

SURVEY OF HIGHWAY CONSTRUCTION MATERIALS
IN THE TOWN OF IRASBURG, ORLEANS COUNTY, VERMONT

prepared by

Engineering Geology Section, Materials Division
Vermont Department of Highways

in cooperation with

United State Department of Commerce
Bureau of Public Roads

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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 were 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 eliminate this factor by enabling the State and its contractors to proceed with information

on material 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 being conducted by Professor D.P. Stewart of Miami University, Oxford, Ohio, who has been mapping the glacial features of the State 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 Agriculture, and from Vermont Geological Survey Bulletins, United States Geological Survey Quadrangles, aerial photographs, 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 Irasburg is located in central Orleans County in the north part of the state. It is bounded on the north by Coventry, on the east by Brownington and Barton, on the south by Albany, and on the west by Lowell and Newport Towns. (See County and Town Outline Map of Vermont on the following page.)

It is in the Vermont Piedmont Physiographic Region, a stream-dissected and glacially-modified plateau east of the Green Mountains.

Much of the town lies in the northward-draining Black River Valley which is flanked on the west by the Lowell Mountains and on the east by low hills ranging in elevation from about 1,000 feet to about 1,500 feet. Drainage is via numerous small brooks and creeks which flow into the Black River. The northeast corner of Irasburg drains northeastward into the valley of the Barton River.

Higher hills in the east part of town, notably Allen Hill and Butternut Hill; are upheld by granitic rocks which have intruded limestones and phyllites of the Waits River Formation. Irasburg Mountain, in the southwest corner of town, is also granitic.

SURVEY OF ROCK SOURCES

Procedure for Rock Survey

The routine employed by the project in the survey of possible sources of rock for highway construction is divided into two main stages: office investigation and field investigation. The first is conducted primarily during the winter months and comprises the mapping of rock types as indicated in various reference sources. Many different sources of information were utilized, as indicated in the bibliography. These references differ considerably in dependability due to new developments and studies contributing to the obsolescence of a number of reports. In addition, the results of samples taken by other individuals are analyzed, and the location in 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 second stage of the investigation is begun in the field by making a cursory preliminary survey over the entire area. The information obtained in this survey, together with the information assimilated in the first stage of the investigation, is employed to determine the areas in which the testing and sampling will be concentrated. When a promising source is encountered as determined not only by rock type but also by volume, accessibility, and the existence of a good working face, chip samples are taken with a hammer and submitted to the Highway Testing Laboratory for testing by the Deval Method (AASHO T-3). It is kept in mind that the samples taken by the chip method are often in the weathered zone of the outcrop and consequently may show a less satisfactory test result than the fresh material deeper in the body of the rock structure. When deemed necessary, further samples are taken by drilling to a depth of approximately 3 feet and blasting across the strike or trend of the outcrop. When the material is uniform and satisfactory tests result from the chip samples, no further drilling, blasting, or sampling is done, and the material source is included as being satisfactory.

Discussion of Rock and Rock Sources

Metamorphic rocks are well represented in the town of Irasburg. Crystalline limestones, schists, slates, phyllites, and quartzites predominate with greenstones, granulite and metamorphosed conglomerates present in places. In general, the slates, schists, and phyllites could not be quarried for Sub-base of Crushed Rock, and where a quarry operation encountered these types interbedded with the more durable limestones, quartzites, and greenstones, the crushed product would be quite variable and therefore undesirable.

Very few exposures of sufficient size to locate a quarry operation, and predominantly of the durable, uniform rock types were found by the Materials Survey Party. A pasture outcrop of greenstone and minor schists and quartzites located on the west side of Town Highway No. 16 in the northwest part of town was investigated. Smooth, rounded exposures of little relief occur over a small area. No chip samples could be taken that would represent a quarry-size section of rock, and sampling by drilling and blasting is recommended.

Scattered exposures of limestone and phyllite were observed along the ridge between the proposed location of Interstate 91 and the Canadian Pacific Railroad tracks in the northeast corner of town. Outcrops were not numerous enough to sample. Possibly construction will uncover sufficient limestone to encourage exploration.

Construction for the relocation of Vt. Rte. 58 through Stony Hill has exposed quartzose limestones and thin phyllites or slates of the Ayers Cliff Member of the Waits River Formation. Both fresh rock and weathered outcrops were sampled. (See Plate II and Table II.) Fresh material easily met abrasion requirements for Sub-base of Crushed Rock.

However, the rock varies from massive to slabby and fissile, and the more thinly-bedded material would have to be worked around in the quarry to avoid crushing a product contaminated by thin pieces.

Elsewhere only exposures of schists, slates, and phyllites or scattered individual outcrops of limestone were found. Numerous exposures found in brook beds are of insufficient area and of too difficult access for consideration as sources of Sub-base of Crushed Rock.

Large areas of granitic rock have been mapped on Dr. C. G. Doll's Centennial Geologic Map and in the Vermont Geological Survey Bulletin No. 3. Five areas were investigated and four were sampled. These areas, Map Identification Nos. 1, 2, 3, and 4, are located in a large mapped exposure of granitic rock in the east part of town underlying high hills north of Mud Pond, notably Allen Hill and Butternut Hill, and extending eastward into Barton.

Map Identification No. 1 is located a short distance west of Barton, Map Identification No. 3 near the Barton Town Line. A small, smooth exposure of granitic rock, with little relief was sampled. The granite may be a sill, although none of the intruded metasediments were exposed. The sample met abrasion requirements for Item 204, in spite of the fact that somewhat weathered rock was included. Unless a larger area with sufficient thickness of granitic rock to start a working face were discovered by drilling, this property would not be a suitable source of Item 204.

Sporadic exposures of badly-weathered granitic rock and quartz schists or phyllites were sampled from atop Allen Hill in Map Identification No. 2. The granite appears to be in sills which intrude the metasediments. The rock sampled failed to meet abrasion requirements for

Item 204.

Map Identification No. 3 is a small exposure of granite which is probably a sill located on a low rise in an alder swamp on the north side of Vt. Rte. 58. The poorly-drained area lies at the south foot of Butternut Hill. Although the sample met abrasion requirements for Item 204, the area exposed is quite small, of little relief, is wooded, and would not be a good quarry location.

The steep east slope of Butternut Hill appears to offer the best potential for a quarry operation, although numerous springs lie below the steep slope on the south-southeast side. Blasting might be blamed for any failure of or diminution in flow in the springs.

The fine-to coarse-grained granite is probably a succession of sills intruding steeply-dipping limestone and schist or phyllite beds. Two samples were taken covering a vertical height of 80 feet and a slope distance of about 220 feet. Both samples met abrasion requirements for Item 204. Drilling is recommended to determine the relationship of the granitic rock and metasediments. Access in to the slope is about 0.30 mile along Town Highway No. 31 and a pasture drive leading off Town Highway No. 21.

Another large mapped granite area is located south of Brighton School west of Round Hill in the west part of town. Only scattered blocks and boulders were observed in a reconnaissance by the Materials Survey Party. Irasburg Mountain is shown to be composed of granite, but no workable exposures were seen along its wooded slopes which are of very difficult access.

A small body of the Coburn Hill Volcanic Member of the Missisquoi Formation is shown on the Centennial Geologic Map of Vermont on the west

slope of Irasburg Mountain south of the end of Town Highway No. 36. The greenstones and amphibolites of this member could not be found.

SURVEY OF SAND AND GRAVEL SOURCES

Procedure for Sand and Gravel Survey

The method employed by the project in the survey of possible sources of sand and gravel for highway construction is divided into two main stages: office investigation and field investigation. 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 recognizing and locating physiographic features indicating glacial deposits and in studying drainage patterns. In addition, the location of existing pits are mapped when known. The locations in which samples were taken by other individuals are noted and mapped when possible.

The second stage of the investigation is begun in the field by making a cursory preliminary survey over the entire area noting areas which show physiographic features giving evidence of glacial or fluvial deposits. These locations are later examined by digging test pits with a backhoe to a depth of approximately 11 feet and then sampling the material. The samples are submitted to the Highway Testing Laboratory where they are tested for gradation and stone wear, the latter by the Deval Method (AASHTO T-4-35).

Discussion of Sand and Gravel Deposits

The granular materials in the town of Irasburg consist predominantly of sands, gravelly sands, and gravels of ice-contact, specifically kame moraine and kame terrace origin. Pebbly to fine silty sands of glaciolacustrine origin have been mapped by Dr. D. P. Stewart as occurring sporadically along either side of and above the valley of the Black River which formerly was the site of a large glacial lake. Map Identification Numbers 6, 7, 9, 11, 12, 64, and possibly 29 and 30 were areas in which lake sands were sampled. Lake-bottom silts to clays were encountered in a number of test locations along Vt. Rte. 14 to near its junction with Vt. Rte. 58.

By far the main quantity of granular materials are found in deposits of ice-contact origin. Probably kame terraces are located on Vt. Rte. 14 near the Albany Town Line, on a west slope east of Irasburg Village above a tributary of the Black River, west and north of Brighton School on either side of Vt. Rte. 58, and along Town Highway No. 8 between Town Highways No. 26 and No. 15.

Numerous pits have been opened in these features and gravels and sand acceptable for highway usage were sampled. Map Identifications Numbers 3, 4, 15, 20, 21, 22, 24, 25, 49, 41, 45, and 48 were areas in which acceptable construction materials were encountered. The sands range from fine to pebbly or gravelly, and are often too stony for Item 202. The gravels are characterized by poorly-sorted silty sands and rotten stones in places interlayered with fairly clean gravels, pebbly beds, and boulder-cobble beds.

Kame moraine deposits are exposed and were sampled in a long area between Vt. Rte. 14 and Town Highway No. 8 in the north-central part of

town. The deposits are mainly gravelly sands often with excess stones for Item 202. A large pit complex located about 0.90 mile north of the junction of Vt. Rtes. 14 and 58 was extensively sampled, and large quantities of sand are available in the pits and their northeast to northwest extensions.

Acceptable gravels in large quantities were available at the time sampled in Map Identification Numbers 59, 60, 63, and 66. Smaller quantities were encountered in Map Identification Numbers 58, 67, and 69. Acceptable sands were sampled in Map Identification Numbers 69, 70, and 73.

The kame moraine topography is gently to steeply rolling, is wooded in part, and intermittent drainages have developed. A possible exposure of bedrock was observed near Map Identification Number 53, and a few granitic boulders were in evidence near Map Identification Numbers 52 and 57. Silts and silty sands were encountered at all elevations on the kame moraine so no general statement can be made as to what level the acceptable coarse materials occur.

An interesting feature located southwest of Map Identification No. 54 is a large bowl-shaped depression which is possibly a kettle. Such a feature is the result of a large ice block being separated from the main glacier and covered or surrounded by ice-carried and water-transported materials. Later the ice melts leaving a depression.

SUMMARY OF ROCK FORMATIONS IN THE TOWN OF IRASBURG

Barton River Member (of the Waits River Formation) - Coarse-grained, blue-gray quartzose limestone consisting of recrystallized quartz and calcite grains and weathering in places to a brown earthy crust. The limestones are interbedded with schists and phyllites containing quartz, sericite, and biotite, and thinly-bedded calcareous quartzites.

Ayers Clif Member (of the Waits River Formation) - Thick-bedded, massive to slabby, thinly-bedded and fissile light to dark blue-gray quartzose limestone. In places the limestone contains enough silica to be called a calcareous sandstone. It is interbedded with thin dark-gray slates and occasionally phyllites.

Northfield Formation - Dark gray to black quartz-sericite slate or phyllite with thin, widely-spaced interbeds of argillaceous sandstone, and occasional black massive limestone beds. In places the slates are quite calcareous.

Shaw Mountain Formation - Quartz pebble conglomerate, in places schistose and cut by veins of milky quartz. The conglomerate is overlain by pinkish tan to brown weathered quartzose beds characterized by limonite specks. Thin calcareous beds occur irregularly near the top.

Cram Hill Member (of the Missisquoi Formation) - Black to pale greenish gray slates grading to sericite and chlorite schists intercalated with quartzites and greenstone sills. A section in Ware Brook is described in the Vermont Geological Survey Bulletin No. 3 as having a quartz conglomerate at the base overlain by black crinkly slates including dark greenstone sills, argillaceous slates, sericite and chlorite schists and quartzites.

Coburn Hill Volcanic Member (of the Missisquoi Formation) - Actinolite-epidote-chlorite-albite greenstone and hornblende-albite-epidote amphibolite; includes pillow lava.

Moretown Member (of the Missisquoi Formation) - Quartzite and quartz plagioclase granulite in thin layers, separated by "pinstripe" partings that contain micas, chlorite, epidote, and locally garnet. Also greenish. quartz-sericite-chlorite phyllite and schist.

Granite - Fine to coarse-grained granitic rock occurring as sills and irregular bodies.

GLOSSARY OF SELECTED GEOLOGIC TERMS

Alluvial - Pertaining to material carried or laid down by running water.

Argillaceous - Containing or consisting of clay.

Calcareous - Pertaining to or containing calcium carbonate.

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

Delta - A predominantly alluvial deposit built out by a stream into the sea or other body of water. Usually it has the typical form of the Greek letter delta.

Esker - A long narrow winding ridge of mixed sand and gravel deposited by a stream of meltwater flowing in a tunnel or crevasse in stagnant glacial ice.

Glaciolacustrine - A term used to denote formation by or pertaining to deposition in quiescent waters of glacial lakes.

Granulite - A metamorphic quartz-feldspar rock, poor or lacking in mica, and characterized by a single, regular plane of schistosity. Its schistosity is due to a parallel arrangement of flat, coarse-grained quartz lenses in a finer grained groundmass. May contain garnets.

Greenstone - A field name for rocks that have been so metamorphosed or otherwise so altered that they have assumed a distinctive color owing to the presence of chlorite, epidote, or actinolite.

Igneous Rocks - One of the three great rock classes; those rocks which have cooled and solidified from a hot mobile solution of minerals, water, and gasses either deep beneath or at the earth's surface.

Intrusive - Igneous rock which has cooled before reaching the earth's surface; contains small to large visible grains. Opposed to Extrusive - Igneous rock which solidifies at the surface and contains small unrecognizable grains.

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

Kame Moraine - An accumulation of material deposited directly from the frontal portion of the glacial ice and partially sorted by water action. Deposits may take the form of coalescent knolls, hummocks, ridges, etc.

Kame Terrace - An accumulation of stratified materials laid down chiefly by streams between a glacier and an adjacent valley wall.

Limestone - A bedded sedimentary deposit consisting chiefly of calcium carbonate. The most important and widely distributed of the carbonate rocks. The percentage of calcium carbonate ranges from 40 percent to more than 98 percent. Common impurities are clay and sand.

Meta - A prefix used before rock names to indicate that the minerals have been altered chemically and physically.

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

Phyllite - A fine-grained, foliated metamorphic rock intermediate between the mica schists and slates into which it may grade. The foliation is made possible by the development of a large amount of potash mica, sericite, which also gives the rock a distinctive silvery appearance.

Physiography - Broadly, a study of the physical divisions of the globe - lands, seas, and atmosphere.

Piedmont - An area lying at the foot of mountains.

Quartzite - A compact metamorphic rock composed of quartz grains so firmly cemented that fracture takes place across them and the cementing material with equal ease.

Schist - A metamorphic crystalline rock having a closely foliated structure and a tendency to split along approximately parallel planes.

Sill - A tabular body of igneous rock which has been injected while molten between layers or foliations of rock. Sills have relatively great lateral extent as compared to thickness.

Slate - A very fine grained homogenous metamorphic rock which splits smoothly along parallel cleavage planes and yields roughly similar slabs.

Strike - The direction of a line formed by the intersection of a horizontal plane with a bedding plane, fault, slaty cleavage, or similar geological structure. It is at right angles to the dip.

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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 complete list of specifications see "Standard Specifications for Highway and Bridge Construction" approved and adopted by the Vermont Department of Highways April, 1964.

Item 105, Granular Borrow:

"Article 105.02 Materials. The granular borrow shall be obtained from approved sources and shall consist of satisfactorily graded, free draining, hard, durable stone and coarse sand practically free from loam, silt, clay, and organic matter.

"The sand portion (material passing the No. 4 screen) shall have not more than ten percent (10%) passing the No. 270 mesh sieve and shall show a color of not more than three and one-half ($3\frac{1}{2}$) as determined by the colorimetric test described in AASHO Method of Test, Designation T-21.

"When used in connection with fine grading or in fills where piling is to be driven, the granular material shall all pass the nine (9) inch square opening screen."

Item 201, Sub-base of Gravel

"Article 201.02 Materials. The gravel shall consist of material reasonably free from silt, loam, clay or organic matter. It shall be obtained from approved sources and meet the following requirements:

"Not less than forty (40) percent stone shall be retained on No. 4 sieve.

"The percent of wear shall be not more than twenty-five (25) when tested by laboratory methods, using Method AASHO T-4, or more than

forty (40) when tested by AASHO Method T-96.

"The stone portion of the gravel shall be uniformly graded from coarse to fine and the maximum size particles shall not exceed two-thirds (2/3) of the layer being spread.

"The sand portion, when tested by laboratory methods, using Method AASHO T-27, shall meet the grading requirements set up in the following table:

Minimum Percent of Stone	Percent Passing Square Openings No. 100	Percent Passing Square Openings No. 270
40	0-15	0-3
50	0-15	0-4
60	0-15	0-5
70	0-15	0-6

"The sand shall show a color of not more than three and one-half (3½) as determined by the colorimetric test described in the AASHO Method of Test, Designation T-21."

Item 202, Sub-base of Sand

"Article 202.02 Materials. The sand shall consist of material reasonably free from silt, loam, clay or organic matter. It shall be obtained from approved sources and meet the following requirements:

"The sand, when tested by laboratory methods, using Method AASHO T-27, shall meet the grading requirements set up in the following table:

Square Openings	Percent Passing
1½"	95-100
5/8"	80-100
No. 4	70-100
No. 100	0-18
No. 270	0-5

"The sand shall show a color of not more than three and one-half (3½) as determined by the colorimetric test described in the AASHO Method of Test, Designation T-21."

Item 204, Sub-base of Crushed Rock

"Article 204.02 Materials. The materials for sub-base, filler and sand cushion shall be obtained from approved sources and meet the following requirements:

"A - Crushed Rock. The crushed rock shall be uniformly graded, crusher-run material, free from dirt. The ledge from which this material is obtained shall be stripped and cleaned before blasting. Conical stockpiling or any other method of stockpiling, which causes segregation of aggregates will not be permitted.

"The crushed rock, when tested by laboratory methods using Method AASHO T-27, shall meet the grading requirements set up in the following table:

Square Openings	Percent Passing
4"	95-100
1½"	25-50
No. 4	0-15

"The percent of wear shall not be more than eight (8) when tested by laboratory methods, using Method AASHO T-3, or more than forty (40), when tested by AASHO Method T-96."

Item 205, Sub-base of Crushed Gravel

"Article 205.02 Materials.

A - Crushed Gravel. The crushed gravel shall consist of material reasonably free from silt, loam, clay or organic matter. It shall be obtained from approved sources and produced by a crusher adjusted to deliver

a product uniformly graded from coarse to fine.

"When tested by laboratory methods, using Method AASHO T-27, it shall meet the grading requirements as set forth below:

		Square Openings	Percent Passing
Sub-base of Crushed Gravel	Coarse-Graded	4"	100
	Item 205-A	No. 4	25-50
	Fine-Graded	1½"	95-100
	Item 205-B	No. 4	30-60

"At least thirty percent (30%) by weight of the stone content of the crushed gravel, that is, the material retained on the No. 4 screen, shall have a minimum of one (1) fractured face as determined by actual count from the sample submitted to the laboratory.

"The percent of wear shall not be more than twenty (20) when tested by laboratory methods, using Method AASHO T-4, or more than thirty-five (35), when tested by AASHO Method T-96.

"B - Sand. The sand content of the crushed gravel, that is, the material passing the No. 4 screen, when tested by laboratory methods, using Method AASHO T-27, shall meet the grading requirements set up in the following table:

Square Openings	Percent Passing
No. 100	0-18
No. 270	0-8

"The sand shall show a color of not more than three and one-half (3½) as determined by the colorimetric test described in the AASHO Method of Test, Designation T-21."

