SURVEY OF HIGHWAY CONSTRUCTION MATERIALS

IN THE TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

Prepared by

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS DIVISION

ENGINEERING GEOLOGY SUBDIVISION

Montpelier, Vermont

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Materials Division
Highway Department
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Acknowledgments

This project acknowledges the surficial geological information obtained from Professor D. P. Stewart of Miami University, Oxford, Ohio and the bedrock information from the Centennial Geological Map of Vermont, C. G. Doll.

History

The Materials Survey Project was initiated in 1957 by the Vermont Department of Highways with the assistance of the Bureau of Public Roads to compile an inventory of highway construction materials in the State of Vermont. Previously, investigations for highway construction materials were conducted only as the immediate situation required and only limited areas were surveyed; thus, no overall picture of material resources was available. Highway contractors or resident engineers were required to locate the materials for their respective projects and the samples were tested by the Materials Division. The additional expense of exploration for construction materials resulted in higher construction costs being paid by the State. The Materials Survey Project was formed to minimize this factor by enabling the State and the contractors to use available information on material resources and to project cost estimates. Knowledge of locations of suitable materials is an important factor in planning highways.

The sources of construction materials are located by this Project through ground reconnaissance, study of maps and aerial photographs, and geological and physiographic interpretation. Maps, data sheets and work sheets furnish information of particular use to contractors and construction personnel, and should be studied together for maximum benefit.

Enclosures

Included in this report are two surface-geology maps, one defining the location of tests on bedrock, the other defining the location of tests on

granular materials. These maps are based on 15-minute or 7-1/2-minute quadrangles of the United States Geological Survey enlarged or reduced to 1:31250 or 1" = 2604'. The various rock formations and types are delineated on the Bedrock Map of the township. This information is obtained from: Vermont Geological Survey Bulletins, Vermont State Geologist Reports, United States Geological Survey Bedrock Maps, Centennial Geological Map of Vermont, the Surficial Geologic Map of Vermont and other references.

The granular materials map shows areas of various types of glacial deposits (outwash, moraines, kames, kame terraces, eskers, etc.) which are potential sources of gravel and sand. This information was obtained primarily from a survey conducted by Professor D. P. Stewart of Miami University, Oxford, Ohio, who mapped the glacial features of the State of Vermont during the summer months from 1956 to 1966. Further information is obtained from the Soil Survey (Reconnaissance) of Vermont (conducted by the Bureau of Chemistry and Soils of the United States Department of Agriculture), available Soil Surveys of individual counties (by the Soil Conservation Service of the United States Department of Agriculture), Vermont Geological Survey Bulletins, United States Geological Survey Quadrangles, aerial photographs and other sources. The location of each test area is represented by a Map Identification Number.

This report contains data sheets with detailed information on each test taken in the Granular and Bedrock areas. Data is also used from an active card file compiled by the Materials Division over a period of years. Some cards are not used because they are incomplete or have unusable information on the location of the deposit.

Work sheets containing more detailed information and a field sketch of the area, and laboratory test results are on file in the Materials Division of the Agency of Transportation, State of Vermont.

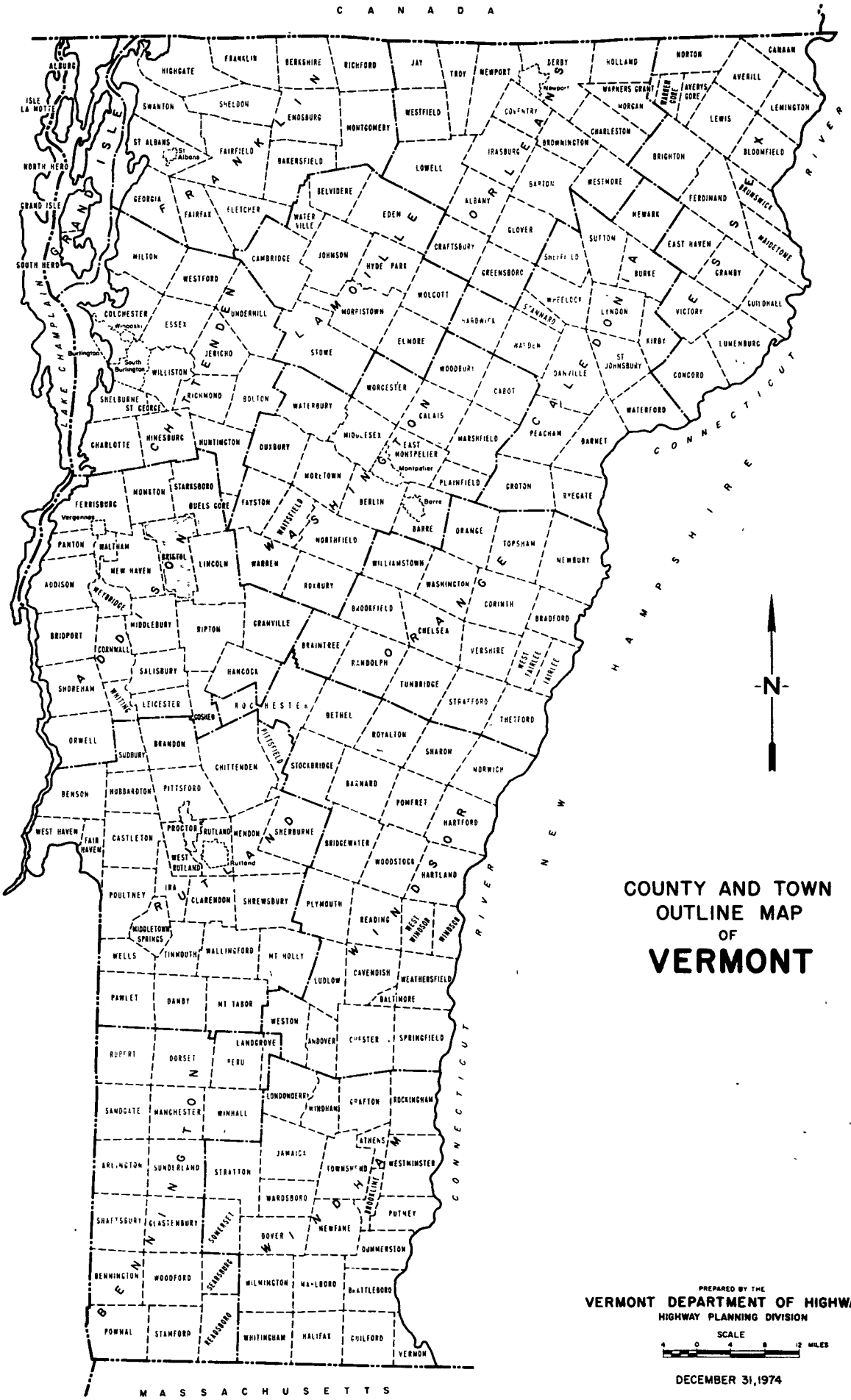
LOCATION

The town of Bristol is near the center of Addison County in west-central Vermont. It is bounded north by Monkton, the northeast by Starksboro, the east by Lincoln, the south by Ripton, the southwest by Middlebury, and the west by New Haven; (see County and Town Outline Map of Vermont on the following page).

Bristol lies in both the Champlain Lowland and Green Mountain Physiographic Subdivisions of the New England Upland. The Champlain Lowland is basically flat with a few long, low rolling hills, and comprises the western two-thirds of town. The Green Mountains are characterized by steep-sided hills and mountains rising abruptly to the east and typify the mountain front in the eastern third of Bristol. Elevations range from 2,325 feet atop an unnamed peak on South Mountain, to less than 340 feet where a stream crosses the New Haven Town Line in northwest Bristol.

Major drainage is west and southwest via the New Haven River and its tributaries, Baldwin Creek and Beaver Brook, which drain the northeast corner of town.

Winona Lake, North Pond, Gilmore Pond, and the Vergennes Watershed Pond are the significant bodies of water in Bristol.



COUNTY AND TOWN OUTLINE MAP OF VERMONT

PREPARED BY THE
VERMONT DEPARTMENT OF HIGHWAYS
HIGHWAY PLANNING DIVISION

SCALE
4 0 4 8 12 MILES

DECEMBER 31, 1974

SURVEY OF ROCK SOURCES

Procedure for Rock Survey

The method employed by the project in a survey of possible sources of rock for highway construction is divided into two main stages: office and field investigations.

The office investigation is conducted during the winter months and comprises the mapping and description of rock types perused from many reference sources, as acknowledged in the bibliography. These references differ considerably in dependability due to subsequent developments and studies that have contributed to the obsolescence of a number of reports. The results of samples taken by other individuals are analyzed, and their location is mapped when possible. As complete a correlation as possible is made of the available geological information concerning the area under consideration.

The field investigation is begun by making a cursory survey of the entire town. The information obtained from the preliminary survey, and that from the office investigation, is used to determine where sampling will be concentrated. When a promising source has been determined by rock type, volume of material, accessibility, adequate exposure and relief, chip samples are taken with a hammer across the strike or trend of the rock, and are submitted to the Materials Division for abrasion testing by the Deval Method (AASHTO T-3) and the Los Angeles Method (AASHTO T-96). Samples taken by the chip method are often within the weathered zone of the outcrop and thus may give a less satisfactory test result than fresh material from unweathered rock. When the rock is uniform, and the chip samples yield acceptable abrasion test results, the material source is listed in this report as being satisfactory.

Discussion of Rock and Rock Sources

The information on the Rock Materials Map (Plate II) is simplified. For a more detailed description of the respective rock formations, see the Summary of Rock Formations included in this report.

Occasionally, rocks belonging to the same formation and exhibiting similar characteristics (i.e., color and texture) produce different abrasion test results owing to differing physical properties or chemical compositions. Therefore, in no case should satisfactory test results obtained in one area be construed to mean that the same formation, even in the same area, will not later produce unsatisfactory material; this is particularly true of metamorphic rocks.

Metamorphic rocks of the Vermont Valley Sequence underlie the western two-thirds of town; the dolomites, which are softer, are found in the valleys, and the quartzites form the ridges. The formations mapped as underlying Bristol from west to east are: a thin band of Monkton Quartzite (not exposed), Cheshire Quartzite and Dunham Dolomite, Fairfield Pond Schist and Phyllite, Forestdale Dolomite and Limestone, Pinnacle Graywacke, and Mount Holly Gneiss.

All areas tested yielded acceptable rock, but there are no quarries in town (1977). The Cheshire Quartzite was the most extensive ridge-forming formation in town and was sampled from outcrops at Map Identification Nos. 2, 3, 4 and 6; the Dunham Dolomite was sampled from outcrops at Map Identification Nos. 1 and 5.

SURVEY OF SAND AND GRAVEL SOURCES

Procedure for Sand and Gravel Survey

The method used for conducting the survey of possible sources of sand and gravel for highway construction is divided into two main stages: office and field investigations.

The office investigation is conducted during the winter months and comprises the mapping of potentially productive areas from various references. Of these references, the survey of glacial deposits mapped by Professor Stewart is particularly helpful when used with soil-type maps, aerial photographs, and United States Geological Survey Quadrangles. The last two are used in the recognition and location of physiographic features indicating glacial deposits, and in the study of drainage patterns. The locations of existing pits are mapped, as are the locations in which samples were taken by other individuals.

The field investigation is begun by making a cursory survey of the entire town. All pits, and any areas that show evidence of glacial or fluvial deposition are noted, and later investigated by obtaining samples from pit faces and other exposed surfaces. Test holes in pit floors and extensions are later dug with a backhoe to a depth of approximately 11 feet to obtain material which is submitted to the Materials Division for gradation sieve analysis and AASHTO T-4 Method stone abrasion test.

DISCUSSION OF SAND AND GRAVEL DEPOSITS

Results of this survey showed that granular deposition in Bristol is confined mainly to the western, less mountainous half of town. A few good sand areas exist, but most of the material is gravel. Unfortunately, not all areas with high potential were sampled because of lack of owner's consent, buildings nearby, crops planted, or heavy woods.

Two gravel bars on the New Haven River (Map Identification Nos. 35 and 39) yielded specification gravel. This survey feels that many more river bars could be utilized if permission is obtained.

A group of very large, high-faced pits bordering the village on the northwest, west, and south have been operated for years, but now are approaching depletion. Active landfills are at Map Identification Nos. 19 and 24, and a stump-dump is at No. 25. Map Identification Nos. 21 and 25 currently have the best potential for granular material, and No. 26 is being kept for non-commercial use by the owner.

The most promising sources of Gravel for Sub-base Item 704.05 are listed with the most favorable first: Map Identification Nos. 29, 25, 30, 33, 43 and 45, all of which are pits. Other areas with passing samples were not listed due to lack of reserves or not being available.

Areas yielding acceptable Sand Borrow and Cushion Item 703.03 are listed with the most favorable first: Map Identification Nos. 5, 18, 7, 21, and 45; all except No. 18 are pits.

SUMMARY OF ROCK FORMATIONS IN THE TOWN OF BRISTOL

CHAMPLAIN VALLEY SEQUENCE

Dunham Dolomite - Buff-weathered siliceous dolomite, pink and cream-mottled or buff to gray on fresh surface; lower part is massive and upper part is sandy and resembles the Winooski dolomite.

Forestdale Marble - Buff to rusty-weathered white, buff, and pink and white mottled dolomite containing local interbeds of dolomitic sandstone, gray-green phyllitic quartzite, and cross-bedded sandy dolomite.

