SURVEY OF HIGHWAY CONSTRUCTION MATERIALS
IN THE TOWN OF PEACHAM, CALEDONIA COUNTY, VERMONT

prepared by

Engineering Geology Section, Materials Division
Vermont Department of Highways

in cooperation with

United States Department of Transportation
Federal Highway Administration

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Acknowledgements

The work of this Project was greatly implemented by the cooperation and assistance of many groups and individuals. The following were particularly helpful in carrying out the Project's objectives.

1. Various departments and individuals of the Vermont State Department of Highways, notably the Planning and Mapping Division and the Highway Testing Laboratory.

2. Professor D. P. Stewart of Miami University, Oxford, Ohio.

3. Professor C. G. Doll, Vermont State Geologist, University of Vermont, Burlington, Vermont.

4. United States Department of Commerce, Bureau of Public Roads.

History

The Materials Survey Project was formed in 1957 by the Vermont State Department of Highways with the assistance of the United States Bureau of Public Roads. Its prime objective was to compile an inventory of highway construction materials in the State of Vermont. Prior to the efforts of the personnel of the Survey as described in this and other reports, searches for highway construction materials were conducted only as the immediate situation required. Thus only limited areas are surveyed, and no overall picture of material resources was available. Highway contractors or resident engineers are usually required to locate the materials for their respective projects and have samples tested by the Highway Testing Laboratory. The additional cost of exploration for construction materials is passed onto the State in the form of higher construction costs. The Materials Survey Project was established to minimize or elimate this factor by enabling the State and its contractors to proceed with information

on materials sources available beforehand. Prior knowledge of locations of suitable material is an important factor in planning future 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 for reporting the findings of the Project were designed with their intended use in mind. These maps and data sheets were devised to furnish information of particular use to the contractor or construction man. For maximum benefit, the maps, data sheets, and this report should be studied simultaneously.

Inclosures

Included in this folder are two surface-geology maps, one defining the location of tests conducted on bedrock sources, the other defining the location of tests conducted on granular materials. These maps are derived from 15-minute or 7½-minute quadrangles of the United States Geological Survey enlarged or reduced to 1:31250 or 1" = 2604'. Delineated on the Bedrock Map are the various rock types of the area. This information was obtained from numerous sources: Vermont Geological Survey Bulletins, Vermont State Geologist Reports, United States Geological Survey Bedrock Maps, and the Centennial Geological Map of Vermont, as well as other references.

The granular materials map depicts areas covered by various types of glacial deposits (outwash, moraines, kames, kame terraces, eskers, etc.) by which potential sources of gravel and sand may be recognized. This information was obtained primarily from a survey conducted by Professor D. P. Stewart of Miami University, Oxford, Ohio, who had been mapping the glacial features of Vermont during the summer months since 1956. Further

information was obtained from the Soil Survey (Reconnaissance) of Vermont conducted by the Bureau of Chemistry and Soils of the United States Department of Agricultrue, and from Vermont Geological Survey Bulletins, United States Geological Survey Quadrangles, aerial photographs, the Surficial Geologic Map of Vermont, and other sources. On both maps the areas tested are represented by Identification Numbers. Several tests are usually conducted in each area represented by an Identification Number, the number of such tests being more or less arbitrarily determined either by the character of the material or by the topography.

Also included in this folder are data sheets for both the Bedrock and Granular Materials Survey, which contain detailed information for each test conducted by the Project as well as information obtained from other sources, and including an active card file compiled by the Highway Testing Laboratory. The latter information was gathered over a period of years by many persons and consequently lacks the organized approach and detail required for effective use. The information on the cards varied widely in completeness. Transfer of information from the cards to the data sheets was made without elaboration or verification. When possible, the locations of the deposits listed in the card files have also been plotted on the maps; however, some cards in the file were not used because the information on the location of the deposit was incomplete or unidentifiable. Caution should be exercised wherever this information appears incomplete. This Project does not assume responsibility for the information taken from the card files.