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 1

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
1	1	1966	2-19	0-2	Yes	52.9	44.5	33.0	13.0	6.3	2	20.6%	Gran. Borrow (Grav.)	Owner: George Young. Area is a pit on a tributary of Lord's Creek and is about 700 feet west across field from the junction of Town Highways No. 6 and No. 46. The pit shows silt-clay size to huge boulders, and the material is poorly sorted and unstratified. Probably of ice-contact origin with an extension to the east under the field. Test #1 sampled by hand on east face. Material is unsorted or at best poorly-sorted. Many of the fines are silt to clay, and much coarse sand-size is angular to sub-angular fragments. Most stones are sub-angular. Sample barely failed to meet requirements for Item 201 - had excess silt. Pit is 80 feet long x 30 feet wide and is 0.20 mile along the haul road from Town Highway No. 46.
2	1	1966	1.5-9.5	0-1.5	No	100	100	100	65.0	13.0*	1	---	---	Owner: Clare Phillips. Area is west hillside and more or less flat top of a pasture on the east side of Vt. Rte. 16 just north of the Albany Town Line. Test #1 dug 6 to 8 feet above the highway 115 feet north-northeast of the town line. Material is a light brown uniform silty sand, and is unacceptable for Item 105.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 2

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	4-11	0-4	No	58.1	50.6	44.8	5.0	2.8	1	19.4%	Gravel	Test #2 was dug about 200 feet east of Test #1 and about 15 feet to 20 feet above it. Under 4 feet of silty sand is a coarse pebbly sand with a cobbly gravel bed going to gravelly sand which continues to depth. Gravel below 10 feet looks very clean and hard. On the whole the gravel is fairly coarse.
	3	1966	3.5-9.5	0-3.5	No	90.6	87.2	86.3	17.3	3.5 3.0*	1½	---	Gran. Borrow (Sand)	Test #3 dug about 125 feet east-northeast of Test #2 and at about same elevation. Top 3.5 feet is soil and silty sand going to a brown medium sand, and to a coarse stony at 6'. Becomes a gravel or gravelly sand at 9.5'.
	4	1966	3.5-11	0-3.5	No	100	100	100	13.0	3.8*	1	---	Sand	Test #4 dug near old cellar hole 250 feet northeast of Test #3, and is about 20 feet above the highway. Top 3.5 feet is soil and silty sand going to a medium dark gray quartzose sand which becomes pebbly at 11'.
	5	1966	2-10.5	0-2	No	100	100	100	7.0	2.5*	1	---	Sand	Test #5 dug 200 feet southeast of Test #4 near northwest edge of more or less flat top of pasture. Material is a coarse gray quartzose sand, quite uniform. Small silty sand pockets and laminae noted.
	6	1966	1.5-10.5	0-1.5	No	100	100	100	29.0	10.5*	---	---	---	Test #6 dug 180 feet east of and a few feet above Test #5,

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 3

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
														still on flat top of pasture. Material is medium to fine sand, silty in places, and going to silty sand in the bottom. Sample had excess fines for Items 202 and 105. This area has been designated as kamic by Dr. D.P. Stewart, and it appears from range of materials encountered that it is definitely of ice-contact origin. Gravels seem to occur at the lower elevations as shown by Tests #2 and #3. The pasture hillside above these tests couldn't be gotten on to with the backhoe so this material is not known. Possibly it would be sand similar to Tests #4 and #5. Sands are exposed below Test #4 on the highway bank, so very likely a sand pit could be opened near or below Test #4 and extended toward Test #5.
3	1	1966	2-10.5	0-2	No	100	100	100	50.0	20.3*	1	---	---	Owner: Adrien Houle. Area is hilly pasture and pit in gully behind barn to the northeast on the southeast side of Vt. Rte. 14. Area is continuation of kamic, probably kame terrace, area to the southwest. Test #1 dug above edge of highway at southwest end of pasture. Material is silty sand down to 4'. Becomes somewhat coarser

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 4

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	2.5-10.5	0-2.5	No	100	97.7	93.9	17.8	2.5 2.3*	1	---	Sand	for 3 feet and goes to a sandy silt. Sample had excess silt for Item 105.
	3	1966	1.5-10.5	0-1.5	No	100	100	99.4	54.7	15.0 14.9*	1	---	---	Test #2 dug about 525 feet east-northeast of Test #1 only a few feet above grade of Vt. Rte. 14. Material is a fine sand with a pebbly sand layer and a few scattered pebbles. Test #3 dug on high point on pasture ridge just west-southwest of barn. Material under 1.5 feet of overburden and a thin pebbly sand layer is a fine to medium sand to silty sand. Bedding noted. This test and Tests #5 and #6 of Map Identification #2 looks like lacustrine deposition, and may be thin lake silts and silty sands overlying kamic material. This is shown to be the case farther south in the Town of Albany.
	4A	1966	8-20	0-8	Yes	75.1	48.5	27.7	11.0	5.8	1	20.0%	Gravel	Tests #4A through #6 were sampled in pit in gully behind owner's barn. Test #4 dug on northeast face of pit. From 8'-20' was sampled as Test #4A. About 8 feet of silty sand overburden covers a 12-foot thick gravel bed going to a silty and stony sand. Sample met requirements for Item 201.
	4B	1966	20-42	0-8	Yes	91.9	80.3	63.7	26.0	12.3	1	---	---	Test #4B sampled from bottom 22 feet of face. Pebbly sand,

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 5

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	5	1966	C-11.5	Floor	Yes	85.1	64.2	45.9	5.0	2.5	1	22.2%	Gravel	<p>silt to clay, fine sand and gravelly sand encountered with hand shovel. Beds and lenses with various dips noted. Composite of face is a silty, gravelly sand with excess silt for Item 105.</p> <p>Test #5 dug in pit floor. Top 4 feet is somewhat silty - a gravelly sand - going to a fairly clean fine gravel with only a few +4" cobbles. Pit floor measures 35 feet x 60 feet, and has a 20-foot high face and erosion gully at the south-southeast end above which is a pretty-well depleted bowl-shaped area. This bowl was inaccessible to the backhoe since it is surrounded by strippings and trees. A pit road leads up the west edge of the lower floor and could be continued to the southwest around strippings and through woods into the south end of the bowl. The gravels represented by Test #4A probably extend northeast and east and would have to be excavated from the elevation of the upper floor. Possibly an erosion gully down the 20-foot high face could be filled and a haul road built into the bowl at its north end.</p>

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 6

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	6	1966	3-11	C-3	Yes	100	100	99.5	24.9	5.0*	1	---	Gran. Borrow (Sand)	Test #6 dug on top of southwest corner of 20-foot face just west of erosion gully. About 3 feet of silty gravel overlies a fine pebbly and silty sand, brown in color, overlying a gray quartzose sand at 7'. This test indicates that extension to south of lower pit would encounter sands of doubtful quality. Gravels in lower floor and in upper east and northeast face of pit, but only in small quantities and difficult to get.
4	1	1966	2.5-10	0-2.5	Yes	100	95.6	75.8	28.0	14.5 11.0*	1	---	---	Owner: Charles Shipps. Area is wooded ridge with old pit or bank on the northwest side of Vt. Rte. 14 southwest of Town Highway No. 45. Test #1 dug in stripped area 90 feet east-northeast of end of ridge. This is probably area where ridge or knoll has been removed for the gravel. Material is interpocketed fine gravel, pebbly sands and silts - looks like ice-contact deposition. Sample had excess silt for Item 105.
	2	1966	3.5-17	0-3.5	Yes	47.1	42.2	29.1	4.0	1.5	1	19.8%	Gravel	Test #2 dug in 10-foot high face of bank or pit and continued in floor. Material is a bouldery poorly sorted gravel with some silt-clay and a few soft looking stones. Many +15"

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 7

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHTO T-21	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	3	1966	2-11	0-2	Yes	100	100	54.7	4.0	1.5	1	---	Gran. Borrow (Grav.)	boulders. More cobbles in floor. Sand is minor - small pebbles are coated with moist fine sand. Bank run would fail for Item 201 because of large cobbles and boulders. Test #3 dug 60 feet west of bank on low ridge at edge of trees. Material is bedded sands with many pebbles going to a fine sand in the bottom. This test represents extension of face. Area is within kamic deposition as mapped by Dr. D. P. Stewart. The ridge drops off to the west and is about 200 feet to 250 feet long. It needs more testing to determine if the small quantities of material it would contain are acceptable. Material in floor near face apparently is better sorted and coarser than it is to the northeast.
5	1	1966	1.5-10	0-1.5	No	77.8	66.2	40.6	15.0	6.5	1	20.2%	Gran. Borrow (Grav.)	Owner: Adrien Houle. Area is low knoll on ridge on northwest side of Vt. Rte. 14 above undulating meadow. Elevation is about the same as floor in Map Identification No. 4. Is mapped as a pebbly sand area by Dr. D. P. Stewart, but it is probably kamic material. Only one sample taken of a silty gravel with a few +6" cobbles.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 8

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AAASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
														Did not dig in meadow because of hay land.
6	1	1966	1.5-11.5	0-1.5	No	100	100	100	16.0	5.0*	1	---	Sand	Owner: Perry Lanou. Area is large flat to gently rolling field on the west side of the Black River. Entire width of meadow from edge of terrace above river to west side where elevations rise toward hills was designated as lake sands by Dr. D. P. Stewart. Test #1 was dug at west edge of meadow near foot of knoll 115 feet north-northeast of edge of woods. Material is a very fine sand going to a medium sand below 7'. Also a few silty-sand laminae noted. Vicinity of this test would be source of Item 202 sands.
	2	1966	2-10	0-2	No	100	100	100	99.0	33.5*	1	---	---	Test #2 dug at east edge of terrace 700 feet east of west edge of meadow. Material is uniform silt. Both samples were of lacustrine sediments. Test #2 probably represents deep quiet waters, and Test #1 may represent local stronger currents. Did not have permission to sample in middle of meadow. More testing for a sand source needed in vicinity of Test #1. This vicinity is about 0.65 mile west along field drive from Vt. Rte. 4.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 9

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks	
						% Passing									
						1½"	5/8"	#4	#100	#270					
7	1	1966	2-10	0-2	No	100	100	99.1	6.0	1.8*	1	---	Sand	Owner: Lanou Estate. Area is meadow on low terrace west of and above the Black River east of Round Hill. Test #1 dug at edge of meadow and pasture about 450 feet west along field drive from the river. This test and Test #2 are about at edge ill-defined low terrace. Material is fine to coarse sand, reddish tan in color, becoming coarse and pebbly below 5.5'. Water enters at 10' held above a silt layer. Test #2 dug 100 feet west of a meander of the river, 200 feet northeast of Test #1. Material is fine to silty sands down to 6', going to a medium pebbly sand layer, and to a silt-clay at 10.5'. Sample had excess fines for Item 202. Test #3 dug 100 feet from west edge of field, 850 feet northwest of Test #1. Material to 4' is a plastic clay or silty clay of lacustrine origin, and was not sampled. Test #4 was of same material dug in extreme northwest corner of field. The field or meadow is generally 10 to 30 feet higher than edge of pasture where Tests #1 and #2 were dug. Possibly acceptable material would be found beneath	
	2	1966	2-10.5	0-2	No	100	100	99.0	34.0	6.0*	1½	---	Gran. Borrow (Sand)		
	3	1966	N	O	T			S	A	M	P	L	E		D
	4	1966	N	O	T			S	A	M	P	L	E		D

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 10

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
8	1	1966	N	0	T		S	A	M	P	L	E	D	the clays, but excess stripping would be required. Acceptable material to be found in extension of Test #1, which is about 0.35 mile west of Vt. Rte. 14. Owner: W. P. Brow. Area is fields or rolling meadow north of Map Identification No. 7 and east-northeast of Round Hill. Access is via field drive leading west from G. Fournier's yellow brick house. Three test holes in probable lacustrine silts to clays were dug and not sampled. Dr. D.P. Stewart shows this entire west side of the Black River as lake sands. The deposits appear to be lake silts or silty clays.
	2	1966	N	0	T		S	A	M	P	L	E	D	
	3	1966	N	0	T		S	A	M	P	L	E	D	
9	1	1966	2-7	0-2	No	100	100	100	58.0	10.0*	2	---	Gran. Borrow (Sand)	Owner: Clare Phillips. Area is pastureland of very low flat spurs extending out from hillside with intervening wet swales, and is located behind owner's buildings southeast of Vt. Rte. 14. Test #1 dug along southwest side of pasture on fence line, 320 feet from back side of pasture. Material is very fine to silty moist sand with excess fines for Item 202. Test #2 dug at back edge of pasture in southwest corner.
	2	1966	2-10	0-2	No	100	100	100	46.0	7.5*	1	---	Gran. Borrow (Sand)	

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
10	1	1966	1.5-9.5	0-1.5	No	100	100	99.6	35.9	15.5 15.4*	1½	---	---	Material is a very fine silty sand going to varved clays at 10'. The low ridge east of Test #1 could not be gotten to because of intermittent brook and marshy swale. Area mapped as lacustrine deposition. Fields to south-southwest toward round barn may be underlain by acceptable sands, especially on the higher levels.
	2	1966	1-8	0-1	No	100	100	100	45.0	21.0*	1	---	---	Owner: Clare Phillips. Area is narrow pasture between Vt. Rte. 14 and the Black River. Intent was to prove lake sand mapping by Dr. D. P. Stewart. Test #1 dug about 10 feet above river and 300 feet from barnyard. Material is coarse to fine silty sands with silt-clay laminae, and may be of fluvial origin. Water hit at 8.5' in medium sand. Test #2 dug 200 feet northeast of Test #1 near Brow-Phillips line fence. Material is fine sand to silt with water at 8'. Dr. Stewart's lake sand contact with silts to clays is mapped near the barn. Since test holes did not encounter granular materials, his mapping in this particular area is reproduced on Plate I. Coarser sands lie at somewhat higher levels to the east as

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 12

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
													shown in Map Identification No. 9.	
11	1	1966	1.5-10.5	0-1.5	No	100	100	100	15.0	6.0*	1½	---	Gran. Borrow (Sand)	Owner: W. P. Brow. Area is edge of terrace west and southwest of yellow brick house above east shore of Black River. Test #1 dug 270 feet northeast of Phillips-Brow fence line above drainage leading west into the river. Material is a fine to medium sand with a few silty laminae. Goes to silt clay or clay at 10.5'. Looks like lacustrine origin. This test was at northeast side of low rounded knoll or large mound which stands above general level of meadow, and which may be source of Item 202 sands.
	2	1966	N	O	T	S	A	M	P	L	E	D		Test #2 dug along edge of terrace above east bank of Black River 900 feet west along field drive from large yellow brick house. Dug for 5 feet in silt to clay, and did not sample. The field drive drops off the terrace to cross the river, and bank shows silts to clays, but no granular materials down to water level.
12	1	1966	0.5-11.5	0-0.5	No	100	100	99.6	37.8	6.3*	1	---	Gran. Borrow (Sand)	Owner: Emile Royer. Area is one of two small terrace levels behind owner's house on Vt. Rte. 14. Terraces are above Lord's Creek, which en-

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 13

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	1-9.5	0-1	No	100	100	99.0	33.7	7.3 7.2*	1	---	Gran. Borrow (Sand)	ters the Black River. Area is not large enough for a source of construction materials, and was tested only to define lake sand deposition. Test #1 dug on lower terrace above steep brook bank. Material is a medium to very fine sand with a pebble or two and some silty beds. Dip is steep toward south. Feature is probably a delta of Lord's Creek which was built into the glacial lake and later terraced. Test #2 dug 15 feet to 20 feet above Test #1 on nearly flat area just below upper terrace level. Top 1 foot is overburden going to a medium quartzose sand with a pebble or two and then to a brown moist silty sand. Some slumping and faulting of beds noted. Sample had excess passing the #100 and #270 mesh sieves for Item 202. Testing along Vt. Rte. 14 indicates that granular lake deposits are quite patchy, probably owing their origin to local deposition by small streams which could not supply the entire lake bottom with coarse sands.
13	1	1966	2-9.5	0-2	No	100	100	100	93.0	35.0*	1	---	---	Owner: Clyde Whittemore. Area is pasture southeast of the Black River, west of Irasburg

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	0-5											Village. Access was 0.40 mile along a field drive leading west from the south edge of Irasburg Village. Test #1 dug on high point in pasture near northeast corner of Lanou Estate property. Vicinity of this test is shown by Dr. D.P. Stewart as lake sands. Silts to clays are mapped between this test and the river. Material in test hole is silt all the way. Test #2 dug near northwest end of pasture about 300 feet from the river. Hole dug for 5 feet in silt to clay and did not sample.
14	1	1966	6-13	0-2	Yes	100	100	93.9	19.7	7.0 6.6*	1	---	Gran. Borrow (Sand)	Owner: Lanou Estate. Area is knoll with small pit and surrounding stony area at southwest edge of Irasburg Village. Test #1 dug in face of pit on north side of knoll. Bottom 7 feet of 13-foot high face sampled. Top is concealed. Material is coarse quartzose sand and brown silty sand with pebbles. Goes to silt-clay with boulders in bottom - looks like till.
	2	1966	2-8.5	0-2	No	92.4	92.4	87.8	24.6	10.8 9.5*	1	---	---	Test #2 dug on knoll south of pit face. Material down to 4' is silt with stones and minor sand going to a thin coarse

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	3	1966	N	O	T	S	A	M	P	L	E	D		gray sand bed, then to a silty sand. Sample had excess silt for Item 105. Test #3 dug 290 feet southwest of pit in corner of pasture next to field and above slope down to the meadow along Lord's Creek. Material is plastic clay and silt clay and is varved. Was not sampled. Material in knoll appears to bear a close relationship to glacial till. It may be a reworked till, sorted by wave action at a low level of the glacial lake, or it may be an ice-contact feature. Pit is 0.25 mile from Vt. Rte. 14. Not a source of granular material.
15	1A	1966	8-28	0-8	Yes	73.8	51.0	39.2	3.0	1.0	1	17.8%	Gravel	Owner: Emile Poitras. Area is a large pit south of Vt. Rte. 58 east of Irasburg Village. Town uses lower west side of pit for dump. Feature is kame terrace with extension to north and northeast. Extension to east would be in hayfield, and one test showed boulders and silty gravel. An old waterline for Irasburg Village crosses south end of pit, but it is not in use. Face at south end of pit does not show much gravel, and top of face is covered by 5 to 10 feet of strippings from the north.

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1 1/2"	5/8"	#4	#100	#270				
	1B	1966	27-40	0-8	Yes	40.8	32.1	20.2	6.0	2.5	1	12.8%	Gravel	Test #1A sampled from west end of north face of pit on corner. Top 8 feet is soil and silt with stones. From 8' to 16' is a pebbly gravel with a few small cobbles, and very little sand. A 5-foot thick cobble and boulder bed underlies the pebble gravel, dipping west. From 21' to 28' is a fairly clean gravel with minor sand. Test #1B sampled from lower north face. Mainly a poorly consolidated cobble gravel with most of fines consisting of pebbles. Sand is minor. Stones are "sooty"-looking. Stones are sub-angular; some are tabular. Stones over 6" make up 20% to 30% of face. From 36'-40' is a gravelly sand with a cobble or two.
	2A	1966	2-32	0-2	Yes	86.5	69.3	45.0	7.0	3.8	1	16.8%	Gravel	Test #2A sampled from 2'-32' on east face of pit. Cobbles and boulders concentrated from 4'-15', and a few occur all down face. Below 30' face appears to be a "dirty" pebble gravel or gravelly sand. Sample taken met requirements for Item 201.
	3	1966	0-9.5	Floor	Yes	85.8	71.3	49.7	12.0	2.5	1	15.8%	Gravel	Test #3 dug in main floor of pit (first floor level above haul road) in northwest corner. Top 4 feet is gravel going to interbeds of pebbly sand and gravel, and a gravel lens. No

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 17

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHTO T-21	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	4	1966	0.5-9.5	0-0.5	Yes	67.6	54.0	35.4	5.0	2.3	1	17.8%	Gravel	"sooting" of pebbles like Tests #1A and #1B, and material is stratified. A silty seam at 5'. Test #4 dug near east side of main floor 60 feet east of Test #3. Material is a clean, fairly coarse gravel with a boulder or two and quite a few +6" cobbles. Kept caving so quit digging at 9.5'.
	5	1966	0.5-5.5	0-0.5	Yes	89.0	81.4	59.8	3.0	1.3	1	---	Gran. Borrow (Grav.)	Test #5 dug in haul road on main floor of pit, 100 feet south of Test #3. Material is fine gravel or gravelly sand with only a few +4" cobbles. Goes to a pebbly sand at 5.5'. A small quantity of gravel available as bank run in the west part of the pit in the main floor. Upper pit floor was not tested.
	6	1966	22-40	0-2	Yes	61.5	49.4	31.4	7.0	3.3	1	19.5%	Gravel	Test #6 dug on lower east face of pit. Material is a pebbly sandy gravel with a little silt to clay from 20'-24' on the face. From 24'-40' is a "dirty"-looking heterogenous gravel with a few boulders and 10%-15% exceeding 6". Rough bands of clean gravel and "dirty" cobbly material seem to alternate down the face.
	7	1966	2-8.5	0-2	No	62.5	48.5	33.6	21.0	11.3	3½	16.9%	---	Test #7 dug atop east face of pit. Material is a silty gravel with angular to sub-angular

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 18

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	8	1966	0.5-8	0-0.5	No	41.8	33.4	19.8	10.0	4.0	1	15.9%	Gravel	stones. Sand is minor. About 35%-45% of stones exceed 6". Many boulders included. Sample had excess silt for Items 201 and 105. This material is representative of that in the east extension. More testing should be done in the field with the idea of crushing the material. It would undoubtedly be too bouldery and cobbly for bank run gravel. Test #8 dug atop middle of north pit face in stripped area. A boulder and cobble gravel encountered - much cleaner than Test #7. About 20% to 30% exceeds 6". Stones over 6" not included in sample. Best use of this material would be for crushing. Many tabular stones noted. Pit is source of bank run gravel, Item 201 in main floor of pit with possible extension below upper floor. More testing recommended above south end of pit where it is now wooded. North and east faces should best be crushed. Extension to the north, northeast and east. For Item 201 it would have to be screened. Abrasion results were very satisfactory.
16	1	1966	N	O	T	S	A	M	P	L	E	D		Owner: Germaine Choiniere. Area is pasture hillside with

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 19

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	2	1966	N	0	T	S	A	M	P	L	E	D	granite exposures near the top, and is located on the south side of Vt. Rte. 58 just west of Allen Brook, east of Irasburg Village. Owner dug 7 holes at random in pasture. Four dug along field road on lower side of pasture and showed glacial till from 4 feet to 6 feet overlying granite.	
	3	1966	N	0	T	S	A	M	P	L	E	D		
	4	1966	N	0	T	S	A	M	P	L	E	D		
	5	1966	1-5	0-1	No	100	100	82.8	40.0	18.0*	1½	---		---
	6	1966	N	0	T	S	A	M	P	L	E	D	Test hole #6 dug northwest of Test #5 near edge of woods. Glacial till encountered again and not sampled.	
	7	1966	1-7	0-1	No	100	100	50.2	18.0	9.8	3	---	Gran. Borrow	Test #7 dug downslope (north) of Test #6. Material is a pebbly silty sand down to 7', and sample met requirements for Item 105. Not a granular area. A sandy and pebbly till encountered in places.
17	1	1966	1-10	0-1	No	100	100	100	77.0	8.0*	1	---	Gran. Borrow (Sand)	Owner: Henry Lebeau. Area is pastureland on northeast side of Vt. Rte. 14 east to northeast of buildings. Test #1 dug 500 feet east of barn on upper side of pasture. Material is a silty very fine sand with excess fines for Item 202.

