Map Unit Properties Table

Map units that are shaded gray are not mapped within Rock Creek Park, but are present on the regional geologic map digital data set.

Age	Unit Name (Symbol)	Features and Description	Erosion Resistance	Suitability for Development	Hazards	Paleontological Resources	Cultural Resources	Karst	Mineral Occurrence	Habitat	Recreation	Geologic Significance
QUATERNARY (Recent)	Disturbed ground and artificial fill (Qdgf).	Mix of boulders, rip rap, unsorted fill, and other materials associated with disturbed lands used in road construction, urban development, water management facilities, and other purposes.	Low	Units are used for development; avoid highly permeable and/or undercut areas.	Units may fail if present on a steep slope and/or saturated with water.	None documented	May contain modern artifacts and information about historic development.	None	None	None documented.	Suitable for most recreation unless present on a steep slope.	Older deposits may contain a record of historic anthropogenic developments.
QUATERNARY (Holocene)	Alluvium (Qa)	Unit contains broad deposits flanking active stream channels of sand, gravel, clay, and silt layers.	Very low	Avoid stream edges/riparian areas for heavy development, especially for waste-water treatment facilities due to proximity to water and high permeability.	Unit is associated with stream banks and riparian areas and may be unstable if exposed on a slope or saturated with water.	Modern remains	May contain artifacts and/or settlement sites along major waterways.	None	Sand, gravel, silt, clay.	Riparian zones and burrow habitat.	Unit Qa is suitable for some trail development.	Unit Qa contains a record of modern stream valley development throughout the Quaternary.
QUATERNARY (Holocene and Pleistocene)	Terrace deposits, low level (Qt) Colluvium (Qc) Debris (Qd) Landslide deposits (Ql).	Unit ***Qt*** deposits are concentrated near stream confluences and contain reworked alluvial sand, gravel, silt, and clay, as well as larger colluvium clasts. Unit ***Qc*** commonly fills broad hollows in meadows and contains relatively unsorted, fine-grained fragments in layers of variable thickness. Unit ***Qd*** is a heterogeneous mix of fine and coarse fragments, commonly found filling hillslope depressions. Unit ***Ql*** is a jumbled mix of large rock fragments in an unsorted sand, gravel, clay, and silt matrix.	Very low	Avoid most terrace and colluvium deposits for heavy development due to instability of slopes and high permeability.	Units are associated with stream-edge slopes and displaced land masses deposited by gravity, water, and debris-flow processes.	May contain modern remains and plant fragments, pollen (from trees, shrubs, and herbs), and petrified logs(?).	May contain artifacts and/or settlement sites along major waterways.	None	Cobbles, gravel, sand.	Forms upland areas supporting larger trees and bushes with more soil development along waterways.	Avoid areas near slopes due to likelihood of failure.	Terrace units record the evolution of local waterways and changes in channel morphology; mass-movement processes detail erosion and weathering of bedrock.
QUATERNARY (Pleistocene)	Low-level fluvial and estuarine deposits (Qte) Upper-level fluvial and estuarine deposits (Qfe)	Unit ***Qte*** consists of sand, gravel, and peat interbedded with thin silt and clay beds and containing scattered pebbles and cobbles. This unit is incised into younger fluvial and estuarine deposits. Unit ***Qfe*** consists of modern swamp deposits overlying bedrock in Washington, D.C. area.	Low	Avoid for most development due to presence of modern swamp areas and high permeability, as well as proximity to water.	Heterogeneity of units may render them unstable on slopes, especially if undercut by local waterways.	Wood fragments, limonite-filled root zones; may contain silicified bald cypress logs and mammal fossils.	May contain artifacts.	None	Clay, sand, gravel, peat.	Units underlie much of metropolitan Washington, D.C. area.	Units should be avoided for heavy development due to the presence of modern swamp deposits.	Units may contain some record of the evolution of land use in the Washington, D.C. area.
QUATERNARY (Pleistocene and Tertiary)	Terrace deposits, upper level (QTt)	Unit contains sand and gravel in beds as much as 15 m (50 ft) thick. Local incision into underlying Cretaceous units is possible.	Low	Avoid most terrace deposits for heavy development due to instability of slopes and high permeability.	Unit thickness and presence along upper valley areas may increase likelihood of slope instability and mass wasting.	Plant fragments and recent remains possible.	May contain artifacts.	None	Sand, gravel.	Upper deposits support hardwood forests.	Suitable for most recreation unless high slopes are present.	Unit records changes in climate and tectonic uplift with incision history.