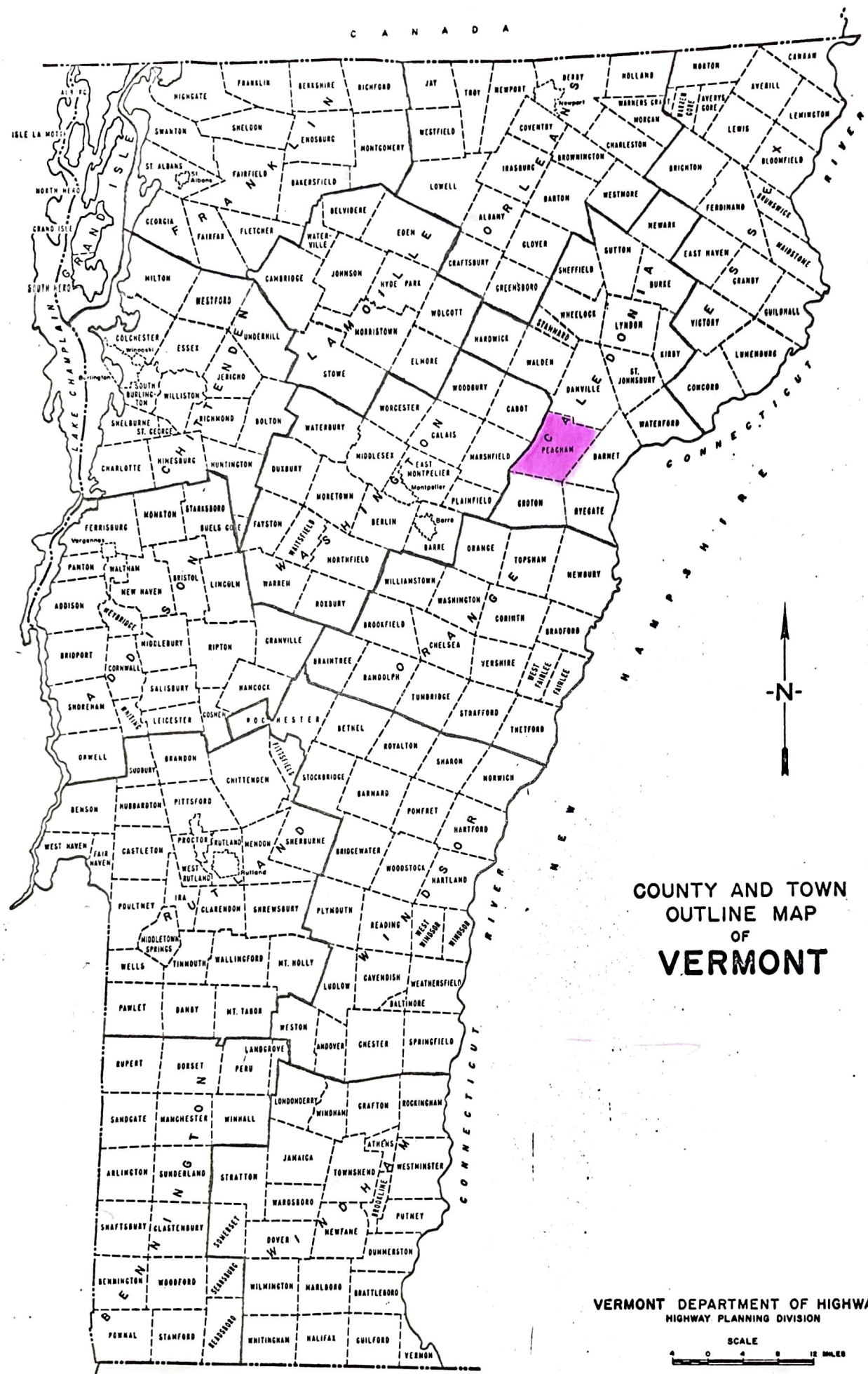
Work sheets contain more detailed information on each test and a detailed sketch of each identification Number Area. The work sheets and laboratory reports are on file in the office headquarters of this Project.

LOCATION

The town of Peacham is situated in the north-central part of the east side of Vermont, near the south corner of Caledonia County. Peacham is bounded on the north by Danville, on the east by Barnet, on the south by Groton; and by the Washington County towns of Marshfield on the southwest, and Cabot on the northwest. (See County and Town Outline Map of Vermont on the following page.)

Peacham lies within the Vermont Piedmont Physiographic Subdivision of the New England Upland. The topography is characterized by mostly low rolling hills. However, there are some fairly flat areas and also some steep scarps present on several hills and mountains. Elevations range from a high of 2,566' on Cow Hill in the northwest corner of town, to a low of 860' where Peacham Hollow Brook crosses the Barnet Town Line. Six peaks exceed 2,000' and four are between 2,265' and 2,566'. All are in the western half of the town, and are underlain by granitic rock.