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1 1/2"	5/8"	#4	#100	#270				
	2	1966	1.5-10	0-1.5	No	100	100	100	86.0	26.0*	1	---	---	Test #2 dug on top of knoll northwest of buildings 235 feet northeast of Vt. Rte. 14. A uniform silt encountered. Silts to clays mapped in broad valley of Black River - deep-water lacustrine sediments.
18	1	1966	N	O	T	S	A	M	P	L	E	D	Owner: Henry Lebeau. Area is pastureland west of cemetery on southwest side of Vt. Rte. 14. Test #1 dug next to old barn 200 feet west of cemetery. Dug for 5 feet in silt-clay and did not sample.	
	2	1966	N	O	T	S	A	M	P	L	E	D	Test #2 dug 160 feet south of Test #1 on low knoll, 10 to 12 feet higher than Test #1. Material is silt for 4.5 feet going to clay. Clay is like that sampled south of Irasburg Village west of the Black River. Area is one of lacustrine deposition in quiet water. No granular sediments here.	
19	1	1966	2-13	0-2	Yes	100	100	100	90.9	26.5*	1	---	---	Owner: Earl Hackett. Area is knolls and pastureland between Brighton Brook and the junction of Vt. Rtes. 14 and 58. Test #1 dug in face of old farm pit on south side of northerly knoll. A cowpath leads from Vt. Rte. 14 in front of owner's barn down between two knolls to a big pasture south of Brighton Brook. Test #1 is beside cowpath. Lower beds of high

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	2	1966	1.5-10.5	0-1.5	No	100	100	100	75.0	23.3*	1	---	---	knoll sampled. Material is a tan to gray silt. Test #2 dug atop northerly knoll 180 feet south of Vt. Rte. 58. Top 5.5 feet is silt overlying 5 feet of very fine silty sand.
	3	1966	1.5-12	0-1.5	No	100	100	100	56.0	31.0	1	---	---	Test #3 dug 650 feet west of Test #2 south of Vt. Rte. 58 and just on east side of drainage way down to Brighton Brook. Material is tan silt or silty sand in the top 3.5 feet going to a hard-packed silt or silt-clay. Fine quartzose sand comes in at 6.5' and continues to depth. Sample had excess fines for Items 202 and 105.
	4	1966	N	O	T	S	A	M	P	L	E	D		Test #4 dug at north end of huge pasture just above south bank of Brighton Brook. Hole is about 12 feet above brook, and about 5 feet below elevation of Test #3. Material is silt-clay or silt with a thin interbed of sand. Dug for 9.5 feet and did not sample. These holes dug in fine deposits of lake bottom origin. Indications are that the old glacial lake occupied the broad valley extending up toward the northwest and was filled by fines brought in mainly by streams from the west and northwest.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 22

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
20	1	1966	1.5-10.5	0-1.5	Yes	89.8	85.0	70.5	7.8	2.5*	1	---	Gran. Borrow (Sand)	Owner: Jasper Sanville. Area is two pits separated by a small brook at woods edge south of owner's house. These pits were not included by Dr. D. P. Stewart in the same terrace below the 980-foot contour, but appear to be in ice-contact material. Lower pit is in low knoll which falls off to the west, south, and east. Is wooded all around. Little extension remains. Test #1 dug on southwest corner of knoll, 60 feet from face of south pit. Material is a pebbly sand with a very few +3" cobbles, and another cobble layer at 9'. Sample had excess +1½" stones for Item 202.
	2	1966	2-10.5	0-2	Yes	88.2	79.5	60.0	13.0	3.8	2½	28.8%	Gran. Borrow (Grav.)	Test #2 dug 55 feet west of pit at edge of woods. Material is a sandy gravel with mostly -3" stones. Sample had excess silt and excessive wear for Item 201. This test appears to be near northwest limit of pit extension.
	3	1966	1.5-10	0-1.5	Yes	85.1	70.4	54.0	10.0	2.5	1	22.0%	Gravel	Test #3 taken on face near southwest corner of pit. Material sampled included fine gravel, pebbly sand, and sand, and met requirements for Item 201. Face bottoms in silty sand.

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	4	1966	0-11.5	Floor	Yes	100	100	93.9	47.9	14.0 13.1*	1	---	---	Test #4 dug on northeast side of floor of south pit. Top 6 feet is a fine, silty pebbly sand going to silt. Hole bottoms on a boulder. Material in this hole attests to ice-contact origin. This pit is 120 feet x 100 feet with a 60-foot to 75-foot extension on the south and west sides. Fine gravels can be expected, probably silty, with gravelly or pebbly sand in the south extension.
	5	1966	0-6	None	Yes	59.3	53.3	42.2	6.0	2.5	1	16.8%	Gravel	Test #5 dug at south end and face of upper north pit. Sample was combined from hole in floor and from test on face. Material is a fairly clean gravel with many cobbles and boulders going to silt-clay with stones at 3.5 feet in the floor and 6 feet on the face. This pit has two levels - lower level shows many boulders. Upper floor has bouldery and cobbly gravels thinning to nothing toward the north end.
	6	1966	2-9	0-2	Yes	78.4	61.9	36.6	7.0	2.5	1	23.4%	Gravel	Upper north face was sampled as Test #6. From 2'-9' on 15-foot high face material is a pebble layer over a gravel with a few fine sand pockets. Upper pit would be source of small quantities of gravel from the upper face

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 24

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
														at the north end and down the east and west sides for a short distance. Area definitely of ice-contact origin. Access to south pit 0.25 mile along haul road, while top of upper pit is best reached through fields.
21	1	1966	2-11	0-2	No	86.8	72.3	50.6	12.0	7.0	1	25.0%	Gran. Borrow (Grav.)	Owner: Jasper Sanville. Area is rolling fields or pasture on the south side of Vt. Rte. 58, southwest of and above owner's buildings. Test #1 dug 85 feet north of pit on gentle south slope, represents extension of pit (Map Identification No. 20). Material is a silty gravel sampled from silty and pebbly sands with some large sub-angular to sub-rounded cobbles, and a gravelly sand below 9'. A large angular boulder noted at 9'. Looks like ice-contact deposition - abrupt changes in grain size.
	2	1966	1.5-9.5	0-1.5	No	100	92.8	79.6	10.3	2.5 2.0*	1	---	Sand	Test #2 dug 110 feet northwest of Test #1 about 10 feet above its elevation. Test is on more or less flat top of low knoll. Material is a pebbly medium sand going to a silty sand with a boulder at 9.5'.
	3	1966	1-9.5	0-1	No	82.5	72.0	55.0	5.0	1.8	1	---	Gran. Borrow (Grav.)	Test #3 dug 370 feet northeast of Test #2 at about the same elevation. This test is on

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 25

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	4	1966	N	O	T	S	A	M	P	L	E	D		roughly defined northeast-southwest trending rounded ridge of coalescent knolls. Material is generally a fine gravel with few +3" stones except for a few sub-angular 8" cobbles and a boulder layer at 5'. Looks like a sandy gravel from 4.5'-9.5'. More +6" stones below 6'. Water enters at 9.5'. Sample met grading requirements for Item 201, but too few proper size stones were included for the wear test. Test #4 dug on low, broad knoll, 140 feet northeast of Test #1, and about 300 feet from highway. Material is unsorted - silt, sand, and stones, is hard-packed with boulders at 4.5'. Did not sample.
	5	1966	1-10	0-1	No	96.0	84.8	68.2	11.0	1.8	1	---	Gran. Borrow (Sand)	Test #5 dug on low ridge 180 feet southeast of and below Test #3. Ridge represents southeast top edge of old pit. Material from 1'-8' is pebbly sands interbedded with coarse to fine sands going to a gravelly sand from 8' to depth. Sample had excess stones retained on the #4 mesh sieve for Item 202. More testing needed between Tests #3 and #5 and in the vicinity of these tests. Irregular deposits of sand or gravel should

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 26

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
														be expected. Very likely sands are to be found on the top of the knoll near the west side of the field. Probably only shallow granular materials over unsorted debris. Possibly water would be hit between Tests #3 and #2 since a poorly-drained area lies to the northwest of the ridge, and water was hit in Test #3.
22	1	1966	1.5-10.5	0-1.5	No	79.7	72.8	55.0	8.0	2.3	2	---	Gran. Borrow (Grav.)	Owner: Jasper Sanville. Area is pit and extension in northeast corner of fields and pastures northeast of buildings. Area is at east edge of terrace, and to north of pit. Just north of edge of trees the terrace is cut by an east-flowing stream. Lands to south, southwest and west on a kame terrace. Test #1 dug 200 feet southwest of pit at corner of field and pasture in once-stripped area. Material is a gravel with a few thin sand layers, and quite a few +4" cobbles. A fine gravel below 6'. Sample met grading requirements for Item 201, but too few proper size stones were included for the wear test.
	2	1966	0.5-11	0-0.5	Yes	75.5	64.9	44.6	6.0	1.8	1½	22.2%	Gravel	Test #2 dug on north face of pit opposite gate. Material is a gravel with a few +6" stones and many 3"-6" stones

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	3	1966	0-8	None	Yes	76.4	63.0	43.0	6.0	2.5	1	20.2%	Gravel	which are sub-rounded. At floor level goes to a silty sand. Pit has horizontal rough stratification. Many cobbles and boulders on the upper northwest and west faces. Main pit is 145 feet long x 70 feet wide. Extension to north limited by edge of terrace at brook. Extension to west would run to cobbly and bouldery gravel. Test #3 dug in 8-foot lower face at east end of main floor of pit. Material is a gravel with one silt-clay lens and a sand layer. Possibly this test represents material in main floor of pit, although the floor below Test #2 showed silty sands. Main floor should be tested further.
	4	1966	0-11	None	Yes	80.2	72.8	53.5	15.0	3.0	2	21.8%	Gravel	Test #4 dug a few feet east of Test #3 in lower floor in east portion of pit. Material is a fairly clean gravel with very few +6" cobbles. Below 8' is a gravelly sand.
	5	1966	2-10	0-2	Yes	88.8	77.5	62.2	21.0	3.8	1½	21.2%	Gran. Borrow (Grav.)	Test #5 dug 80 feet east of Test #4 near top of east slope of terrace. Area is stripped. Top 2 feet is reddish silt with stones goes to a coarse silty gravel with some cobbles and boulders. At 3.5' is a fine sand. At 6' is a gravelly sand.

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	6	1966	1.5-9	0-1.5	No	88.4	71.8	50.9	33.0	12.0	2½	---	---	Composite sample is a sandy gravel with too few stones and excess very fine sand for Item 201. Test #6 dug 85 feet west of pit in stripped area. Hole shows sub-angular cobbles, small boulders and silty gravel. Goes at 4' to a silty sand bed 2.5 feet thick, then to a 6" gravelly sand bed. Hole continues with a silty sand and cobbles. Sample had excess fines for Items 201 and 105. This hole represents pit extension to west. This area would be underlain by bouldery, poorly sorted material probably closely associated with till. Possibly small quantities of specification gravels in lower floor and floor of main pit. Most likely extension would be south toward Test #1.
23	1	1966	N	O	T	S	A	M	P	L	E	D	Owner: Dale Simino. Area is rough pastureland west of Town Highway No. 26 north of the brook dividing the Simino - Sanville properties. Pasture is shown within kame terrace as mapped by Dr. D. P. Stewart. Lower level of pasture, however, shows only a bouldery surface. A test hole dug 160 feet north of the brook and	

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 29

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	2	1966	0-11.5	None	Yes	95.9	85.8	68.0	9.5	3.3 2.2*	---	---	Gran. Borrow (Sand)	275 feet from the road showed 5 feet of angular boulders and cobbles and silt - probably a till. Material was not sampled. Test #2 was dug in a small pit at base of ridge west of buildings. Ridge probably represents remnant of kame terrace in this area. A floor sample taken. Material is a pebbly sand with a few +2" stones. Sample had excess stones for Item 202.
	3	1966	2.5-7	0-2.5	No	77.1	51.5	31.1	12.0	6.0	2	24.2%	Gran. Borrow (Grav.)	Test #3 dug 200 feet west of top of pit on top of ridge. Access is around north side of ridge and up through woods to the top. Material is reddish silty sands with angular cobbles and boulders. Sample had excess silt for Item 201. Ridge would be source of granular borrow, and could be crushed for town highways. Possibly some could be screened and modified for Item 201, but more testing would be necessary.
24	1	1966	1.5-11	0-1.5	No	100	100	79.8	9.6	2.5 2.0*	1½	---	Sand	Owner: Jasper Sanville. Area is terrace edge and pasture below terrace on west side of Town Highway No. 26. This area is southeast of Map Identification No. 22. Edge of terrace is serrated and Test #1 dug on most southerly spur

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	1-7	0-1	No	100	85.1	58.2	7.0	2.0	2	---	Gran. Borrow (Grav.)	about 8 feet below and 130 feet east of Test #2 of Map Identification No. 25. Sample taken from interbeds of pebbly sand, fine sand, and coarse sand. A few +1½" stones noted. Test #2 dug in shallow test trench 75 feet west of Test #1. Many tabular stones noted. Gravels, gravelly sands, and pebbly sands go to fine sands at 7' and then to material like Test #1. Hole is about 5 feet above Test #1, and apparently top beds of terrace are gravels, and these hold up the edge. Sample met grading requirements for Item 201, but too few proper size stones were included for the wear test.
	3	1966	2.5-12	0-2.5	No	90.5	82.3	60.5	17.0	4.0	1½	---	Gran. Borrow (Grav.)	Test #3 dug on middle spur extending out from terrace 160 feet north of Test #1. Test #3 is 150 feet east of Test #1 of Map Identification No. 21. Under 2.5 feet of reddish top-soil is a cobbly and silty sand layer - cobbles are sub-angular. Hole then goes to a gravel with sub-rounded stones and tan-gray fine sand, bottoming at 12' in a clean gravelly sand. Sample had barely too few stones for Item 201.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 31

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	4	1966	0.5-12	0-0.5	No	95.2	83.0	64.6	18.0	4.0	1	---	Gran. Borrow (Grav.)	Test #4 dug on north spur or nose, 185 feet north-northeast of Test #3, and about 150 feet east of large pit (Map Identification No. 22). An old test trench was sampled. Many stones show on surface. Top 5.5 feet is interbedded gravelly sand, pebbly sand, and fine and silty sands. From 5.5'-12' hole shows gravel and gravelly sand. Hole bottoms on a fine or silty sand bed. Sample had too few stones and excess fines for Item 201.
	5	1966	2-10	0-2	No	100	96.0	83.6	17.2	4.0 3.5*	1	---	Sand	Test #5 dug 80 feet east of and 25 feet below Test #4 on level of pasture at foot of north nose. Top 6 feet of hole is a pebbly sand with some silt over a clean sand with a few pebbles. Further testing should be done on pasture for sands of probably lacustrine origin. Edge of terrace could be opened with from 7 feet to 11 feet of sandy gravels overlying sands. Area would extend west where gravels were encountered in Map Identification No's. 22 and 25.
25	1	1966	2.5-30	0-2.5	Yes	74.7	74.3	65.3	11.1	3.0 2.0*	1	---	Gran. Borrow (Sand)	Owner: Jasper Sanville. Area is pit and extension to west located northwest of junction of Vt. Rte. 58 and Town Highway No. 26. Pit has been

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	2	1966	2.5-10.5	0-2.5	No	81.2	69.3	50.6	11.0	3.5	1½	---	Gran. Borrow (Grav.)	landscaped below face of pit which is about 500 feet long. This face exposes eastward-dipping fine gravels and sands. Test #1 was a hand sample of 30-foot high face. Composite of face is a gravelly sand with most stones under 2", and too many stones for Item 202. With screening pit face possibly could be used as source of Item 202, and bank run would go as granular borrow. Test #2 dug at fence corner across deep swale (former pit) northwest of pit. Test is a few feet west of Tests #1 and #2 of Map Identification No. 24. Material is a fine gravel and gravelly sand with a few +4" stones. Hole bottoms in gravelly sand. Sample had barely excess silt for Item 201, and too few proper size stones were included for the wear test.
	3	1966	1.5-10.5	0-1.5	No	87.7	78.6	58.6	8.0	1.8	1	19.8%	Gravel	Test #3 dug 150 feet west of Test #2 near edge of gravelly surfaced area which is part of former pit that was bulldozed and plowed and seeded. Test dug just off edge of field. Material from indistinct layers of sub-angular cobbles, gravel, and pebbly sand. Fewer stones below 5' - a gravelly

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 33

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	4	1966	0.5-10	0-0.5	No	100	100	93.8	22.5	4.5 4.2*	1	---	Gran. Borrow (Sand)	sand. Sand portion of this test is brown in color which is typical of this vicinity. Gravel should be sought in the neighborhood of Tests #25-2, #25-3, and #22-1 on the west, northwest and north of the former pit. Test #4 dug in south corner of field, 50 feet from pit face, and 55 feet from top of highway cut. This test represents immediate extension of pit. Sample was of interbedded coarse pebbly and fine sands becoming silty in the bottom. Sample had excess passing the #100 mesh sieve for Item 202.
	5	1966	0.5-8.5	0-0.5	No	91.6	79.2	52.0	17.0	7.0	1½	12.4%	Gran. Borrow (Grav.)	Test #5 dug between Test #3 and access gate from highway, 135 feet from the road. Material is a silty gravel with many +6" stones - is more silty and coarser than Test #3. Sample had excess fines for Item 201. Field above and west of low swale (former pit) should be tested further, and would probably be a gravel source. Possibly would have to be modified for specification gravels.
	6	1966	0.5-9.5	0-0.5	Yes	100	100	91.7	19.3	2.5 2.3*	1	---	Gran. Borrow (Sand)	Test #6 dug in landscaped floor of large pit, 220 feet from highway. Floor is 55 feet

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 34

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
														wide at this point. Material is interbeds of coarse pebbly to fine sands. Goes to silt-clay at 9.5'. Sample had excess passing the #100 mesh sieve for Item 202. For sands, more tests should be done in floor to north and in pasture to north of pit floor (Map Identification No. 24).
26	1	1966	2-11	0-2	Yes	94.6	86.2	65.0	9.0	1.3	1½	---	Gran. Borrow (Grav.)	Owner: Vincent Keement. Area is a small pit with limited north extension located on the east side of Town Highway No. 26 just north of Vt. Rte. 58. Test #1 dug on west end of north face of pit. Material is a gravelly sand with pebbles in thin layers. Beds dip to the northeast. Sample had too few stones for Item 201, and too few of the proper size were included for the wear test. Feature extends for about 100 feet to the north and then drops off to a drainage from the northwest. Tests may represent lower beds of the kame terrace to the west, or feature may be deltaic at the edge of a glacial lake.
	2	1966	1-20	0-1	Yes	100	96.9	83.1	8.3	2.0 1.6*	2	---	Sand	Test #2 dug on east face of west pit opening, and represents material in a narrow peninsula between the west and east pit openings, Material

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA HSEET NO. 35

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	3	1966	2-14	0-2	Yes	86.2	82.9	61.9	8.0	1.5	1	---	Gran. Borrow (Grav.)	is stratified medium to coarse pebbly sands dipping northeast, and meets Item 202 specifications. Hole continued for 10 feet in floor where fine sand overlies coarse pebbly sands & very fine sands. At 8' hole is in gravelly sand and water. Test #3 dug on east face in east pit opening. The 14-foot face features fine gravel, pebbly sands, and coarse sands. Sample had too few stones for Item 201. A 75-foot east extension possible before feature drops off to poorly drained area and a stream from the northwest. Probably 6 feet to 8 feet of gravelly sands in floor as well as sands and gravelly sands to north and east of pit. Screening required for Item 202. Probably maximum quantity of granular material above lower areas would be around 8,000 to 9,000 cu. yds,
27	1	1966	N	O	T	S	A	M	P	L	E	D		Owner: Leo Lefebvre. One test hole was dug on the northeast side of Town Highway No. 8. Terrain is gently rolling with rounded slopes above drainages. Clays and silt clays encountered in 5-foot hole. Did not sample. Test substantiates that broad valley is underlain

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
														by silts to clays as mapped by Dr. D. P. Stewart.
28	1	1966	2.5-15	0-2.5	Yes	78.4	66.4	56.8	18.0	6.5	1	---	Gran. Borrow (Grav.)	Owner: Dennis MacLure. Area is pit and vicinity on hill on northeast side of Town Highway No. 8. Bedrock outcrops a few rods north of pit, and appears to be close to the surface over the north side of the hill. Pit is on southwest side of hill. Material in tests looked like ice-contact - may be kamic. Test #1 dug on east face of pit. Much sloughed material on face. Top 2.5 feet of face is silty sand going to 3 feet of interbedded pebbly and fine sands. These are underlain by silty to clean gravels. Sample had excess fines for Item 201, and too few proper size stones were included for the wear test. Test #2 dug 40 feet east of pit. Four feet of clay encountered and not sampled. Does not look like water-deposited clay; is massive and looks as though it had been plastered on. Test #3 dug on knoll 70 feet northeast of and 16 feet above pit face. Top 3 feet is brown silty sand going to cobbles and small boulders which herald the advent of a coarse
	2	1966	N	O	T	S	A	M	P	L	E	D		
	3	1966	3-10	0-3	No	72.4	57.8	37.7	7.0	3.3	1	20.4%	Gravel	

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 37

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHTO T-21	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	4	1966	1.5-9	0-1.5	No	83.5	70.1	46.7	11.0	4.0	1	21.6%	Gravel	gravel. Below 5' gravel has very little sand - mostly ½" to 2½" stones - with quite a few +4" stones and some large cobbles. Stones are sub-rounded, mostly black, and have a dull "sooty" look. Test #4 dug 45 feet north of pit on flat place on hillside. Material is a gravel with a few +6" stones. One or two silty sand pockets noted. This hole looks like ice-contact deposition. This is a 35-foot long farm pit, and probably only small quantities of gravel would be found in a north and northeast extension.
29	1	1966	1.5-10	0-1.5	No	100	100	100	36.0	4.3*	1	---	Gran. Borrow (Sand)	Owner: Dennis McClure. Area is one of terrace remnants on the east side of Vt. Rte. 14 across from owner's buildings. Area is mapped as silts to clays by Dr. D. P. Stewart, but thin lacustrine sands were encountered, and small sand areas are shown on Plate I. Test #1 dug on rounded ridge extending south out of steep-sided knoll east of house. Material is a fine to very fine sand going to silt or silt-clay in the bottom. Sample had excess passing the #100 mesh sieve for Item 202.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 38

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	1.5-10	0-1.5	No	100	100	100	41.0	5.5*	1	---	Gran. Borrow (Sand)	Test #2 dug on ridge south across drainage from Test #1. Ridge is steep-sided on west, while east slope is gentle. Top of ridge is somewhat sinuous. Material was fine to silty sand.
	3	1966	2-9	0-2	No	100	100	100	62.0	4.3*	1	---	Gran. Borrow (Sand)	Test #3 dug 220' east of and about 12' below Test #2. Test is at foot of valley slope of hardwood trees. Material is fine to very fine sand becoming moist at 7', and wet at 9'. Area would be a source of granular borrow. Deposits are granular of lacustrine origin.
30	1	1966	1.5-10	0-1.5	No	100	100	100	24.0	5.8*	1	---	Gran. Borrow (Sand)	Owner: Dennis MacLure. Area is pasture hill and hillside north of buildings on west side of Vt. Rte. 14. The sands tested here are probably of lacustrine origin. Test #1 dug on flat top of nose extending out from hill, and is about 275 feet to 300 feet north of house. Material is a medium to fine sand with silty sand seams below 8'.
	2	1966	1.5-10.5	0-1.5	No	100	100	97.7	39.1	9.5 9.3*	1	---	Gran. Borrow (Sand)	Test #2 dug 65 feet west of and below grade of highway about 325 feet northeast of Test #1. Material is a medium to fine sand with pebbles down to 5', and from 5' to 10' fine sands with silty sand layers were encountered. Compo-

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 39

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
														site sample was a silty sand unacceptable for Item 202. Any bedding noted was horizontal, and widest range in grain size was pebbly sand over silty sand seams in Test #2. Possibly deposits are the fines transported from beyond the front of the ice and deposited in the lake waters occupying the broad valley. These would be kame moraine materials transported and sorted by water.
31	1	1966	N	O	T	S	A	M	P	L	E	D		Owner: Jack Lawson. Area is pasture land on the southeast side of Town Highway No. 19 just east of Vt. Rte. 14. Dr. D. P. Stewart has mapped lake sands as occurring between elevations 900 and 940. A test hole was dug in plowed pasture near the edge of the road. Material is a silt to clay with boulders - looks like till - and was not sampled.
32	1	1966	N	O	T	S	A	M	P	L	E	D		Owner: Rodney Smith. A wet-looking area on the south side of Town Highway No. 19 was tested. Entire area was indiscriminantly mapped as lake sand; however, small area north of house appears more granular. Clay and boulders hit in the one test dug. Water trickles in at about 7'.

