b. Operating or Opened Deposits.

Commercial deposits and those under intermittent production are sampled for "Official Quality" from normal production. Samples are to include all size fractions retained by the producer. Commercially operated deposits are to be resampled for "Official Quality" when results from verification samples show significant variation form past results, and at least every ten years. Non-commercially operated deposits are to be sampled at the direction of the District Materials Engineer.

c. Unopened Deposits.

Unopened deposits may be sampled prior to production by thoroughly drilling or otherwise sounding out the deposit. Samples taken for quality tests from unopened deposits will be for information only. "Official Quality" samples will be taken from actual production.

(4) Chat Deposits: Chat deposits are sampled by the most appropriate method. Chat piles or the products of screening plants from which material is being produced are sampled yearly for "Official Quality."

(5) Lightweight Aggregate: Lightweight aggregate is sampled by the most appropriate method. "Official Quality" samples are obtained at a frequency to be determined by the Engineer.

(c) Class I and Class II Aggregate

(1) General

Class I and Class II Aggregates are composed of crushed limestone or dolomite. Additional testing is performed on concrete produced with Class I and Class II Aggregates to determine if acceptable levels of concrete freeze/thaw resistance are provided. The freeze/thaw testing is intended to reduce the risk of the occurrence of premature "D-Cracking". Class I and Class II Aggregates are intended for use in "on-grade" concrete slabs such as Portland cement concrete pavement. Prequalification to produce Class I and Class II Aggregate is granted to a quarry on a bed by bed basis for each distinct bed in the quarry face. "Official Quality" sampling and testing is also required. The acceptance of Class I and Class II Aggregate is contingent upon production being from approved beds and in compliance with "Official Quality" requirements.

(2) Initial Prequalification of Quarries

a. Initial Request Procedure

The District Materials Engineer (DME) is responsible to initiate KDOT's prequalification activities for quarries in their districts. Upon receipt of a written request from a quarry operator the DME will contact the KDOT Chief Geologist to schedule a quarry inspection. The DME will forward a copy of the written request to the Chief Geologist and the Engineer of Tests.

b. Initial Quarry Inventory and Sampling Procedure

The Chief Geologist will arrange for a regional geologist to meet with district inspection personnel at the quarry. The regional geologist is responsible for preparing a KDOT Quarry Report (including GPS coordinates and color photographs) for the quarry and collecting samples from the appropriate beds in the quarry face. A plan view of the quarry indicating the location(s) in the quarry that are intended to be mined for Class I and Class II Aggregate must be provided by the quarry operator prior to sampling. The plan view must show appropriate landmarks for future reference. The quarry inventory and sampling procedures will be conducted in accordance with written guidelines maintained by the Chief Geologist. The regional geologist will arrange to deliver the bed samples to the Engineer of Tests.

The Chief Geologist will distribute the KDOT Quarry Report to the following: Quarry owner/operator (1 copy); DME responsible for quarry inspection (2 Copies); Appropriate regional geologist (1 copy); and Chief Geologist (1 copy).

c. Initial Testing and Reporting Procedures

The Engineer of Tests will process and test the ledge samples to determine if each bed is in compliance with the specified requirements for Class I and Class II Aggregate. The Engineer of Tests will report the test results to the quarry owner/ operator, and the appropriate DME. The Engineer of Tests will maintain a complete list of each bed tested and the test results by quarry. The Engineer of Tests will prepare and distribute a listing showing the approved Class I and Class II beds for each quarry. This listing will be given wide distribution and updates will be issued semi-annually. Inclusion on the approved listing requires 2 consecutive passing Production Samples representing current production from beds meeting the Class I or Class II requirement. These Production Samples will be separated by a minimum of five days of production or 2500 tons which ever is the greater tonnage.

Should a specific bed from a specific quarry fail to pass prequalification testing, resampling will not be permitted until significant changes occur (generally the changed conditions to be met prior to resampling a failed bed are the same as those necessitating reinventory inspection for continuation of prequalified status - see **5.02.05**(c)(5) below). When the changed conditions are deemed to justify resampling, all beds within the ledge or geological unit will be resampled. Requests for resampling should be made in accordance with the guidelines for initial prequalification. Exception to this process will require approval of the Chief of Materials and Research.

(3) Inspection of Class I and Class II Aggregate Production

a. Responsibility

The DME is assigned the responsibility to provide periodic inspection of quarry operations to verify that Class I and Class II Aggregates produced for Department work are produced from only those beds approved for Class I and Class II Aggregates. In addition, the DME is responsible to verify that the production process is essentially the same as that used to produce the aggregates selected for the Class I and Class II Aggregate "Official Quality" test. The necessary level of inspection may vary by quarry. For example, when all beds in a quarry have been prequalified to produce Class I and Class II Aggregates, normal quarry inspection activities may be sufficient to verify that Class I and Class II Aggregates of the proper quality are being produced. However, when it is necessary to separate out specific approved bed(s) from a ledge being mined, additional inspection effort is warranted. The proper level of inspection is to be determined by the DME based on the unique circumstances encountered at each quarry.

