



3200 — SPECIFICATION FOR PROCESSING AGGREGATE

3200.1 DESCRIPTION

3200.1.1 The work shall consist of screening, crushing and stockpiling aggregates. The Final Product to be produced will be stated in the Special Provisions and/or Plans.

3200.1.2 The following definitions shall apply:

3200.1.2.1 Raw Aggregate is granular material excavated from the aggregate source prior to processing.

3200.1.2.2 Reject Aggregate is the screened aggregate removed from the Raw Aggregate prior to crushing to meet the requirements of the unsplit Final Product.

3200.1.2.3 Screened Aggregate is the aggregate passing through the appropriate screen when Raw Aggregate is fully screened prior to crushing for a four-way split.

3200.1.2.4 Natural Fines Aggregate is the aggregate passing through the appropriate screen when Raw Aggregate is fully screened prior to crushing for a two or three-way split, or when the Screened Aggregate is fully screened for a four-way split.

3200.1.2.5 Pea Aggregate is the aggregate passing the top size sieve of the Final Product being produced and retained on the 9.0 mm square opening sieve which is stockpiled separately for a four-way split.

3200.1.2.6 Crushed Aggregate is the aggregate retained on the appropriate screen during Natural Fines Aggregate production for a two or three-way split, or during Screened Aggregate production for a four-way split, following processing at the crusher.

3200.1.2.7 Crushed Coarse Aggregate is the aggregate retained on the appropriate screen after screening the Crushed Aggregate.

3200.1.2.8 Crushed Fines Aggregate is the aggregate passing the appropriate screen after screening the Crushed Aggregate.

3200.1.2.9 Commodity is any component produced from the Raw Aggregate as a result of the screening, crushing and splitting processes, excluding Reject Aggregate. The component may be Screened Aggregate, Natural Fines Aggregate, Pea Aggregate, Crushed Aggregate, Crushed Coarse Aggregate or Crushed Fines Aggregate.

3200.1.2.10 Final Product

3200.1.2.10.1 For split aggregate is the individual Commodities when the aggregate is to be used by others, or the product produced by recombining Commodities and applicable additives to produce the final type of aggregate as stipulated in the Special Provisions and/or Plans.

3200.1.2.10.2 For unsplit aggregate is the final aggregate type as stipulated in the Special Provisions and/or Plans after processing and the removal of Reject Aggregate if required.

3200.1.2.11 Mean is the arithmetic average of a set of 'n' test results constituting the sample.

3200.1.2.12 Moving Average is the arithmetic mean of 3 consecutive test results.

3200.1.2.13 Dry Aggregate is the Final Quantity of the asphalt concrete or base course less the weight of liquid asphalt if applicable.

3200.2 MATERIALS

3200.2.1 The aggregate shall be composed of sound, hard and durable particles of sand, gravel and rock free from injurious quantities of elongated, soft or flaky particles, shale, loam, clay balls and organic or other deleterious material, as specified for the Final Product to be produced.

3200.3 CONSTRUCTION

3200.3.1 General

3200.3.1.1 The following will apply to Ministry-owned or controlled aggregate sources shown on the Plans or as described in the Special Provisions:

3200.3.1.1.1 Overburden shall be removed from material deposits in accordance with Specification 2260 For Removal Of Overburden.

3200.3.1.1.2 Rock passing a 610 mm square opening screen and larger than the maximum specified size shall be crushed and incorporated simultaneously throughout the crushing operation.

3200.3.1.2 Stockpiles shall be constructed in accordance with Specification 3600 For Stockpiling Aggregates.

3200.3.1.3 Aggregate shall be processed in such a way that will allow the recombination of the Commodities to meet the Final Product requirements.

3200.3.2 Processing Without Splitting

3200.3.2.1 When required to meet specifications of the Final Product, Raw Aggregate shall be partially screened over a maximum 9.0 mm square opening screen or a 5.0 mm slotted opening screen. Aggregate passing the screen shall be stockpiled separately as Reject Aggregate.

3200.3.2.2 Aggregate retained on the screen shall be processed into the Final Product.

3200.3.3 Processing Using a Two-way Split

3200.3.3.1 Raw Aggregate shall be screened to produce Natural Fines Aggregate.

3200.3.3.1.1 The Natural Fines Aggregate stockpile shall contain no less than 97% of the material passing the 9.0 mm square opening sieve.