*Percentage of Total Sample

TABLE I

IRASBURG 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					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1 1/2"	5/8"	#4	#100	#270				
33	1	1966	2.5-11	0-2.5	No	100	100	99.7	6.0	2.5*	1	---	Sand	Owner: Lucien Marcotte. Area is hummocky and hilly pasture partially-to thickly-wooded with softwoods located southwest of and above buildings on the west side of Vt. Rte. 14. Test #1 dug on sloping shelf below steep-sided ridge on the west side and 12 to 15 feet above an intermittent drainage. Material is a medium to coarse sand with a few tiny pebbles. Terrain looks like a kame moraine area, and is mapped as such by Dr. D. P. Stewart.
	2	1966	1.5-11	0-1.5	No	100	98.0	83.2	14.1	5.0 4.2*	1	---	Sand	Test #2 dug atop north end of ridge or hill to west of Test E1. Test #2 is due north of and about 50 to 60 feet above Test #1. Material is a coarse dark brownish gray sand with pebbles.
	3	1966	N	O	T	S	A	M	P	L	E	D		Test #3 dug in swale in low place where intermittent drainage passes through. Material is silt with seams of silt-clay, and was not sampled after digging to 7'.
	4	1966	2-10	0-2	No	100	100	100	78.0	33.0*	1	---	---	Test #4 dug on flat area east-northeast of and about 20 feet above Test #3. Material is silt all the way.
	5	1966	2-10	0-2	No	100	100	100	70.0	17.8*	1	---	---	Test #5 dug near top of thinly wooded slope southeast of and above Test #4. Many Christmas trees here. Material is silty

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 41

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
														sand or sandy silt all the way. Tests #4 and #5 are both too silty for Item 105, Granular Borrow. More testing should be done near Tests #1 or #2 to determine if the hill could be opened as a source of Item 202. Access is about 0.40 mile via field drive leading from Vt. Rte. 14 at the owner's house.
34	1	1966	0-10	None	Yes	100	92.3	79.8	4.0	2.3 1.8*	1	---	Sand	Owner: Jack Lawson. This area includes northwest corner of Lawson pit complex (Map Identification No. 36), and its extension to northwest and north. Test #1 dug 75 feet west-northwest of northwest face of Lawson pit, and is in stripped area. Material is pebbly sand from interbeds of coarse sand and gravelly sand, and represents extension of material sampled in Test #36-3.
	2	1966	0.5-7.5	0-0.5	Yes	90.1	72.2	45.6	16.0	8.0	2½	16.8%	Gran. Borrow (Grav.)	Test #2 dug on top of stripped area north of northwest corner of Lawson pit, and 90 feet north-northwest of Test #36-5. Hole begins in fine sandy gravel with only a few +4" stones. Goes to a coarse pebbly sand at 7'. Sample to 9' or 10' would probably have contained sufficient stones for the gravel item. Excess fines failed the sample for Item 201.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 42

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	3	1966	1.5-5	0-1.5	No	84.2	75.7	64.7	8.0	3.0	1	---	Gran. Borrow (Grav.)	Test #3 dug 90 feet north of Test #2 on gentle west slope. About 1.5 feet of reddish overburden goes to a gravelly sand which grades to a pebbly sand and overlies a fine brown sand at 5'. Contact dips to south. Should have continued hole and run for Item 202, since only 3.5 feet of gravelly sand gives little information as to what the material would be if the pit were extended to the north. This test at least showed ice-contact deposition (the inclined contact between gravel and sand).
	4	1966	2.5-9	0-2.5	No	87.3	66.8	50.8	20.0	8.3	1	20.1%	Gran. Borrow (Grav.)	Test #4 dug 100 feet east of Test #3 and 160 feet northeast of Test #2, and is located near north end of scrub birch area at fence. Material is a "dirty"-looking fine gravel near top becoming cleaner with depth. Looks like a gravelly sand in places. A few 3"-6" cobbles. Hole kept caving so quit at 9'. Sample had excess fines for Item 201.
	5	1966	1.5-10.5	0-1.5	No	95.9	92.2	75.0	15.0	6.3 4.7*	1	---	Sand	Test #5 dug 110 feet north-northeast of Test #4 in open pasture. A pebble bed hit at 2' going to a silt with coarse sand grains adhering. This is underlain by a "dirty"-looking stony sand with fine sand seams.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 43

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
														Sample met requirements for Item 202. Material generally unpredictable in this area. It is probably of ice-contact origin deposited as kames running together or as a kame moraine. Item 202 sands are probably to be found in a small extension at the northwest corner of the Lawson pit. Gravels are a probability north of Test #36-5 and north-northwest of Test #34-2. Sands may be predominant again in the pasture near Test #34-5.
35	1A	1966	2-10	0-2	Yes	94.7	94.7	88.6	10.6	2.5 2.2*	1	---	Gran. Borrow (Sand)	Owner: Town of Irasburg. Area is portion of Lawson pit complex and is approximately 1 acre in size. The southwest side abuts the Girouard portion of the pit; the northwest and northeast sides are within the Lawson pit, and the southeast side is the top of the pit faces. At the time sampled the town was taking gravelly sands from the southeast corner and expanding the pit into the Lawson pasture. Test #1A was sampled from long, narrow pit opening just south of the center of the pit. Top 5 feet is coarse sand with pebbly sand beds becoming finer below that.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 44

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	1B	1966	8-18	0-2	Yes	100	100	100	21.0	5.0*	1	---	Gran. Borrow (Sand)	Test #1B was of fine to medium sand beds with one +6" cobble and a few very thin fine sand or silty sand laminae. Top 10 feet had excess +1½" stones; bottom of face had excess passing the #100 mesh sieve for Item 202. Possible composite sample would have met requirements. Material in Test #1A represents that in extension toward southwest corner of the Town Property(105' x 110'). Test #2 taken on face at east corner where town pit has been extended into Lawson pasture. Material is a coarse pebbly sand stratified with 1 or 2 thin pebble gravel layers. Test #3 dug in floor of pit in east corner under Test #2. A medium to fine gray-tan sand with a few small pebbles was encountered. These two samples met requirements for Item 202; and material would extend southeast to northeast. Test #4 dug on lower face across from Test #1. Top of face is covered by strippings from island of material left on Town Property. Could not get backhoe on this 110-foot x 40-foot area to get sample. Material of Test #4 has excess +1½" stones for Item 202.
	2	1966	2-13	0-2	Yes	100	92.3	80.9	4.8	3.0 2.4*	1	---	Sand	
	3	1966	0-10.5	None	Yes	100	99.0	98.5	16.7	3.5 3.4*	1	---	Sand	
	4	1966	22-35	?	Yes	88.9	85.6	79.3	6.3	2.0 1.6*	1	---	Gran. Borrow (Sand)	

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 45

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	5	1966	0.5-10	0-0.5	Yes	100	100	100	41.0	14.8*	1	---	---	Test #5 dug 70 feet southwest of and a little below Test #1A-1B, and is 80 feet northwest of pit road. Area was stripped long ago. Material is a fine or very fine sand with silt seams and is too fine for Item 105. Material probably represents extension of Test #1B. An indistinct face of sloughed material and trees rises above the stripped area on the east and southeast, and this upper face could probably be extended east and southeast along with the sands of Test #1A.
	6	1966	1-15	0-1	Yes	100	92.1	78.5	4.7	2.5 2.0*	1	---	Sand	Test #6 dug on northeast side of island of material near north end. Trees and strip-pings have been pushed down on this face in places. Material is a very coarse pebbly sand. Not much material left on Town Property. Probably Item 202 sands or gravelly sands extend southeast and east as well as northeast.
36	1	1966	2-19	0-2	Yes	100	100	95.7	6.8	2.5 2.4*	1	---	Sand	Owner: Jack Lawson. This area includes pit faces west, northwest, north, and northeast of Town Property, pastureland northeast of pits, and the two easterly pits and their extension to the north. Test #1 dug on west face of pit complex west of town pit. Test

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 46

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	2	1966	0-10	None	Yes	100	100	93.7	15.0	5.8 5.4*	1	---	Gran. Borrow (Sand)	is near Girouard property line. Sample was of beds of medium to coarse sands with a few pebbles which dip to the southwest. Test is representative of material in west extension which is wooded and which drops off to the west and south within a few rods. Test #2 dug in floor below Test #1. Top 2 feet is medium quartzose sand going to silty sand all the way. Sample had excess silt for Item 202.
	3	1966	0.5-14	0-0.5	Yes	100	100	80.2	5.6	2.0 1.6*	1	---	Sand	Test #3 dug in north-northwest face of pit, and material resembles that sampled in Test #34-1. Top 8 feet of face is mainly pebbly sand going to 6 feet of medium to fine sand with one thin silty sand seam. Sample met requirements for Item 202.
	4	1966	0-11	None	Yes	100	100	100	17.0	4.0*	1	---	Sand	Test #4 dug in floor below Test #3. Material is a fine sand, and this sample, together with the other tests in the northwest corner, represents quite a large volume of sand.
	5	1966	3-25	0-3	Yes	100	100	89.0	30.0	9.0*	1	---	Gran. Borrow (Sand)	Test #5 dug near west end of north face of pit. Top 3 feet is overburden going to 13 feet of pebbly coarse sands. Bottom 12 feet should not have been included in the sample since 9 feet of very fine to silty

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 47

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	6	1966	2-19	0-2	Yes	89.5	85.1	77.2	8.5	2.8 2.2*	1	---	Gran. Borrow (Sand)	sands were encountered. Top 12 or 13 feet probably would have passed for Item 202. Test #6 dug on north face of pit 135 feet east of Test #5. Top 10 feet is pebbly and gravelly sands overlying fine to very fine sands. A 1½-foot thick reddish silty sand layer noted. Sample had excess +1½" stones for Item 202.
	7	1966	0.5-10	0-0.5	No	100	95.9	83.3	3.3	1.5 1.2*	1	---	Sand	Test #7 dug in stripped area 85 feet northwest of shallow pit lying east of the town property. This test represents east extension of town pit. Material is a gravelly and pebbly sand with a very few +2½" stones.
	8	1966	1.5-10.5	0-1.5	Yes	100	100	98.6	30.5	7.5 7.4*	1	---	Gran. Borrow (Sand)	Test #8 dug atop inactive easternmost pit. Top 4 feet is overburden and pebbly sand going to a tan fine and very fine silty sand. Goes at 7.5' to a medium quartzose sand. Sample had excess fines for Item 202.
	9	1966	1-10	0-1	No	90.0	83.8	73.5	4.4	3.5 2.6*	1	---	Gran. Borrow (Sand)	Test #9 dug in pasture 200 feet north-northwest of Test #8 and 200 feet east-northeast of Test #7. Top 2 or 3 feet is a "dirty"-looking pebbly sand, becoming very coarse and continuing very stony the rest of the way. A few 1½"-3" pebbles noted, and sample had excess of

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 48

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	10	1966	1.5-10	0-1.5	No	100	100	99.6	13.9	4.0*	2½	---	Sand	this size for Item 202. Test #10 dug 150 feet north-east of west pit area and about 400 feet northwest of Test #9. Material sampled was a uniform fine to medium sand with thin irregular reddish brown silty sand laminae in places. Sample met requirements for Item 202.
	11	1966	0.5-13	0-0.5	Yes	---	---	---	---	---	---	---	---	Test #11 dug atop small farm pit at head of shallow swale 500 feet southwest of owner's barn. Side of swale about 13 feet to 15 feet below Test #11 shows silts. Test hole dug a few feet above pit face. Top 3 feet of hole is a pebble bed going to vari-colored fine sands interbedded with pebbly sands. Testing laboratory lost test results.
	12	1966	0-6	None	No	100	100	100	9.0	3.8*	1	---	Sand	Test #12 was a hand sample taken down side of knoll exposed in a test trench. Test site is close to farm pit. Material sampled was medium sand acceptable for Item 202. A pit might be opened in the vicinity of Test #12. The area between Tests #11 and #9 possibly would have to be screened or the material loaded discriminantly to avoid the coarser material.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 49

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over- burden (Ft)	Exist- ing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	13	1966	0.5-7.5	0-0.5	Yes	100	100	100	19.0	7.0*	1½	---	Gran. Borrow (Sand)	Test #13 dug on west face of shallow east pit. Face is 7.5 feet high and consists of coarse to fine sands and silty sands. Face bottoms in silt clay.
	14	1966	0.5-7	0-0.5	Yes	100	92.9	82.2	8.2	3.8 3.1*	1	---	Sand	Test #14 dug in east end of pit floor in shallow east pit. This end of 125-foot long x 65-foot wide pit is 6 feet lower than west end. Material is a pebbly sand overlying a silty brown sand at 7'. Acceptable sand probably thins to west in pit floor - small quantities remain. Extension toward Test #7 would probably encounter acceptable sand.
	15	1966	19-30	0-2	Yes	100	100	100	31.0	6.5*	1	---	Gran. Borrow (Sand)	Test #15 dug on lower face of deep inactive east pit. A clay layer at 18'-19' overlies beds of medium to very fine silty sand.
	16	1966	2-8	0-2	Yes	100	98.2	95.3	19.0	3.5 3.3*	1	---	Gran. Borrow (Sand)	Test #16 was a hand sample from 2'-10' on upper face above Test #15. The material is bedded, "dirty"-looking, medium to fine pebbly sand with barely excess passing the #100 mesh sieve for Item 202. Middle beds of face are concealed by sloughed material. This most easterly pit would be source of Granular Borrow, Item 105. Area as a whole would be source of Item 202 coming mainly in a

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 50

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
														northeast extension of the town pit and a north extension of the shallow east pit.
37	1	1966	2-18	0-2	Yes	92.6	80.5	65.5	5.2	2.8 1.8*	1	---	Gran. Borrow (Sand)	Owner: Moise Girouard. This area is pit and scarred pasture hillside to south and southwest. An extension of pit to southeast would go into MacLure property. Deposits like those of Lawson pits and pasture to north are of kame moraine origin, deposited in and sorted by water in contact with the glacial ice. Test #1 dug on south face of pit about 55 feet from southeast end. This face is about 145 feet south of pit road. On this face 2 feet of overburden going to 8 feet of buff-gray sand with a few small pebbles overlying 8 feet of pebbly and gravelly sands. Sample had excess stones for Item 202 and too few stones for Item 201.
	2	1966	2.5-22	0-2.5	Yes	100	87.3	74.7	7.4	3.0 2.2*	1	---	Sand	Test #2 sampled from face at northwest end of pit. Thin interbeds of pebbles, coarse sands, and fine sands were sampled. Face shows a few 1½"-3" pebbles. Extension of this material is west onto pasture hillside where another test of acceptable sands was taken (Test #4).

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 51

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	3	1966	0-10.5	None	Yes	100	100	100	53.0	12.5	1	---	---	Test #3 dug in floor below Test #2. Material is silty sand unacceptable for Item 105. This test and Test #36-2 show that pit floors at lower elevations (on southwest and south sides) are unacceptable as source of granular materials.
	4	1966	2-10	0-2	No	96.5	96.5	91.4	10.0	4.5 4.1*	1½	---	Sand	Test #4 dug in pasture 45' from northwest pit face. Material grades from silty pebbly sand to clean pebbly sand with depth. Pebbly sands are interbedded with fine sands. Test #5 dug 140' southwest of and about 15' below top of face where Test #1 was taken. Here and there on steep pasture slope below this test patches of silty sand occur. Material in Test #5 is brownish-gray, fine sand with silt layers - unacceptable for Item 202.
	5	1966	2-10	0-2	No	100	100	100	26.0	9.3*	1	---	Gran. Borrow (Sand)	Test #6 dug 70' east of south east end of pit and is near Girouard-MaClure property line. Material is very fine to silty sand all the way. Extension of Girouard pit except to west runs to silty sands. MaClure pasture and Girouard property would be source of granular borrow.
	6	1966	3-11	0-3	No	100	100	100	36.0	5.5*	1	---	Gran. Borrow (Sand)	Owner: William Malshuk. Area is pastureland on the northeast side of Town Highway No. 8
38	1	1966	2-11	0-2	Yes	100	100	100	30.0	5.0*	1	---	Gran. Borrow (Sand)	

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 52

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over- burden (Ft)	Exist- ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	1B	1966	8-26	0-2	Yes	100	100	100	30.0	7.0*	2	---	Gran. Borrow (Sand)	the northeast edge of the broad valley. Dr. D. P. Stewart has mapped granular deposits occurring here as of kane terrace origin. A 200-foot long pit has been opened just northwest of the house at the end of Town Highway No. 27. Material from the pit was used as backfill on the Portland pipeline. Test #1A dug on upper north face of pit near northwest end. Material from 2'-11' is interbedded coarse to silty sands which are too fine for Item 202. Test #1B consisted of medium to fine sands with thin reddish brown silty sand partings. Material is densely packed. Silt or clay hit at bottom of face. These sands were on the whole somewhat coarser than those of Test #1A, but failed to meet requirements for Item 202.
	2	1966	2-18	0-2	Yes	100	100	100	21.0	4.0*	2	---	Gran. Borrow (Sand)	Test #2 dug on face in northeast corner of the pit. Material from 2'-7' is coarse sand going to 11 feet of fine to very fine sands with very few silty sand partings. These sands are less dense than those of Test #1B. Sample had excess passing the #100 mesh sieve for Item 202.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 53

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
			N	O	T	S	A	M	P	L	E	D		
	3	1966												Test #3 dug in floor below Test #1. Silt to clay with cobbles encountered for 3 feet and not sampled.
	4	1966	2.5-10.5	0-2.5	No	96.3	88.9	80.0	4.8	2.5 2.0*	1	---	Sand	Test #4 dug 175 feet east of pit on flat area in pasture. Material is gravelly sand grading to beds of sand.
	5	1966	2.5-10.5	0-2.5	No	100	100	100	10.0	3.0*	3	---	Sand	Test #5 dug 250 feet northeast of Test #4 along pasture fence. This test is located at top of steep southeast slope of pasture. Material is medium sand with very fine sand laminae. A few -1½" pebbles noted in the top 3.5 feet.
	6	1966	2-10	0-2	No	100	88.4	74.1	4.5	3.5 2.6*	2½	---	Sand	Test #6 dug 500' northwest of Test #5 just over top of rounded crest of pasture. Material in top few feet is a gravelly sand going to a pebbly sand to depth. Tests on this property show that silty sands are the rule below the pasture (in the pit and vicinity), and that coarser sands could be obtained from the high pasture. Access to the top would be along the edge of the pit floor and up the pasture slope to the west. Lower levels would be source of Granular Borrow.
39	1	1966	2-10	0-2	No	93.8	90.9	83.9	10.1	4.0 3.4*	1	---	Gran. Borrow (Sand)	Owner: William Malshuk. This is a wooded area along a small brook on the northeast side of Town Highway #8 just southeast

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 54

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHTO T-21	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	2	1966	2.5-6	0-2.5	No	84.5	65.0	45.1	13.0	5.0	1	20.6%	Gran. Borrow (Grav.)	of its junction with Town Highway No. 26. A kame terrace has been mapped by Dr. D. P Stewart to the east and northeast, although the wooded area northwest of the meadow shows gravelly sands here and there. Test #1 was dug beside woods road 100 feet northeast of the brook. Material is pebbly sand with a few silt or silt-clay layers. Sample had excess pebbles for Item 202. Test #2 dug 5 feet above and 30 feet from dried-up brook. A silty gravel with mostly sub-rounded -3" stones is interbedded with pebbly gravel. Silty sand hit at 6'.
	3	1966	3-10.5	0-3	No	100	100	99.4	8.9	2.3*	2	---	Sand	Test #3 dug northwest of northwest corner of meadow at edge of woods. A gray quartzose medium sand hit below 1.5 feet of overburden and 1.5 feet of silty gravel. This area might be a source of only small quantity of sand from the north end of the meadow and the small woods.
40	1	1966	2-18	0-2	Yes	100	95.8	91.6	6.4	3.5 3.2*	1	---	Sand	Owner: Marcel Piette. This is a large pit in a rolling field on the east side of Town Highway No. 8 just north of its intersection with Town Highway No. 26. Two large pits have been opened in this vicinity,

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 55

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	1B	1966	18-31	0-2	Yes	100	100	95.1	11.4	1.5 1.4*	1	---	Sand	which has been mapped in kame terrace deposits. Extension of both pits would be north beneath a large flat field (Map Identification No. 43), and possibly into the field below and southeast of the pits. Test #1A was a hand sample taken on the north face about two-thirds of the way to the east end. Top 2 feet is silty sand with pebbles underlain by pebbly sand, coarse sand, a 4-foot thick gravel bed, and gravelly sands. This sample met requirements for Item 202. Test #1B came from beds of medium to fine quartzose sand with a few silty sand laminae. A gravelly or pebbly sand with a few 1"-3" pebbles noted about 6 feet above floor. This material continues to floor. This sample also met requirements for Item 202.
	2	1966	0-10	None	Yes	100	89.8	84.0	7.6	1.5 1.3*	1	---	Sand	Test #2 dug in pit floor 95 feet from east end. Material is a coarse pebbly sand with a few 2"-4" stones and a few thin silty sand lenses in the top 4 feet. Goes to a fine sand at 5', and back to a pebbly sand at 7'. This sample is representative of material in a lower lift, but which is still above the level of the