Monkton Quartzite - Distinctively red quartzite interbedded with lesser buff and white quartzite and relatively thick sections of dolomite like that of the Winooski; the quartzites thin to the east, and they become gray and phyllitic to the east and south.

VERMONT VALLEY SEQUENCE

Cheshire Quartzite - Very massive, white to faintly pink or buff vitreous quartzite near the top in west-central and southwestern Vermont; predominantly a less massive appearing mottled gray, somewhat phyllitic quartzite; dolomitic sandstone and conglomerate near the base of the formation in west-central Vermont apparently grades southward into the Dalton formation.

GREEN MOUNTAIN SEQUENCE

Mount Holly Complex Gneiss - Mainly fine to medium grained biotitic gneiss, locally muscovitic, and in western areas chloritic; massive and granitoid in some localities, fine grained or schistose and compositionally layered in others; also abundant amphibolite and hornblende gneiss, and minor beds of mica schist, quartzite and calc-silicate granulite; includes numerous small bodies of pegmatite and gneissoid granitic rock.

Pinnacle Formation - Schistose graywacke, gray to buff, commonly striped, quartz-albite-sericite-biotite-chlorite rock predominates; quartz-cobble and boulder conglomerate is common, chiefly near base.

Underhill Formation (Fairfield Pond Member) - Greenish quartzitic schist (quartz-sericite-albite-chlorite-biotite); sericite-quartz-chlorite phyllite, locally purple or red, common in lower part.

GLOSSARY OF SELECTED GEOLOGIC TERMS

Albite - The light-colored, sodium end member of the continuous plagioclase feldspar series which is found in alkali rocks. The name is often compounded with the names of rocks containing the mineral.

Amphibolite - A dark green to black metamorphic rock containing varying amounts of the amphibole silicate minerals; it has a somewhat schistose structure.

Bedrock - The more or less solid, undisturbed rock in place either at the surface or beneath superficial deposits of gravel, sand, or soil.

Biotite - A dark platy silicate commonly known as black mica.

Chlorite - A group of green hydrous silicates of aluminum, ferrous iron, and magnesium, which occur in plate-like crystals or scales.

Conglomerate - The consolidated equivalent of gravel. There can be considerable range in size and composition of the constituent rock and mineral fragments. The matrix of finer material between the larger fragments may be sand, silt, or any of the common natural cementing materials such as calcium carbonate, silica, clay, or iron oxide.

Dolomite - A rock and its constituent mineral, $CaMg(CO_3)_2$. The rock is considered a favorable material for highway construction.

Drainage - The manner in which the water of an area passes off by surface streams and rivers, or by subsurface channels.

Gneiss - A metamorphic rock, generally made up of alternating bands of light and dark minerals; the light bands are rich in feldspar and quartz, and the dark bands are rich in hornblende and mica.

Granitoid - Igneous rocks having the characteristic texture of granite. The mineral grains may be fine or coarse, but are nearly uniform in size.

Granulite - A quartz-feldspar rock of high metamorphic grade, poor or lacking in mica, and characterized structurally by a single, regular, easily visible plane of schistosity. The schistosity is determined mainly by the parallel orientation of flat lenses of coarse-grained quartz set in a quartzose matrix of small, equidimensional grains.

Graywacke - Dark, hard sandstone consisting of angular grains of quartz, feldspar, and rock fragments in a fine, compact matrix of micas, clay minerals, and chlorite.

Hornblende - Any of the common black, brown or greenish aluminous varieties of amphibole, occurring as prismatic masses in metamorphic and igneous rocks.

Interbedded - Occurring between beds, or lying adjacent and parallel to other beds of usually a different nature.

Ledge - A shelf-like ridge or projection of rock, usually horizontal, and much longer than high.

Limestone - A bedded sedimentary deposit having from 40 to more than 98 percent calcium carbonate. Common impurities are clay and sand. It is the most important and widely distributed of the carbonate rocks.

Metamorphic Rocks - Rocks that owe their distinctive characteristics to the transformation of pre-existing rocks through intense heat, high pressure, solutions, or a combination of them.

Muscovite - An important member of the mica group of minerals, known also as white mica, potash mica, or isinglass.

Outcrop - A part of a body of rock that appears, bare and exposed, at the surface of the ground. In a more general sense, it applies to areas where the rock formation occurs adjacent to (below) the soil, even though it is not exposed.

Pegmatite - A coarsely crystalline granite or other high-silica rock occurring in veins or dikes.

Phyllite - A fine-grained, foliated metamorphic rock intermediate between the mica schists and slates, into which it may grade. The cleavage is due to the presence of a large amount of the potash mica, sericite, which gives the rock its distinctive silvery appearance. Fracture is intermediate between the smooth, even cleavage of slate and the rather splintery fissility of schist; the rock is not as tough as slate.

Physiographic - Pertaining to the physical divisions of the earth.

Quartz - Anhyrous crystalline silica, SiO_2; it is the most common mineral in igneous, sedimentary and metamorphic rocks, and is the chief constituent of sand and sandstone.

Quartzite - A common, siliceous rock composed of quartz grains so firmly cemented that fracture occurs with equal ease across the grains and the cementing material; the metamorphic equivalent of sandstone.

Sandstone - A consolidated rock composed of sand grains cemented together. The size range and composition of the constituents are the same as for sand, and may be rounded or angular. Coarse sandstones grade into conglomerates, fine-grained sandstones into shales. The fracture occurs around the grains and not through them.

Schist - A crystalline metamorphic rock which has a secondary foliation or lamination based on parallelism of platy or needle-like grains. The name refers to the tendency to split along the foliation.

Schistose - Of, or pertaining to, schist; having a tendency to split along the foliation because of parallelism of platy or needle-like grains.

Seam - A thin bed, layer or stratum.

Sericite - A mineral very similar to muscovite mica. It occurs as small flakes and scales in metamorphic rocks such as sericite schists and sericite gneisses.

Silicates - The silicate group contain the most important and numerous of the rock-forming minerals; they are combinations of silicon, oxygen and metallic elements.

Siliceous - Containing, consisting of, or resembling silica.

Talus - An accumulated heap of rock fragments lying at the base of a cliff or very steep slope where there is a projecting mass from which the fragments were derived.

Upland - The term for any high area such as a plateau, a broad tract between rivers, or any elevated country from which rivers gather drainage.

Vitreous - Having the luster of broken glass; also, possessing any of the other properties of glass such as composition and brittleness. Applied to igneous or metamorphic rocks, or the groundmass of such rocks when the material is of a glassy, non-crystalline nature.

Weathered - Showing the effects of exposure to the atmosphere.

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PARTIAL SPECIFICATIONS FOR HIGHWAY CONSTRUCTION MATERIALS

Listed below are partial specifications for Highway Construction Materials as they apply to this report at date of publication. For a complete list of specifications see Standard Specifications for Highway and Bridge Construction, approved and adopted by the Vermont Department of Highways, March, 1976.

DIVISION 700 - MATERIALS

703.03 SAND BORROW AND CUSHION. Sand borrow shall consist of material reasonably free from silt, loam, clay, or organic matter. It shall be obtained from approved sources and shall meet the requirements of the following table:

TABLE 703.03A - SAND BORROW AND CUSHION

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves TOTAL SAMPLE	SAND PORTION
2"	100	
1½"	90-100	
½"	70-100	
No. 4	60-100	100
No. 100		0- 30
No. 200		0- 12

703.05 GRANULAR BORROW. Granular borrow shall be obtained from approved sources, consisting of satisfactorily graded, free draining, hard, durable stone and coarse sand reasonably free from loam, silt, clay, or organic material.

The Granular Borrow shall meet the requirements of the following table:

TABLE 703.05A - GRANULAR BORROW

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves TOTAL SAMPLE	SAND PORTION
No. 4	20-100	100
No. 200		0- 15

The maximum size stone particles of the Granular Borrow shall not exceed 2/3 of the thickness of the layer being spread.

704.05 GRAVEL FOR SUB-BASE. Gravel for Sub-base shall consist of material reasonably free from silt, loam, clay, or organic matter. It shall be obtained from approved sources and shall meet the following requirements:

(a) Grading. The gravel shall meet the requirements of the following table:

TABLE 704.05A - GRAVEL FOR SUB-BASE

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves TOTAL SAMPLE	SAND PORTION
No. 4	20-60	100
No. 100		0- 18
No. 200		0- 8

The stone portion of the gravel shall be uniformly graded from coarse to fine, and the maximum size stone particles shall not exceed 2/3 the thickness of the layer being placed.

(b) Percent of Wear. The percent of wear of the gravel shall be not more than 25 when tested in accordance with AASHTO T-4, or more than 40 when tested in accordance with AASHTO T-96.

704.06 CRUSHED STONE FOR SUB-BASE. Crushed stone for sub-base shall consist of clean, hard, crushed stone, uniformly graded, reasonably free from dirt, deleterious material, pieces which are structurally weak and shall meet the following requirements:

(a) Source. This material shall be obtained from approved sources and the area from which this material is obtained shall be stripped and cleaned before blasting.

(b) Grading. This material shall meet the requirements of the following table:

TABLE 704.06A - CRUSHED STONE FOR SUB-BASE

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves TOTAL SAMPLE
4½"	100
4"	90-100
1½"	25- 50
No. 4	0- 15

(c) Percent of Wear. The percent of wear of the parent rock shall be not more than 8 when tested in accordance with AASHTO T-3, or the crushed stone a percent of wear of not more than 40 when tested in accordance with AASHTO T-96.

(d) Thin and Elongated Pieces. Not more than 30 percent, by weight, of thin and elongated pieces will be permitted.

Thin and elongated pieces will be determined on the material coarser than the No. 4 sieve.

(e) Filler. The filler shall be obtained from approved sources and shall meet the requirements as set up for Sand Cushion, Subsection 703.03.

(f) Leveling Material. The leveling material shall be obtained from approved sources and may be either crushed gravel or stone screening produced by the crushing process. The material shall consist of hard durable particles, reasonably free from silt, loam, clay or organic matter.

This material shall meet the requirements of the following table:

TABLE 704.06B - LEVELING MATERIAL

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves TOTAL SAMPLE
3/4"	100
1/2"	70-100
No. 4	50- 90
No. 100	0- 20
No. 200	0- 10

704.07 CRUSHED GRAVEL FOR SUB-BASE. Crushed gravel for sub-base shall consist of material reasonably free from silt, loam, clay or organic matter. It shall be obtained from approved sources and shall meet the following requirements:

(a) Grading. The crushed gravel shall be uniformly graded from coarse to fine and shall meet the requirements of the following table:

TABLE 704.07A - CRUSHED GRAVEL FOR SUB-BASE

GRADING	Sieve Designation	Percentage by Weight Passing Square Mesh Sieves TOTAL SAMPLE	SAND PORTION
COARSE	4"	100	
	No. 4	25- 50	100
	No. 100		0- 20
	No. 200		0- 12
FINE	2"	100	
	1½"	90-100	
	No. 4	30- 60	100
	No. 100		0- 20
	No. 200		0- 12

(b) Percent of Wear. The percent of wear of the parent gravel shall be not more than 20 when tested in accordance with AASHTO T-4, or the crushed gravel a percent of wear of not more than 35 when tested in accordance with AASHTO T-96.

(c) Fractured Faces. At least 30 percent, by weight, of the stone content shall have at least one fractured face.

Fractured faces will be determined on the material coarser than the No. 4 sieve.

704.09 DENSE GRADED CRUSHED STONE FOR SUB-BASE. Dense graded crushed stone for sub-base shall consist of clean, hard, crushed stone, uniformly graded, reasonably free from dirt, deleterious material and pieces which are structurally weak, and shall meet the following requirements:

(a) Source. This material shall be obtained from approved sources and the area from which this material is obtained shall be stripped and cleaned before blasting.

(b) Grading. This material shall meet the requirements of the following table:

TABLE 704.09A - DENSE GRADED CRUSHED STONE FOR SUB-BASE

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves TOTAL SAMPLE
3½"	100
3"	90-100
2"	75-100
1"	50- 80
½"	30- 60
No. 4	15- 40
No. 200	0- 10

(c) Percent of Wear. The percent of wear of the parent rock shall be not more than 8 when tested in accordance with AASHTO T-3, or the crushed stone a percent of wear of not more than 40 when tested in accordance with AASHTO T-96.

(d) Thin and Elongated Pieces. Not more than 30 percent, by weight, of thin or elongated pieces will be permitted.

Thin and elongated pieces will be determined on the material coarser than the No. 4 sieve.

704.10 GRAVEL BACKFILL FOR SLOPE STABILIZATION. Gravel backfill for slope stabilization shall be obtained from approved sources, consisting of satisfactorily graded, free draining, hard, durable stone and coarse sand reasonably free from loam,

silt, clay, and organic material.

The gravel backfill shall meet the requirements of the following table:

TABLE 704.10A - GRAVEL BACKFILL FOR SLOPE STABILIZATION

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves TOTAL SAMPLE	SAND PORTION
No. 4	20-50	100
No. 100		0- 20
No. 200		0- 10

The stone portion of the gravel backfill shall be uniformly graded from coarse to fine, and the maximum size stone particles shall not exceed 2/3 the thickness of the layer being placed.

704.11 GRANULAR BACKFILL FOR STRUCTURES. Granular backfill for structures shall be obtained from approved sources, consisting of satisfactorily graded, free draining granular material reasonably free from loam, silt, clay, and organic material.