TERTIARY	Terrace deposits (Tt) Highest level upland terrace deposits (Ttu)	Units are layered mixtures of gravel and sand, with sandy gravel and gravelly quartz sand layers containing large pebbles and cobbles of vein quartz and quartzite. Terraces occur at various elevations above sea level: at 94, 110, 113, and 122 m (310, 360, 370, and 400 ft).	Low	Suitable for light development; avoid for waste-water treatment facility development due to high permeability.	Heterogeneous nature of units may render them unstable on slopes; units are prone to gullying, especially at higher levels. Layered nature of units may make sheet flow a hazard.	Plant fragments and recent remains possible.	May contain artifacts.	None	Sand, gravel, clay, pebbles, silt.	Units support upland forest areas along waterways.	Suitable for light recreation unless highly gullied and/or undercut on a slope.	Units record movement of waterways across the landscape throughout the Tertiary, as well as containing climatic and tectonic record evidence.

Map units that are shaded gray are not mapped within Rock Creek Park, but are present on the regional geologic map digital data set.

Age	Unit Name (Symbol)	Features and Description	Erosion Resistance	Suitability for Development	Hazards	Paleontological Resources	Cultural Resources	Karst	Mineral Occurrence	Habitat	Recreation	Geologic Significance
TERTIARY (Pliocene)	Yorktown Formation and Bacons Castle Formation, undivided (Tyb)	Unit contains quartz and feldspar sand and gravel in planar and crossbedded, thin to thick, fine- to coarse-grained, poorly sorted to well-sorted beds. Some clay and silt occurs as matrix material in yellowish- to orangish-gray outcrops.	Low	High permeability of unit may prove unsuitable for waste treatment facility development; heterogeneity of layers may render them unstable along slopes and especially if undercut by erosion.	Mass wasting likely for units when saturated with water.	*Ophiomorpha nodosa* present in beds, estuarine remains.	Contains fossil shells used for early trade.	None	Gravel, sand, silt, clay, pebbles, cobbles.	High level habitat; may provide burrowing habitat.	Good for most recreation unless undercut, present as cliffs along waterways, or saturated with water.	Unit records Pliocene depositional environments that are correlative throughout the region.
TERTIARY (middle Miocene)	Calvert Formation (Tc)	Unit is mostly fine to very fine quartzose sand interbedded with some variable silt and clay layers. Unit is thickly bedded with mappable sand-silt-clay sequences. In outcrop, unit appears grayish olive, light gray to white, pinkish gray and pale yellowish orange.	Moderately low.	Suitable for most development; avoid pebbly layers for waste treatment facilities and avoid expandable-clay-rich layers for road and trail development.	Massive beds may slide as large blocks when unit is undercut along rivers and gulleys.	Diatoms (including *Rhaphoneis diamantella*), fish and shark teeth, scales, shell fragments, lignitized wood, marine vertebrate bones, silicoflagellates, dinocysts, and plant remains of oak, elm, holly, bean leaves, sumac, supplejack, blueberry, and fetterbrush species.	Kaolinite may have been used for painting and dyes.	None	Gravel, sand, kaolinitic clay (diatomaceous and expandable), pebbles, cobbles, phosphate pebbles, quartzite and crystalline etched pebbles.	Units cap higher hills, supporting ridgetop forests.	Good for most recreation unless clay-rich layers are primary sediment type present.	Units record Miocene depositional environments.
TERTIARY (Eocene)	Nanjemoy Formation (Tn)	Unit contains yellowish-brown (weathered) to dark-olive-gray, greenish-gray, and olive-black glauconitic quartz sand. Present in layers are fine to coarse, clayey and silty, micaceous and shelly interbeds of silty and sandy clay.	Low	Suitable for most forms of development.	Glauconite-cemented sand may slide off slopes in large blocks or sheets, especially if saturated with water.	Unit is bioturbated; contains shell fragments and mollusks, including *Venericardia poapacoensis, Venericardia ascia, Macrocallista sumimpressa*, *Corbula aldrichi*, *Lucina dartoni*, *Lunatia* sp., *Cadulus* sp.; clam shells, pollen, dinoflagellates, foraminifera, ostracodes.	Iron sulfide concretions may have provided fire-making materials.	None	Sand, gravel, silt, clay, glauconite, iron sulfide nodules.	None documented.	Suitable for most forms of recreation unless very clay rich layers are present.	Unit records Eocene marine depositional environments.