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 56

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	3A	1966	2-10	0-2	Yes	100	100	88.7	14.2	4.3 3.8*	2	---	Sand	field to the south. Test #3A dug on upper face of east end of pit in northeast corner. The top 10 feet consists of beds of coarse pebbly to fine sands, in places silty. From 6'-10' sand grades from coarse to fine.
	3B	1966	10-21	0-2	Yes	88.1	81.2	61.7	2.0	0.5	1	19.0%	Gran. Borrow (Grav.)	Sample #3B came from a bed of fine gravel overlying pebbly sands on the lower face. Beds dip to the southwest. Sample had barely too few stones for Item 201. Very few +3" stones noted. A composite sample of the face would have met requirements for Item 202.
	4	1966	2-15	0-2	Yes	93.8	84.8	68.1	2.0	1.3	1	---	Gran. Borrow (Sand)	Test #4 dug on face of small pit opened in side of knoll 120 feet east of large pit. Material is a black pebbly gravel or gravelly sand with fewer and small pebbles than Test #3B. Material grades to a coarse sand with fewer stones below 12'. Sample had excess stones for Item 202. Area between large pit and small pit was inaccessible to backhoe since it is the steep side of a knoll, and no tests could be taken.
	5	1966	2-10.5	0-2	Yes	100	100	83.1	5.0	2.5 2.1*	1	---	Sand	Test #5 dug in floor of small pit below Test #4 and is only 2 or 3 feet above the level of the field at this end of the

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 57

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	6A	1966	2.5-11	0-2.5	Yes	80.3	72.1	58.0	6.0	3.0	1	20.8%	Gravel	pit area. Material is a moist, somewhat "dirty"-looking pebbly sand with a few un-sampled small cobbles, and meets requirements for Item 202. Test #6A was a hand sample of gravel beds from the upper west face of the large pit. Extension of these gravels would be west toward the Preseault pit, and possibly to the north toward the Russell Payne field.
	6B	1966	11-26	0-2.5	Yes	94.0	89.0	82.6	2.5	1.5 1.2*	1	---	Gran. Borrow (Sand)	Test #6B was of a 15-foot thick bed of very coarse pebbly sand. Thin beds are formed of oriented pebbles. This sample had excess +1½" stones for Item 202. Pit would be source of Item 202 and possibly small quantities of gravel from the upper east and west ends of the pit. Field south of the pit was hay land and may be a source of sands when the pit becomes depleted.
41	1A	1966	2.5-27	0-2.5	Yes	93.3	89.0	81.0	4.1	1.5 1.2*	1	---	Gran. Borrow (Sand)	Owner: F. J. Preseault. This is second large pit lying between Town Highway No. 8 and the M. Piette pit. This pit is in two parts - an upper north, and a smaller, lower level to the south. Test #1A was a hand sample on the north face of upper pit. This material would extend north-

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 58

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	1B	1966	25-40	0-2.5	Yes	100	100	95.5	2.9	1.0*	1	---	Sand	northeast under fairly flat small field of owner and into R. Payne property. Sample came from a 4-foot thick silty gravel bed at the top and the underlying pebbly sands. A very few +6" cobbles noted, as were a few sand beds which were partially cemented by Iron Oxide. Sample had excess +1½" stones for Item 202. Test #1B was sampled from lower north face of upper pit at a point 40 feet east of Test #1A (too much sloughed material below Test #1A). Material is medium to coarse pebbly sand with only a few +1½" stones and a few reddish-brown silty sand partings. Sample met requirements for Item 202, and a composite sample of the face would probably have been acceptable for that item.
	2A	1966	2-16	0-2	Yes	95.6	84.2	62.9	4.0	1.5	1	10.9%	Gran. Borrow (Grav.)	Test #2A was a hand sample of upper north face of lower pit. Material is fine gravel and gravelly sand with too few stones for Item 201.
	2B	1966	16-28	0-2	Yes	100	100	100	4.0	1.5*	1	---	Sand	Test #2B was a hand sample from the lower north face of the lower pit. From 16'-23' sands are coarse with a few tiny pebbles. The bottom 5 feet of the face is dark-colored very fine sands. A composite sample

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 59

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	3	1966	4-16	0-4	Yes	94.1	87.1	76.4	8.4	3.0 2.3*	1	---	Gran. Borrow (Sand)	of this face would undoubtedly have met grading requirements for Item 202. If this pit were to be used as a source of Item 202, both the upper and lower north faces could be worked from the bottom. Test #3 was sampled from south face of lower pit at southeast corner. Material is coarse to medium pebbly sands with interbeds of predominantly -2" pebbles. Sample had barely excess +1½" stones for Item 202. This sample is probably representative of material in extension to south into field. However, the terrain drops off and the coarse materials may not continue beneath the lower field.
	4	1966	1.5-10	0-1.5	Yes	100	100	98.5	4.9	2.0*	1	---	Sand	Test #4 dug in floor of lower pit near southwest corner. Top 1.5 feet is gravel overlying a coarse to medium pebbly sand continuing to depth. Upper north face of lower pit shows gravels, and their trend can be seen along the west side of the lower pit, and are encountered in the floor. They are possibly remnants of a southward-dipping gravel bed now depleted.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 60

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	5	1966	0.5-10	0-0.5	Yes	90.8	89.7	87.5	3.5	1.3 1.1*	1	---	Gran. Borrow (Sand)	Test #5 dug in floor of upper pit, 80 feet from top of lower face and 90 feet from toe of upper face. Material is a tan gray sand with layers of pebbly sand, coming in below 3.5'. One or two +6" cobbles noted. Sample had excess +1½" stones for Item 202. Lower pit floor measures 120 feet x 95 feet. The upper pit floor measures 90 feet x 50 feet. Pit and extension would be a source of a large volume of sand. An extension to the east might encounter gravels represented by Test #40-6A.
42	1	1966	2-8.5	0-2	No	86.5	67.8	49.4	10.0	5.0	1	24.0%	Gran. Borrow (Grav.)	Owner: F. J. Preseault. This is a small pasture on flat to rolling hill above and north of owner's buildings. Area is also north of and above a small stream, and bedrock is exposed on the northwest side of the pasture. Probably area is near edge of kame terrace. Test #1 dug on flat area north of and above steep access drive into pasture. Material is a "dirty"-looking fine gravel with a few +2" stones. Becomes a gravelly sand below 6'. Material is poorly consolidated and kept caving, so quit digging at 8.5'. Sample had excess silt for Item 201.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 61

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	2-9.5	0-2	No	78.6	64.5	46.3	9.0	4.5	1	22.0%	Gran. Borrow (Grav.)	Test #2 dug 175 feet southwest of Test #1 on hill overlooking buildings. Material in top 5 feet is a silty gravel with a few more stones than Test #1. Below 5' goes to a sand bed over a gravelly sand. Sequence here resembles top of face of Preseault pit across the road. This sample had barely excess silt for Item 201. Steep road bank shows gravelly sands. Pasture may contain 10,000 to 12,000 cu. yds. of gravel, which would meet requirements for Item 201 Modified (silt content).
43	1	1966	2-11	0-2	No	95.2	76.7	60.2	8.0	3.0	1	18.8%	Gran. Borrow (Grav.)	Owner: Russell Payne. Area is a flat to rolling field north of the Preseault property on the east side of Town Highway No. 8. This field is included in Dr. D. P. Stewart's kame terrace. Test #1 dug on property line 175 feet north of Preseault pit and 90 feet east of road. Material is a dark gray-brown gravelly sand with a few +2" stones. Sample had barely too few stones for Item 201.
	2	1966	2.5-10.5	0-2.5	No	96.3	79.2	60.9	7.0	3.8	1	20.0%	Gran. Borrow (Grav.)	Test #2 dug 260 feet east-southeast along fenceline from Test #1, and about 10 feet above its elevation. Top 2.5 feet is silty fine gravel over

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 62

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	3	1966	2.5-9	0-2.5	No	82.5	65.7	46.5	8.0	5.0	1	19.2%	Gran. Borrow (Grav.)	a tan medium sand. A gravelly sand lies at 5.5' to 7.5', with a gravel below 7.5'. Sample had barely too few stones and barely excess silt for Item 201. Test #3 dug at northeast end of field 80 feet from and a few feet above the town road. Top 4 feet is a dark brown sand above a sandy gravel with sub-rounded stones and a few +6" cobbles. From 4'-8' is a gravelly sand, and from 8' to depth is a very coarse pebbly sand. Sample had excess silt for Item 201.
	4	1966	2.5-10	0-2.5	No	95.9	81.5	58.4	9.0	5.0	1	27.0%	Gran. Borrow (Grav.)	Test #4 dug 135 feet east of and 10 feet above Test #3. Material under 2.5 feet of overburden is a fine sandy gravel going to a gravelly sand below 7'. Sample appeared "dirtier" than material on side of test hole, possibly because top 2.5 feet kept falling off, and contaminating the gravels. More testing needed in this field. Very likely acceptable samples could be taken here since rejections were minor.
44	1	1966	5.5-16	0-5.5	Yes	100	91.4	90.1	8.1	1.5 1.4*	1	---	Sand	Owner: Homer Curtis. This is a small pit and adjacent area on the south side of Town Highway No. 8 between it and the old location of the road. Pit is on the north side of a low

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 63

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	2.5-7	0-2.5	Yes	77.7	62.4	48.4	5.0	2.5	1	17.3%	Gravel	wooded knoll with extension to east, south, and west. This is not a source of large quantities of material. Test #1 was dug on 16-foot high face in southwest corner of pit. Top 5.5 feet is sandy or silty gravel. The sample was taken from beds of sand and pebbly sand going to very fine sand in the floor, and met requirements for Item 202.
	3	1966	1-11	0-1	Yes	100	100	100	34.0	7.3*	1	---	Gran. Borrow (sand)	Test #2 dug on west face a few yards north of Test #1. Material is gravel going to sand like that of Test #1 at 7'. Apparently gravel bed dips to north and may have been eroded from where it overlay the knoll to the south. Gravel quantity would be quite small to the west.
	4	1966	1-10.5	0-1	No	97.6	95.2	88.0	30.0	13.0	1	---	---	Test #3 dug 45 feet from town road in entrance to pit. Medium to very fine sands were encountered, along with some silty sands. Sample was too fine and silty for Item 202. This test along with material seen in floor below Test #1 shows that floor of 110-foot x 60-foot pit would not be a source of coarse granular materials.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 64

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
													shackle camp. This test is about 275 feet east of pit. Material to 5' is a gravelly sand with a few +3" stones. Most stones are sub-rounded to sub-angular. From 5'-8' is a fine silty sand with one or two clay seams, from 8' to depth is a fine sand. Sample had excess silt for Item 105.	
45	1	1966	4.5-14	0-4.5	No	100	100	100	14.0	4.0*	2	---	Sand	Owner: Lucien Marcotte. Area is pasture land of knolls and flat, low-lying land west of cornfields and east of Town Highway No. 8. Area was placed in kame terrace by Dr. D. P. Stewart. Test #1 dug on north-east end of large high knoll near road. Top of hole is about 12 feet above small east-flowing brook. Under 4.5 feet of silt to clay material is a fine to medium sand with interbeds of coarse quartzose sand below 8'. A layer of FeO-stained sand noted at 10'. Sample met requirements for Item 202.
	2	1966	3-10	0-3	No	100	100	100	65.0	22.5*	1	---	---	Test #2 dug atop knoll south of and above Test #1. Material is a silty sand and silt all the way. Base of knoll may be sand, but excessive stripping of or contamination by the overlying silts must result if a pit were opened here.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 65

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	3	1966	3-10.5	0-3	No	87.4	73.1	55.7	8.0	3.0	1	23.2%	Gravel	Test #3 dug on low level of pasture, south-southwest of top of knoll and next to field drive up into cornfield. Top 3 feet is silty sand going to pebbly sand, and to a gravel at 7'. Some fines look a little "dirty" and some stones seem a little soft. However, sample met requirements for Item 201.
	4	1966	2-10.5	0-2	No	100	100	95.0	24.7	4.0 3.8*	3	---	Gran. Borrow (Sand)	Test #4 dug 120 feet west-northwest of Test #3 at about same elevation. Material is a medium sand with a few small pebbles and 1 or 2 +3" cobbles. Intent in digging test hole here was to find extension of gravel. Sample had excess passing the #100 mesh sieve for Item 202.
	5	1966	N	O	T	S	A	M	P	L	E	D		Test hole #5 was dug 145 feet southwest of Test #3 and 100 feet southeast of Test #4. This hole is at toe of slope up to cornfield. Material is a pebbly and silty sand down to 5', and then goes to a fine sand. Did not go deeper and did not sample - material looked like that of Test #4.
	6	1966	2-9.5	0-2	No	100	100	100	49.0	11.0*	2	---	---	Test #6 dug 170 feet north-northeast of Test #3 near head of small intermittent drainage. Material is a very fine silty sand down to 9.5', and then

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 66

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
														goes to a bouldery and cobbly sand. Could not get on "terrace" in cornfield to sample, but side of terrace in one woodchuck hole shows fine pebbly sand. Only a very small volume of gravel to be had here as shown by Tests #3-#6.
46	1	1966	0-10	None	No	100	100	93.5	57.9	24.0	1	---	---	Owner: Mrs. Angela Roberts. This area is flat-topped spurs extending out from side of valley, and includes an east-facing valley slope. Area is located on the northwest side of Town Highway No.8, and is crossed by intermittent drainages. Dr. D. P. Stewart mapped the edge of the kame terrace at or near the foot of the valley slope at the west edge of the flat spurs. Test #1 dug 70 feet from road on east-facing cobble-strewn slope below an old barn. Material is a pebbly silt from interbeds of silt and pebbly sand dipping steeply east. Sample had excess silt for Item 105.
	2	1966												TEST SAMPLED Test #2 dug 110 feet northwest of and about 12 feet above Test #1. Under a 1-foot thick layer of cobbles is silt. Dug for 5 feet, and did not sample. This slope is stripped and strewn with stones. Material from near the surface may have

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 67

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	3	1966	N	O	T	S	A	M	P	L	E	D		been used for backfill on the Portland pipeline which is just upslope from the test area. Test #3 dug northeast across swale from Test #1 on large flat-topped hill. Dug for 6 feet in silt or sandy silt, and did not sample.
	4	1966	2-11	0-2	No	100	100	100	45.0	5.3*	1½	---	Gran. Borrow (Sand)	Test #4 dug at foot of hill east of Test #3 and 90' west of road. Material is a fine silty sand acceptable for Item 105. This hole is at same elevation as top of Test #1 across road.
47	1	1966	1.5-10	0-1.5	No	100	100	100	97.0	50.0	1	---	---	Owner: Mrs. Angela Roberts. This is pasture on Town Highway No. 8 and thin woods and pasture east of and below road. Area mapped as kame terrace. Test #1 dug in north end of pasture near corner of field 120 feet east of road. Uniform silt all the way.
	2	1966	N	O	T	S	A	M	P	L	E	D		Test #2 dug at edge of woods 120 feet southeast of and 10 feet above Test #1. Hole is 100 feet north of and 20 feet above road leading down to east. Material is silt down to 5' and was not sampled.
	3	1966	2-10	0-2	No	100	100	100	4.0	1.3	1	---	Sand	Test #3 dug in southwest corner of lower pasture east of and below test #2. Material is a medium to coarse sand.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 68

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
							4	1966	2-9.5	0-2				
48	1	1966	2.5-10.5	0-2.5	No	100	100	100	8.0	4.0	1	---	Sand	Owner: Isabelle Lavoie. Area is pit and vicinity on Ware Brook on east side of Town Highway No. 8. Test #1 dug south of brook 100' from road on pasture slope. Material is a coarse quartzose sand with a few thin silty sand laminae. These sands represent the beds underlying the silts encountered in Tests #1 & #2 of the Roberts property, and appear to be only a few feet lower than Tests #3 and #4.
	2	1966	2.5-13	0-2.5	Yes	94.8	94.8	88.4	6.2	3.3 2.7*	1	---	Gran. Borrow (Sand)	Test #2 dug on east face of top of pit opened in steep wooded bluff above Ware Brook. Pit is about 750' north of Test #3 of Map Identification #47. Material is a pebbly sand over gravelly sand at 13' which is top of lower face. Sample had barely excess +1½" stones for Item 202.
	3	1966	2.5-26	0-2.5	Yes	84.9	68.6	54.7	6.0	1.5	1	19.4%	Gravel	Test #3 dug by hand and backhoe on lower north face of pit. Face consists of coarse pebbly

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 69

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
														and gravelly sand and fine gravel. Bottom 8 feet of face is mostly pebbles with silty sand coatings. Sample met requirements for Item 201. Extension of pit would be north and possibly south along edge of bluff. Sands atop gravels could be taken off first.
49	1	1966	1.5-11	0-1.5	No	100	98.0	87.8	29.0	12.0 10.5*	1	---	---	Owner: Lucien Marcotte. Area is narrow, 1700-foot long pasture lying west of Vt. Rte. 14 on the north side of an east-flowing brook. Area is within kame moraine as mapped by Dr. D. P. Stewart. Test #1 was dug under powerline overlooking highway and owner's house. Test is atop stony bank above brook. Material is pebbly sand interlayered with silts and fine sands. Beds dip gently to east.
	2	1966	1.5-11	0-1.5	No	100	100	93.7	19.7	7.5 7.0*	1	---	Gran. Borrow (Sand)	Test #2 dug 225 feet west of Test #1 above steep north bank of brook. Material is interbedded fine to coarse pebbly sands with silty sand seams. Sample had excess passing the #100 and #270 mesh sieves for Item 202.
	3	1966	N	O	T	S	A	M	P	L	E	D		Test #3 dug west of Test #2 on southwest base of prominent knoll atop brook bank. Material is silt to clay down to at least 6' and was not sampled.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 70

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	4	1966	2-11	0-2	No	100	96.4	92.3	7.4	3.0 2.8*	1	---	Sand	Test #4 dug 400 feet west of Test #3, 145 feet north of brook in swale. Material is a medium sand with pebbles and a 1-foot thick band of fine sand at 4'. Goes to a gravelly sand at 11'. Beds dip to south. Sample met requirements for Item 202.
	5	1966	1.5-10.5	0-1.5	No	90.3	83.1	64.8	9.0	4.0	1	---	Gran. Borrow (Grav.)	Test #5 dug 80 feet west of and downslope from Test #4. Material from 1.5'-3' is a coarse dark brown pebbly sand with FeO-stained bands going to a very coarse gravelly sand. This in turn overlies a coarse pebbly sand. Composite sample is a gravelly sand with too few stones and excess silt for Item 201.
	6	1966	2-20	0-2	No	87.4	73.8	60.7	11.0	4.5	1	---	Gran. Borrow (Grav.)	Test #6 dug 155 feet west of Test #5 on 20-foot high steep brook bank. Bottom 6 feet of face is a sandy gravel passing upward through pebbly, gravelly and coarse sands. Sample had barely too few stones and excess silt for Item 201.
	7	1966	2.5-11	0-2.5	No	100	100	90.0	23.4	6.8 6.1*	1	---	Gran. Borrow (Sand)	Test #7 dug at tree line at west end of pasture 130 feet north of brook. Material is interbedded silty fine to very coarse pebbly sands.
	8	1966	3-10.5	0-3	No	100	98.5	92.8	7.4	2.8 2.6*	1	---	Sand	Test #8 dug just above level of brook 110 feet west of Test #6. Top 3 feet is reddish

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 71

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	9	1966	2.5-10	0-2.5	No	96.4	87.1	66.5	8.0	3.8*	1	---	Gran. Borrow (Sand)	silt overlying coarse pebbly sand. Material only slightly moist in spite of being next to brook. Sample met requirements for Item 202. Test #9 dug on north side of pasture about 525 feet from west end. This test is 250 feet north of and above Test #4. Material is coarse pebbly sand with a bed or two of gravelly sand. Bottoms in very coarse sand with many small pebbles. Sample had excess stones for Item 202. A sand source from vicinity of Test #4, and gravelly sands can be obtained from vicinity of Tests #5 and #6. More testing should be done on upper north side of pasture.
50	1	1966	N	O	T	S	A	M	P	L	E	D		Owner: Mrs. Angela Roberts. This area is pasture land along powerline southwest of pit on the west side of Vt. Rte. 14. Pasture is one of rolling terrain of knolls and ridges near old deserted house. Test hole #1 dug in pasture about 200 feet west of powerline southwest of and above old house. Material is reddish silt and sandy silt all the way and was not sampled.
	2	1966	2-9	0-2	No	100	100	99.0	66.0	33.8*	1	---	---	Test #2 dug just east of powerline and just southeast of

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 72

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over- burden (Ft)	Exist- ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	3	1966	N	O	T	S	A	M	P	L	E	D		pine grove about 250 feet east of Test #1. Material is silt with a pebble or two like Test #1, going to gravel at 9'. Sample had excess silt for Item 105.
	4	1966	3-9.5	0-3	No	87.3	76.5	60.4	20.0	7.0	1	---	Gran. Borrow (Grav.)	Test #3 dug in saddle along ridge of coalescent knolls east of powerline and north-northeast of Test #2. Dug for 6 feet in silt to clay looking for gravel found in bottom of Test #2. Did not sample. Test #4 dug 90 feet north of and 10 feet above elevation of Test #3 on high point along hummocky ridge. Under 3 feet of reddish silty overburden is a "dirty", poorly-sorted gravel, becoming fine and clean below 5.5'. It goes to a pebbly sand at about 8' and is very cobbly at 9.5'. Sample had excess fines for Item 201, and insufficient proper size stones were included for the wear test. More testing should be done on the ridge, east of the ridge on which Tests #3 and #4 were dug. This feature appears to be in the continuation of the one in which a pit to the north has been opened.
51	1A	1966	3-22	0-3	Yes	61.5	42.4	30.1	20.0	9.0	3	16.2%	Gran. Borrow (Grav.)	Owner: Mrs. Angela Roberts. This is a pit and immediate

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 73

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	1B	1966	20-35	0-3	Yes	61.2	45.0	33.4	9.0	3.5	1	18.1%	Gravel	vicinity just southwest of the junction of Vt. Rte. 14 and Town Highway No. 18. Ice-contact material, probably deposited in a kame moraine, is exposed. Test #1A was a hand sample of upper face on northwest corner of pit. Material is silty gravel with many +6" cobbles, and a few small boulders. All stones are sub-angular to sub-rounded, and some seem soft. Sample had excess fines for Item 201. Test #1B sampled from 20'-35' on face below Test #1A. Material is a clean gravel with cobble layers and sand layers. Only a few +6" cobbles. This sample met requirements for Item 201. Composite of face would average 6.5% to 7% passing the #270 mesh sieve. Little extension possible in this part of feature - the knoll in which pit is located drops off to the north and west quite abruptly.
	2A	1966	2-12	0-2	Yes	70.4	53.8	35.1	21.0	13.3	1	12.4%	---	Test #2A taken on upper southeast face of pit. Material is a gravel with much silt to clay and minor sand, and a few +6" stones. Small stones are sub-rounded. Sample had excess silt for Items 201 and 105.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 74