Drainage is about evenly divided between the east and the west. Rake Factory, South Peacham, and Peacham Hollow Brooks flow eastward into Barnet. Both Hosmer Brook, which drains Osmore Pond, and Coldwater Brook flow south into Groton Pond. Kidder Brook flows west into Hooker Brook in Cabot; Peacham Pond drains westward toward Molly's Pond Reservoir, which flows west to the Winooski River. Goslant Pond, in the southwest corner of town, is drained by Marshfield Brook which flows northwestward into Marshfield.



COUNTY AND TOWN OUTLINE MAP OF VERMONT

VERMONT DEPARTMENT OF HIGHWAYS
HIGHWAY PLANNING DIVISION

SCALE
4 0 4 8 12 MILES

AUGUST 1967

SURVEY OF ROCK SOURCES

Procedure for Rock Survey

The routine 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 primarilty during the winter months and comprises the mapping and description of rock types as indicated in various reference sources. Many different sources of information are utilized, as indicated in the bibliography. These references differ considerably in dependability due to new developments and studies that have contributed to the obsolescense of a number of reports. In addition, the results of samples taken by other individuals are analyzed, and the location at which these samples were taken is mapped when possible. In other words, as complete a correlation as possible is made of all the information available concerning the geology of the area under consideration.

The field investigation is begun by making a cursory preliminary survey of the entire area. The information obtained in the preliminary survey, together with the information assimilated in the office investigation, is employed to determine the areas where testing and sampling will be concentrated. When a promising source has been determined by rock type, volume of material, accessibility, and adequate exposure and relief, chip samples are taken with a hammer across the strike or trend of the rock. The samples are submitted to the Material Testing Laboratory for abrasion testing both by the Deval Method (AASHO T-3) and the Los Angeles Method (AASHO T-96). It should be kept in mind that the samples taken by the chip method are often within the weathered zone of the outcrop and consequently may give a less satisfactory test result than fresh material deeper in the rock structure. When the material is uniform and acceptable abrasion tests result from the chip samples, the material source is included in this report as being satisfactory.

Discussion of Rock and Rock Sources

It should be noted that information on the Rock Materials Map is somewhat simplified. (For a more detailed description of the respective rock formations, see the Summary included in this report.) In the Summary it is apparent that complex metamorphic rocks underlie the lithology within the eastern two-thirds of Peacham. The remainder of the town is underlain by undifferentiated granitic rocks.

Occasionally, rocks belonging to the same formation and exhibiting similar characteristics (i.e. color, texture, etc.) may produce different abrasion results owing to different physical and chemical properties. Therefore, in no case should satisfactory test results of an area be construed to mean that the same formation, even in the same area, will not later produce unsatisfactory material. This is especially true of metamorphic rocks.

Peacham is overlain by much glacial debris and is heavily wooded. The eastern three-fifths of the town is underlain by the phyllite and thin-bedded limestone of the Waits River Formation. Material from this formation is not suitable for Crushed Stone for Sub-base in Peacham. There were no outcrops of the Waits River Formation extensive enough to sample.

The western two-fifths of the town is underlain by granitic rock. Although two locations were sampled, several other possible sources were too heavily forested, lacked access; or were not sufficiently exposed to sample. Devil's Hill, a vertical scarp, was inaccessible for sampling, however the base of its steep west slope could be developed by constructing an access road around the north end of the feature. Its gentle, forest-covered east slope did not have any visible outcrops.

Granitic rock at Map Identification No. 1, taken from random blocks at the southwest base of Macks Mountain, produced material suitable for Crushed Stone for Sub-base. This source would be favorable because the magnitude of its

reserves, high relief, and isolation from human settlements. Access would be improved by widening the present road, and by improvement of the Old Lanesboro Road to Peacham Corner, north of Peacham Pond. Presently, quite a bit of lumbering is being carried on in the area.

Granitic rock from Map Identification No. 2, at the northeast base of Spice (or Spicer) Mountain, failed the abrasion tests for Crushed Stone for Sub-base. It should be noted that the random blocks that were sampled probably had a higher degree of weathering than the parent rock. It was also noted that the mineral grains in the rock were quite large, (up to ¼" in diameter), and this would be a factor contributing to excessive wear results.