TERTIARY (Eocene and Paleocene)	Marlboro Clay (Tm)	Unit is a conspicuous layer of gray clay and yellow, silt-rich clay with lenses of silt present locally. Unit thickness ranges from 0 to 12 m (0 to 40 ft); present over a wide area.	Low	Avoid for most development because unit is slippery on slopes and acts as an aquitard locally.	Unit may fail on slopes when saturated with water.	Lignitic coal remains, small mollusks, foraminifera, calcareous nannoplankton, dinoflagellates.	Clay may have been used to make pots, paint.	None	Clay	None documented.	Unit makes a slippery trail base; avoid for most recreation development.	Unit is a widespread marker bed, conspicuous in the regional stratigraphic column.
TERTIARY (Paleocene)	Aquia Formation (Ta)	Unit is nearly massive, micaceous, glauconitic quartz sand. Thickly bedded, fine to medium sand is interlayered with some clay and silt-rich beds, as well as lenses of sandy and shelly limestone. Fresh surfaces are dark olive gray and greenish black, whereas weathered exposures are yellowish gray to orange. Unit supports an important fresh-water aquifer.	Low	Suitable for most forms of development unless highly permeable layers are present, or significant heterogeneity exists locally, which may cause unit to be unstable.	Glauconite-cemented sand may slide off slopes in large blocks or sheets, especially if saturated with water or undercut by poorly consolidated shelly layer.	Mollusks (*Cucullaea gigantea, Ostrea alepidota, Crassatellites* sp., and *Dosiniopsis* sp), ophiomorpha type burrows, gastropod *Turitella mortoni*, bivalves *Ostrea sinuosa, Crassatellites alaeformis*, and *Cucullaea* sp., foraminifera, dinocysts, nannofossils, pollen, burrows, molds and casts of pelecypods, taeniodont molar fragment (Kenworthy and Santucci 2004).	None documented.	None	Sand, glauconite, silt, clay, ilmenite.	Poor cementation may provide burrowing habitat.	Suitable for most forms of recreation unless very clay rich layers are present.	Unit records marine to terrestrial depositional environment during the Cretaceous-Tertiary transition.

Map units that are shaded gray are not mapped within Rock Creek Park, but are present on the regional geologic map digital data set.

Age	Unit Name (Symbol)	Features and Description	Erosion Resistance	Suitability for Development	Hazards	Paleontological Resources	Cultural Resources	Karst	Mineral Occurrence	Habitat	Recreation	Geologic Significance
TERTIARY (Paleocene and Cretaceous)	Brightseat Formation and Monmouth Formation, undivided (TKb)	Unit contains deposits of greenish-gray, clayey sand in the upper beds and dark-gray, micaceous sand in the lower beds; at the base of the unit is a thin gravel layer.	Moderately low.	Clay- and mica-rich layers render unit unstable locally; avoid undercut slopes.	Unit is prone to slope failure, including slumping, creep, and sliding as semi-cohesive blocks.	Unit is fossiliferous.	None documented.	None	Clay, sand, gravel.	Poor cementation may provide burrowing habitat.	Suitable for most forms of recreation unless very clay rich layers are present.	Unit records transition between Cretaceous and Tertiary Periods.
CRETACEOUS	Monmouth Formation (Km) Severn Formation (Ks)	Unit ***Km*** contains basal gravel of vein-quartz pebbles below interlayered sand, clayey sand, and silty sand. Unit ***Ks*** contains mixed marine deposits, including sand, silt, and clay.	Moderate	Variations in bedding, sediment type, and degree of cementation may render unit unstable on slopes.	Sand and gravel units undercut by clay-rich (less-resistant) layers may fail along slopes and waterways.	Marine fossils, shell marl; 100 species of mollusks, including pelecypods bivalves, gastropods, cephalopods (nautiloid and ammonoid), ostracodes (at least 37 species); shark, ray, and sawfish teeth; fish bones; otoliths, pliosaur and mosasaur, crocodile teeth; sea turtle, hadrosaur, ornithomimid scraps (Kenworthy and Santucci 2004).	None documented.	Not enough carbonate present.	Pebbles (some with vein quartz), pea gravel, sand, silt, clay.	Poor cementation may provide burrowing habitat; resistant units may form ledges on slopes attractive to birds.	Suitable for most forms of recreation unless very clay rich layers are present or unit crops out as bluffs along major waterways.	Unit records widespread Cretaceous basin containing abundant life.