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	3	1966	10-32	0-10	Yes	75.2	55.8	39.1	8.0	4.0	1	15.8%	Gravel	Test #3 dug on face on southwest corner of pit. Top 10 feet is silt and stones going to 8 feet of silty gravel overlying beds of fairly clean gravel, sandy gravel and gravelly sand. Face shows a few small boulders, and some +6" cobbles. A few angular cobbles show in bottom. Sample met requirements for Item 201. Very little extension in this corner of pit possible - knoll drops off.
	4	1966	0.5-5.5	0-0.5	Yes	88.0	71.1	50.4	6.0	3.8	1	18.0%	Gran. Borrow (Grav.)	Test #4 dug in floor near south end of pit. Material is a gravel with a boulder or cobble or two, and seems fairly clean. Water enters at 5.5'. Sample had barely excess silt for Item 201.
	5	1966	N	O	T	S	A	M	P	L	E		D	Test #5 dug 90 feet west of pit on small flat area below top of knoll which pit is in. Material in hole is unsorted sand, silt, cobbles, and boulders, and was not sampled. This hole is probably representative of material in west extension of pit.
	6	1966	2-9	0-2	Yes	59.2	44.6	30.9	20.0	12.8	1	22.8%	---	Test #6 dug 40 feet southwest of top of southwest corner of pit. Material is a silty bouldery gravel with 35% to 45% exceeding 6". Seems somewhat cleaner and less bouldery

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 75

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
														below 5'. This pit is pretty well depleted. Possible gravels in small northwest extension could be crushed for their best use. An extension along the west edge of and above Vt. Rte. 14 south of the knoll in which the pit has been opened seems likely, and is recommended for testing.
52	1	1966	N	O	T	S	A	M	P	L	E	D		Owner: Mrs. Angela Roberts. This is a large roughly flat-topped hill on the east side of Vt. Rte. 14 just north of Town Highway No. 18. A pit was opened on the south end from which filler for hot mix was allegedly taken. Test #1 was dug on second face up from pit floor. Material is a silt and plastic clay and was not sampled.
	2	1966	3.5-11	0-3.5	Yes	85.6	76.9	65.7	5.0	2.5	1	---	Gran. Borrow (Grav.)	Test #2 dug on second floor below Test #1. Under 3.5 feet of silt to clay is a densely-packed silty gravel with sub-rounded stones. Material becomes a fairly clean gravelly sand below 6.5'. Sample had too few stones for Item 201.
	3	1966	N	O	T	S	A	M	P	L	E	D		Test #3 dug on top of hill + 450 feet north of top of pit. Hill top is rolling with many protruding boulders. Hole showed silt to clay and was not sampled.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 76

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHTO T-21	Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	4	1966	2.5-11	0-2.5	No	72.2	64.4	51.4	10.0	4.5	1	24.6%	Gran. Borrow (Grav.)	Test #4 dug just north of top of pit face where many stones show at surface. Material below 2.5 feet of silt and stones is a sandy gravel with some rotten stones. Most stones are sub-rounded to sub-angular and are generally under 4". Gravel becomes fairly clean below 7.5'. Sample had excess silt and excessive wear for Item 201. Clays appear on steep slope of hill above pit face about 13 feet below elevation of Test #4.
	5	1966	3.5-11	0-3.5	No	95.2	93.4	92.5	16.7	4.8 4.4*	1	---	Sand	Test #5 dug 80 feet north of Test #4. Boulders noted embedded in surface nearby. Top 2.5 feet of hole is soil and silt and stones, and then goes to a gravelly sand with some silt. Below 7' is a clean medium sand. Area was mapped as lacustrine deposition by Dr. D. P. Stewart, but till-like surface and material in test holes indicates poor sorting such as might be expected in a kame moraine. More testing is indicated on the west side of the hilltop. Many stones show in places.
53	1	1966	1.5-8.5	0-1.5	No	60.2	48.2	35.9	20.0	9.5*	1	27.6%	Gran. Borrow (Grav.)	Owner: Merton Thayer. Area is pasture land on the west side of and above Vt. Rte. 14 about 0.50 mile north of Town

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 77

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	2	1966	15-25	?	No	66.3	59.7	41.5	22.0	13.3	1	29.8%	---	<p>Highway No. 18. Test #1 dug atop pasture hill southwest of and above house about 220 feet north of the Lavoie property line. Material is a silty, poorly-sorted gravel with many soft stones and quite a few +6" sub-angular to angular stones. Boulders quite abundant at 8.5'. A large outcrop or ledge fragment of phyllite is located 180 feet west of the test hole.</p> <p>Test #2 dug beside field drive where it passes between two knolls west of and behind house. Drive may be following old stream course. Side of knoll shows silts, gravels, and boulders in 25-foot high face, the bottom 10 feet of which was sampled as Test #2. Silt to clay and rotten stones were also included in sample which failed for Items 201 and 105. Northwest of Test #2 atop knoll or flat hill, shows gravelly sands in places but cornfield precluded testing.</p>
54	1	1966	2.5-10.5	0-2.5	No	96.4	85.4	73.0	17.5	9.5 6.9*	1	---	Gran. Borrow (Sand)	<p>Owner: Merton Thayer. Area is rough pasture land and sand and piney terrain west of and above Vt. Rte. 14 south of the Levi Dean property. Test #1 dug at head of gully in area of exposed sand 335 feet south</p>

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 78

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	2	1966	1-10	0-1	No	84.6	57.3	41.8	22.0	10.0	1	29.4%	Gran. Borrow (Grav.)	of Dean-Thayer property line. Under 2.5 feet of silty sand overburden is 2 feet of medium sand with FeO stained layers and a few pebbles. Goes then to a 4.5-foot thick coarse pebbly sand layer overlying a silty sand. Beds show gentle dip to south. Sample had excess silt for Item 202. Test #2 dug atop knoll just west of exposed sand area and on south-southwest side of clump of pines. Material is a silty gravel with a few 4"-6" cobbles and some soft stones. Gravel looks fairly clean in the bottom. Sample had excess fines and excessive wear for Item 201. Area is mapped as kame moraine, and Tests #1 and #2 show wide range in particle size.
	3	1966	1.5-10.5	0-1.5	No	96.1	90.5	77.1	3.9	1.8 1.4*	1	---	Sand	Test #3 dug on low, broad ridge about 100 feet south of and 8 feet to 10 feet below Test #2. Interbeds of pebbly sand and fine sand encountered. Mainly a gravelly sand below 4.5'. At 9.5' a very coarse quartzose sand encountered.
	4	1966	1.5-10.5	0-1.5	No	100	83.8	76.2	3.0	3.0 2.3*	1	---	Sand	Test #4 dug in once-plowed area at top of slope overlooking Vt. Rte. 14. Test is 200 feet southeast of Test #3. Material down to 4' is a "dirty"-

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 79

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
														looking pebbly sand going to a clean pebbly sand. Becomes a gravelly sand at 10.5'. Area would be source of Item 202 sands between Tests #3 and #4. Area of exposed sands is located west of and above Thayer pit (Map Identification No. 58), and would be a source of Granular Borrow, Item 105. More testing should be done just west of area of exposed sands to determine if they would meet requirements for Item 202.
55	1	1966	4.5-15	0-4.5	No	67.2	55.8	45.0	15.0	5.5	1	21.2%	Gran. Borrow (Grav.)	Owner: Wayne Doncaster. One test of a steep roadside bank on the east side of Town Highway No. 8 south of the Eastman farm. Material is interbedded pebbly sands, medium sands, and sandy gravel. Sands show brownish-red silt laminae. Sample is probably representative of material under wooded slope to east. Pit to northwest shows sands over gravels, and probably gravels would lie at depths below sands behind this test. Clearing and more testing recommended.
56	1A	1966	2.5-20	0-2.5	Yes	100	90.7	80.6	7.2	4.0 3.2*	1	---	Sand	Owner: Wayne Doncaster. Area is pit and extension to north located on the east side of and above Town Highway No. 8 opposite the Eastman farm.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 80

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over- burden (Ft)	Exist- ing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	1B	1966	18-28	0-2.5	Yes	88.2	68.7	57.9	4.0	2.3	1	---	Gran. Borrow (Grav.)	Pit is about 100 feet x 75 feet with a 35-foot to 45-foot face. Some clearing and stripping has been done atop the north and northeast faces. Test #1A sampled from 2.5-20 feet on the east face. Beds of fine to coarse pebbly sand and silt laminae were sampled. Test #1B sampled from 18 feet to 28 feet. Beds of pebbly sand and fine gravel were encountered. Too few proper size stones were included for the wear test. Bottom 13 feet of face was concealed by slide material and backhoe dug for 2 hours without hitting in-place material.
	2	1966	2.5-12	0-2.5	No	100	100	99.3	10.0	3.5*	1	---	Sand	Test #2 dug near edge of thinly wooded area above edge of narrow field about 90 feet northwest of pit. Material is medium sand with a somewhat silty layer at 6'. Goes to fine sand in bottom. Test is representative of material in north by northwest extension of pit. Clearing required.
	3	1966	2.5-11	0-2.5	No	100	100	96.0	7.6	3.5 3.4*	1	---	Sand	Test #3 dug about 170 feet northeast of northeast face of pit. Hole is about 175 feet east of and upslope from Test #2. It is thickly wooded around test. Material in upper 5.5 feet looks "dirty"; it

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 81

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	4	1966	2.5-12.5	0-2.5	No	100	100	100	61.0	8.5*	1	---	Gran. Borrow (Sand)	is a fine sand. A partially cemented FeO-stained layer noted at 5.5'. Sand is medium to coarse with a few pebbles toward the bottom. Composite sample met requirements for Item 202. This test represents material in extension to north and northeast of pit. Test #4 dug about 400 feet northeast of Test #2 in a poplar grove. Material is a very fine silty sand going to fine sand at 12'. Area is sand source from pit extension of upper faces on east and north sides, and possibly to south clearing required. There is a possibility of gravels with depth.
57	1	1966	2-12	0-2	No	100	100	100	97.0	52.3*	1	---	---	Owner: Levi Dean. Area is rolling pasture west of Levi Dean's south pit west of and above Vt. Rte. 14. Pasture is within kame moraine deposition as mapped by Dr. D. P. Stewart. Granitic boulders show here and there on surface. Test #1 dug 120 feet west-northwest of top of south pit. Material is silt with layers of silty clay, and sample taken proved unacceptable for Item 105.
	2	1966	3.5-11	0-3.5	No	100	100	100	48.0	18.0*	1	---	---	Test #2 dug 390 feet west of Test #1 on knoll overlooking west slope of pasture. Material

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 82

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	3	1966	N	O	T	S A M P L E								under 3.5 feet of silt is very fine silty sand with silt laminae and is too fine for Items 202 and 105. Test #3 dug at edge of woods 120 feet north of Test #2. Dug in silt for 6 feet and did not sample.
	4	1966	2-10.5	0-2	No	100	100	100	72.0	21.0*	1	---	---	Test #4 dug north-northeast of Test #1 at east end of patch of woods. Material is silt in top, going to silty sand and is unacceptable for Items 202 and 105. Area is not a source - tests show type of material in west extension of top of Dean south pit and southwest extension of Dean north pit.
58	1A	1966	1-18	0-1	Yes	87.9	86.3	72.0	2.9	2.0 1.4*	1	---	Gran. Borrow (Sand)	Owner: Merton Thayer. This area is a pit complex with one level west of Vt. Rte. 14 and at its elevation, and with two or three old diggings above the main pit. The pits are just south of the Dean property. Test #1A sampled from upper east face of pit above highway. Only top 18 feet of 32-foot face was sampled - bottom was concealed by much sloughed material. Top 10 feet is gravelly sand with a very few +3" cobbles overlying thin beds of sand. Sample had excess +1½" stones for Item 202. Little or no extension on this side

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 83

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	1.5-21	0-1.5	Yes	87.5	61.4	42.0	9.0	4.0	1	20.0%	Gravel	of pit because of highway. Test #2 taken on gentle gravel slope at north end of pit above lower face. Gravels continue into top of lower face. (See Test #4). Gravels are generally fine with few +4" stones. Extension of these gravels appear to be north into the Dean property and westward into the hill.
	3A	1966	4-17	0-4	Yes	100	100	97.5	27.3	6.3 6.1*	1	---	Gran. Borrow (Sand)	Test #3A taken from 4'-17' on west face. Top 4 feet is silt going to thin gravelly sands overlying pebbly sand. At 9' fine to silty sands come in and continue to 17'. Sample had excess fines for Item 202.
	3B	1966	25-45	0-4	Yes	82.9	77.2	64.9	6.0	3.0	1	---	Gran. Borrow (Grav.)	Test #3B sampled from lower 20 feet of face. Gravelly pebbly, and fine sands encountered. Sample had too few stones for Item 201. Composite of face would probably meet requirements for Item 202.
	4	1966	0-14	None	Yes	85.2	71.2	51.9	11.0	5.5	1	26.0%	Gran. Borrow (Grav.)	Test #4 dug on lower north face. Top 3 feet is continuation of gravels of Test #2 overlying a silt-clay seam. This is underlain by a thin cemented gravel bed. Lower part of face is a "dirty"-looking gravel over a bed of ½"-2½" pebbles, and next going to a gravelly sand with one or two angular boulders. Sample

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 84

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over- burden (Ft)	Exist- ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	5	1966	6-18	0-6	Yes	92.0	86.2	66.0	13.0	6.3	1	33.8%	Gran. Borrow (Grav.)	had excess fines and excessive wear for Item 201. Test #5 dug on south face of pit near southwest corner. Test is representative of pit extension into field to south. Top 6 feet is silt to silty clay going to beds of fine gravel, silty gravel, and silty to coarse sand seams. Bottom of face is coarse pebbly sand with FeO-staining.
	6	1966	0.5-8.5	0-0.5	Yes	71.5	55.6	45.8	4.0	2.8	1	9.2%	Gravel	Test #6 dug in middle of pit floor. Material is a cobbly gravel with a boulder or two. Most stones are sub-rounded and look hard. Fines consist of brownish-black very coarse sand grains. About 15%-25% exceed 6".
	7	1966	2.5-10	0-2.5	No	100	81.6	73.8	24.3	9.5 7.0*	1	---	Gran. Borrow (Sand)	Test #7 dug south of southwest corner of pit under powerline. Test is representative of extension of pit to southwest. Material in sample taken from layers of fine to medium silty sands overlying a gravelly sand at 6'. At 10' hit a stony layer with soft-looking stones. Sample had excess fines for Item 202.
	8	1966	0.5-9	0-0.5	Yes	67.7	52.6	38.7	9.0	4.3	1	---	Gran. Borrow (Grav.)	Test #8 dug in upper area of small workings close to the Dean property line. Hole was located on top of small pit 85 feet south of the Dean fence.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 85

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	9	1966	0.5-10	0-0.5	No	94.9	87.4	63.4	17.0	6.0	1	---	Gran. Borrow (Grav.)	Material is a gravel with a few soft and tabular stones. It has a few +6" cobbles and looks a little "dirty". Test is atop 70-foot x 25-foot pit with 9-foot high faces. Sample met grading requirements for Item 201, but too few proper size stones were included for the wear test. Test #9 dug about 35 feet east of small pit and about 6 feet below its elevation. Material is a gravelly sand with mainly ½"-1½" pebbles down to 7', going to a pebble gravel bed, and at 9' to a gravel. Sample had too few stones for Item 201. This area up here looks as though it could be stripped and opened for a gravel source. Test #9 indicates that gravels might extend to quite a depth - possibly they are contiguous with those of Test #2. Access would be either through Dean property or through the pastures and area of exposed sand to the south. Main lower pit would be source of small quantities of sand on the west face and of gravels on the lower north end. If these gravels are contiguous with those of Tests #8 and #9, they could perhaps be worked with a high face

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 86

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
														reaching west from the north end of the main pit.
59	1	1966	0-12	None	Yes	61.2	45.6	28.2	5.0	3.0	1	17.2%	Gravel	Owner: Levi Dean. Area is south pit of two pits west of and above Vt. Rte. 14 behind owner's buildings. Pit is 180 feet long and 65 feet wide with its south end at the Thayer-Dean property line, and lies just west of powerline. Top of west face shows silty sands; gravels lie on the lower faces and in the floor. Test #1 dug on lower east face below narrow shelf. Top 7 feet has many +6" cobbles under a 1½"-foot thick layer of pebbles and continues as a sandy gravel. About 25%-35% is coarse than 6" from 1'-7'.
	2	1966	0-11.5	None	Yes	62.4	52.4	31.8	3.0	2.3	1	17.6%	Gravel	Test #2 dug in floor below Test #1. Interbeds of coarse to fine gravels with beds of pebbles were sampled.
	3	1966	2-9	0-2	Yes	60.1	53.3	35.9	3.0	1.3	1	15.2%	Gravel	Test #3 dug in floor at north end of pit which is a foot or two below level of shelf on west side of pit. Two feet of "dirty" gravel overlies a clean gravel with very coarse pebbly sand and a few large cobbles and small boulders. Stones are sub-rounded to sub-angular.
	4	1966	10-40	0-10	Yes	89.9	86.7	82.3	5.8	3.0 2.5*	1	---	Gran. Borrow (Sand)	Test #4 dug on 50-foot high face at southwest corner of pit. About 10 feet of silt

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 87

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	5	1966	1-9	0-1	Yes	86.5	66.3	46.7	4.0	1.8	1	19.4%	Gravel	overlies an interbedded series of fine to coarse pebbly sands and silty sands. Becomes a gravelly sand about 10 feet above west shelf, and here excess sloughed material precluded further sampling. Sample had excess +1½" stones for Item 202. Test #5 dug on shelf on west side of pit below Test #4. Material is a gravel, sandy in places, very clean in some beds. A few 4"-8" cobbles and 1 or 2 small boulders noted. Most stones are in the 2"-4" range and are sub-rounded. Tests in the lower part of the pit are probably representative of a large volume of gravel. However, material above the narrow shelves on either side of the pit is silt over pebbly and gravelly sand and would have to be removed. That material in vicinity of Test #4 could possibly be mixed with the gravels.
	6	1966	17-32	0-17	N O T	S	A	M	P	L	E		D	Test #6 dug on lower west face of pit above shelf at north end. About 6 feet of gravel overlies a 4.5-foot thick cemented gravel bed (hardpan). Bottom of face is a very coarse pebbly sand. Face was not sampled because of the thick

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 88

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	7	1966	0.5-11	0-0.5	Yes	100	100	100	55.0	16.5*	1	---	---	hardpan layer. Test #7 dug in stripped area under powerline near top of east face of pit, and is about 55 feet north of fence. This test represents extension of material overlying Test #1. Some small stones noted in the top 2 feet and then goes to a very fine silty sand and silt. Sample is too fine for Items 202 and 105.
	8	1966	0.5-10	0-0.5	Yes	93.1	87.7	77.5	15.5	6.3 4.9*	1½	---	Gran. Borrow (Sand)	Test #8 dug in stripped area about 125 feet east of north end of pit and about 130 feet from Test #7. This test is about 15 feet below elevation of Test #7. Material is a "dirty"-looking gravelly sand with a few sub-angular cobbles and small boulders. Goes to a brown silty sand at 10'. Sample had excess +1½" stones for Item 202, and material would have to be screened. Possibly material in stripped area could be loaded as granular borrow so as to uncover the lower gravels. A small quantity of gravel would be possibly across the fence in the upper Thayer diggings, but it might be more feasible to work that area in with the Dean property and use the material as granular borrow.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 89

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
														Vicinity of Test #7 would be a pocket of bad material. Upper west face would have to be stripped to a depth of at least 8 to 10 feet, and then one high face might yield a composite gravel acceptable for Item 201. However, extent and gradation of materials in upper and lower existing faces is not known. Composite material could be used as town road gravel, except it doesn't contain enough silt to pack well.
60	1A	1966	5-28	0-5	Yes	68.0	58.8	44.1	6.0	3.3	1	21.8%	Gravel	Owner: Levi Dean. This is huge north pit on Dean property west of and above Vt. Rte. 14. Pit was about 350 feet x 205 feet at the time tested. Test #1A was sampled on upper face on northwest side of pit under powerline. About 5 feet of silty sand overlies 11 to 13 feet of gravel, 8 to 10 feet of pebbly and gravelly sand, and a 4-foot to 8-foot cobble gravel bed near the bottom of the face. This stratification continues for a distance of about 170 feet along the west face with an increase of silty sand overburden toward the south end. Test #1A was a sample of the gravel and pebbly sand beds.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 90

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	1B	1966	26-36	0-5	Yes	73.8	64.5	38.7	3.0	1.5	1	21.6%	Gravel	Test #1B came from fine gravels overlying 3 or 4 feet of cobbly gravel which has thinned from 8 feet to 3 feet south to north.
	2	1966	0-26	None	Yes	82.8	87.7	47.7	8.0	3.5	1	22.2%	Gravel	Test #2 sampled from 45-foot long north face of pit about 150 feet from north end. This short face represents widening of pit. Log of face is as follows: 0-10.5' pebbly sand; 10.5'-18' gravel; 18'-26' gravelly sand and gravel. Beds are not of uniform thickness and stone content varies laterally.
	3	1966	0-23	None	Yes	84.3	64.5	44.0	20.0	7.0	1	---	Gran. Borrow (Grav.)	Test #3 dug on east face of pit about 100 feet north of Test #2. About 8 feet of pebbly and gravelly sands overlie a gravel with interbeds of silty sand with some clay. Sample had excess fines for Item 201. The east face becomes progressively more silty and with more clay toward the north end, and in the north end and along the northwest face, the material is predominantly a pebbly or gravelly sand.
	4	1966	4-25	0-4	Yes	67.5	55.1	41.9	7.0	4.3	1	18.5%	Gran. Borrow (Grav.)	Test #4 dug on northwest face about 60 feet from end of pit. (North end was extended 20 feet between 8/12/66 and 9/9/66.) Top 4 feet is overburden going

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 91

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over- burden (Ft)	Exist- ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	5	1966	0.5-9.5	0-0.5	Yes	88.4	73.4	57.5	5.0	3.0	1	16.4%	Gravel	from 4-7' to a pebbly sand, from 7-16' is a gravel bed with very few +4" cobbles. Bottom 9 feet of face consists of pebbly sands and fine gravels. Sample had barely excess silt for Item 201. Test #5 dug in floor on west side of pit below Test #1. Top 2.5 feet is a sandy "dirty"-looking gravel going to a pebble gravel down to 5.5'. Below that material is coarser with a bed of 4-6" cobbles at 7', and is generally an average gravel below 7.5'.
	6	1966	0-10	None	Yes	100	86.6	64.4	20.0	6.0	1	---	Gran. Borrow (Grav.)	Test #6 dug in extreme north end of pit in floor. Face shows pebbly to gravelly sands. Material in test is interbedded gravelly sands and fine silty sands with silt or silty clay seams. Sample had too few stones and excess fines for Item 201.
	7	1966	0-12.5	None	Yes	74.8	61.5	42.5	5.0	1.5	1	23.8%	Gravel	Test #7 dug in small sub-floor 70' wide in center of pit floor. Face is about 6' high. Test taken on east face and continued in floor. Material is a sandy gravel to clean gravel with few +3" stones in the face. In floor there are a few cobbles and small boulders and at 6' below the floor is a layer of boulders which precluded further testing. This test and