The granular backfill shall meet the requirements of the following table:

TABLE 704.11A - GRANULAR BACKFILL FOR STRUCTURES

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves TOTAL SAMPLE	SAND PORTION
3"	100	
2½"	90-100	
No. 4	50-100	100
No. 100		0- 18
No. 200		0- 8

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 1

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
1	1	1977	1.5-8	0-1.5	No	100	100	96	90	10	7		Sand	Owner: Robert Purinton Area is large rolling field planted to corn with meadow on northern half, and surrounded by tree and property lines. Access road to west end of field is 0.24 mile east of Vermont Route 116, 1.18 mile north of its junction with Town Highway No. 11. Test No. 1 was on west edge of corn-field, 150 feet north of the southwest corner. Material is: 0'-1.5' over-burden; 1.5'-4' coarse sand with stones; 4'-4.5' layer of small cobbles; 4.5'-8' coarse sand with stones; bottom, coarse sand with stones.
	2	1977	1-8	0-1	No	100	100	90	81	57	40	--	--	Test No. 2 was near middle of field, 650 feet east of Test No. 1. Material is: 0'-1' overburden; 1'-2.5' gravelly fine sand; 2.5'-8' moist silty gravel; bottom, moist silty gravel.
	3	1977	1-6	0-1	No	100	100	100	100	93	64	--	--	Test No. 3 was atop small knoll, 570 feet east of Test No. 2. Material is: 0'-1' overburden; 1'-2' sand; 2'-6' fine sand to silty sand; bottom, silty sand.
2	1	1977	0.5-4	0-0.5	No	100	100	94	80	4	3		Sand	Owner: Wayne LaRose Area is small, narrow pasture with scattered tree stumps, and slash piles.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 2

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														Access road is 0.18 mile east of Vermont Route 116, 1.18 mile north of its junction with Town Highway No. 11. Test No. 1 was near middle of western end of pasture. Material is: 0'-0.5' overburden; 0.5'-2.5' gravel and fine gravel; 2.5'-4' sand; bottom, sandy silt.
	2	1977	0.5-11	0-0.5	No	92	85	73	57	7	4		Gravel (Gradation Only)	Test No. 2 was in eastern end of pasture, 170 feet east of Test No. 1. Material is: 0'-0.5' overburden; 0.5'-3' fine gravel; 3'-6' sand and pebbly sand; 6'-8' sandy silt; 8'-11' gravel; bottom, gravel.
3	1	1976	1-20	0-1	Yes	100	100	96	86	28	21	--	--	Owner: L. M. Pike Area is a bowl-shaped, partially overgrown pit with shallow excavations throughout wooded extension to the northeast. Access road is 0.08 mile east of Vermont Route 116, 1.18 mile north of its junction with Town Highway No. 11. Test No. 1 was in northern face of pit. Material is: 0'-1' overburden; 1'-4' sand; 4'-9' pebbly sand and fine gravel; 9'-17' sand with fine sand; 17'-20';gravelly sand; bottom, sloughed material.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 3

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	2	1977	0-4	--	Yes	100	100	100	60	47	34	--	--	Test No. 2 was in north floor of pit. Material is: 0'-4' silty sand with stones; bottom, ledge or large boulder.
4	1	1976	0.5-5	0-0.5	Yes	100	89	73	62	19	5	6.0%	Gran. Borrow (Gravel)	Owner: Mark Choniere Area is shallow pit face in woods with swampy area to the west and low ridge to the east. Access road is 0.81 mile north of Town Highway No. 17 (Class 4) and 0.16 mile west of Town Highway No. 17 (Class 3) end. Access road is through field and woods and needs improvement. Test No. 1 was in northern face of pit. Material is: 0'-0.5' overburden; 0.5'-4.5' sandy gravel to fine gravel; 4.5'-5' fine sand; bottom, fine sand.
5	1	1976	0.5-10	0-0.5	Yes	100	100	100	90	7	2		Sand	Owner: Francis Heffernan Area is long ridge in pasture with three small pits in southeast end and woods on northwest end. Feature is bordered by cornfields on east and west and meadow on the south. Pit entrance is 0.27 mile west of State Aid Highway No. 4, 0.17 mile north of its junction with State Aid Highway No. 1. Planted crops barred further sampling of the property; however, area appears to be an ample source of good sand which the owner is willing to sell.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 4

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
														Test No. 1 was in small pit on southwest side of ridge. Material is: 0'-0.5' overburden; 0.5'-10' layers of mixed sand and pebbly sand; bottom, sloughed material.
	2	1976	2.5-6	0-2.5	Yes	100	100	87	76	4	2		Sand	Test No. 2 was in southern face of southern most pit. Material is: 0'-2.5' overburden; 2.5'-6' sand to pebbly sand; bottom, pebbly sand with some cobbles.
	3	1976	2-9	0-2	Yes	100	100	100	83	12	2	--	Sand	Test No. 3 was in northeastern face of southern most pit. Material is: 0'-2' overburden; 2'-5' sand and pebbly sand; 5'-9' pebbly sand to fine gravel; bottom, sand.
	4	1976	3-10	0-3	Yes	100	100	100	84	11	5		Sand	Test No. 4 was in small pit on southeast side of ridge. Material is: 0'-3' overburden; 3'-10' pebbly sand and sand; bottom, sloughed material.
	5	1977	0-12	--	Yes	100	100	84	75	9	3		Sand	Test No. 5 is in western floor of southern pit. Material is: 0'-3.5' sand; 3.5'-5' fine gravel; 5'-8' interbedded sand and gravel; 8'-12' gravelly sand; bottom, gravelly sand.
	6	1977	0.5-12	0-0.5	Yes	100	100	100	93	13	4		Sand	Test No. 6 was in floor of eastern pit. Material is: 0'-0.5' overburden; 0.5'-4' sand; 4'-10' sand, fine gravel, and pebbly sand layers; 10'-12' sand; bottom, sand.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 5

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	7	1977	0.5-12	0-0.5	Yes	100	100	83	73	14	7		Sand	Test No. 7 was atop ridge, 250 feet northwest of pit face. Material is: 0'-0.5' overburden; 0.5'-6' fine gravel; 6'-8' sand; 8'-10' fine gravel or pebbly sand; 10'-12' sand; bottom, sand.
	8	1977	0.5-10	0-0.5	Yes	100	100	89	82	17	8		Sand	Test No. 8 was atop ridge in pasture, 300 feet northwest of Test #7. Material is 0'-0.5' overburden; 0.5'- 4' fine gravel and pebbly sand; 4'-8'sand; 8'-10' sand to fine sand; bottom, fine sand.
	9	1977	0.5-12	0-0.5	Yes	100	100	100	85	18	9		Sand	Test No. 9 was atop ridge in pasture near property line fence. Material is: 0'-0.5' overburden; 0.5'-3' fine gravel or pebbly sand; 3'-8' fine sand and sand; 8'-9' fine gravel; 9'-11' fine sand; 11'-12' fine gravel or pebbly sand; bottom, pebbly sand.
	10	1977	1-12	0-1	Yes	100	100	87	70	12	8		Sand	Test No. 10 was in gully between low ridges, 85 feet west of Test No. 7. Material is: 0'-1' overburden; 1'-3' gravelly sand; 3'-12' sandy gravel or gravelly sand; bottom, gravelly sand.
6	1	1977	0.5-10	0-0.5	Yes	100	94	86	69	10	6		Sand	Owner: Francis Heffernan Area is small, overgrown pit in southeast end of wooded terrace bordered by a rocky ridge on the east. A marshy gully borders the southern and western sides. There are planted pines in the northern extension, 300 feet from pit face.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 6

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														The 0.62 mile long access road is north of New Haven Town Highway No. 9, 0.70 mile southeast of New Haven-Bristol town line. Access road crosses the swamp and would need improvement. Test No. 1 was in north-northwest pit face. Material is: 0'-0.5' overburden; 0.5'-10' pebbly sand and fine gravel layers; bottom, sloughed material.
7	1	1976	1-11	0-1	Yes	100	95	89	85	3	2		Sand	Owner: Mark Choniere Area is large, mostly grass-covered, junk-strewn pit with irregular faces. It is bordered by a meadow on the east, which owner will not sell, and extends into a pasture on the north. Pit is 250 feet north of New Haven Town Highway No. 9 and 0.42 mile west of its junction with Town Highway No. 18. Test No. 1 was in the northeast face. Material is: 0'-1' overburden; 1'-11' sand; bottom, sand.
	2	1976	1-15	0-1	Yes	100	100	100	99	4	2		Sand	Test No. 2 was in the eastern face. Material is: 0'-1' overburden; 1'-6' sand; 6'-11' pebbly sand; 11'-15' sand; bottom, sand.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 7

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
8	1	1977	0.5-11	0-0.5	No	100	88	85	79	17	9		Gran. Borrow (Sand)	Owner: James Burpee Area is pasture in high terrace surrounded by woods and cornfield. Pit is 0.46 mile east of State Aid Highway No. 6, 0.44 mile south of junction with State Aid Highway No. 4. There is a trail to the area, and ford of a small stream east of the terrace. Test No. 1 was in northeast corner of terrace. Material is: 0'-0.5' overburden; 0.5'-11' layers of pebbly sand, sand, silt seams and fine sand; bottom, fine sand.
	2	1977	0.5-11	0-0.5	No	100	100	100	100	53	28		--	Test No. 2 was in the southern edge of terrace, 260 feet south of Test No. 1. Material is: 0'-0.5' overburden; 0.5'-2' pebbly sand; 2'-6' fine sand; 6'-11' fine sand to silty sand; bottom, silty sand.
	3	1977	0.5-5	0-0.5	No	100	100	100	100	82	53		--	Test No. 3 was in the northwest corner of terrace, 250 feet west of Test No. 1. Material is: 0'-0.5' overburden; 0.5'-5' fine sand to silty sand; bottom, silt-clay.
9	1	1977	0-10	--	Yes	100	100	100	100	21	9		Sand	Owner: James Burpee Area is long, narrow, rolling cornfield with small, shallow excavations in northeast corner. Several bedrock outcrops are in field, and only one backhoe test hole was allowed. Pit is 0.32 mile east of State Aid Highway

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 8

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														No. 6, 0.35 mile south of its junction with State Aid Highway No. 4. Test No. 1 was in northeast edge of long, narrow cornfield. Material is: 0'-10' fine sand with some sand layers; bottom, moist fine sand.
10					NO SAMPLES TAKEN									Owner: James Burpee Area is small, shallow, inactive, saucer-shaped portion of pit with wide tree line bordering it on the south and southwest. Only possible extensions are either in floor, or southward into a cornfield at Map Identification No. 9. Owner does not want to sell material. Access is through Map Identification Areas 11 and 12. This is a small area and it needs work before it can be used. It should not be considered a good source. Pit is 0.07 mile southwest of State Aid Highway No. 4, 0.25 mile southeast of its junction with State Aid Highway No. 6.
11	1	1976	0.5-10	0-0.5	Yes	84	73	64	53	7	5	9.1%	Gravel	Owner: Ed O'Neill Area is part of old, overgrown pit with extension northeastward into small meadow. Pit faces are very uneven and do not appear to be "in place". Pit is 0.05 mile southwest of State Aid Highway No. 4, 0.25 mile

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 9

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														southeast of its junction with State Aid Highway No. 6. Material is not for sale at this time. Test No. 1 was in the northwest face of pit. Material is: 0'-0.5' overburden; 0.5'-7' stony gravel; 7'-10' sand; bottom, sand and sloughed material.
12	1	1976	0.5-9	0-0.5	Yes	87	84	62	45	10	7	9.0%	Gravel	Owner: Lester Coffin Area is small, shallow, eastern section of a large pit with limited extension northeastward into small meadow. Owner would not sell any material because he uses it for his camping area roads. Pit is 0.15 mile southeast of State Aid Highway No. 4, 0.39 mile southeast of its junction with State Aid Highway No. 6. Test No. 1 was in northeast face of small pit. Material is: 0'-0.5' overburden; 0.5'-8' gravel with sand seams; 8'-9' moist sand; bottom, sand.
13	1	1977	0-6	--	Yes	100	100	100	100	88	44		--	Owner: Roger Blaise Area is long, narrow meadow with small, shallow pit on its southwest edge and a small, somewhat rectangular field north of it. They are separated by a small stream. Pit is: 0.66 mile northeast of State Aid Highway No. 4, 0.97 mile southeast of

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 10

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														junction with State Aid Highway No. 6.
														Test No. 1 was in northern corner of rectangular field. Material is: 0'-6' silty sand; bottom, silt-clay.
	2	1977	0-5	--	Yes	100	100	100	100	82	58	--	--	Test No. 2 was in floor of small shallow pit, southwest edge of field. Material is: 0'-5' moist silty sand; bottom, same.
14	1	1977	0-5	--	Yes	100	100	88	71	48	36	--	--	Owner: Roger Blaise
														Area is pit with many irregular-shaped faces. Grass, trees, and junk litter the faces and floors. Owner hopes to build a house and garage on the pit floor and will keep the remaining material for development as a trailer park. Pit is 0.31 mile northeast of State Aid Highway No. 4, 0.97 mile southeast of its junction with State Aid Highway No. 6.
														Test No. 1 was in the floor at east-southeast end of northwestern pit area. Material is: 0'-1' silt; 1'-2' sand; 2'-3' layer of uniform stones (1"-1½"); 3'-5' stony silt; bottom, stony silt.
	2	1977	0.5-6	0-0.5	Yes	100	100	100	100	69	35	--	--	Test No. 2 was in floor of shallow pit, 0.21 mile northeast of State Aid Highway No. 4. Material is: 0'-0.5' overburden; 0.5'-6' fine sand; bottom, fine sand and water.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 11