CRETACEOUS	Potomac Formation: Undivided (Kp) Clay-dominated lithofacies (Kpc) Sand-dominated lithofacies (Kps)	Units contain alluvial and channel deposits of massive, mottled, silty clay with minor sand and thin beds of tan, clayey sand. Some quartz and feldspar sand and pebbles locally grade into other layers. Local interbeds include unconsolidated coarse sand of feldspar and quartz grains, quartz gravel, montmorillonite and illite, clayey sand, and sandy silt containing lignite.	Moderate, depending on degree of consolidation.	Variations in bedding, sediment, and degree of cementation may render unit unstable on slopes; generally suitable for most development.	Clay-rich, massively bedded layers may spall in large blocks where unit is exposed on slope; susceptible to slumps and slides.	Plant stems, leaf and stem impressions, silicified tree trunks, dinosaur fossils, pollen, "Mount Vernon flora" (collection of 40 species of ferns, conifers, and flowering plants), *Menispermites,* fossil bones of "*Capitalsaurus*"; Arundel clay contains theropod, sauropod, ornithopod, akylosaurian, and ceratosaurian dinosaur remains, fish, crocodiles, turtles, bird remains, 25 species of angiosperm (Kenworthy and Santucci 2004).	May preserve ancient campsites and relics. Large cobbles sourced from the Piney Branch quarries were used for tool making.	None	Lignite, clays, sand, vein quartz, quartzite, and metamorphic rock pebbles and cobbles.	Supports eastern hardwood forests throughout region.	Suitable for most forms of recreation unless present as bluffs along major waterways.	Very widespread unit records Cretaceous environment along Atlantic Coast; predominant unit of coastal plain sediments; Early Cretaceous (Barremian(?)-, Aptian-, and Albian)-age pollen and leaves dated.
DEVONIAN	Lamprophyre dike (Dl)	Unit is present as a linear igneous intrusion comprising lamprophyre; dark mafic minerals present as clasts and matrix material.	Moderately high, depending on degree of alteration.	Suitable for most development.	Unit may pose rockfall hazard if undercut or exposed on a slope.	None	None documented.	None	Biotite, hornblende, pyroxene, and feldspar.	Unit weathers to magnesium-, iron-, and calcim(?)- rich soils.	Unit is suitable for most recreation unless highly fractured.	Unit has an argon-biotite cooling age of approximately 360 million years.
ORDOVICIAN	Pegmatite (Op)	Unit contains a non-foliated, coarse-grained assemblage of muscovite, microcline, albite, and quartz.	High; may be moderately high in areas of high fracture density or alteration.	Suitable for most development unless radioactive minerals are present; avoid heavily fractured areas.	Unit is associated with steep slopes along waterways and may fail along trails and in undercut areas.	None	Large crystals may have provided trade material.	None	Muscovite, microperthitic microcline, albite, and quartz crystals.	Unit weathers to poor soils.	Unit is suitable for most recreation unless highly fractured.	Pegmatite may contain unusual minerals.
ORDOVICIAN	Clarendon Granite (Oc) Kensington Tonalite (Ok)	Unit ***Oc*** is composed of leucocratic biotite-muscovite monzogranite that is well foliated. Unit ***Ok*** consists of light-gray granodiorite gneiss, in a well-foliated, 2.9-km (1.8-mi)-wide shear zone, containing augen and coarse porphyroblasts of microcline.	Moderately high to high, depending on degree of alteration and brittle deformation.	Avoid areas of intense preferential compositional weathering (along foliation). Suitable for most development unless highly weathered and/or fractured.	Units are associated with steep slopes along waterways and may fail along trails and in undercut areas.	None	Interesting minerals may have provided trade material.	None	Attractive building stone, muscovite, microcline augen, garnet, biotite, vein quartz.	None documented.	Suitable for most recreation unless highly weathered along foliation.	Unit ***Ok*** has a Uranium-Lead radiometric age of 463±8 million years.

Map units that are shaded gray are not mapped within Rock Creek Park, but are present on the regional geologic map digital data set.

Age	Unit Name (Symbol)	Features and Description	Erosion Resistance	Suitability for Development	Hazards	Paleontological Resources	Cultural Resources	Karst	Mineral Occurrence	Habitat	Recreation	Geologic Significance
ORDOVICIAN	Dalecarlia Intrusive Suite: Biotite monzogranite and lesser granodiorite (Odm) Muscovite trondhjemite (Odt)	Unit ***Odm*** contains biotite monzogranite. Unit ***Odt*** contains muscovite trondhjemite that appears light gray to white in outcrop and has a fine-grained, sugary texture.	High	High mica content of some units may make them unstable for foundations.	Unit is associated with exposure on steep slopes near the parkway and may be susceptible to blockfall.	None	None documented.	None	Attractive building stone, sugary-texture trondhjemite.	Unit supports wide range of forest types.	Suitable for most recreation unless highly weathered.	Unit ***Odm*** has a Uranium-Lead radiometric age of 478 ± 6 million years. Unit ***Odt*** has a zircon Uranium-Lead radiometric age of 478 ± 6 million years.
