Table 1. Physical characteristics of map units

EXPLANATION

Pattern	Splitting character	Predominant control	Topographic expression and weathering	Rock type	Utility: Deep excavations 1/	Utility: Shallow excavations 2/	Utility: Materials 3/
1a	Blocks, mostly larger than 1 m in diameter.	Joints	Shallow swales or with no expression. Weathering largely granular disintegration with little penetration.	Nonfoliated granite. (Westerly Granite).	Fesh inntact rock requires drilling and blasting. Rock hard, tough, and homogeneous. Will stand without support in tunnels and deep excavations. Joints widely spaced and tight at depth.	Characteristics similar to those for deep excavations, but joints more frequent and more open near surface.	Suitable for monumental stone but most rock is in dikes too narrow to provide rock of sufficient quantity and quality. Suitable for dimension stone and probably aggregate, but size of dikes a limiting factor.
1b	Large blocks and slabs, mostly larger than 2 m in width.	Foliation, joints. Joints widely spaced. Back joint, end joint, and sheeting prominent. Parting parallel to foliation less prominent than jointing. Locally additional parting planes along biotitic or hornblendic screens or septa parallel to the foliation.	Massive ledges, the size of which is determined by the thickness of the mass and the spacing of joints. Weathering largely granular disaggregation with little penetration.	Alaskite gneiss, mafic-poor gneiss. (Alaskite gneiss, Mamacoke Formation).	Same as (1a)	Same as (1a) except weathering causes incipient parting along foliation surfaces.	Suitable for dimension stone, but more difficult to work than (1a) because of foliation and less homogeneity. Finer grained rock suitable for crushed rock.
2	Thick slabs, greater than 1 m in width.	Foliation, joints. Similar to (1b). Parting parallel to foliation less than or as important as joints. Potential parting planes along more or less biotitic and hornblendic layers where planar. Gneiss containing many cross-cutting pegmatite and granite dikes or in which the foliation and layering is folded may break into irregularly shaped blocks.	Large ledges, the extent of which is controlled by spacing of joints and thickness and dip of layering. Weathering largely granular disaggregation with shallow penetration. Less resistant to weathering than (1b).	Granite to granodiorite gneiss. (Mamacoke Formation).	Similar to (1b) but rock less homogeneous.	Similar to (1b). Weathering causes incipient parting along foliation surfaces.	Mostly suitable for dimension stone and riprap. Darker colored rock most suitable for riprap because of higher specific gravity.
3a	Slabs, 10 cm to 1 m in width.	Foliation, compositional layering. Joints prominent, but rock has greater tendency to split along foliation surfaces and layering particularly where planar. Potential parting planes may be inconspicuous in fresh intact rock and may only be recognized by color banding indicating micaceous seams or more and less micaceous layers.	Low ledges, ridges and swales marking zones of more and less resistant rock. Weathering similar to (2) except for somewhat more rapid disaggregation and deeper penetration of weathering along surfaces of foliation and layering.	Biotite-quartz-feldspar gneiss; biotite-feldspar-quartz gneiss; amphibolite. (Mamacoke Formation).	Same as (2)	Similar to (1b). Weathering causes parting along foliation and layering surfaces rich in platy minerals.	Suitable for crushed rock, riprap and dimension stone.
3b	Small blocks less than 1 m in diameter.	Joints, bedding. Prominent parting along bedding planes. Conspicuous back joints and end joints whose frequency is roughly inversely proportional to thickness of layers and total thickness of sequence of quartzite layers	Low ledges and knobs. Extremely resistant to weathering, but unless in a thick series of beds, does not form large ledges because of brittleness. Parting along bedding which is usually less than 1 m thick combined with jointing at similar frequency causes breakdown into small blocks.	Thick-bedded quartzite with thin micaceous partings. (Plainfield Formation).	Rock extremely competent and hard but greatly weakened by interlayering of mica-schist. Strata inclined into excavations are subject to sliding down dip.	Hydration of mica-rich seams and laminae decreases coefficient of friction along parting surfaces so that slabs will slide down dip.	Difficult to crush. Might be suitable in places for facing stone.
4	Thin slabs (flags), 1 cm to 10 cm in width.	Foliation, compositional layering. Influence of joints subordinate to influence of closely spaced foliation and compositional layering. Parting planes conspicuous along mica-rich seams and layers, and boundaries between layers differing greatly in composition.	Swales, low areas with minor ridges of relatively more resistant or more massive rock. Weathering greater in micaceous layers than in quartzose layers. Weathering creates numerous incipient parting planes along surfaces of foliation and layering to depths of several meters. Strong contrast in resistance to weathering between quartzite layers and micaceous and amphibolitic layers, but quartzite layers are thin and joints usually closely spaced so that quartzite tends to break down into a rubble of fragments.	Thin-bedded quartzite and metagraywacke, schistose gneiss, and calc gneiss. Usually contains some interlayered schist (5). (Plainfield Formation).	Similar to (2) except platiness of rock may cause unpredicted problems of excavation. Slightly greater overbreak potential and greater possibility of water inflow along foliation partings than in gneiss (1b), (2), and (3a).	Partings tend to open along foliation and layering planes in slightly weathered rock; exposed rock may scale, particularly in zone of fluctuating water table. Alternate freez-thaw action tends to open seams along joints and foliation surfaces.	Fresh rock suitable for fill. Where weathered sufficiently to work with power shovel, useful as borrow for fill. Quartzitic layers possibly useful as flagstone where layering is planar and not folded.
5 (Not a separate unit on map, but present as layers within unit 4).	Irregular slabs and sheets, less than 1 cm in width.	Foliation. Joint sets determine shape of outcrops, but numerous closely spaced mica-rich surfaces control splitting.	Low areas, swales; where massive or more quartzose may form low ledges. Weathering penetrates along mica-rich layers causing discoloration and parting to depths of as much as 10 m.	Biotite schist, quartz schist, calc schist. Usually contains some layers of (4). (Plainfield Formation).	Similar to (4), but micaceous minerals may clog drill bits. In addition represents potential squeezing ground in tunnel as friction resistance may be lowered by water inflow along foliation partings.	Similar to (4). Hydration of mica-rich layers and laminae greatly reduces coefficient of friction along parting surfaces so that rock slabs will slide down dip.	Similar to (4), but parting surfaces tend to be rough and irregular and so less suitable for flagstone or facing.

1/ Tunnels, large masonry dams, deep bridge abutments, high-rise and underground buildings

2/ Highway cuts, bridge abutments and piers, small dams and buildings

3/ Dimension stone, facing stone, riprap, crushed stone, aggregate, fill, flagstone

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