SURVEY OF SAND AND GRAVEL SOURCES

Procedure for Sand and Gravel Survey

The method employed by the project in a 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 primarily during the winter months and comprises the mapping of possible potentially productive areas as indicated from various references. Of these references, the survey of glacial deposits mapped by Professor Stewart proves to be valuable, particularly when used in conjunction with other references such as 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. In addition, the locations of existing pits are mapped when known. The locations in which samples were taken by other individuals are noted and mapped when possible.

The field investigation is begun by making a cursory preliminary survey of the entire town. All pits and other areas which show physiographic features that give evidence of glacial or fluvial deposition are noted. These locations are later investigated by obtaining samples of pit faces and other exposed materials. Test pits, dug with a backhoe to a depth of approximately 11 feet, are also sampled. The samples are submitted to the Materials Testing Laboratory where they are tested for gradation and stone abrasion, the latter by the Deval Method (AASHO T-4), and the Los Angèles Method (AASHO T-96).

Dicussion of Sand and Gravel Deposits

Granular materials in Peacham are very scarce. The town draws in gravel from Walden. There were no areas mapped as granular sources in Peacham. Two pits yielded one passing sand sample each; another pit yielded acceptable granular borrow, and one non-pit area had acceptable granular borrow. Most of the material failed due to a high fines content.

Peacham had too little mantle and too high an elevation for granular deposits of worthwhile size to be formed. Its topography has been greatly influenced by closeness of bedrock to the surface. The little mantle that occurs covers mostly glacial till.

A pit near Peacham Pond had one passing sand sample. Another small, recently opened, shallow pit had a passing sand sample. However, this area (at Map Identification No. 10) is a thin deposit of localized fluvial sand and gravelly sand, and required a great amount of work by the bulldozer operator to sort the coarser material from the silt.

The areas sampled in Peacham ranged in elevation from 930' to 1,640'. The neighboring towns of Groton, Ryegate, Barnet, Danville and Marshfield have granular deposits at lower elevations. Being downstream from Peacham, their brooks had a greater volume of water and thus materials were more sorted and water-worked than in Peacham.

SUMMARY OF ROCK FORMATIONS IN THE TOWN OF PEACHAM

Undifferentiated Granitic Rocks- Fine to coarse-grained granitoid rocks including granodiorite and quartz monzonite occuring as sills.

Waits River Formation - Gray quartzose and micaceous crystalline limestone weathered to distinctive brown earthy crust; interbedded and intergradational with gray quartz-muscovite phyllite or schist. Where more metamorphosed the limestones contain actinolite, hornblende, zoisite, diopside, wollastonite, and garnet, and the phyllite and schist, biotite, garnet, and locally andalusite, kyanite or sillimanite.

GLOSSARY OF SELECTED GEOLOGIC TERMS

Glaciofluvial - A term used to denote formation by or relation to streams within, upon or emerging from glacial ice.

Granitoid - A term applied to those igneous rocks having the characteristic texture of granite. The mineral grains may be fine or coarse but are nearly uniform in size.

Igneous rocks - Rocks formed by the solidification of hot mobile rock material.

Joint - A fracture or parting plane along which there has been little if any movement parallel with the walls.

Kame - A conical hill of generally poorly stratified drift deposited in contact with glacial ice by streams flowing in or on the ice.

Kame Terrace - Stratified sands and gravels deposited by streams between a glacier and an adjacent valley wall.

Metamorphic rocks - Rocks that owe their distinctive characteristics to the transformation of pre-existing rocks, either through intense heat or pressure or both.

Talus - An accumulated heap of rock fragments derived from, and lying at the base of, a cliff or very steep slope. The fragments may be large or small and the aggregate heap usually has a form determined by gravity and the angle of rest of the material involved. The term should not be used for any loose, fragmental rock lying on a slope, but is restricted to occurences where there is a projecting mass or cliff from which the fragments were obviously derived.

Till - An unsorted, unstratified and unconsolidated heterogenous mixture of clay, silt, sand, gravel and boulders deposited directly by glacial ice.

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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 in July, 1971.

DIVISION 700 - MATERIALS

Section 703.03, Soils and Borrow 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 - Gradation Requirements

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, and organic material.

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

Table 703.05A - Gradation Requirements

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.

Section 704, Aggregate

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 - Gradation Requirements

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 AASHO T 4, or more than 40 when tested in accordance with AASHO 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 - Gradation Requirements

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 AASHO T 3, or the crushed stone a percent of wear of not more than 40 when tested in accordance with AASHO T 96.