ORDOVICIAN	Georgetown Intrusive Suite: Biotite-hornblende tonalite (Ogh) Quartz gabbro (Ogg) Biotite tonalite (Ogb) Garnetiferous biotite-hornblende tonalite (Ogr) Soapstone and talc schist (Qgus) Ultramafic rocks (Ogu) Pyroxenite (Ogp)	This intrusive suite contains various tonalite bodies that are rich in biotite, garnet (locally), and hornblende; ultramafic-mafic rocks including quartz gabbro (rich in olivine and quartz), talc schist, and soapstone; and xenolith-rich areas containing ultramafic, mafic, and assorted metasedimentary rocks.	Moderate to moderately high depending on degree of alteration.	Heterogeneous nature of unit, as well as heavily altered areas, may make the unit unsuitable for heavy development. Avoid highly fractured areas.	Unit crops out locally as bluffs and is susceptible to mass wasting processes, including landslide and blockfall.	None	Interesting minerals may have provided trade material.	None	Units were quarried for dark-greenish-gray foliated pyroxenite, serpentinite, talc schist, and soapstone, abrasives; quartz gabbro and garnet.	Unit weathers to support an iron- and magnesium-rich soil.	Unit is suitable for most recreation unless highly altered, cleaved, and/or fractured.	Unit ***Ogh*** has a zircon Uranium-Lead radiometric age of 472 ± 4 million years.
ORDOVICIAN	Bear Island Granodiorte (Ob) Granite (Ogl)	Unit ***Ob*** consists of a leucocratic muscovite-biotite granodiorite having coarse-grained, pegmatitic textures locally in sheets, sills, and dikes of moderate size. Unit ***Ogl*** is present in small dikes, sheets, and other irregular bodies as well-foliated, fine- to coarse-grained muscovite monzogranite and granodiorite; may be of the same age as units ***Og*** and ***Ok***.	High	Avoid areas of intense preferential compositional weathering (along foliation and between heterogeneous lenses). Suitable for most development unless highly weathered and/or fractured.	Unit may pose rockfall hazard if undercut or exposed on a slope.	None	None documented.	None	May contain attractive building stone; quartz, albite, and microcline in pegmatite; biotite and hornblende	Unit supports wide range of forest types.	None documented.	Units record wide range of tectonic conditions and intrusion events during the Ordovician.
CAMBRIAN	Sykesville Formation: Diamictite (Cs) Diamictite tectonite (Cst) Metagraywacke and schist (Csg) Chlorite-sericite phyllonite (Csp)	Sykesville Formation is a conspicuous unit of sedimentary mélange including diamictite, tectonite, metagraywacke, schist, and phyllonite. Unit primarily consists of a gray matrix of quartz and feldspar containing distinctive round and tear-shaped cobbles of white and clear quartz. Other inclusions are large boulders of dark-gray phyllonite, light-gray migmatite and metagraywacke, greenish-black mafic and ultramafic rocks, metagabbro, and light-gray metafelsite and plagiogranite. The entire mélange was squeezed into a massive gneiss wedge.	Moderately high.	Unit is fine for most development unless heavily altered and/or fractured.	Rockfall hazard where unit is exposed on slope, especially if slope and predominant cleavage direction are parallel.	Possible trace fossils.	Widespread unit underlies Theodore Roosevelt island, Turkey Run Park and American Legion Bridge.	None	Unusual and attractive building stone; lustrous phyllite, clear quartz cobbles.	Unit supports wide range of forest types.	Unit is suitable for most recreation unless highly altered, cleaved, and/or fractured.	Unit records deformation conditions along the Rock Creek shear zone and contains a record of a slope depositional setting within a collapsing basin.