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
	3	1977	1-12	0-1	Yes	92	76	71	58	33	21	11.6%	--	Test No. 3 was in northeast face of northwestern pit area. Material is: 0'-1' overburden; 1'-3' gravel; 3'-4' sand; 4'-8' sandy gravel or gravelly sand; 8'-12' sandy gravel grading to stony silt and silt; bottom, moist silt.
	4	1977	1-12	0-1	Yes	100	94	82	69	15	9	10.1%	Sand	Test No. 4 was in the northeast face of southeastern pit area. Material is: 0'-1' overburden; 1'-3' gravel; 3'-12' gravelly sand; bottom, moist silt-clay.
15	1	1977	1-6	0-1	No	100	100	100	100	90	80	--	--	Owner: Francis Heffernan Area is large, rolling, L-shaped field with mixed sections of meadow and corn. Most of the field was planted at the time of the survey, so the owner would not allow random sampling. There are several access roads to the area, but the one most used was 0.06 mile long, southwest of State Aid Highway No. 4, and 0.97 mile south east of junction with State Aid Highway No. 6. Test No. 1 was in field just north of Town Highway No. 20. Material is: 0'-1' overburden; 1'-6' fine sand, bottom, silt.
	2	1977	1-8	0-1	No	100	100	100	100	90	45	--	--	Test No. 2 was in field 400 feet north of Test No. 1. Material is: 0'-1' overburden; 1'-8' fine sand; bottom, moist fine sand.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 12

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	3	1977	2-11	0-2	No	87	79	66	57	36	23	--	--	Test No. 3 was on northern edge of field, 300 feet north of Test No. 2. Material is: 0'-2' overburden; 2'-11' silty sand with angular stone fragments; bottom, same.
	4	1977	1-10	0-1	No	100	100	100	77	47	34	--	--	Test No. 4 was in southwest corner near edge of field. Material is: 0'-1' overburden; 1'-10' silty sand with angular stones; bottom, same.
	5	1977	1.5-8	0-1.5	No	100	100	100	75	46	34	--	--	Test No. 5 was in northwest corner near edge of field. Material is: 0'-1.5' overburden; 1.5'-8' silty sand with angular stones; bottom, ledge.
	6	1977	1-11	0-1	No	93	91	71	54	10	6	11.6%	Gravel	Test No. 6 was near center of lower field. Material is: 0'-1' overburden; 1'-2.5' sand; 2.5'-11' gravel; bottom, gravel. The field near Test No. 6 and west of State Aid Highway No. 4 might be a good location for a gravel pit.
16	1	1977	1-9	0-1	No	100	100	100	98	21	13		Gran. Borrow (Sand)	Owner: Robert Hill Area is large, low rolling pasture. There were several crop-covered fields west and south of this area having the same elevation, but owner refused permission to sample. Field was 50 feet north of Town Highway No. 20, 0.40 mile west of junction with State Aid Highway No. 6.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 13

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														Test No. 1 was in western edge of pasture. Material is: 0'-1' overburden; 1'-9' sand to fine sand; bottom, silt.
	2	1977	1-5	0-1	No	100	100	83	78	41	27	--	--	Test No. 2 was in pasture 300 feet north of Test No. 1. Material is: 0'-1' overburden; 1'-5' stony, silty sand; bottom, ledge or large boulder.
	3	1977	1.5-8.5	0-1.5	No	100	100	100	100	16	10		Sand	Test No. 3 was in pasture 250 feet north of Town Highway No. 20, and 460 feet east of Test No. 1. Material is: 0'-1.5' overburden; 1.5'-8.5' sand and fine sand; bottom, stony silty sand.
	4	1977	1.5-9	0-1.5	No	100	100	100	98	11	3		Sand	Test No. 4 was in pasture, 160 feet north of Town Highway No. 20, and 500 feet east of Test No. 3. Material is: 0'-1.5' overburden; 1.5'-9' sand and fine sand; bottom, sand.
17	1	1977	1-11	0-1	No	100	100	100	100	88	51	--	--	Owner: Robert Hill Area is low rolling pasture with large cornfield to the south. Access is via a gate southwest of Town Highway No. 20 and State Aid Highway No. 6 junction. Test No. 1 was in western end of pasture, 200 feet south of Town Highway No. 20. Material is: 0'-1' overburden; 1'-10' silty sand; 10'-11' sand; bottom, sand.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 14

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	2	1977	1-12	0-1	No	100	100	100	100	79	48	--	--	Test No. 2 was in pasture, 300 feet east of Test No. 1. Material is: 0'-1' overburden; 1'-12' silty sand with silt-clay seams; bottom, moist sandy silt.
	3	1977	7-12	0-7	No	100	100	100	99	28	26	--	--	Test No. 3 was in pasture, 400 feet east of Test No. 2. Material is: 0'-7' overburden; 7'-12' sand; bottom, sand.
18	1	1977	0.5-8	0-0.5	No	100	100	100	100	14	8		Sand	Owner: Robert Hill Area is low ridge in meadow bordered on northwest and southeast by marshy gullys. Property is 0.08 mile southwest of Town Highway No. 20, 0.22 mile east of junction with State Aid Highway No. 6. Owner has right-of-way to field through Arthur Kilbourn property. Test No. 1 was in northeast corner of pasture. Material is: 0'-0.5' overburden; 0.5'-8' sand with silt traces; bottom, same. Had to stop digging because of caving.
	2	1977	0.5-9	0-0.5	No	100	100	100	100	19	11		Sand	Test No. 2 was in the southwest end of meadow, 500 feet southwest of Test No. 1. Material is: 0'-0.5' overburden; 0.5'-9' sand with silt traces; bottom, silt.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 15

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
19	1	1977	1-14	0-1	Yes	100	100	92	75	4	1	6.1%	Sand	Owner: Town of Bristol Area is large, irregular-shaped, multi-level pit with high faces. Pit is used as a sanitary landfill for Bristol and New Haven. Stumps and boulders covered the southwest floor and varying amounts of rubbish cover the remaining area. The faces are grass, tree, and junk-covered with little remaining extension. Pit is 0.11 mile northeast of end of Town Highway No. 302 (Pine Street), and 0.64 mile west of its junction with State Aid Highway No. 2. Test No. 1 was in the lower northeast face of northern pit level. Material is: 0'-1' overburden; 1'-8' gravel with boulders; 8'-14' pebbly sand to sand; bottom, sand. The material is not for sale so only one sample was taken.
20	1	1976	1-12	0-1	Yes	100	100	90	73	5	3		Sand	Owner: Lawrence Booska Area is large, partially overgrown, nearly depleted pit with faces close to property lines. Pit is 50 feet southwest of Town Highway No. 302 (Pine Street) end, and 0.54 mile west of its junction with State Aid Highway No. 2. No backhoe testing was allowed, and material is not for sale.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 16

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														Test No. 1 was in upper southwest face of pit. Material is: 0'-1' overburden; 1'-5' gravelly sand; 5'-8' fine gravel; 8'-10' pebbly sand; 10'-12' sand; bottom, sand.
	2	1976	0-10	--	Yes	100	97	83	48	4	3	5.0%	Gravel	Test No. 2 was in lower southeast face of pit. Material is: 0'-10' fine gravel; bottom, fine gravel and sloughed material.
	3	1976	0-15	--	Yes	100	94	86	48	19	14	3.3%	Gran. Borrow (Gravel)	Test No. 3 was in northwest face of pit. Material is: 0'-2' fine sand with silt traces; 2'-15' fine gravel; bottom, fine gravel and sloughed material.
21	1A	1976	1-21	0-1	Yes	82	78	57	31	2	1	6.3%	Gravel	Owner: Tom Kilbourn Area is two medium sized, high faced pits, separated by a twenty-foot strip of cornfield, and bordered on the east by property and tree lines. Excavation since 1976 has probably removed the material between the pits. There were strippings and boulders on both floors, and standing water on the north floor. The southern pit is 0.07 mile east of State Aid Highway No. 6, 0.51 mile north of its junction with Vermont Route Nos. 17 and 116. Northern pit is 0.18 mile east of State Aid Highway No. 6, 0.67 mile north of its junction with Vermont Route Nos. 17 and 116.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 17

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														Test No. 1A was in upper eastern face. Material is: 0'-1' overburden; 1'-21' interbedded gravel, sand seams and layers of uniformly sized stones; bottom, Test No. 1B.
	1B	1976	21-40	--	Yes	100	100	87	65	2	1	--	Sand	Test No. 1B was below Test No. 1A. Material is: 21'-40' interbedded gravel, fine gravel and pebbly sand; bottom, sloughed material.
	2A	1976	2-15	0-2	Yes	100	100	70	53	9	3	6.4%	Gravel	Test No. 2A was in upper northern face of pit. Material is: 0'-2' overburden; 2'-15' layers of sand, pebbly sand, and fine gravel; bottom, Test No. 2B.
	2B	1976	15-30	--	Yes	100	92	82	66	27	20	--	--	Test No. 2B was below Test No. 2A. Material is: 15'-30' layers of sand and pebbly sand; bottom, sloughed material.
	3	1976	4-20	0-4	Yes	100	100	82	62	13	8		Sand	Test No. 3 was in western face of pit. Material is: 0'-4' overburden; 4'-20' layers of sand, fine gravel and pebbly sand seams; bottom, floor level.
	4A	1976	4-16	0-4	Yes	100	100	100	100	25	8		Sand	Test No. 4A was in upper west face of northern pit. Material is: 0'-4' overburden; 4'-16' sand and fine sand layers with silt seams; bottom, Test No. 4B.
	4B	1976	16-34	--	Yes	100	100	100	84	2	1		Sand	Test No. 4B was below Test No. 4A. Material is: 16'-34' sand; bottom, sloughed material.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 18

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	5A	1976	3-18	0-3	Yes	100	100	100	74	7	1		Sand	Test No. 5A was in upper southeast face of northern pit. Material is: 0'-3' overburden; 3'-18' layers of sand, fine gravel, gravel, and silty stones; bottom, Test No. 5B.
	5B	1976	18-42	--	Yes	100	100	95	76	3	1		Sand	Test No. 5B was below Test No. 5A. Material is: 18'-42' pebbly sand; bottom, pebbly sand.
	6	1977	0-12	--	Yes	100	100	96	76	4	2	4.4%	Sand	Test No. 6 was in northwest corner of pit floor. Material is: 0'-12' fine gravel; bottom, same.
	7	1977	0-12	--	Yes	100	100	100	95	3	2		Sand	Test No. 7 was in northeast corner of pit floor, 125 feet east of Test No. 6. Material is: 0'-3' fine gravel; 3'-12' pebbly sand to sand; bottom, sand.
	8	1977	0-13	--	Yes	100	100	94	82	4	2		Sand	Test No. 8 was in pit floor, 190 feet south of Test No. 7. Material is: 0'-8' fine gravel; 8'-13' pebbly sand and sand; bottom, pebbly sand and sand.
	9	1977	0-12	--	Yes	100	100	100	95	7	3		Sand	Test No. 9 was in southern floor of northern pit. Material is: 0'-12' sand and pebbly sand layers; bottom, same.
	10	1977	0-12	--	Yes	100	100	100	95	6	3		Sand	Test No. 10 was in northwest floor of northern pit. Material is: 0'-12' sand and pebbly sand with fine gravel seams; bottom, sand.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 19

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	11	1977	1-6	0-1	Yes	100	100	100	97	21	13		Gran. Borrow (Sand)	Test No. 11 was on northern edge of cornfield, 190 feet west of northern pit face. Material is: 0'-1' overburden; 1'-6' fine sand; bottom, silt-clay.
22	1	1977	0-12	--	Yes	100	100	100	94	5	3		Sand	Owner: Town of Ferrisburg Area is one acre central portion of pit. Complex pit faces extend to property lines and only remaining material is in the floor. Access is 0.07 mile east of State Aid Highway No. 6, 0.51 mile north of its junction with Vermont Route Nos. 17 and 116. Test No. 1 was in upper northern floor of pit. Material is: 0'-12' fine gravel, sand, and pebbly sand layers; bottom, sand.
	2	1977	2-10	0-2	Yes	100	100	100	84	2	1		Sand	Test No. 2 was in lower southern floor of pit. Material is: 0'-2' screenings; 2'-10' layers of sand and pebbly sand; bottom, sand. Town is keeping material for its own use and it is not for sale.
23	1	1976	3-10	0-3	Yes	100	100	100	98	56	28	--	--	Owner: Lawrence Booska Area is small, overgrown pit with pond on its eastern edge. Pit is 0.05 mile west of State Aid Highway No. 6, 0.26 mile north of its junction with Vermont Route Nos. 17 and 116.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 20