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 92

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
						8	1966	0-33	None	Yes				
9	1966	4-10	0-4	No	85.2	63.8	46.0	12.0	5.8	1	24.6%	Gran. Borrow (Grav.)	Test #9 dug 90 feet west of middle west pit face just behind strippings. Top 4 feet is silty sand going to a sandy or silty gravel with few +4" stones. Some stones in sample look a little soft. Sample had excess silt for Item 201. Test represents extension of west face of pit. Very likely acceptable gravels could be worked in this extension. Little extension possible to east - feature drops off steeply. North end runs to pebbly and gravelly sands, and a north-west extension was tested in	

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 93

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
61	1	1966	3-10	0-3	No	91.3	81.9	69.9	7.7	6.3 4.4*	1	22.4%	Gran. Borrow (Sand)	Map Identification No. 61. Owner: Levi Dean. Area is pasture of piney knolls and exposed silty sand northwest and north of large north pit. Test #1 dug 110 feet west-northwest of Test #60-9 in shallow swale. Immediately north of hole is rounded ridge showing exposed sand about 6 feet above hole. Top 3 feet is brown organic silt-clay going to a pebbly sand over a gravelly sand at 4.5'. Sample had excess +1½" stones and barely excess stones retained on the #4 sieve for Item 202. Test probably indicates that west extension of pit would best be worked as a gravel with extension limited by stone content decrease.
	2	1966	0.5-11	0-0.5	No	100	100	100	67.0	16.0*	1	---	---	Test #2 dug 125 feet north of Test #1 in area of exposed sand on northeast end and north side of ridge. Sand appears silty on surface, and in hole a sandy silt encountered down to 9' where material becomes slightly coarser. Sample was too fine for Items 202 and 105.
	3	1966	2.5-10	0-2.5	No	78.7	70.8	58.9	9.0	4.0	1	---	Gran. Borrow (Grav.)	Test #3 dug in area of exposed sand northeast of pine grove and northwest of north end of pit. Test hole is near set of power poles. Top 2.5 feet is

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 94

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1 1/2"	5/8"	#4	#100	#270				
	4	1966	2.5-10.5	0-2.5	No	100	100	97.5	3.9	2.0*	1	---	Sand	reddish silty sand going to a thin FeO-cemented sand layer and then to pebbly and gravelly sands. A few +4" stones noted, as well as a few silty sand pockets. Sample had excess silt for Item 201, and too few proper size stones were included for the wear test. This test is west of and above Test #60-4 and probably represents west extension of north end of large pit. Test #4 dug on gentle east slope of pasture about 200 feet north of pit and about 130 feet northeast of and a few feet below Test #3. Material is a very coarse dark gray-brown sand with a few small pebbles. Curved and irregular very fine sand laminae noted in top. This sample met requirements for Item 202, and the test represents material in north extension of large pit.
62	1	1966	1-10	0-1	No	86.9	66.6	46.5	8.0	4.3	1	14.6%	Gran. Borrow (Grav.)	Owner: Normand Moreau. Area is field with two knolls on the east side of Town Highway No. 8 south of the covered bridge. Knolls are probably kames and are connected by a saddle. Test #1 dug on south knoll. Top 5 feet is a "dirty"-looking gravel going to a gravelly sand and to a clean gra-

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 95

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	1.5-10.5	0-1.5	No	100	100	97.4	7.8	3.5 3.4*	1	---	Sand	vel in the bottom. Sample had barely excess silt for Item 201. Test #2 dug on knoll to north. Material is a "dirty"-looking dark gray-brown sand with a FeO-stained layer at 3' and becomes clean with depth. Has a few paper-thin reddish brown silt laminae and a very few pebbles. Probably not a source of large quantities of material on Moreau property. Extension would be eastward into adjoining property.
63	1	1966	2.5-31	0-2.5	Yes	94.4	87.9	68.8	9.0	4.0	1	---	Gran. Borrow (Grav.)	Owner: Marcel Cotnoir. Area is wooded hill narrowing to a pointed ridge to north and lying between Town Highway No. 8 and the Black River. A pit is located on the east side about 700 feet south of the covered bridge. Access is via a pasture drive about 0.11 mile from the town road. Test #1 sampled from upper face at southwest corner of pit. Face is about 68 feet high and beds of gravel, pebbly sand, and gravelly sand dip to the north. In Test #1 thick beds of small pebbles, thin gravel layers, coarse pebbly sands, and a few 3"-8" cobbles were exposed and sampled. The sample had too few stones and excess silt for Item 201.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 96

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	31-49	0-2.5	Yes	95.9	79.5	56.7	6.0	3.5	1	16.0%	Gran. Borrow (Grav.)	Test #2 dug on face 30 feet north of Test #1 and beds from 31'-49' were sampled. An 8-foot gravel bed conspicuously overlies gravelly sands. Sample had barely excess silt for Item 201.
	3	1966	2-10.5	0-2.5	No	66.8	57.0	41.0	13.0	7.5	1	17.2%	Gran. Borrow (Grav.)	Test #3 dug 100 feet southwest of top of pit on crest of piney ridge. Test represents pit extension. Material down to a cobble layer at 4.5' is a silty gravel with sub-rounded to sub-angular stones. Gravel appears cleaner below this. Two or three boulders hit at 7' in a predominantly cobble layer. Sample had excess silt for Item 201.
	4	1966	3.5-12	0-3.5	No	64.5	52.3	39.0	7.0	4.0	1	14.6%	Gravel	Test #4 dug 175 feet southwest of pit on east side of top of ridge. Top 3.5 feet is brown silt with cobbles and boulders, going to a cobbly gravel with silty sand fines and a few soft stones. Stones are sub-rounded to sub-angular, and material is poorly sorted. Below 10.5' is a clean gravelly sand. Test is 110 feet north of property line fence.
	5	1966	38-60	0-4	No	65.4	54.2	37.5	7.0	3.3	1	19.2%	Gravel	Test #5 dug on lower face near northeast corner of pit. Top 6 feet of exposed beds is gravel, underlain by 7 feet of pebbly and gravelly sand going

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 97

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	6	1966	0-8	None	Yes	85.9	79.8	47.2	13.0	7.0	1	---	Gran. Borrow (Grav.)	to 5 feet of clean gravel with a few 3"-5" cobbles. Bottom 4 feet of face is a gravelly sand. Face above Test #5 shows pebbly sands and fine gravels overlain at the top by 4 feet of silty sand and topsoil, some of which has slid down the face. Probably entire face could be worked to obtain a specification gravel. Test #6 dug in floor of pit. Top 3 feet is silty gravel with few +4" stones going to a "dirty"-looking gravelly sand and at 5' to a bed of silt-coated pebbles. Hole bottoms in cemented rock fragments and pebbles. Sample had excess silt for Item 201. With clearing of ridge west and south of pit, top of faces could be stripped and entire height of face could be worked. Composite of Tests #1, #2, and #5 is an acceptable material.
64	1	1966	1.5-12	0-1.5	No	91.5	85.5	75.5	17.4	3.3 2.5*	1	---	Gran. Borrow (Sand)	Owner: Bruce Wilson. Area is terrace remnant in field or pasture west of and above Ware Brook south of Town Highway No. 9. Test #1 dug in southwest corner of terrace above steep west and south slopes of terrace. Top 5 feet is a gravelly sand going to a medium

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 98

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	N	O	T	S	A	M	P	L	E	D		<p>sand with a few pebbles. Composite sample had excess +1½" stones for Item 202. This terrace is shown as a lacustrine deposit by Dr. D. P. Stewart.</p> <p>Test #2 dug on rounded ridge on west side of field below pasture slope. Dug for 5 feet in silt and did not sample. Terrace could probably be worked for Item 202 Sand, but present use of feature is growing alfalfa, and owner undoubtedly would not sell.</p>
65	1	1966	2-9	0-2	No	100	100	100	83.0	26.5*	1	---	---	<p>Owner: Bruce Wilson. Area is continuation of terrace west of and above Ware Brook and lies northeast of corner in Town Highway No. 9. Test #1 dug in corner. Topsoil has small stones. Material is uniform silt all the way.</p>
	2	1966	N	O	T	S	A	M	P	L	E	D		<p>Test #2 dug 280 feet south of Test #1 about 40 feet from somewhat rounded edge of terrace. Many small cobbles in topsoil. Goes to silt. Dug for 7 feet and did not sample.</p>
66	1	1966	1-11.5	0-1	No	100	100	89.6	2.7	1.0 0.9*	1	---	Sand	<p>Owner: Roy Gustin. This is pasture above Town Highway No. 8 and west of owner's pit. (Map Identification No. 67). Test #1 dug on fairly steep south slope of pasture just at edge of trees. This test is about</p>

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 99

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	2.5-10	0-2.5	No	84.6	74.4	49.5	5.0	3.0	1	22.0%	Gravel	6 or 7 rods west of pit. Material is a coarse pebbly sand with mainly -1½" pebbles. Beds dip to south. Test #2 dug at edge of pasture at top of steep wooded slope above Town Highway No. 8. Top 2.5 feet is silty sand going to a generally fine gravel with a few +6" cobbles and a few soft tabular stones.
	3	1966	2.5-8.5	0-2.5	No	53.6	49.5	45.9	15.0	6.5	2	---	Gran. Borrow (Grav.)	Test #3 dug 140 feet east of Test #2 and 100 feet west of fence corner at pit. Material is a gravelly sand with over 40% coarser than 6". It is poorly sorted and "dirty"-looking. Sample had excess silt for Item 201, and insufficient proper size stones for the percent of wear test. If percent of wear is low enough, material should be crushed.
	4	1966	15-40	0-2.5	No	86.4	76.6	56.8	9.0	3.0	1	15.4%	Gravel	Test #4 was a hand sample of steep wooded bank beside Town Highway No. 8. Beds of coarse pebbly sand and gravel were sampled. No material was exposed on the top of the bank. Bank would have to be cleared in order to open a face off the town road.
67	1	1966	13-35	0-13	Yes	73.0	55.9	38.6	5.0	2.0	1	18.0%	Gravel	Owner: Roy Gustin. This is old inactive pit on the west side of Vt. Rte. 14 across

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 100

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	2	1966	1-10	0-1	Yes	85.3	70.1	55.9	3.0	1.8	1	15.2%	Gravel	road from State sheds. Pit face on east side has been used as a dump by the Highway District. When pit was sampled an access had to be constructed. Test #1 was sampled on north-east end of pit below about 13 feet of silty sands which were not sampled. Gravel is sandy or silty in places and has a few soft stones, including a few large cobbles. From 18'-25' is predominantly +6" cobbles with minor sand. Bottom 10 feet of face is a very coarse and clean gravelly sand. North end of pit shows lenses of cobble gravels. Otherwise pit faces show sands or silty sands and are tree-covered in places. Test #2 dug in pit floor 40 feet from Test #1. A sandy gravel in the top 3 feet goes to a clean gravel with quite a few +6" cobbles. Hole goes to a gravelly sand at 6' and to a coarse pebbly sand at 8'.
	3	1966	1.5-10	0-1.5	Yes	100	89.8	76.1	3.0	2.5 1.9*	1	---	Sand	Test #3 dug in pit floor 50 feet from Test #2 and 105 feet from the south end. Material is interbedded coarse sand, pebbly sand, and gravelly sand with a few scattered +4" cobbles. A cobble gravel layer hit at 9.5'. Beds dip shallowly

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 101

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks		
						1½"	5/8"	#4	#100	#270						
	4	1966	N	O	T	S	A	M	P	L	E	D				to east. Test #4 dug north-northeast of pit in bowl-like depression. Feature pit is in looks like a kame, and the top of the pit drops off steeply to the north down to bowl. Material in Test #4 is silt down to at least 7.5' and was not sampled.
	5	1966	1.5-9.5	0-1.5	No	100	93.3	85.2	5.1	3.0 2.6*	1	---	Sand	Test #5 dug between top of north face of pit and strippings, and is above cobble gravel lenses. Material is a coarse, dark gray pebbly sand going to a gravelly sand at 9.5'. Top of pit at northwest corner and for a short distance down west side shows many pebbles and cobbles. More testing should be done northwest of pit in pasture to determine extension of pit, and on west pit face. Very likely sands lie in west extension of pit as shown by Test #66-1. Very little northeast and north extension of pit.		
68	1	1966	2.5-10.5	0-2.5	No	90.9	82.4	63.4	19.0	7.3	1	25.4%	Gran. Borrow (Grav.)	Owner: Laurier Lamarche. Area is wooded ridge or knoll west of Vt. Rte. 14 south of Gustin pit. Test #1 dug on top of south end of ridge N-25-W of house. Sample is a composite gravelly sand from interbeds and pockets of fine to coarse sand, pebbly sand and gravelly		

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 102

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	2	1966	4.5-10	0-4.5	No	82.9	67.1	49.7	21.0	8.0	1½	32.6%	Gran. Borrow (Grav.)	sand down to 5.5 feet, and fine gravel below that. Sample had excess fines and barely excessive wear for Item 201. Test #2 dug on west side of ridge 90 feet southwest of and 12 to 15 feet below elevation of Test #1. Top 4.5 feet is clay or silt-clay overlying a silty brownish gravel with some soft stones. Sample had excess fines and excessive wear for Item 201. Ridge is extension of Gustin pit.
69	1A	1966	0-8	None	Yes	69.8	54.6	40.8	23.0	8.5	1	24.8%	Gran. Borrow (Grav.)	Owner: Laurier Lamarche. Area is a pit and vicinity astraddle Coventry-Irasburg Town Line between U. S. Rte. 5 and Vt. Rte. 14. Pit is about 185 feet long x 140 feet wide, with extension to southeast and south. Test #1A dug by hand on upper south face. Material is a silty gravel with soft stones.
	1B	1966	7-20	None	Yes	93.8	92.1	86.4	9.5	3.0 2.6*	1	---	Gran. Borrow (Sand)	Test #1B sampled on lower face. Fine sands, pebbly sands and a clay layer encountered. Sample had excess +1½" stones for Item 202.
	2	1966	0-24	None	Yes	82.7	72.9	52.8	8.0	3.5	1	19.0%	Gran. Borrow (Grav.)	Test #2 sampled from north face and continued in floor. Top 8 feet of face is gravel going to gravelly sand and pebbly sand. Another gravel bed comes in at 21'. Sample had barely excess silt for Item 201.

*Percentage of Total Sample

TABLE I

IRASEBURG GRANULAR DATA SHEET NO. 103

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over- burden (Ft)	Exist- ing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1 1/2"	5/8"	#4	#100	#270				
	3	1966	0-10.5	None	Yes	65.5	45.8	36.9	12.0	4.8	1	14.4%	Gravel	A maximum extension of 50 feet is possible on north side and northwest side of pit. Feature pit is in drops off steeply. It looks as though material had been taken out between highway intersection and pit. Test #3 dug in pit floor 40 feet from southwest corner. Top 3 feet of hole at northeast end is silty and pebbly sand overlying gravel beds. Dip is to southwest. Gravel hit here may be continuation of gravel in north face. A few boulders and many cobbles noted in this test.
	4	1966	1.5-10	0-1.5	No	100	100	100	40.0	11.0*	1	---	---	Test #4 dug east-southeast of pit in old field or pasture 135 feet west of U. S. Rte. 5. Material is a uniform silty sand all the way, and is too fine for Item 105.
	5	1966	4.5-11	0-4.5	No	100	100	99.4	6.0	2.5*	1	---	Sand	Test #5 dug in swale south-southeast of pit about 20 feet below floor. Intent was to get to lower elevation and find gravel. Below 4.5 feet of silty sand is a gray medium quartzose sand continuing to depth. Area looks like coalescent knolls and more testing is needed to determine where the coarser material is.

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 104

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	6	1966	0-10.5	None	Yes	100	89.6	81.1	6.5	3.0 2.4*	1	---	Sand	Test #6 dug 60 feet south of pit in stripped area. Sample was from beds of pebbly and gravelly sand and met requirements for Item 202. Area to south of pit looks like sand source with the possibility of gravels below the sands. Very likely those gravels in the pit floor grade laterally to gravelly sands sampled in the pit to the south (Map Identification No. 74). Little material left to north and northwest. More testing should be done on the east side of the pit floor.
70	1	1966	1.5-11.5	0-1.5	No	100	100	98.0	10.8	3.5 3.4*	1	---	Sand	Owner: Laurier Lamarche. Area is top and flank of huge knoll west of and below U. S. Rte. 5 and southeast of Map Identification No. 69. This area is in kame moraine, as are other Lamarche areas including the pits. Test #1 dug on west edge of southwest trending knoll about 225 feet southwest of U. S. Route 5. Hole is about 150 feet southeast of and 35 feet above Test #69-5. Material is a coarse dark gray pebbly sand acceptable for Item 202.
	2	1966	2-9.5	0-2	No	87.2	76.6	60.3	5.0	2.5	1	23.4%	Gran. Borrow (Grav.)	Test #2 dug on south-southeast flank of knoll on flat area above steep bank. Test is about 250 feet southwest of

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 105

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	3	1966	4-10	0-4	No	100	94.5	85.6	4.8	2.0 1.7*	1	---	Sand	and about 50 feet below U. S. Rte. 5. Material is a somewhat fine gravel or gravelly sand with only a few +3" stones. Sand portion is very coarse. Test #3 dug 110 feet southwest of toe of U. S. Rte. 5 fill slope and about 95 feet east of Test #2. Top 4 feet is a tan silt going to a very coarse pebbly sand with very few +2" stones.
	4	1966	3-10	0-3	No	94.6	94.6	91.0	23.7	5.3 4.8*	1	---	Gran. Borrow (Sand)	Test #4 dug about 100 feet northwest of Test #2 at top of steep south slope. Top 3 feet is topsoil and stony silt overlying a fine or very fine with some silt and pebbles. Sample had excess material passing the #100 mesh sieve for Item 202. Possibly a sand area near the top of the knoll around Test #1.
71	1	1966	N	O	T	S	A	M	P	L	E	D		Owner: Laurier Lamarche. This is west-sloping rolling field just south of Coventry Town Line on the northeast side of U. S. Rte. 5. Test #1 dug at south end of field above shallow ravine in woods. Material is silt-clay with stones and rock fragments down to 4.5', and was not sampled.
	2	1966	N	O	T	S	A	M	P	L	E	D		Test #2 dug in upper (south-east) corner of field next to old U. S. Rte. 5. Material

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 106

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
														is silt-clay with a few stones and was not sampled. Field is on till or possibly silt to clay as mapped by Dr. D. P. Stewart.
72	1	1966	N	O	T	S	A	M	P	L	E	D		Owner: Laurier Lamarche. A piney, thinly-wooded area on the northeast side of U. S. Rte. 5 north of "Dot's" Restaurant. Test #1 dug 90 feet east of highway in clearing. Four feet of silt overlies a stony silt to clay, and was not sampled.
	2	1966	N	O	T	S	A	M	P	L	E	D		Test #2 dug 115 feet northeast of Test #1 at end of clearing. About 3 feet of tan silt overlies a clay or silt-clay. Material was not sampled. This area was sampled to check contention by Dr. D. P. Stewart that glacial till occurs. Highway bank shows many stones indicating that kame moraine deposits might have occurred at this elevation on the east side of the valley.
73	1	1966	N	O	T	S	A	M	P	L	E	D		Owner: Laurier Lamarche. Area is knolls and east slope of Black River valley east of Vt. Rte. 14. It seems to be continuation of kame moraine to north. Test #1 dug at foot of northerly knoll at northeast end of meadow. Material is boulders and silt-clay and

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 107

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	2	1966	N	O	T	S	A	M	P	L	E	D	and was not sampled. Test #2 dug at top of steep slope above Test #1. Area up here is more or less flat and lies at foot of more gentle slope of pasture. Material is silt, silty sand, and boulders, and was not sampled.	
	3	1966	0-8	None	No	100	100	100	44.0	9.0	1	---	Gran. Borrow Test #3 dug in area of exposed sand on fairly flat place above pasture drive up through swale. Material is a silty tan sand with a boulder or two. A thin bed of medium sand noted near top. Sample met requirements for Item 105, but is only 80 feet from Test #2, and probably no large quantity of material could be found.	
	4	1966	N	O	T	S	A	M	P	L	E	D	Test #4 dug between trail and top of small erosion gully (or pit). About 4 feet of fine silty sand overlies a densely packed bed of rock, stones and rock fragments with minor sand. Material is a stony and sandy till and was not sampled.	
	5	1966	N	O	T	S	A	M	P	L	E	D	Test #5 dug below lower edge of big field lying west of and below U. S. Rte. 5. Hole is about 150 feet south of pasture drive. Material varies from silt or clay to silty sand with a boulder or two. Goes to rock fragments and silt at 4.5'. No doubt a till - did not sample.	