(d) Thin and Elongated Pieces
Not more than 30 percent, by weight, of thin and elongated peices 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 - Gradation Requirements

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves Total Sample
1"	100
3/4"	90-100
1/2"	50- 90
No. 4	30- 70
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 - Gradation Requirements

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 AASHO T 4, or the crushed gravel a percent of wear of not more than 35 when tested in accordance with AASHO T 96.

(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 - Gradation Requirements

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves Total Sample
1"	100
3/4"	90-100
1/2"	50- 90
No. 4	30- 70
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 - Gradation Requirements

Grading	Sieve Designation	Percentage by Weight Passing Square Mesh Sieves Total Sample	Sand Portion
	4"	100	
Coarse	No. 4	25- 50	100
	No. 100		0- 20
	No. 200		0- 12
	2"	100	
	1½"	90-100	
Fine	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 AASHO T 4, or the crushed gravel a percent of wear of not more than 35 when tested in accordance with AASHO 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 - Gradation Requirements

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 AASHO T 3, or the crushed stone a percent of wear of not more than 40 when tested in accordance with AASHO 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 - Gradation Requirements

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 - Gradation Requirements

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

PEACHAM 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						Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						2"	1½"	½"	#4	#100	#200			
1	1A	1972	1-10	0-1	Yes	100	77	76	72	26	12	-----	Sand	Owner: D. Bruce Clewley (formerly George Jewitt). Area is a long, 900' X 300', hummocky field which has a pit near its west end. Area is south of Town Highway No. 61 and north of Peacham Pond. Test #1A was on upper part of 14-foot east face. Log of test: 0-1', silty sod; 1'-2', pebbly sand; 2'-3', boulder layer; 3'-4', silt and angular stones; 4'-10', interbedded silty sand and sand; bottoms at 10' on boulders or stones (hard digging).
	1B	1972	10-14	----	Yes	100	100	98	93	31	16	--------	----	Test #1B: 10'-14', interbedded sand, pebbles, silt; very hard-packed.
	2	1972	0.5-7	0-0.5	Yes	100	100	88	84	38	17	------	----	Test #2 was dug in floor, 35' S70°W of Test #1. Log of test: 0-0.5', overburden; 0.5'-7', sand with some pebbles; bottoms at 7' on hard angular boulders.
	3	1972	1-7	0-1	No	66	57	54	50	63	42	------	-----	Test #3 was dug on knoll in field, 225' N80°E of Test #1. Log of test: 0-1', sod; 1'-7', silty sand with angular stones; bottoms at 7' on boulders.
2	1	1972	3-10	0-3	Yes	100	100	87	80	52	33	------	----	Owner: Allison Nevers. Area is a wooded hummocky area with pit

PEACHAM 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						Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						2"	1½"	½"	#4	#100	#200			
														south of Town Highway No. 61, and north of Peacham Pond. This pit has been used mostly to supply granular material for development roads and home sites. Test #1 was a hand-shovel sample of face in northwest corner of pit. Log of test: 0-3', silty overburden; 3'-4', fine sand; 4'-6', pebbly fine gravel; 6'-10', sand with silt seams; 10'-18', sloughed material.
	2	1972	1-11	0-1	Yes	100	100	100	95	36	14	------	Gran. Borrow (Sand)	Test #2 was a hand-shovel sample of the north face near the center of the pit, 85' S40°E of Test #1. Log of test: 0-1', silty overburden; 1'-9', silty fine sand; 9'-11', pebbly sand; 11'-16', sloughed material.
	3	1972	6-15	0-6	Yes	100	100	100	100	70	23	-----	----	Test #3 was a hand-shovel sample of the north face in the southeast part of pit, 100' S20°E of Test #2. Log of test: 0-6', silty overburden; 6'-15', silty fine sand; 15'-24', sloughed material.
3	1	1972	0.5-2.5	0-0.5	Yes	71	71	71	59	35	24	-----	----	Owner: James M. Quimby, Jr. Area is a small, depleted pit northwest of curve in Town Highway No. 28; the access is 0.77 mile west of the junction of Town Highway No. 8 and No. 28. The pit is very shallow. It looks like the