3200.3.3.2 Aggregate retained on the screen following Natural Fines Aggregate production shall contain no more than 3% of the material passing the 9.0 mm square opening sieve.

3200.3.3.2.1 Construction practices that result in incomplete screening of the aggregate including but not limited to the flooding of the screens will not be permitted.

3200.3.3.2.2 If the Engineer determines that the Raw Aggregate has not been fully screened, the Crushed Aggregate will be considered as Defective Material in accordance with General Provision 1500.6.

3200.3.3.3 Aggregate retained on the screen during Natural Fines Aggregate production shall be crushed to the specified top size of the Final Product being produced and stockpiled as Crushed Aggregate.

3200.3.3.3.1 A tolerance of 3% in the percent by weight passing the maximum size sieve for the Commodities and Final Product being produced will be permitted providing 100% of the oversize passes the next highest sieve size. Sieve sizes include: 40.0 mm, 31.5 mm and 22.4 mm.

3200.3.4 Processing Using a Three-way Split

3200.3.4.1 Raw Aggregate shall be screened to produce Natural Fines Aggregate.

3200.3.4.1.1 The minimum percent of material contained in the Natural Fines Aggregate stockpile that passes the 9.0 mm square opening sieve shall be as shown in Table 3200.3.T1.

TABLE 3200.3.T1

MINIMUM PERCENT OF NATURAL FINES AGGREGATE PASSING THE 9.0 mm SIEVE

Asphalt Mix Design Type	Minimum % By Weight Passing the 9.0 mm Sieve
Types 1 to 4	97.0%
Type 5	98.0%
Type 6	99.0%

3200.3.4.2 Aggregate retained on the screen during Natural Fines Aggregate production shall contain no more than 3% of the material passing the 9.0 mm square opening sieve.

3200.3.4.2.1 Construction practices that result in incomplete screening of the aggregate including but not limited to the flooding of the screens will not be permitted.

3200.3.4.2.2 If the Engineer determines that the Raw Aggregate has not been fully screened, the Crushed Aggregate will be considered as Defective Material in accordance with General Provision 1500.6.

3200.3.4.3 Aggregate retained on the screen following Natural Fines Aggregate production shall be crushed to the specified top size of the Final Product being produced.

3200.3.4.3.1 A tolerance of 3% in the percent by weight passing the maximum size sieve for the Commodities and Final Product being produced will be permitted providing 100% of the oversize passes the next highest sieve size. Sieve sizes include: 22.4 mm, 18.0 mm and 16.0 mm.

3200.3.4.4 Crushed Aggregate shall be screened and stockpiled separately as Crushed Coarse Aggregate and Crushed Fines Aggregate.

3200.3.4.4.1 The Crushed Coarse Aggregate stockpile shall contain no more than 10% of the material passing the 5.0 mm square opening sieve.

3200.3.4.4.2 The Crushed Fines Aggregate stockpile shall contain no less than 90% of the material passing the 5.0 mm square opening sieve.

3200.3.5 Processing Using a Four-way Split

3200.3.5.1 Raw Aggregate shall be screened to produce Screened Aggregate.

3200.3.5.1.1 No less than 99% of the material contained in the Screened Aggregate stockpile shall pass the top size square opening sieve of the Final Product being produced.

3200.3.5.2 A portion of the Screened Aggregate stockpile shall be re-screened to produce Pea Aggregate and Natural Fines Aggregate.

3200.3.5.2.1 The Contractor will only be required to screen enough of the Screened Aggregate stockpile to produce the quantities of Natural Fines Aggregate and Pea Aggregate designated in the Processed Aggregate Requisition Form.

3200.3.5.2.2 The minimum percent of material contained in the Natural Fines Aggregate stockpile that passes the 9.0 mm square opening sieve shall be as shown in Table 3200.3.T1.

3200.3.5.3 The aggregate retained on the screen following Screened Aggregate production shall contain no more than 1% of the material passing the top size sieve of the Final Product being produced.

3200.3.5.3.1 Construction practices that result in incomplete screening of the aggregate including but not limited to the flooding of the screens will not be permitted.

3200.3.5.3.2 If the Engineer determines that the Screened Aggregate has not been fully screened, the Crushed Aggregate will be considered as Defective Material in accordance with General Provision 1500.6.

3200.3.5.4 Aggregate remaining following the removal of the Screened Aggregate shall be crushed to the specified top size of the Final Product being produced.