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 108

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
														Area probably not a continuation or remnant of the kame moraine found northwest of the slope and knolls. More likely a glacial till.
74	1	1966	0-30	None	Yes	88.5	84.9	77.2	4.6	3.3 2.6*	1	---	Gran. Borrow (Sand)	Owner: Laurier Lamarche. Area is two pits and vicinity on east side of Vt. Rte. 14. The State sheds are located in the north pit. Test #1 taken on east face of north pit. Top 10 to 12 feet is gravel with a very few +6" cobbles. Goes to beds of gravelly and pebbly sands. Material is similar all along 160-foot long east face. Some cross-bedding seen in sands. Sample had excess +1½" stones for Item 202.
	2A	1966	0-24	None	Yes	89.2	84.0	74.7	3.0	2.3 1.7*	1	21.8%	Gran. Borrow (Sand)	Test #2A sampled from upper north face of south pit which is on south side of huge knoll in which north pit is also located. Top 4 feet is gravel; also beds from 20 to 24 feet are gravelly. Otherwise pebbly and gravelly sands are exposed. Sample had excess +1½" stones for Item 202.
	2B	1966	25-45	None	Yes	100	91.8	88.9	9.8	2.5 2.2*	1	---	Sand	Test #2B sampled on lower face of south pit at northeast corner. Interbedded pebbly sands, coarse sands, and fine sands go to fine and very fine sands with a few thin pebbly sand

*Percentage of Total Sample

TABLE I

Nap Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	3	1966	N	O	T	S	A	M	P	L	E	D	layers and two partially cemented sand layers at the bottom of the face. Sample met requirements for Item 202. Composite of face would probably pass for Item 202. The north face of the south pit is only 75 to 85 feet from the south face of the north pit. Thus, that much extension is possible to the north. A west extension is limited by the highway. Test #3 dug 50 feet south of strippings of pit area No. 69 (about 75' southwest of Test #69-6). Material down to at least 7' is clay and was not sampled. This test was a search for gravel.	
	4	1966	N	O	T	S	A	M	P	L	E	D	Test #4 dug 40' north-northeast of north pit at edge of stripped area. Hole dug to 9' in silt, and material was not sampled. These tests show that a north extension of the north pit would have to be stripped for at least 9 feet.	
	5	1966	4-11.5	0-4	No	100	100	97.7	25.4	7.0 6.8*	1	---	Gran. Borrow (Sand) Test #5 dug in swale east of north pit, and is about 150 feet south of and 10 feet below elevation of Test #69-5. Four feet of soil and silt overlies a fine dark gray silty sand with a few tiny pebbles. Sample had excess fines for Item 202.	

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 110

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
	6	1966	0-22	None	Yes	93.3	80.0	62.6	9.0	2.5	1	---	Gran. Borrow (Grav.)	Test #6 dug on face in north-east corner of north pit. Top 9 feet is gravel and gravelly sand going to beds of fine, coarse and pebbly sands. Composite of face has too few stones for Item 201 - top 9 or 10 feet would have sufficient stones for that item. Too few proper size stones were included for the wear test.
	7	1966	3.5-13.5	0-3.5	No	94.0	89.4	85.9	9.4	4.5 3.9*	1½	---	Gran. Borrow (Sand)	Test #7 dug on west side of knoll which is southeast of south pit. Test hole is about 50 feet southeast of the south end of the east face. Beds of gravelly and pebbly sands dipping southwest (with slope of knoll) go to a very coarse dark gray sand in the bottom. Sample had barely excess +1½" stones for Item 202.
	8	1966	1.5-10	0-1.5	No	81.0	69.4	58.6	6.0	3.3	1	19.6%	Gran. Borrow (Grav.)	Test #8 dug atop knoll about 100 feet east-southeast of south pit. Material is a dark gravelly and pebbly sand with a thin layer or two of gravel. Most stones are under 3". Sample had barely excess silt for Item 201.
	9	1966	3.5-10.5	0-3.5	No	88.8	80.5	77.1	10.8	5.0 3.9*	1	---	Gran. Borrow (Sand)	Test #9 dug 110 feet east of top of south pit above steep-sided swale between two knolls. Material is a dark-colored fine sand with pebbles going at 8' to a sand with cobbles, and

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 111

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1½"	5/8"	#4	#100	#270				
	10	1966	3-48	0-3	No	100	90.5	88.6	8.9	3.0 2.7*	1	---	Sand	bottoms in gravel. Sample had excess +five-eighths stones. Test #10 was a hand sample of steep southeast bank or slope of knoll southeast of south pit. Gravelly sands, fine sands, and pebbly sands were encountered down steep bank, and sample met requirements for Item 202. Generally area would be source of Item 202. Small gravel bodies will be encountered near Test #8 and on the upper faces of the north pit.
75	1	1966	N	O	T	S	A	M	P	L	E	D		Owner: Normand Beaulieu. Area is pasture land on both sides of U. S. Rte. 5 near owner's buildings. Dr. D. P. Stewart has shown a small lacustrine sand deposit here and along west side of highway. Test #1 dug on upper (east) side of highway. Material is silt to clay down at least 3 feet. Did not sample.
	2	1966	N	O	T	S	A	M	P	L	E	D		Test #2 dug on west side of highway north of barn. Two feet of silt overlies a clay with stones. Hole was not sampled.
76	1	1966	1.5-9	0-1.5	No	92.9	84.4	74.4	8.1	2.8 2.1*	1	---	Gran. Borrow (Sand)	Owner: Leon Letourneau. Area is pasture with low round ridges west of and below U. S. Rte. 5. Test #1 dug on upper east end of low ridge in lower

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 112

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						1 1/2"	5/8"	#4	#100	#270				
	2	1966	1.5-10	0-1.5	No	85.6	75.7	57.3	13.0	4.0	1	---	Gran. Borrow (Grav.)	pasture. Material is a medium to coarse sand with fine sand laminae in the top 4.5 feet going to gravelly sand. One or two +6" cobbles, some FeO-staining, and a gravel lens noted. Material argues for water sorting in contact with glacial ice. Sample had excess +five-eighths inch stones for Item 202. Test #2 dug on low mound on ridge about 240 feet west of Test #1. Material is pebbly sands with a gravel lens and silty sand beds. Below 7.5' a fine gravel comes in. Beds are poorly consolidated. Sample had excess silt for Item 201, and too few proper size stones were included for the wear test.
	3	1966	N	O	T	S	A	M	P	L	E	D		Test #3 dug 150 feet west of Black River at bottom of west end of ridge. Top 3 feet is silt to clay with a few angular cobbles at 3' and boulders at 3.5'. Did not sample.
	4	1966	N	O	T	S	A	M	P	L	E	D		Test #4 dug south across small brook from Test #1. Material in top 3 feet is silt to clay with stones. Hole was not sampled.
	5	1966	1.5-10	0-1.5	No	100	95.0	86.8	10.4	4.8 4.2*	1	---	Sand	Test #5 dug on low ridge about 325 feet north-northeast of Test #1. Material is a medium

*Percentage of Total Sample

TABLE I

IRASBURG GRANULAR DATA SHEET NO. 113

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over- burden (Ft)	Exist- ing Pit	Sieve Analysis % Passing					Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Spec.	Remarks
						1½"	5/8"	#4	#100	#270				
													to coarse pebbly sand, in places somewhat silty. Has only 1 or 2 pebbles in bottom. Sample met requirements for Item 202. Area may be patch of lacustrine sediments as mapped by Dr. D. P. Stewart. However, material looks like ice-contact and ridges may be crevasse fillings in which glacial debris was sorted by melt-water.	

TABLE I
Supplement

IRASBURG PROPERTY OWNERS - GRANULAR

Map Ident. No.

Beaulieu, Normand	75
Brow, W. P.	8, 11
Choiniere, Germaine	16
Cotnoir, Marcel	63
Curtis, Homer	44
Dean, Levi	57, 59, 60, 61
Doncaster, Wayne	55, 56
Girouard, Moise	37
Gustin, Roy	66, 67
Hackett, Earl	19
Houle, Adrien	3, 5
Irasburg, Town of	35
Keement, Vincent	26
Lamarche, Laurier	68, 69, 70, 71, 72, 73, 74
Lanou Estate	7, 14
Lanou, Perry	6
Lavoie, Isabell	48
Lawson, Jack	31, 34, 36
LeBeau, Henry	17, 18
Lefebvre, Leo	27
Letourneau, Leon	76
MacLure, Dennis	28, 29, 30
Malshuk, William	38, 39
Marcotte, Lucien	33, 45, 49
Moreau, Normand	62
Payne, Russell	43
Phillips, Clare	2, 9, 10
Piette, Marcel	40
Poitrass, Emile	15
Preseault, F. J.	41, 42
Roberts, Angela(Mrs.)	46, 47, 50, 51, 52
Royer, Emile	12
Sanville, Jasper	21, 21, 22, 24, 25
Shipps, Charles	4
Simino, Dale	23
Smith, Rodney	32
Thayer, Merton	53, 54, 58
Whittemore, Clyde	13
Willson, Bruce	64, 65
Young, George	1

TABLE II

IRASBURG ROCK DATA SHEET NO. 1

Map Ident. No.	Field Test No.	Year Field Tested	Rock Type	Exist-ing Quarry	Method of Sampling	Abrasion AASHO T-3	Remarks
1	1	1966	Granitic	No	Chip	6.5%	Owner: Gerard Perreault. Area is pasture beyond end of Town Highway No. 35 about 0.15 mile west of Barton Town Line, and is west of the proposed location of Interstate 91. Smooth outcrops of granitic rock are exposed in a 100-foot x 100-foot area. Only about 12 feet to 15 feet elevation present across outcrops. The rock is medium-grained and fairly hard even though only partially weathered rock could be sampled. More testing required in this area. Possibly granitic rock is a sill and is not very thick.
2	1	1966	Granitic & Meta-sediments	No	Chip	8.2%	Owner: Germaine Choiniere. Area is near top of northeast side of Allen Hill south of and above Vt. Rte. 58. Dis-continuous exposures of badly-weathered granite and quartz schists or phyllites were sampled in a 75-foot long east-west traverse. Area is wooded and nowhere could good exposures of granite be found. Possibly granitic rock is a sill. More testing is needed in this area. Access would be around hillside for about 0.20 mile and up to hilltop.
3	1	1966	Granitic & Meta-sediments	No	Chip	4.2%	Owner: Dale Hanson. Area is a thinly wooded rise in an alder swamp on the north side of Vt. Rte. 58 on the south foot of Butternut Hill. Area of exposure is about 200 feet x 60 feet with about 15 feet of relief from the edge of the highway to the highest point. The rock sampled is a fine-grained granite which may be a sill intruding meta-sediments. One bed of micaceous quartzite was observed. Due to the small size of the exposure, little relief, and type of terrain, this area is not recommended as a source of Item 204. Exploration could be carried out to the north of this area at the foot of the hill and up the slope.
4	1	1966	Granitic & Meta-sediments	No	Chip	5.6%	Owner: Mrs. Rawlston Dudley. Area is steep east side of Butternut Hill northwest of junction of Vt. Rte. 58-Town Highway No. 21. Probable sills of coarse- to fine-grained granite have intruded quartz mica schists or phyllites and limestones. Test #1 was near a traverse of 160 feet of the slope beginning near the foot of a more gentle slope about two-thirds the way to the top, and continuing down

TABLE II

IRASBURG ROCK DATA SHEET NO. 2

Map Ident. No.	Field Test No.	Year Field Tested	Rock Type	Exist- ing Quarry	Method of Sampling	Abrasion AASHO T-3	Remarks
	2	1966	Granitic	No	Chip	4.0%	<p>the slope. About 50 to 60 feet of elevation in traverse. Limestones and phyllites are exposed intermittently above traverse. Sample was of limestone and phyllite beds and granitic intrusive bodies, and met abrasion requirements for Item 204.</p> <p>Test #2 was of a continuous exposure of fine-grained granite beginning about 320 feet N-70-W of fence corner at foot of hill. Slope distance of exposure is about 60 feet. Contact between medium- to coarse-grained granite and phyllite with a limestone interbed noted at bottom of exposure. Sample met abrasion requirements for Item 204. Drilling recommended in this area to determine extent and thickness of granite, and its relationship to the metasediments. Access to foot of hill involves about 0.30 mile along Town Highway No. 31 and pasture drive from Town Highway No. 21. Springs for local residents are located on south-southeast slope of hill, south of and below sampled area. This will be a factor also in locating an operation here.</p>
5	1	1966	Limestone & Phyllite	No	Chip	9.4%	<p>Owner: Robillard. Area is pasture and new road cut for Vt. Rte. 58 on Stony Hill about 1.2 miles west of Vt. Rte. 14. Test #1 was a sample of the Ayers Cliff member of the Waits River Formation exposed for 230 feet across the strike just north of and above the old road cut for Vt. Rte. 58. Thinly-bedded crystalline limestone and phyllites were sampled. Outcrops were smooth and rounded and only weathered rock could be obtained. The sample failed to meet abrasion requirements for Item 204.</p>
	2	1966	Limestone & Phyllite	No	Chip	2.6%	<p>Test #2 taken on south side of new road cut from stations 29+50 to 31+80. Fresh rock sampled. Quartzose crystalline limestone with minor phyllite was exposed. Rock is very hard and broke blocky, easily meeting abrasion requirements for Item 204. The old road cut is in rock now weathered to an intermediate state between the fresh rock and pasture outcrops. Rock in the old cut just up-strike from the new cut is more fissile and softer. This area is not recommended as a source of Item 204 because of the phyllites,</p>

TABLE II

IRASBURG ROCK DATA SHEET NO. 3

Map Ident. No.	Field Test No.	Year Field Tested	Rock Type	Exist- ing Quarry	Method of Sampling	Abrasion AASHO T-3	Remarks
							and because even the limestones appear to weather quickly to quite fissile beds.

TABLE II
Supplement

IRASBURG PROPERTY OWNERS - ROCK

Map Ident. No.

Choinier, Germaine

2

Dudly, Rawlston (Mrs.)

4

Hanson, Dale

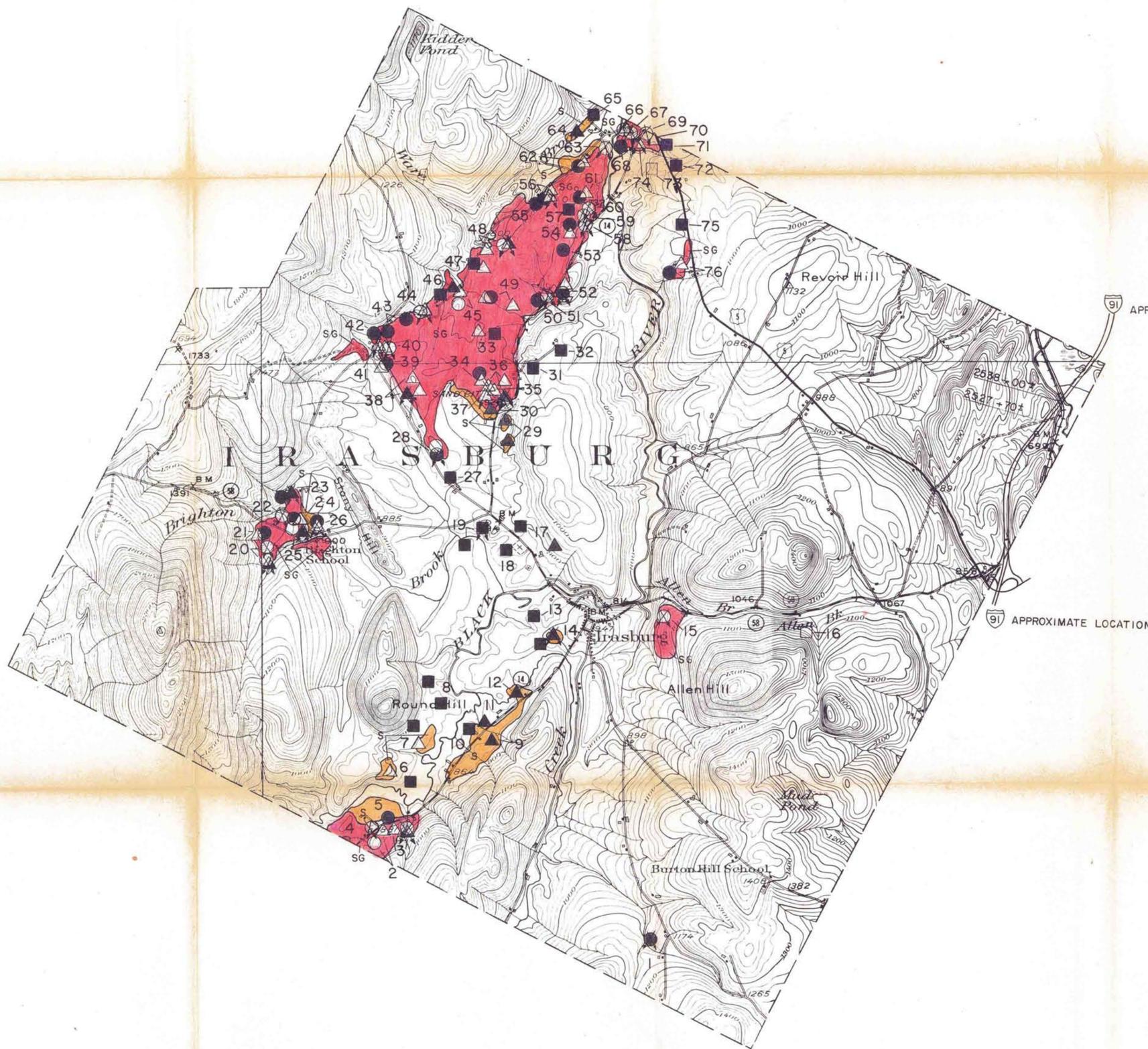
3

Robillard, M.

5

Perrault, G.

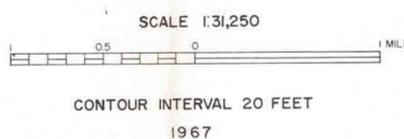
1



LEGEND

- GRAVEL, ACCEPTABLE FOR ITEM 201 (sub-base of gravel)
- GRAVEL, DEPLETED OR NOT ACCEPTABLE FOR ITEM 201
- △ SAND, ACCEPTABLE FOR ITEM 202 (sub-base of sand)
- ▲ SAND, DEPLETED OR NOT ACCEPTABLE FOR ITEM 202
- GRANULAR BORROW, ITEM 105
- MATERIAL NOT ACCEPTABLE FOR ITEM 105
- ✕ EXISTING PIT
- SG SAND & GRAVEL DEPOSIT
- S SAND DEPOSIT
- 3 IDENTIFICATION NUMBER (refer to data sheets)

IRASBURG



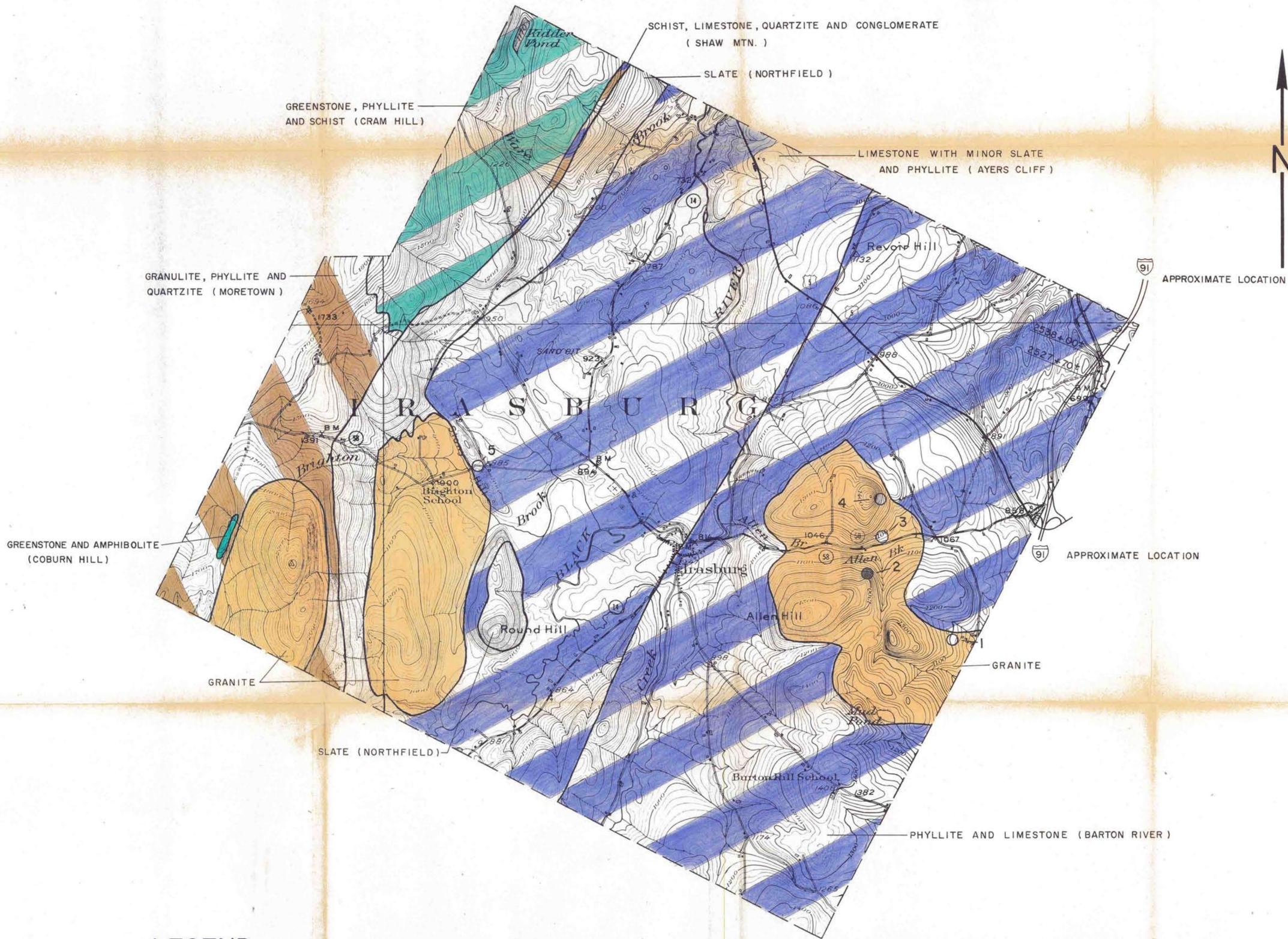
GRANULAR
MATERIALS MAP
BY
VERMONT DEPARTMENT OF HIGHWAYS
IN COOPERATION WITH
U.S. BUREAU OF PUBLIC ROADS

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

PLATE 1
GRANULAR

REVISIONS

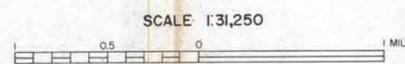
DATE				
BY				



LEGEND

- ROCK, ACCEPTABLE FOR ITEM 204 (sub-base of crushed rock)
- ROCK, NOT ACCEPTABLE FOR ITEM 204
- ✕ EXISTING QUARRY
- Orange box GRANITE TO DIORITE (light to intermediate igneous rocks)
- Green box AMPHIBOLITE, GABBRO, DIABASE, METADIABASE, GREENSTONE, TRAP DIKES (basic or dark igneous rocks)
- Red box PERIDOTITE, PYROXENITE, SERPENTINITE (ultra-basic igneous rocks)
- Pink box GNEISS
- Light brown box QUARTZITE
- Dark brown box DOLOMITE
- Blue box MARBLE, LIMESTONE
- White box SCHISTS, SLATES, PHYLLITES, SHALES, CONGLOMERATES
- 3 IDENTIFICATION NUMBER (refer to data sheets)

IRASBURG



SCALE 1:31,250
CONTOUR INTERVAL 20 FEET
1967

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 11

ROCK

DATE				
BY				