PEACHAM 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						Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						2"	1½"	½"	#4	#100	#200			
														area has been bulldozed over. Test #1 was in center of old pit area. Log of test: 0-0.5', over-burden; 0.5'-2.5', silt, with some fine sand, and rock fragments. No further testing was needed.
4	1	1972	1-7.5	0-1	No	100	97	91	86	31	15	-----	Gran. Borrow (Sand)	Owner: James M. Quimby, Jr. Area is a knolly field with planted pines, southeast of curve in Town Highway No. 28; the access is 0.78 mile west of the junction of Town Highway No. 8 and No. 28. Test #1 was on a small knoll in planted pine field, 120' south of Town Highway No. 28. Log of test: 0-1', overburden; 1'-3', sandy material; 3', stone fragments; 3.5'-7.5', rotten rock fragments and soft, pulverized (weathered) rocks; bottoms on dense, hard-packed, rotten rock.
5	1	1972	2-4.5	0-2	No	79	79	79	73	44	29	-------	-----	Owner: M.J. Priester. Area is a sloping, grassy field southeast of Town Highway No. 28, and east of field with planted pines at Map Identification No. 4. Test #1 was at north edge of field, south of Town Highway No. 28, 325' west of access into field,

PEACHAM GRANULAR DATA SHEET NO. 4

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing 2"	1½"	½"	#4	#100	#200	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
														and 580' west of bar-way. Log of test: 0-2', sod; 2'-4.5', well-packed, soft, rotten rock fragments which crumble to a sand-like material; bottoms at 4.5' on bedrock.
6	1	1966	12-30	0-2	Yes	64.8	50.8	43.2	36.7	31	9 (#270)	55.2%	Gran. Borrow (Grav.)	Owner: Eugene Nunn. Area is pit on west side of State Aid Highway No. 1, 0.20 mile south of its junction with State Aid Highway No. 2. Pit shows some vague stratification. The top 18' above Test #1 was fine silty gravel. One thick bed of boulders goes to hard-packed silty sand with stones; bottoms in silt. Middle part of pit is very cobbly (1966), many boulders in piles. From the west part to the center of the pit is not as stony. Test #1 was at east end of face.
	2	1972	6-12	0-2	Yes	94	88	75	66	35	18	41.6%	----	Test #2 was on the northeast face. Log of test: 0-2', over-burden; 2'-6', not accessible; 6'-12', silty gravel with stones that look soft. There is very poor sorting. The material is almost a till. The floor had water on it.
7	1	1966	0.5-8	0-0.5	No	86.6	77.3	70.3	63.9	34	11.5 (#270)	---	----	Owner: James Kent (formerly Arthur Sunbury). Area is edge of field above State Aid Highway No. 2, 0.07 mile southeast of its junction with

PEACHAM 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						Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						2"	1½"	½"	#4	#100	#200			
														State Aid Highway No. 1. Area was not resampled in 1972 because it had been smoothed and grassed over. Test #1 was dug above road bank in small field. Material is angular to sub-angular stones with silt, minor sand, and a few boulders. Some material had been taken out of southeast side of knoll and was used for borrow on State Aid Highway No. 2.
8	1	1966	0-17	strip-ped	Yes	60.3	51.6	46.2	41.4	34	11.8	----	----	Owner: William Goss (formerly Norman Blair) Area is pit on northeast side of State Aid Highway No. 2, 0.53 mile southeast of its junction with State Aid Highway No. 1. Test #1, 1966, was on face near middle of pit. Material is a bouldery, silty gravel with angular stones. Sand is minor and very silty. Many huge boulders and blocks in pit. Bottoms on silt.
	2	1972	0-6	Strip-ped	Yes	91	77	68	59	28	13	---	Gran. Borrow. (Grav.)	Test #2 was dug on the north central face of pit. Log of test: 0-6', rock fragments, silt, some sand and pebbles. Bottoms on boulders.
9	1	1966	0-13	Strip-ped	Yes	66.9	59.5	44.2	39.3	25	8.8 (#270)	59.6% and 64.0%	Gran. Borrow (Grav.)	Owner: Warren Farrington Area is a pit on the northeast side of State Aid Highway No. 2,