3200.3.5.4.1 A tolerance of 3% in the percent by weight passing the maximum size sieve for the Commodities and Final Product being produced will be permitted providing 100% of the oversize passes the next highest sieve size. Sieve sizes include: 22.4 mm, 18.0 mm and 16.0 mm.

3200.3.5.5 Crushed Aggregate shall be screened and stockpiled separately as Crushed Coarse Aggregate and Crushed Fines Aggregate.

3200.3.5.5.1 The Crushed Coarse Aggregate stockpile shall contain no more than 10% of the material passing the 5.0 mm square opening sieve.

3200.3.5.5.2 The Crushed Fines Aggregate stockpile shall contain no less than 90% of the material passing the 5.0 mm square opening sieve.

3200.3.6 Processed Aggregate Requisition

3200.3.6.1 The Contractor shall provide, in writing, accurate measurements of quantities and percentages of all split aggregate being placed in each stockpile after producing 50% of the aggregate or 10 000 t, whichever is greater; or when all the aggregate is produced if the total quantity is less than 10 000 t.

3200.3.6.2 For two-way splitting if Commodities are for use by others and all three or four-way splitting; the Engineer will issue a Processed Aggregate Requisition within the number of days shown in Table 3200.3.T2 after the Contractor provides the above mentioned quantities and percentages. The requisition will state the required quantity of each Commodity.

TABLE 3200.3.T2**TIMELINE FOR ISSUING PROCESSED AGGREGATE REQUISITION**

Tender Quantity (Each Final Product)	Maximum Number Of Days To Issue Requisition
< 10 000 tonnes	3
≥ 10 000 tonnes but < 20 000 tonnes	5
≥ 20 000 tonnes	10

3200.3.6.2.1 The Processed Aggregate Requisition quantity will not include a quantity for stockpile loss for Commodities to be used in this Contract.

3200.3.6.3 Contrary to General Provision 1300.3, there will be no adjustment in the contract unit price of any processed aggregate commodity produced for base mix if the Final Quantity is less than 80% or greater than 120% of the Tendered Quantity.

3200.4 SAMPLING AND TESTING

3200.4.1 Frequency of testing will be at the discretion of the Engineer.

3200.4.2 Aggregate production shall comply with the following requirements:

3200.4.2.1 The Contractor shall cease operations if the Moving Average for any sieve does not comply with the specified requirements.

3200.4.2.1.1 Failure to cease operations shall subject all subsequent materials to the requirements of General Provision 1400-7 Unacceptable and Unauthorized Work.

3200.4.2.1.2 Upon recommencement of operations, the Contractor shall start a separate calibration stockpile(s).

3200.4.2.1.3 Once the specified requirements for the Commodities or Final Product are met on two consecutive tests, production of the Commodities or Final Product stockpile(s) may re-commence.

3200.4.2.1.4 The material from the calibration stockpile(s) will be considered Raw Aggregate.

3200.4.2.1.5 All work required for the creation of the calibration stockpile(s) will not be paid for directly but will be considered as a subsidiary obligation of the Contractor under this Contract.

3200.5 MEASUREMENT

3200.5.1 All Commodities will be measured or calculated in tonnes.

3200.5.1.1 If the Commodities are for use by others, they shall be scaled in accordance with General Provision 1800.2.

3200.5.2 Reject Aggregate and stockpiles remaining after final project completion will be surveyed to calculate volume.

3200.5.2.1 The conversion factor from cubic metres to tonnes will be 1.9.

3200.6 PAYMENT

3200.6.1 Processing Without Splitting

3200.6.1.1 Payment for aggregate processed without splitting will be in accordance with the Specifications for the Final Product being produced and applicable contract unit prices.

3200.6.1.2 The Contractor shall be responsible for the Reject Aggregate up to a maximum of 10% of the Final Quantity of the Final Product being produced from each Ministry-owned or controlled aggregate source.

3200.6.1.2.1 Payment for rejecting aggregate in excess of 10% will be at the rate designated in the Special Provisions.

3200.6.1.2.2 Payment will not be made for Reject Aggregate if the aggregate source used is not Ministry-owned or controlled.

3200.6.2 Processing With Splitting

3200.6.2.1 Payment for Screened Aggregate and Pea Aggregate will be at the rate designated in the Special Provisions.

3200.6.2.2 Payment for Natural Fines Aggregate will be at the rate designated in the Special Provisions unless it is to be produced in a separate operation from Crushed Aggregate production, in which case payment will be at the contract unit price for Natural Fines Aggregate.