CAMBRIAN	Laurel Formation (Cl)	Unit has a sedimentary mélange origin and contains a matrix of quartz and feldspar that supports fragments, elongate cobbles, and bodies of meta-arenite and muscovite-biotite schist. Some local partial melting is recorded as migmatite and leucosomes.	Moderately high.	Altered schist layers, as well as brittlely deformed layers, make these units locally unstable for heavy development.	Unit is susceptible to failure, including blockfall, landslides, slumping, and slope creep in altered, deformed, and fine-grained units.	Possible trace fossils.	None documented.	None	Migmatite	Unit supports wide range of urban habitats.	Altered and deformed areas of units should be avoided for most forms of recreation.	Unit records accretionary environment during Appalachian orogenic events.

Map units that are shaded gray are not mapped within Rock Creek Park, but are present on the regional geologic map digital data set.

Age	Unit Name (Symbol)	Features and Description	Erosion Resistance	Suitability for Development	Hazards	Paleontological Resources	Cultural Resources	Karst	Mineral Occurrence	Habitat	Recreation	Geologic Significance
PALEOZOIC	Vein quartz bodies (PZq)	Unit is present as lenses, veins, and irregular bodies of massive, white and clear vein quartz of various ages. Unit is jointed and locally foliated from tectonic stress. Commonly present as resistant, loose boulders.	Very high	Suitable for most development; unit is very localized; avoid highly fractured areas.	Unit is resistant to weathering and may pose a rockfall hazard if cobbles are large enough.	None	None documented.	None	Massive white quartz for building stone.	None documented.	Suitable for most recreation.	Ubiquitous quartz-rich vein material may hold clues to tectonic history of area; useful marker beds.
CAMBRIAN AND (OR) NEOPROTOEROZOIC	Diamictite (CZd) Mather Gorge Formation: Schist (CZms) Metagraywacke (CZmg) Migmatite (CZmm) Migmatitic metagraywacke (CZmmg) Migmatitic schist (CZmms) Migmatitic phyllonite (CZmmp) Sheared migmatitic schist and migmatitic phyllonite (CZmss)	Unit ***CZd*** contains conglomerate in a mixed quartz and feldspar matrix. Pebbles include milky quartz and other clasts derived from phyllite, schist, and other strongly foliated rocks. Mather Gorge Formation consists of a suite of metasedimentary rocks, including schist interbedded with thin metagraywacke and meta-arenite. These rocks originated as impure sandstone and shale. Identifiable original sedimentary features include graded beds, soft-sediment slump folds, and clastic dikes. Muscovite-rich schist was intruded by thin quartz veins, and many layers have been metamorphosed to staurolite-kyanite grade with local migmatization in a narrow belt.	Moderately high.	Heterogeneous nature of units may prove unstable for heavy foundations and development; high degree of foliation and cleavage also weakens the unit.	Metagraywacke is associated with the formation of waterfalls and rapids throughout the area and may pose rockfall hazards.	None	None documented.	None	Attractive building stone; Epidote, staurolite, kyanite, migmatite, lustrous muscovite schist.	Units support wide range of habitats.	Units suitable for most recreation unless highly altered, cleaved, and/or fractured.	Units record metamorphism and deformation associated with accretion onto the North American continent during early collision events.
CAMBRIAN AND NEOPROTEROZOIC	Metavolcanic and meta-igneous rocks of uncertain origin (CZmvmi): Utramafic rocks (CZu) Amphibolite (CZa) Metagabbro and metapyroxenite (CZg) Soapstone, talc schist, and actinolite (CZt)	These metavolcanic and meta-igneous rocks of uncertain origin comprise several differentiated units. All the units have been metamorphosed and occur as irregular bodies within the Laurel Formation (***Cl***). Ultramafic rocks include dark-greenish-black metagabbro and metapyroxenite; these have been altered to soapstone, talc schist, serpentinite, and dark-green and black, medium- and coarse-grained amphibolite. Some actinolite schist is present locally as greenish-gray, fine- to coarse-grained, foliated layers.	Moderate to high, depending on degree of alteration and/or deformation.	High degree of alteration associated with some units may make them unstable for heavy development; avoid fractured areas for septic systems and waste-water treatment areas.	Cobbles of soapstone and talc schist may be susceptible to rockfall locally.	None	Units underlie much of the Washington, D.C., area, especially the National Zoo; soapstone, talc schist locally quarried by American Indians.	None	Soapstone, talc schist were locally quarried by American Indians. Pyroxene, hornblende, plagioclase, epidote, actinolite.	Unit develops into iron-, magnesium-, and calcium-rich soils that support a variety of hardwood forest types.	Unit is suitable for most recreation unless highly altered, cleaved, and/or fractured.	Rocks record extensive metamorphism and hydrothermal alteration associated with deep burial and tectonic collision events.