched, water table may be separated from a lower one by a dry zone.

Watershed - In the United States, the term refers to the total area above a given point on a stream that contributes water to the flow at that point. Synonyms are drainage basin or catchment basin. In some other countries, the term is used for the topographic boundary separating one drainage basin from another.

Weathering - All physical and chemical changes produced in rocks and other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the mineral.

Well graded (in soil survey manuscript tables) - Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.