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														Test No. 1 was in the northeast face of pit. Material is: 0'-3' overburden; 3'-6' sand with some silt seams; 6'-8' clean sand; 8'-10' fine white sand (hard packed); bottom, fine white sand. Material is not for sale.
24	1	1976	0.5-40	0-0.5	Yes	91	86	67	46	4	3	9.0%	Gravel	Owner: Lawrence Booska Area is very large, multi-level, multi-faced pit with a landfill operation at the southern end. There is little remaining extension in any direction and lowest floor is near the water table. Remnant piles from screening operations are on floors and faces, with standing water in southern end. Owner reserves the remaining material for his own use. Pit is 0.05 mile east of State Aid Highway No. 6, 0.31 mile north of its junction with Vermont Route Nos. 17 and 116. Test No. 1 was in northeast face of southeast pit. Material is: 0'-0.5' overburden; 0.5'-40' layers of gravel, coarse gravel and boulders; bottom, sand.
	2A	1976	0-18	--	Yes	100	86	86	80	2	1	--	Sand	Test No. 2A was in lower northern face of northwestern pit. Material is: 0'-18' sand with some pebbly sand layers; bottom, Test No. 2B.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 21

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	2B	1976	18-36	--	Yes	100	92	92	82	13	5	--	Sand	Test No. 2B was below Test No. 2A. Material is: 18'-36' sand with pebbly sand; bottom, sloughed material.
	3	1976	0-17	--	Yes	100	97	75	45	5	3	5.5%	Gravel	Test No. 3 was in lower east face of northern pit. Material is: 0'-17' gravel with sand seams and boulders; bottom, sand.
25	1A	1976	2-22	0-2	Yes	96	94	63	37	9	6	8.4%	Gravel	Owner: Town of Bristol Area is large boulder and junk-filled, overgrown pit with extension limited to the floors. Pit is northeast of cemetery, and west of Map Identification No. 26, 0.14 mile northeast of Vermont Route 116. The Town of Bristol uses area as a stump-dump; sumac trees cover faces and floors. Test No. 1A was in the upper northeast face of large pit. Material is: 0'-2' overburden; 2'-22' stony gravel, with layers of uniform, 1-inch stones; bottom, Test No. 1B.
	1B	1976	22-34	--	Yes	95	81	56	29	7	5	8.4%	Gravel	Test No. 1B was below Test No. 1A. Material is: 22'-28' cobbly gravel and gravel; 28'-34' gravel over fine gravel over pebbly sand and sand; bottom, sand and sloughed material.
	2	1977	0-7	--	Yes	100	85	46	25	34	31	6.5%	--	Test No. 2 was in second level of pit floor and below Test No. 1. Material is: 0'-7' stony gravel; bottom, same.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 22

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	3	1977	0-8	--	Yes	82	71	50	35	4	3	6.3%	Gravel	Test No. 3 was in floor of west end of second level, 210 feet west of Test No. 2. Material is: 0'-8' bouldery gravel; bottom, bouldery gravel.
	4	1977	0-7	--	Yes	85	78	61	44	4	3	7.5%	Gravel	Test No. 4 was in floor of first level of pit near access road. Material is: 0'-7' bouldery gravel; bottom, bouldery gravel.
	5	1977	0-8	--	Yes	95	81	45	13	6	4	2.6%	Gran. Borrow (Gravel)	Test No. 5 was in lowest floor of pit near the north face and property line of Map Identification No. 26. Material is: 0'-8' coarse gravel with boulders; bottom, same. Backhoe use was discontinued due to caving in of holes.
26	1	1976	0-14	--	Yes	100	100	100	89	21	6		Sand	Owner: Town of New Haven Area is large pit bordered by Vermont Route 116, a cemetery, and the Town of Bristol pit (Map Identification No. 25). There were strippings and boulders on all faces and floors, and a stump-dump on southeast face. Material is not for sale. Pit is 150 feet north of Vermont Route 116, 0.07 mile west of its junction with Town Highway No. 22 Test No. 1 was in northern face of island near center of pit. Material is: 0'-14' sand; bottom, sand.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 23

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	2	1976	0-15	--	Yes	91	78	51	38	5	3	4.1%	Gravel	Test No. 2 was in east face of lower pit level. Material is: 0'-1' fine gravel; 1'-3' sand; 3'-6' sandy gravel; 6'-8' gravel; 8'-9' sand; 9'-15' gravel; bottom, sloughed material.
	3	1976	0-18	--	Yes	83	83	58	49	8	4	4.5%	Gravel	Test No. 3 was in northeast face of lower pit level. Material is: 0'-18' coarse gravel; bottom, same.
	4	1976	0-8	--	Yes	96	88	56	38	6	4	4.2%	Gravel	Test No. 4 was in west face of small pit lobe near Map Identification No. 25 property line. Material is: 0'-8' gravel; bottom, gravel.
	5A	1976	2-20	0-2	Yes	88	85	60	32	7	5	8.4%	Gravel	Test No. 5A was in upper northeast face of pit. Material is: 0'-2' overburden; 2'-20' gravel; bottom, Test No. 5B.
	5B	1976	20-30	--	Yes	93	93	60	35	4	3	7.0%	Gravel	Test No. 5B was below Test No. 5A. Material is: 20'-38' gravel with some sandy gravel seams; bottom, Test No. 5C.
	5C	1976	38-55	--	Yes	90	86	70	57	3	2	6.7%	Gravel	Test No. 5C was below Test No. 5B. Material is: 38'-48' sandy gravel; 48'-55' gravelly sand to gravel; bottom, sloughed material.
	6	1977	0-9	--	Yes	95	84	38	22	16	11	5.3%	Gran. Borrow (Gravel)	Test No. 6 was in western extension of upper pit floor near property line. Material is: 0'-9' coarse gravel with boulders; bottom, same.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 24

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	7	1977	5-11	0-5	Yes	86	65	43	37	6	3	4.0%	Gravel	Test No. 7 was in pit floor near a gravel sorter. Material is: 0'-5' overburden; 5'-11' sandy gravel; bottom, same.
	8	1977	0-8	--	Yes	100	74	58	50	2	1	12.8%	Gravel	Test No. 8 was on eastern edge of lowest pit floor. Material is: 0'-8' layers of sand and sandy gravel; bottom, sandy gravel.
27	1	1976	1-14	0-1	Yes	100	100	100	85	4	2		Sand	Owner: Peter Nelson Area is large, irregular-shaped, overgrown pit with numerous boulder piles on faces and floor. Owner says that material was used for the Button Bay project, but he will not sell anymore, and wants to fill-in and level the area. Pit is 50 feet southeast of Vermont Route 116, 0.24 mile northeast of its junction with Town Highway No. 22. Test No. 1 was in northeast face of large pit. Material is: 0'-1' overburden; 1'-14' poorly graded boulders and sand; bottom, boulders and sloughed material. Material smaller than 4" passed for sand, but overall it was a gap-graded gravel. An estimated 20% to 30% of material is coarser than 4-inches, hence it is not suitable for Item 703.03.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 25

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	2	1976	1-15	0-1	Yes	97	81	59	46	6	3	8.0%	Gravel	Test No. 2 was in southeast face of pit. Material is: 0'-1' overburden; 1'-6' gravel; 6'-9' sand; 9'-15' coarse gravel; bottom, soulder piles.
	3	1976	1-10	0-1	Yes	85	74	54	38	17	11	6.7%	Gran. Borrow (Gravel)	Test No. 3 was in western face of pit. Material is: 0'-1' overburden; 1'-10' coarse gravel; bottom, rocks and boulders.
28	1	1977	1-10	0-1	No	100	77	32	13	16	12	--	--	Owner: State of Vermont Area is a former Weeks' School apple orchard, now nearly overgrown with soft wood and sumac. The orchard is dry and level, and its former access crosses the northeast edge of the Nelson property (Map Identification No. 27). The northwest edge of area is 0.14 mile southeast of Vermont Route 116, 0.04 mile northeast of its junction with Town Highway No. 32. Test No. 1 was in clearing near center of area. Material is: 0'-1' overburden; 1'-10' coarse gravel; bottom, same.
	2	1977	1-7	0-1	Yes	89	74	58	49	13	9	8.9%	Gran. Borrow (Gravel)	Test No. 2 was 135 feet east of Test No. 1. Material is: 0'-1' overburden; 1'-2' sand; 2'-3' fine sand and silty sand; 3'-7' bouldery gravel; bottom, bouldery gravel and large boulders.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 26

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	3	1977	0.5-10	0-0.5	Yes	91	82	46	28	36	30	10.1%	--	Test No. 3 was 160 feet northwest of Test No. 1 and 40 feet southeast of property line. Material is: 0'-0.5' overburden; 0.5'-10' coarse gravel with layers of uniform sized stones; bottom, same.
29	1A	1977	1.5-20	0-1.5	Yes	83	72	49	24	6	5	8.0%	Gravel	Owner: Claire C. Lathrop Area is small pit on side of high wooded terrace. Owner is lessor of sand and gravel rights for five years (6/3/77) to lessee who set up a grizzly for screening. There seems to be a large reserve of granular material with extension to the south and southeast; however, owner would not allow backhoe testing. Pit is 25 feet southeast of State Aid Highway No. 5, 0.38 mile southwest of its junction with Vermont Route 116 and State Aid Highway No. 4. Test No. 1A was in upper eastern face of pit. Material is: 0'-1.5' over-burden; 1.5'-20' bouldery gravel with silt-coated stones; bottom, Test No. 1B.
	1B	1977	20-40	--	Yes	91	83	52	23	10	7	5.9%	Gravel	Test No. 1B was below Test No. 1A. Material is: 20'-40' bouldery gravel; bottom, same and sloughed material.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 27

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
30	1A	1976	2-18	0-2	Yes	89	75	49	25	9	6	8.0%	Gravel	Owner: State of Vermont Area is a large, partly overgrown pit with boulder piles, and stock-piles of 3/8", 1/2", and pea stone on the rest of the floor. Exten-sions are in the floor and northward in wooded slope to Map Identifica-tion No. 27. Pit is 200 feet east of Vermont Route 116, 0.18 mile southwest of its junction with Town Highway No. 32. Test No. 1A was in northwest face of pit. Material is: 0'-2' overburden; 2'-18' coarse, clean, bouldery gra-vel; bottom, Test No. 1B.
	1B	1976	18-35	--	Yes	91	89	63	34	9	6	5.5%	Gravel	Test No. 1B was below Test No. 1A. Material is: 18'-35' coarse, clean gravel with some boulders; bottom, 10-to 12-foot-high piles of stones.
	2	1976	15-12	0-1.5	Yes	91	83	62	40	20	11	10.6%	Gran. Borrow (Gravel)	Test No. 2 was in northeast face of large pit. Material is: 0'-1.5' overburden; 1.5'-12' coarse, dirty gravel with boulders; bottom, sloughed material.
	3	1977	0-9	--	Yes	88	76	44	19	14	9	6.3%	Gran. Borrow (Gravel)	Test No. 3 was in northern corner of pit floor near Test No. 1. Material is: 0'-9' coarse gravel; bottom, same.
	4	1977	0.5-9	0-0.5	Yes	90	70	47	31	9	5	5.8%	Gravel	Test No. 4 was in pit floor near northeastern face. Material is: 0'-0.5' overburden; 0.5'-9' coarse gravel with dirt; bottom, large

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 28

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														boulder.
31	1A	1976	1.5-22	0-1.5	Yes	87	77	64	48	7	3	8.0%	Gravel	Owner: State of Vermont Area is large, partly overgrown pit with northern extension into land at Map Identification No. 30. Boulders and stripping piles cover faces and floors. The 150-foot access road needs improvement. Pit is northeast of Town Highway No. 22, 0.22 mile southeast of its junction with Vermont Route 116. Test No. 1A was in northeast face of pit. Material is: 0'-1.5' overburden; 1.5'-8' coarse gravel; 8'-22' gravel to fine gravel with sand seams; bottom, Test No. 1B.
	1B	1976	22-40	--	Yes	100	100	95	85	13	9		Sand	Test No. 1B was below Test No. 1A. Material is: 22'-30' layers of sand and pebbly sand; 30'-32' gravel; 32'-34' fine sand; 34'-40' layers of sand, fine sand and pebbly sand; bottom, sand and sloughed material.
	2A	1977	4-16	0-4	Yes	95	93	58	39	19	14	10.0%	Gran. Borrow (Gravel)	Test No. 2A was in northern face of pit, which abuts the lobe of the northern pit (no extension). Material is: 0'-4' overburden; 4'-8' gravel with large stones; 8'-13' sand and pebbly sand; 13'-18' clean gravel; bottom, Test No. 2B.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 29

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
	2B	1976	16-32	--	Yes	96	85	61	40	10	5	8.0%	Gravel	Test No. 2B was below Test No. 2A. Material is: 16'-26' clean gravel; 26'-30' gravel; 30'-32' sandy gravel and sand; bottom, sloughed material.
	3	1977	0-10	--	Yes	100	100	100	94	23	9	--	Sand	Test No. 3 was in pit floor, 40 feet southwest of Test No. 2. Material is: 0'-2' sandy gravel; 2'-5' sand; 5'-5.5' cobbly sand; 5.5'-10' sand and fine sand; bottom, fine sand.
32	1A	1976	2-27	0-2	Yes	92	82	67	53	4	2	3.7%	Gravel	Owner: State of Vermont Area is large, multi-faced, horse-shoe-shaped pit with two levels. The district uses part of pit as a wood dump. Stripping piles are scattered around the floor. Pit has limited material in floor, and east towards Map Identification No. 31. There are two access roads to the pit. One is northeast of Town Highway No. 22, 0.17 mile southeast of its junction with Vermont Route 116, the second is also northeast of Town Highway No. 22, 0.10 mile southeast of its junction with Vermont Route 116. Test No. 1A was in the northeast face of eastern-most pit. Material is: 0'-2' overburden; 2'-7' gravel; 7'-10' pebbly sand; 10'-12' sand; 12'-14' fine sand; 14'-27' fine gravel with pebbly sand seams; bottom, Test No. 1B.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 30