PEACHAM GRANULAR DATA SHEET NO. 6

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing						Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						2"	1½"	½"	#4	#100	#200			
														1.22 miles southeast of its junction with State Aid Highway No. 1. As of 1972 the material was being used for fill in the town dump across the road. Test #1 was a hand sample of upper north face at back of pit. Sampled frozen material. Top 8' or 10' was rocks, silt and angular soft-looking stones. Below that was silty sand with pebble-sized rock fragments. Extra stone was taken from toe of slope.
	2	1966	3-18	Stripped	Yes	76.2	71.2	64.2	58.4	58	24.3 (#270)	---	----	Test #2 was dug on lower face in front of back face (still on upper level of pit). Material is silt or silty sands and stones, with top 3' like Test #1; bottoms on blocks or ledge.
	3	1966	0.5-6	0-0.5	Yes	87.5	79.5	72.2	62.6	46.0	17.5 (#270)	----	----	Test #3 was dug at west end of upper level, 80' west of Test #2. Material is poorly sorted stones, rock fragments and silt. Many boulders over 1 cubic yard in size were noted on pit floor.
	4	1972	0-6	Stripped	Yes	88	81	66	56	31	16	54.1%	-----	Test #4 was a hand shovel sample of the upper northeast face in the back (western) part of pit. Log of test: 0-6', silt and angular stones. Material is probably a till, or a poorly developed kame or kame terrace which did not get enough water to sort the material.

PEACHAM 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 AASHO T-4-35	Passes VHD Spec.	Remarks
						2"	1½"	½"	#4	#100	#200			
10	1	1972	1-7	0-1	Yes	100	97	94	87	24	11	----	Sand	Owner: Charles S. White Area is small shallow pit near Peacham Hollow Brook, east of Town Highway No. 44, south of brook, and south of State Aid Highway No. 2. Material was being drawn out by Clifton Wright in very limited amounts (10/72). Pit appeared to have been worked considerably to get a little usable material. Much water occured a foot below the floor. Test #1 was a hand shovel sample of the south face in the northwest end of pit. Log of test: 0-1', overburden; 1'-7', silt and rock fragments. Many of the rock fragments are noticeably soft; several were soft enough to be crumbled by hand to a soil-like residue.

TABLE I
Supplement

PEACHAM PROPERTY OWNERS - GRANULAR	Map Ident No.
Clewley, D. Bruce	1
Farrington, Warren	9
Goss, William	8
Kent, James	7
Nevers, Allison	2
Nunn, Eugene	6
Priester, M.J.	5
Quimby, James M. Jr.	3,4
White, Charles S.	10

PEACHAM ROCK DATA SHEET NO. 1

Ident No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHO T-3	Results
1	1A	1972	Granite	No	Chip	4.0%	Owner: Mrs. Hilda Mooney. Area is steep talus slope at southwest base of Mack's Mountain. Test #1A was of random blocks, 0-75'. The rock was gray, to nearly white, fine- to medium-grained granitoid rock. The rock broke nearly blocky (with some pieces a bit sub-angular). There is an adequate volume of rock, both in the talus slope and the scarp itself, to supply a crushing operation. The access road would have to be improved, but that would not be a major job. The survey also determined that highway commissioners in some of the surrounding towns would avail themselves of the source if it were developed. Access may have to be detoured around Avery Greenwood's property. Test #1A had an abrasion result of 72.1% for AASHO T-96.
	1B	1972	Granite	No	Chip	6.0%	Test #1B was of random blocks, 75'-150'. Test #1B had an abrasion result of 74.4% for AASHO T-96.
2	1A	1972	Granite	No	Chip	8.7%	Owner: Vermont Dept. of Forests and Parks. Area is the talus slope at the northeast base of Spice (or Spicer) Mtn. Access is good via the State Forest Highway; however material would not be made available. Samples were taken from random blocks. Test #1A was 0-75', Test #1A had an abrasion result of 97.5% for AASHO T-96.
	1B	1972	Granite	No	Chip	14.4%	Test #1B was 75'-150' and had an abrasion result of 97.7% for AASHO T-96. The high percent of wear may be due to: (a) Fairly large mineral crystal sizes and (b) Severe weathering conditions.

PEACHAM ROCK DATA SHEET NO. 2

Ident No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHO T-3	Results
							Perhaps specification material could be obtained from unweathered bedrock. It is highly unlikely that it would be available even if future testing showed it to be specification material.