b. Approved Production Plan

The DME will obtain a written production plan for Class I and Class II Aggregates from the quarry operator prior to providing inspection of Class I and Class II Aggregate. The production plan should include but not be limited to the following information: the location(s) in the quarry that will be mined; the approved bed(s) that will be mined; the methods that will be used to separate the approved beds from the nonapproved material; and the procedures to prevent any nonapproved material from mixing with the Class I and Class II material throughout the entire mining, hauling, crushing, stockpiling, and shipping processes. Quarry owners/operators shall provide updated production plans to the DME at the beginning of each production season, or as otherwise determined by the DME, and any time significant changes occur in the production processes.

c. Notification of shipment

Quarry owners/operators shall notify the DME responsible for inspection of Class I and Class II Aggregates production prior to shipping such aggregates to concrete production sites for use on KDOT projects. The DME will then notify the appropriate Construction Office of the pending delivery of Class I and Class II Paving Aggregates.

d. Quarry Inspection Requirements

KDOT quarry inspectors must familiarize themselves with the plan view of the quarry, the Class I and Class II Aggregate production plan and the KDOT Quarry Report. These three documents should provide the inspector with sufficient information to verify that only approved beds are being mined from approved locations within the quarry and that the aggregates are processed in the appropriate manner. Inspectors are required to document their inspection

activities during each visit to the quarry. The documentation is to be kept in a diary or other hard copy form approved by the DME. The quarry inspector should occasionally visit concrete production sites to assist project personnel with identification of Class I and Class II Aggregates produced and hauled from quarries they inspect. When visitation of concrete production sites is not practical due to extreme distances then extra effort by the quarry inspector should be made to communicate with project personnel to verify that Class I and Class II Aggregate is actually being delivered and used in the concrete production.

(4) Production Sampling

a. Responsibility

It is the responsibility of the DME to monitor production of Class I and Class II Aggregates at quarries within their respective district and collect aggregate samples for verification testing. The Chief of Materials and Research will coordinate such activities for out-of-state quarries. Reassignment of such responsibility between DME's may be made when mutually agreeable. Documentation of such reassignments should be circulated to concerned parties.

b. Sampling Frequency and Location

The DME is responsible for collecting Production Samples that represent Class I and Class II Aggregate produced from each quarry for which they provide inspection. A minimum of one Production Sample is to be collected representing each 20,000 tons of Class I and Class II Aggregate Production at each quarry. For any quarry that is projected to produce less than 60,000 tons of Class I and Class II Aggregate per year, the DME should schedule their sampling activities so that at least three Production Samples are collected. For each project requiring more than 5000 tons of Class I and Class II Aggregate, at least one additional Production Sample is to be collected from the project concrete production site. If extraordinary travel is required to sample Class I and Class II Aggregate at the concrete production site, then the DME responsible for quarry inspection may make arrangements with the other district’s DME to sample the stockpile.

c. Testing

Collected samples are to be delivered to the Engineer of Tests. The Engineer of Tests is responsible for testing the samples and for comparing the test results with the historical test data for that quarry. The Engineer of Tests will notify the DME of atypical test results in a timely manner. The Engineer of Tests may choose not to perform all Class I and Class II testing if the preliminary test results compare favorably with historical test data. However, the Engineer of Tests will review sample records and perform Class I and Class II testing on at least three samples per quarry per year provided sufficient samples are submitted for testing.

(5) Continuation of Prequalified Status for Class I and Class II Aggregate Production

After a quarry has been prequalified to produce Class I and Class II Aggregate from a specific bed(s) the prequalified status will continue as long as no major changes are made in the production process or occur in the deposit characteristics. Changes in deposit characteristics may be discovered either visually or through test results performed on Production Samples.

The DME is assigned the responsibility to notify the Chief Geologist and request that the quarry be reinspected under any of the following circumstances:

- When the location of the mining operation has moved a significant distance from where the last inventory inspection was made (Generally, this is requested when mining operations have moved ¼ mile or more from the most recent inspection site.).

- When significant changes are observed in the deposit characteristics. Typical examples of such changes would be a significant color change in any of the bed(s) being mined, the disappearance of a bed(s) from the ledge being mined, significant changes in the thickness of the individual bed(s) being mined and/or a significant change in the type or amount of fossils observed in any of the bed(s).

- When an active quarry has not reinventoried in the preceding two-year time period.

- When a Production Sample fails.

When any party feels that any change in the prequalified status of a quarry is warranted they should notify the DME responsible for quarry inspection who in turn will advise the Chief of Materials and Research. The Chief of Materials and Research will review all available information on the changed conditions and render a decision on any such changes. Official notification of any change in Class I and Class II Aggregate Production status for a quarry will be provided by the DME to the quarry owner/operator and the appropriate contractors.

(6) Class I and Class II Aggregates **produced and stockpiled at the quarry** for more than 2 years shall be retested for Class I or Class II status before being used on any KDOT Project. **This does not apply to stockpiles contracted for specific projects.**

(d) Specific Gravities for the Hot Mix Asphalt (HMA) Specific Gravity List

(1) Establishing a Location and Specific Gravity Value

(a) General

Specific Gravity values, verification date, and GPS coordinates for HMA aggregate sources shall be posted on the Specific Gravity List published by the Bureau of Materials and Research. The list will be published monthly when changes occur. These specific gravity values may be used by hot mix contractors for that month's letting or a more current agreed upon value as established within this section. If no changes occur during a month, the previous month's values **may be used**. The Specific Gravity List will contain two sections. KDOT will allow the values in the upper section to be used for each month's letting. The lower section of the list will contain "deleted" values. The deleted