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
	1B	1976	27-56	--	Yes	73	73	58	46	26	23	13.8%	--	Test No. 1B was in northern face of eastern-most pit. Material is: 27'-32' sand and pebbly sand; 32'-50' gravel with some fine gravel layers; 50'-56' fine gravel to sand; bottom, sand and sloughed material.
	2	1976	1-21	0-1	Yes	100	100	100	81	11	3	--	Sand	Test No. 2 was in east-southeast face of island between entrances. Material is: 0'-1' overburden; 1'-3' fine sand; 3'-4' pebbly sand; 4'-6' sandy gravel; 6'-8' gravel; 8'-17' layers of sand and pebbly sand; 17'-21' gravel with sand seams; bottom, gravel and sloughed material.
	3	1977	0-12	--	Yes	100	94	77	62	12	4	6.4%	Sand	Test No. 3 was in floor at foot of upper northeast face, 130' north of Test No. 1. Material is: 0'-1' gravel; 1'-2' sand and pebbly sand; 2'-3' sandy gravel; 3'-4' sand; 4'-10' sandy gravel; 10'-12' sand; bottom, sand.
	4	1977	0.5-11	0-0.5	Yes	100	100	93	79	10	7	--	Sand	Test No. 4 was in floor, 170' southwest of Test No. 3. Material is: 0'-0.5' overburden; 0.5'-1' gravel; 1'-4' pebbly sand; 4'-6' gravel; 6'-8' sand; 8'-11' pebbly sand and sand; bottom, pebbly sand.
	5	1977	0-11	--	Yes	100	85	69	63	9	3	8.3%	Gran. Borrow (Gravel)	Test No. 5 was in floor at foot of lower northeast face, 105' northeast of Town Highway No. 22. Material is: 0'-3' gravel; 3'-3.5' fine sand; 3.5'-5.5' sand; 5.5'-9' sandy gravel; 9'-11' sand; bottom, sand.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 31

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
33	1A	1976	2-18	0-2	Yes	78	69	50	39	12	8	12.7%	Gravel	Owner: A. Johnson Lumber Company Area is narrow, high-faced, overgrown pit with strippings and boulders on face and floor. Extension is northward into a high, wooded terrace. Material is presently (1977) not available, and no permission to backhoe was given, but property may have been sold to Claire Lathrop. Pit is north of a private road, 0.09 mile east of Town Highway No. 23, and 0.09 mile southeast of its junction with State Aid Highway No. 5. Test No. 1A was in upper northeast face of pit. Material is: 0'-2' overburden; 2'-18' coarse gravel; bottom, Test No. 1B.
	1B	1976	18-40	--	Yes	81	74	49	40	5	3	9.4%	Gravel	Test No. 1B was below Test No. 1A. Material is: 18'-40' coarse gravel; bottom, sloughed material.
	2A	1976	3-15	0-3	Yes	93	84	67	49	3	1	11.3%	Gravel	Test No. 2A was in the upper northern face. Material is: 0'-3' overburden; 3'-15' sandy gravel; bottom, Test No. 2B.
	2B	1976	15-27	--	Yes	91	83	63	49	5	1	13.1%	Gravel	Test No. 2B was below Test No. 2A. Material is: 15'-27' sandy gravel; bottom, sloughed material.
34	1	1977	1.5-15	0-1.5	Yes	96	92	51	37	37	25	10.3%	--	Owner: A. Johnson Lumber Company Area is a large, irregularly shaped

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 32

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														pit with high faces and wooded extensions in all directions but south. Material is not for sale presently (1977), and owner would not allow backhoe testing. Faces and floors are covered with piles of boulders and screenings. Pit is north of private road, 0.34 mile east of Town Highway No. 23, 0.09 mile southeast of its junction with State Aid Highway No. 5.
	2A	1977	1.5-17	0-1.5	Yes	92	84	48	32	10	6	9.6%	Gravel	Test No. 1 was in western face of pit. Material is: 0'-1.5' overburden; 1.5'-8' uniform stone layers (silt-clay coated stones with few smaller than 1/2 inch); 8'-10' gravel; 10'-12' silty gravel; 12'-13' silt-clay; 13'-15' silty gravel; bottom, sloughed material.
	2B	1977	17-27	--	Yes	95	88	59	52	8	4	7.8%	Gravel	Test No. 2A was in upper northern face of pit. Material is: 0'-1.5' overburden; 1.5'-5' layers of uniform silt-clay coated stones with few smaller than 1/2 inch; 5'-17' sandy gravel; bottom, Test No. 2B.
	3	1977	1.5-17	0-1.5	Yes	100	89	41	23	41	29	8.2%	--	Test No. 2B was below Test No. 2A. Material is: 17'-27' sandy cobbly gravel; bottom, sloughed material.
														Test No. 3 was in eastern face of pit. Material is: 0'-1.5' overburden; 1.5'-4' stony gravel; 4'-6' silt-clay coated, uniform stones (1/2-1-1/2 inch); 6'-17' silty gravel; bottom, sloughed material.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 33

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
35	1	1977	0-30	(Along River Bar)	No	91	71	37	19	7	4		(Failed due to excess stones)	Owner: Norton Booska Area is a river bar on the east side of the New Haven River which floods during spring run-off. There is no access road to river bar which is 25 feet west of Town Highway No. 23, 0.37 mile south of its junction with State Aid Highway No. 5. Test No. 1 was in southern end of river bar. Material was sampled randomly 30 feet along the river.
	2	1977	0-30	(Along River Bar)	No	88	81	43	28	5	1	8.1%	Gravel	Test No. 2 was in northern end of river bar. Material was sampled randomly 30 feet along river bar. Well-nested, coarse material on the surface made it difficult to get a good hand sample.
36	1	1977	0.5-10	0-0.5	Yes	97	92	79	66	11	6	7.5%	Gran. Borrow (Gravel)	Owner: B. J. Murphy Area is shallow, large, multi-faced pit with trees and grass on faces and floors. Owner says there is a silt-clay layer in floor and did not allow backhoe testing. Pit appears to be close to depletion with a limited wooded extension to the east. A 150-foot long access road is south of Town Highway No. 24, 0.94 mile east of its junction with State Aid Highway No. 3.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 34

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														Test No. 1 was in eastern face of pit. Material is: 0'-0.5' over-burden; 0.5'-4' sandy gravel; 4'-6' gravelly sand; 6'-10' gravel; bottom, sloughed material.
	2	1977	0-4	--	Yes	100	100	94	81	6	4	--	Sand	Test No. 2 was in northeast face of lowest, southwestern level. Material is: 0'-4' gravelly sand; bottom, silty sand.
	3	1977	1-8	0-1	Yes	100	100	79	66	10	6	9.3%	Sand	Test No. 3 was in northern-most face of upper pit level. Material is: 0'-1' overburden; 1'-8' gravelly sand; bottom, sloughed material.
37	1	1977	1-7	0-1	Yes	100	100	83	61	14	9	13.1%	Sand	Owner: Obie Benz Area is a small, irregular-shaped, overgrown pit with little, if any, extension. Access road is west-southwest of Town Highway No. 23, 0.60 mile southeast of its junction with Town Highway No. 25. Test No. 1 was in lowest southwestern face of pit. Material is: 0'-1' overburden; 1'-6' dirty gravel; 6'-7' fine sandy gravel; bottom, sloughed material.
38	1	1976	3-19	0-3	Yes	100	100	100	79	12	4		Sand	Owner: Lee Hunt Area is pit on east side of pasture terrace with wooded ridge outcropping 300 feet west of its western

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 35

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														face. Access road is west of Vermont Route 116, 0.05 mile northwest of its junction with State Aid Highway No. 2. Test No. 1 was in southern face of pit. Material is: 0'-3' overburden; 3'-8' sand; 8'-13' gravel; 13'-19' gravelly sand; bottom, sand and sloughed material.
	2	1976	4-22	0-4	Yes	100	93	81	66	25	14		Gran. Borrow (Sand)	Test No. 2 was in northwest face of pit. Material is: 0'-4' overburden; 4'-5' pebbly sand; 5'-8' gravel; 8'-10' sand; 10'-12' fine sand; 12'-16' gravel; 16'-22' stony sand; bottom, sloughed material.
	3	1977	0-8	--	Yes	100	91	85	78	56	36	--	--	Test No. 3 was in floor at southern end of pit. Material is: 0'-6' fine sand with silt traces; 6'-8' boulders and fine sand; bottom, boulders and fine sand.
	4	1977	0.5-4	0-0.5	Yes	100	100	100	74	21	13		Gran. Borrow (Sand)	Test No. 4 was in southern end of pasture terrace, 160 feet southwest of pit face. Material is: 0'-0.5' overburden; 0.5'-2.5' fine gravel; 2.5'-4' sand; bottom, silt-clay.
	5	1977	1-8	0-1	Yes	100	81	73	65	45	34	--	--	Test No. 5 was in terrace, 300 feet N10°W of Test No. 4. Material is: 0'-1' overburden; 1'-5' silty sand; 5'-8' bouldery silty gravel; bottom, moist, bouldery silty gravel.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 36

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
39	1	1976	River Bar		Yes	91	83	52	37	4	2	2.4%	Gravel	Owner: Lee Hunt Area is river bar northeast of New Haven River with shallow area eroded by river at southeast end. Access road is northwest of Vermont Route 116, 0.03 mile northwest of its junction with Town Highway No. 25. Test No. 1 was taken along river bar east of New Haven River. Material is coarse gravel.
40	1A	1977	0.5-8	0-0.5	Yes	93	88	75	58	6	4	14.3%	Gravel	Owner: Lewis Rheaum Area is a small, overgrown pit with an autobody shop on the floor. There is little extension however, wooded knolls and low ridges west of the pit may yield material. Private drive is west of Town Highway No. 23, 0.56 mile north of its junction with Town Highway No. 8. Test No. 1A was in upper northeast face. Material is: 0'-0.5' over-burden; 0.5'-8' gravel; bottom, Test No. 1B.
	1B	1977	8-14	--	Yes	100	100	100	100	56	13		Gran. Borrow (Sand)	Test No. 1B was below Test No. 1A. Material is: 8'-14' sand; bottom, sand and sloughed material.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 37

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
41					Yes	NO SAMPLE TAKEN								Owner: Carter Brothers Area is a large overgrown, trash-strewn pit with no extension. A house trailer is at the southern end. The northern end has a moist floor. Owners are buying granular material elsewhere.
42	1	1976	2-12	0-2	Yes	95	79	46	34	38	33	9.8%	--	Owner: Allen Rathbun Area is a small pit in the side of a wooded, stony slope at the base of a terrace. The town of Bristol has recently opened up this area. Many boulders are scattered along base of the slope and in a surrounding pasture. A field drive to the pit joins a private road 0.1 mile southeast of its junction with Town Highway No. 8, 0.13 mile northeast of its junction with Vermont Route 116. Test No. 1 was in southeast face of small pit. Material is: 0'-2' overburden; 2'-12' fine sandy gravel with silt traces; bottom, rocks and fine sandy gravel.
43	1	1976	1.5-30	0-1.5	Yes	88	84	69	51	11	7	11.4%	Gravel	Owner: Allen Rathbun Area is large, oval-shaped pit, with strippings and boulders on faces and floor, at the northwest end of a wooded, terrace-like feature which

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 38

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														may be an extension. Access road is east of Vermont Route 116, 0.22 mile south of its junction with Town Highway No. 8.
	2A	1976	1-18	0-1	Yes	100	97	80	61	11	5	3.6%	Sand	Test No. 1 was in southeast face of pit. Material is: 0'-1.5' overburden; 1.5'-12' gravel with boulders; 12'-30' gravel to fine gravel to pebbly sand; bottom, pebbly sand and sloughed material. Test No. 2A was in east-northeast face of pit. Material is: 0'-1' overburden; 1'-18' gravel; bottom, Test No. 2B.
	2B	1976	18-35	--	Yes	100	100	94	81	20	7	--	Sand	Test No. 2B was below Test No. 2A. Material is: 18'-35' layers of pebbly sand and sand, and a few seams of fine gravel; bottom, sand.
	3	1977	0-12	--	Yes	93	90	69	56	13	6	12.4%	Gravel	Test No. 3 was in floor at southern end of pit. Material is: 0'-12' sandy gravel with sand seams; bottom, same.
	4	1977	0-12	--	Yes	100	100	94	85	18	7	12.3%	Sand	Test No. 4 was in northern floor of main pit. Material is: 0'-6' gravel; 6'-10' sandy gravel; 10'-12' sandy gravel; bottom, gravelly sand with silt seam.
	5	1977	1-9	0-1	Yes	84	76	53	38	20	13	14.2%	Gran. Borrow (Gravel)	Test No. 5 was in small clearing in woods above Map Identification No. 42, and northeast of pit face at Map Identification No. 43.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 39