TABLE II
Supplement

PEACHAM PROPERTY OWNERS - ROCK	Map Ident. No.
Mooney, Joseph (Estate)	1
Vermont Dept. of Forest and Parks (Groton State Forest)	2

LEGEND

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

PEACHAM

SCALE 1:31,250

CONTOUR INTERVAL 20 FEET

1973

GRANULAR MATERIALS MAP

BY

VERMONT DEPARTMENT OF HIGHWAYS

IN COOPERATION WITH

U.S. BUREAU OF PUBLIC ROADS

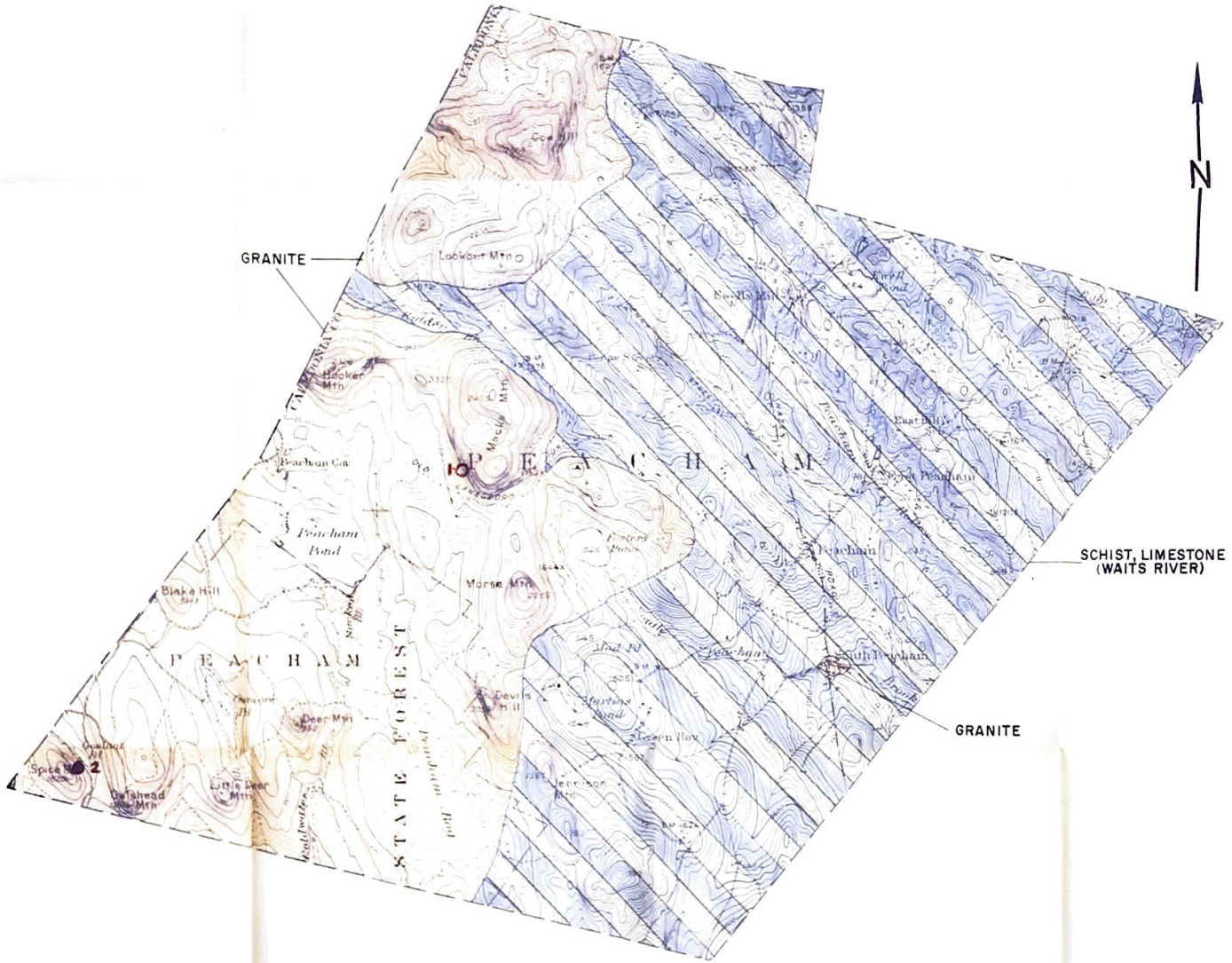
NOTE: BASED ON U.S.G.S. TOPOGRAPHIC MAPS

CALEDONIA COUNTY VT. HWY. DISTRICT NO. 7

REVISIONS

DATE						
BY						

PEACHAM



LEGEND

- ROCK, ACCEPTABLE FOR SEC. 704.06 (crushed stone for sub-base)
- ROCK, NOT ACCEPTABLE FOR SEC. 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)

PEACHAM

SCALE 1:31,250

CONTOUR INTERVAL 20 FEET

1973

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

CALEDONIA COUNTY VT. HWY. DISTRICT NO. 7

REVISIONS DATE BY