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														Material is: 0'-1' overburden; 1'-3' bouldery gravel; 3'-4' sand; 4'-9' coarse gravel; bottom, same.
	6	1977	1-10	0-1	Yes	100	98	78	59	8	4	13.9%	Gravel	Test No. 6 was near a stone wall in a clearing, 150 feet S30°E of Test No. 5. Material is: 0'-1' overburden; 1'-10' sandy gravel; bottom, same.
	7	1977	1-7	0-1	Yes	100	94	74	63	44	25	--	--	Test No. 7 was in a small clearing near a skid trail, 270' southeast of pit face. Material is: 0'-1' overburden; 1'-3.5' fine sand; 3.5'-4.5' sand; 4.5'-7' bouldery gravel; bottom, bouldery gravel.
	8	1977	1-12	0-1	Yes	86	77	53	25	36	24	14.1%	--	Test No. 8 was north of the stone wall, 300 feet northeast of Test No. 7. Material is: 0'-1' overburden; 1'-5' fine sandy gravel; 5'-12' gravel with silt-coated stones; bottom, gravel.
	9	1977	1-5	0-1	Yes	100	89	75	68	58	42	--	--	Test No. 9 was in east end of clearing, 205 feet east of Test No. 8. Material is: 0'-1' overburden; 1'-5' boulders and silt; bottom, ledge or large boulder.
	10	1977	1-10	0-1	Yes	100	100	84	65	29	21	--	--	Test No. 10 was in small clearing, 175 feet N15°E of Test No. 9. Material is: 0'-1' overburden; 1'-4' silty sand; 4'-10' silty bouldery gravel; bottom, silty bouldery gravel.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 40

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
44	1	1976	1-14	0-1	Yes	100	100	89	74	2	1	--	Sand	Owner: Dewey Sumner Area is overgrown pit with strippings and boulders on floor. Pit is near depletion so owner does not want to sell material, and allowed only one hand sample. Access road is southeast of Vermont Route 116, 0.38 mile south of its junction with Town Highway No. 8. Test No. 1 was in south face. Material is: 0'-1' overburden; 1'-3' sand; 3'-5' fine gravelly sand; 5'-8' sand; 8'-14' gravelly sand; bottom, gravelly sand and sloughed material.
45	1	1976	0.5-16	0-0.5	Yes	97	94	74	55	20	7	11.9%	Gran. Borrow (Gravel)	Owner: Richard Terrier Area is large, multi-level, multi-faced pit with limited, wooded extension to the north, and a wooded terrace to the east. Owner did not allow testing beyond immediate pit area. Access road is northeast of Vermont Route 116, 0.81 mile south of its junction with Town Highway No. 8. Test No. 1 was in southwest face of upper pit. Material is: 0'-0.5' overburden; 0.5'-5' gravel with sand seams; 5'-16' layers of fine sand, fine gravel, sandy gravel, and gravel; bottom, sand.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 41

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	2A	1976	4.5-16.5	0-4.5	Yes	100	96	76	60	14	9	6.9%	Sand	Test No. 2A was in upper northwest face of lower pit. Material is: 0'-4.5' overburden; 4.5'-16.5' sand and sandy gravel; bottom, Test No. 2B.
	2B	1976	16.5-36	--	Yes	100	92	85	70	8	3		Sand	Test No. 2B was below Test No. 2A. Material is: 16.5'-24' gravelly sand; 24'-28' sand; 28'-36' interbedded sand and pebbly sand; bottom, pebbly sand.
	3	1976	0.5-18	0-0.5	Yes	87	83	64	50	12	6	11.3%	Gravel	Test No. 3 was in northeast face of upper level. Material is: 0'-0.5' overburden; 0.5'-12' sandy gravel; 12'-14' sand; 14'-18' sandy gravel and gravel; bottom, sandy gravel and sloughed material.
	4	1976	0-7	--	Yes	100	100	100	89	11	5		Sand	Test No. 4 was in low east face of upper level. Material is: 0'-6' sand; 6'-7' pebbly sand; bottom, pebbly sand.
	5	1977	0.5-13	0-0.5	Yes	89	76	55	43	4	2	6.5%	Gravel	Test No. 5 was in floor at northern edge of upper level. Material is: 0'-0.5' overburden; 0.5'-2' sandy gravel; 2'-2.5' layer of uniform (1/2"-1-1/2") stones; 2.5'-8' gravel; 8'-13' gravel to sandy gravel; bottom, sandy gravel.
	6	1977	0.5-5	0-0.5	Yes	100	100	100	73	61	50	--	--	Test No. 6 was in northeast floor of uppermost level. Material is: 0'-0.5' overburden; 0.5'-2' silty gravel; 2'-5' gray till; bottom, gray till.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 42

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
	7A	1977	0.5-7	0-0.5	Yes	100	96	79	63	23	21	6.4%	--	Test No. 7A was in lower pit floor, 155 feet south of Test No. 5. Material is: 0'-0.5' overburden; 0.5'-7' fine gravel; bottom, Test No. 7B.
	7B	1977	7-13	--	Yes	100	100	96	94	14	5		Sand	Test No. 7B was below Test No. 7A. Material is: 7'-13' sand and fine sand; bottom, same.
	8	1977	0.5-13	0-0.5	Yes	83	83	62	42	4	2	10.7%	Gravel	Test No. 8 was in lower pit floor, 65 feet southwest of Test No. 7. Material is: 0'-0.5' sand; 0.5'-1' sand; 1'-2' silt; 2'-13' gravel and fine gravel with silt seams; bottom, same.
	9	1977	1-12	0-1	Yes	91	87	71	57	15	5	12.3%	Gravel	Test No. 9 was in southwest corner of lowest pit floor. Material is: 0'-1' overburden; 1'-3' sandy gravel; 3'-4' sand; 4'-10' sandy gravel; 10'-12' gravel; bottom, gravel.
46	1	1977	1-9	0-1	No	90	90	61	36	17	13	15.4%	Gran. Borrow (Gravel)	Owner: Roland Farr Area is long and narrow, wooded terrace southeast of Elephant Mountain Campgrounds. Several narrow roads and nature trails wind through the woods where the Girl Scouts rent a campsite. Access road to west edge of terrace is east of Vermont Route 116, 0.64 mile north of its junction with Town Highway No. 31.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 43

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
														Test No. 1 was in small clearing in woods east of main campground. Material is: 0'-1' overburden; 1'-9' bouldery gravel; bottom, same.
	2	1977	1-8	0-1	No	85	75	62	50	5	4	13.5%	Gravel	Test No. 2 was in small clearing, 350 feet southeast of Test No. 1. Material is: 0'-1' overburden; 1'-8' coarse gravel; bottom, same.
	3	1977	2-7	0-2	No	100	100	100	43	30	25	--	--	Test No. 3 was in a low place in the floor, 125 feet northwest of Test No. 2. Material is: 0'-2' overburden; 2'-4' silty bouldery gravel; 4'-7' bouldery gravel; bottom, bouldery gravel.
	4	1977	1.5-9	0-1.5	No	94	82	61	40	16	11	12.5%	Gran. Borrow (Gravel)	Test No. 4 was in small clearing, 425 feet northeast of Test No. 1. Material is: 0'-1.5' overburden; 1.5'-4.5' dirty bouldery gravel; 4.5'-9' bouldery gravel; bottom, bouldery gravel.
47	1	1977	0.5-10	0-0.5	Yes	100	100	100	100	33	15		Gran. Borrow (Gravel)	Owner: Harold Forbes Area is a small overgrown pit and a field with two levels nearly surrounded by woods. Pit has only a little extension to a nearby property line. Lower field has had most of the topsoil removed. Access road is east of Vermont Route 116, 0.40 mile north of its junction with Town Highway No. 31.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 44

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	2	1977	0.5-9	0-0.5	Yes	100	100	100	97	46	32	--	--	Test No. 1 was in lower southeast corner of field. Material is: 0'-0.5' overburden; 0.5'-4' silty fine sand; 4'-10' sand; bottom, moist sand. Test No. 2 was in pit floor in upper field. Material is: 0'-0.5' overburden; 0.5'-5' sand and sand with pebbles; 5'-9' sand; bottom, silty fine sand.
	3	1977	1-11	0-1	Yes	SAMPLE WAS LOST								Test No. 3 was near tree line in upper southwest corner of field. Material is: 0'-1' overburden; 1'-5' fine sand; 5'-7' sand with 4"-10" stones; 7'-9' silt-clay; 9'-11' bouldery gravel with stones up to 15 inches; bottom, bouldery gravel.
48	1	1977	1.5-10	0-1.5	No	79	79	63	52	37	26	12.9%	--	Owner: Harold Forbes Area is a large wooded terrace with cobbles and boulders scattered on the surface. One narrow access road borders the Middlebury Town Line along the south edge of terrace, and the other is 0.11 mile north of the town line; both are east of Vermont Route 116. Test No. 1 was on the terrace, 0.08 mile east of Vermont Route 116. Material is: 0'-1.5' overburden; 1.5'-10' bouldery gravel with stones up to 25 inches; bottom, same.

TABLE I

BRISTOL GRANULAR DATA SHEET NO. 45

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1-1/2"	1/2"	#4	#100	#200	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
	2	1977	1.5-10	0-1.5	No	88	73	61	50	18	13	13.3%	Gran. Borrow (Gravel)	Test No. 2 was in a small clearing, 130 feet east of Vermont Route 116. Material is: 0'-1.5' overburden; 1.5'-4. bouldery gravel; 4'-4.5' fine sand; 4.5'-8' bouldery gravel; 8'-10' coarse gravel; bottom, coarse gravel.
	3	1977	2-9	0-2	No	81	75	55	41	25	19	14.6%	--	Test No. 3 was in another small clearing near the town line, 300 feet east of Vermont Route 116. Material is: 0'-2' overburden; 2'-6' coarse bouldery gravel; 6'-9' bouldery gravel; bottom, bouldery gravel.

BRISTOL PROPERTY OWNERS - GRANULAR

TABLE I
SUPPLEMENT

Map Identification No.

TABLE II

BRISTOL
ROCK DATA SHEET NO. 1

Ident. No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHTO T-3	Abrasion AASHTO T-96	Remarks
1	1A	1976	Dolomite (Dunham)	No	Chip	2.9%	20.3%	Owner: Samuel Gordon Area is a large outcrop just east of Town Highway No. 16. The outcrop rises abruptly for 30 feet, then rises less steeply for another 50 feet to the crest, 200 feet from the road. A low flat pasture west of the road may be a suitable site for a crusher, and could be developed with a minimum of work. The rock has good relief and is hard, and could be considered a suitable source if owner will sell. Test No. 1A was taken northward for 75 feet from the center of the roadside outcrop.
	1B	1976	Dolomite (Dunham)	No	Chip	3.4%	20.4%	Test No. 1B was taken southward for 75 feet from the center of the roadside outcrop. Rock was Dunham Dolomite.
2	1A	1976	Quartzite (Cheshire)	No	Chip	2.0%	25.1%	Owner: Robert Fuller Area is a wooded, undulating ridge east of Vermont Route No. 116. Many boulders and blocks are on the slope. A nearly flat corn field south of the test location would make a good crusher location. Access is just off Vermont Route No. 116, and good visibility exists in both directions. The ledge rises more than 100 feet to the east (up toward the Starksboro Town Line). The owner recently considered opening a quarry for rip-rap, and is very willing to sell. Ledge extends beyond property line. There is an underground telephone cable west of the road, and a power line east of the road. Test No. 1A was taken for 75 feet on outcrop closest to road.
	1B	1976	Quartzite (Cheshire)	No	Chip	2.2%	33.7%	Test No. 1B was taken for 75 feet southward from Test No. 1A.

TABLE II

BRISTOL
ROCK DATA SHEET NO. 2

Ident. No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHTO T-3	Abrasion AASHTO T-96	Remarks
	2A	1976	Quartzite (Cheshire)	No	Chip	1.4%	23.6%	Test No. 2A was taken for 125 feet southward from Test No. 1B.
	2B	1976	Quartzite (Cheshire)	No	Chip	1.0%	31.5%	Test No. 2B was taken along continuation of face southeastward of Test No. 2A.
	3A	1976	Quartzite (Cheshire)	No	Chip	1.2%	27.4%	Test No. 3A was southeasterly continuation of outcrop.
	3B	1976	Quartzite (Cheshire)	No	Chip	1.0%	25.4%	Test No. 3B was southeast of Test No. 3A.
3	1A	1976	Quartzite (Cheshire)	No	Chip	2.3%	36.5%	Owner: U.S. Forest Service Area is an outcrop which parallels the east side of Town Highway No. 23. There are two nearby houses and insufficient room to set up a crusher (at first). Area is wooded and extends eastward to the "Bristol Cliffs" area. Because of the house proximity this area probably would not be considered as a source, so it was sampled to determine the nature of the material in the formation. Test No. 1A was along the northern section of ledge.
	1B	1976	Quartzite (Cheshire)	No	Chip	3.4%	33.7%	Test No. 1B was along the southern section of ledge.
4	1A	1976	Quartzite (Cheshire)	No	Chip	1.4%	27.3%	Owner: U.S. Forest Service Area is a somewhat step-like wooded slope with much talus covering the lower areas. At present, limited access is via a few logging roads east of Town Highway No. 23; however, improvement of access roads would not be much of a problem. A nearly vertical rock wall rises just east of the talus slope and has ample relief to supply a large crushing operation. The Forest Service would sell only when it would be beneficial; but because the area is within the "Bristol

TABLE II

BRISTOL
ROCK DATA SHEET NO. 3

Ident. No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHTO T-3	Abrasion AASHTO T-96	Remarks
								Cliffs" wilderness may make it prohibitive for development. Test No. 1A was from many large scattered boulders on the talus slope.
	1B	1976	Quartzite (Cheshire)	No	Chip	2.6%	24.0%	Test No. 1B was from many large scattered boulders on the talus slope south of Test No. 1A.
5	1A	1976	Dolomite (Dunham)	No	Chip	2.3%	21.6%	Owner: Lee Hunt Area is a wooded ridge west of a sloping pasture, 0.2 mile west of Vermont Route No. 116 and 0.14 mile west of the pit at granular Map Identification No. 38. Both areas have the same owner, thus minimizing right-of-way problems. Because the rock atop the ridge was heavily weathered, samples were taken from lower east slopes and boulders. There seems to be an ample reserve of rock for a large-scale crushing operation. The material is available. The area is remote enough from buildings and power lines for blasting. Granular material for development of the area is available from the pit to the east. Test No. 1A was for 75 feet along lower southeast slope of ridge and random boulders.
	1B	1976	Dolomite (Dunham)	No	Chip	2.9%	20.5%	Test No. 1B continued north for 75 feet from Test No. 1A.
	2A	1976	Dolomite (Dunham)	No	Chip	3.9%	20.2%	Test No. 2A was sampled for 75 feet from eastern edge of ridge, 360 feet north of Test No. 1B.
	2B	1976	Dolomite (Dunham)	No	Chip	3.2%	23.2%	Test No. 2B was continued for 75 feet northward from Test No. 2A.
	3A	1976	Dolomite (Dunham)	No	Chip	2.8%	23.3%	Test No. 3A was sampled for 80 feet northward, 125 feet north of Test No. 2B.

TABLE II

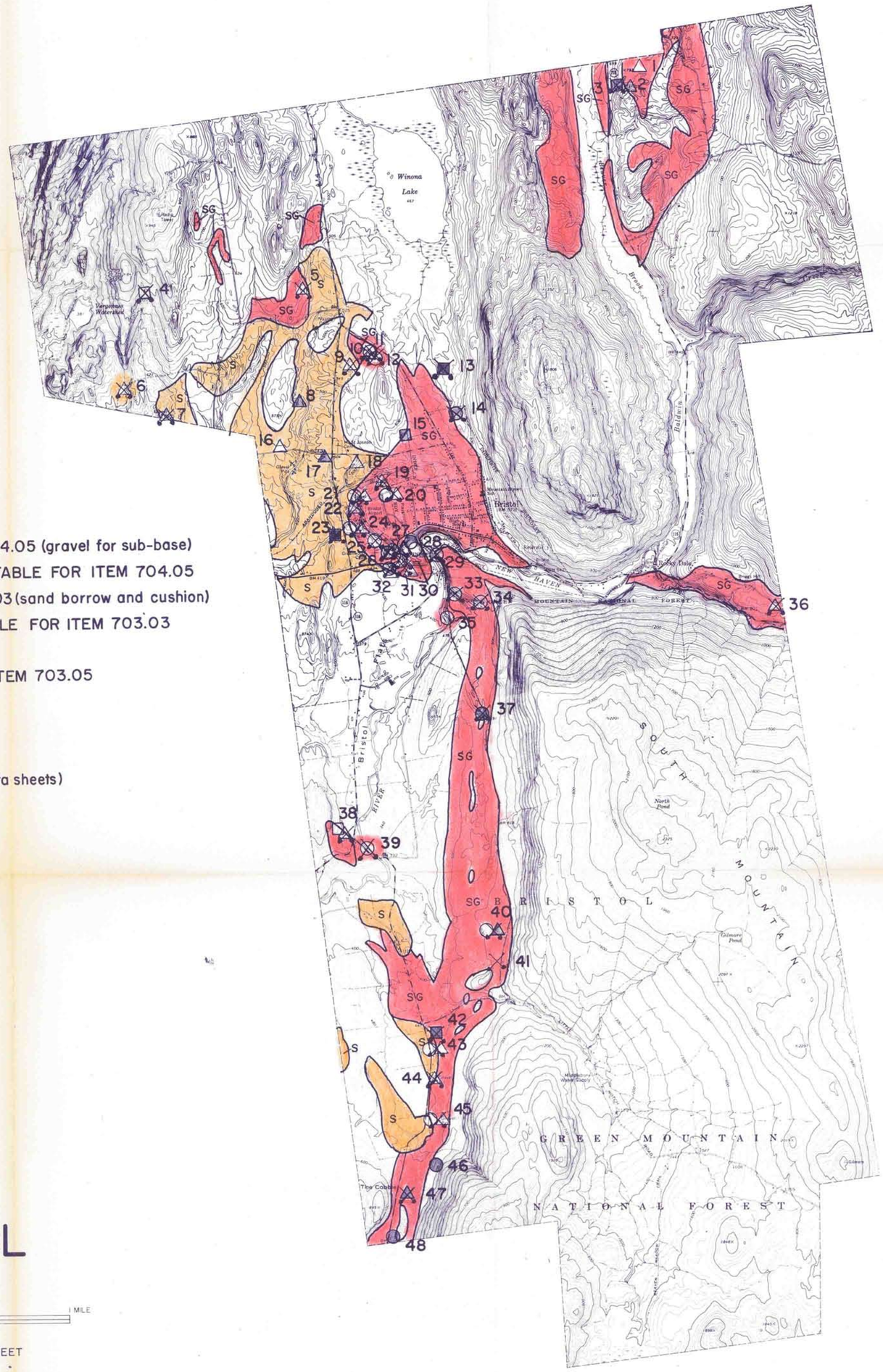
BRISTOL
ROCK DATA SHEET NO. 4

Ident. No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHTO T-3	Abrasion AASHTO T-96	Remarks
	3B	1976	Dolomite (Dunham)	No	Chip	2.8%	23.7%	Test No. 3B was continued for 80 feet northward from Test No. 3A.
	4A	1976	Dolomite (Dunham)	No	Chip	4.6%	22.2%	Test No. 4A was for 100 feet, 160 feet north of Test No. 3B.
	4B	1976	Dolomite (Dunham)	No	Chip	3.5%	22.2%	Test No. 4B was continued for 100 feet north from Test No. 4A.
6	1A	1976	Quartzite (Cheshire)	No	Chip	1.0%	22.0%	Owner: U.S. Forest Service. Area is a wooded ledge with many boulders at the base, 120 feet east of Town Highway No. 23 and 0.33 mile north of its junction with Town Highway No. 8. Access is via a nearly flat woods road less than 300 feet south of a vacant trailer and house on Town Highway No. 23. The rock is a massive quartzite with dolomitic and phyllitic sandstone near the bottom; much of the exposure was weathered. Because of a great volume of rock, this could be considered a major source. Test No. 1A was along the west-facing slope of the ledge, 120 feet east of the road.
	1B	1976	Quartzite (Cheshire)	No	Chip	2.3%	23.8%	Test No. 1B was along the ledge, 200 feet south of Test No. 1A.

BRISTOL PROPERTY OWNERS - ROCK

TABLE II
SUPPLEMENT

	Map Identification No.
Fuller, Robert	2
Gordon, Samuel	1
Hunt, Lee	5
U.S. Forest Service	3, 4, 6



LEGEND

- ○ GRAVEL, ACCEPTABLE FOR ITEM 704.05 (gravel for sub-base)
- ● GRAVEL, DEPLETED OR NOT ACCEPTABLE FOR ITEM 704.05
- △ SAND, ACCEPTABLE FOR ITEM 703.03 (sand borrow and cushion)
- ▲ SAND, DEPLETED OR NOT ACCEPTABLE FOR ITEM 703.03
- □ GRANULAR BORROW, ITEM 703.05
- ■ MATERIAL NOT ACCEPTABLE FOR ITEM 703.05
- ⨯ EXISTING PIT
- SG SAND & GRAVEL DEPOSIT
- S SAND DEPOSIT
- 3 IDENTIFICATION NUMBER (refer to data sheets)

BRISTOL

SCALE 1:31,250

0.5 0 1 MILE

CONTOUR INTERVAL 20 FEET

1978

GRANULAR MATERIALS MAP

BY

VERMONT DEPARTMENT OF HIGHWAYS

IN COOPERATION WITH

U.S. BUREAU OF PUBLIC ROADS

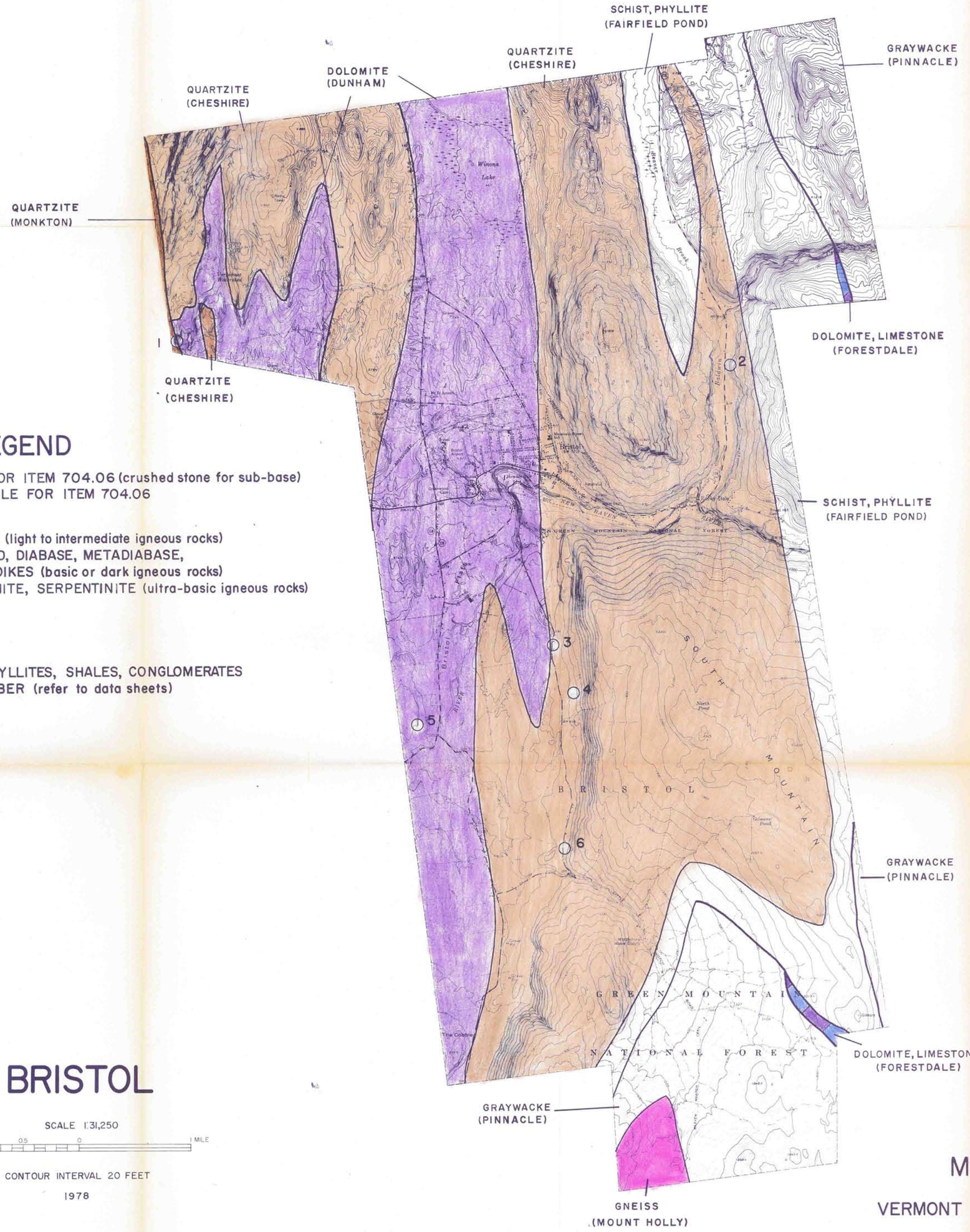
NOTE: BASED ON U.S.G.S. TOPOGRAPHIC MAPS

PLATE I GRANULAR

ADDISON COUNTY VT. HWY. DISTRICT NO. 5

REVISIONS

DATE							
BY							



N

LEGEND

- ROCK, ACCEPTABLE FOR ITEM 704.06 (crushed stone for sub-base)
- ROCK, NOT ACCEPTABLE FOR ITEM 704.06
- EXISTING QUARRY
- GRANITE TO DIORITE (light to intermediate igneous rocks)
- AMPHIBOLITE, GABBRO, DIABASE, METADIABASE, GREENSTONE, TRAP DIKES (basic or dark igneous rocks)
- PERIDOTITE, PYROXENITE, SERPENTINITE (ultra-basic igneous rocks)
- GNEISS
- QUARTZITE
- DOLOMITE
- MARBLE, LIMESTONE
- SCHISTS, SLATES, PHYLLITES, SHALES, CONGLOMERATES
- 3 IDENTIFICATION NUMBER (refer to data sheets)

BRISTOL

SCALE 1:31,250

0.5 0 MILE

CONTOUR INTERVAL 20 FEET

1978

ROCK MATERIALS MAP

BY

VERMONT DEPARTMENT OF HIGHWAYS

IN COOPERATION WITH

U.S. BUREAU OF PUBLIC ROADS

NOTE: BASED ON U.S.G.S. TOPOGRAPHIC MAPS

PLATE II

ROCK

ADDISON COUNTY VT. HWY. DISTRICT NO. 5

REVISIONS

DATE						
BY						