3200.6.2.2.1 There will be no direct payment for the coarse material produced from the screening operation to produce Natural Fines Aggregate.

3200.6.2.3 Payment for Crushed Aggregate, Crushed Coarse Aggregate and Crushed Fines Aggregate will be at the applicable contract unit price per tonne for Crushed Aggregate. The contract unit price will be full compensation for completing the work except for those activities for which specific provision for payment is made in this section.

3200.6.2.4 If the Commodities are for use by others the following will apply:

3200.6.2.4.1 Payment for Crushed Aggregate, Crushed Coarse Aggregate and Crushed Fines Aggregate will be the lesser of the quantities produced or the Processed Aggregate Requisition quantities.

3200.6.2.4.1.1 The Ministry will also pay for excess quantities of Crushed Coarse Aggregate or Crushed Fines Aggregate produced as a result of the Ministry varying the requisition ratio for Crushed Coarse Aggregate to Crushed Fines Aggregate from the natural split ratio provided by the Contractor.

3200.6.2.4.1.2 If the Contractor produces Crushed Aggregate in excess of the Processed Aggregate Requisition quantities, the quantity of Natural Fines Aggregate for a two-way or three-way split or the quantity of Screened Aggregate for a four-way split will be reduced proportionately.

3200.6.2.4.2 Payment for Natural Fines Aggregate for a two-way or three-way split will be based on the total quantity produced subject to section 3200.6.2.7.

3200.6.2.4.3 Payment for Screened Aggregate for a four-way split will be based on the total quantities in the Screened Aggregate, Natural Fines Aggregate and Pea Aggregate stockpiles subject to section 3200.6.2.7.

- 3200.6.2.4.4 Payment for Natural Fines Aggregate for a four-way split will be the lesser of the quantity produced or the Processed Aggregate Requisition quantity.
- 3200.6.2.4.5 Payment for Pea Aggregate for a four-way split will be based on the total quantity produced subject to section 3200.6.2.7.
 - 3200.6.2.4.5.1 If the Contractor produces Natural Fines Aggregate in excess of the Processed Aggregate Requisition quantity, the quantity of Pea Aggregate will be reduced proportionately.
- 3200.6.2.5 If the Commodities are incorporated into a surfacing structure under this Contract, payment for the Commodities will be as follows:
 - 3200.6.2.5.1 All Commodities incorporated into the surfacing structure will be paid for at the applicable contract prices.
 - 3200.6.2.5.1.1 The quantity of each Commodity incorporated into the surfacing structure will be calculated by multiplying the percentage of each Commodity specified in the Job Mix Formula(s) for asphalt concrete, or the agreed to mix recombination percentages for granular base course, by the Dry Aggregate weight of the Final Product.
 - 3200.6.2.5.2 Remaining stockpiles of Crushed Aggregate produced from a two-way split will be paid to a maximum of 5% more than the quantity calculated from the agreed to mix recombination percentages for granular base course.
 - 3200.6.2.5.3 Remaining stockpiles of Crushed Coarse Aggregate, Crushed Fines Aggregate and Natural Fines Aggregate (for a four-way split) will be paid for up to the Processed Aggregate Requisition quantity less the quantity incorporated into the surfacing structure.
 - 3200.6.2.5.3.1 The Ministry will also pay for excess quantities of Crushed Coarse Aggregate or Crushed Fines Aggregate left in the aggregate source as a result of the Ministry varying the mix design ratio for Crushed Coarse Aggregate to Crushed Fines Aggregate from the natural split ratio provided by the Contractor.
 - 3200.6.2.5.4 Payment for Natural Fines Aggregate for a two-way or three-way split will be based on the quantities incorporated into the surfacing structure and any additional quantities left in stockpiles subject to section 3200.6.2.7.
 - 3200.6.2.5.4.1 If the Contractor produces Crushed Aggregate in excess of the Processed Aggregate Requisition quantities, the quantity of Natural Fines Aggregate for a two-way or three-way split will be reduced proportionately.
 - 3200.6.2.5.5 Payment for Screened Aggregate for a four-way split will be based on the total quantities in the Screened Aggregate and Pea Aggregate stockpiles and Natural Fines Aggregate incorporated into the surfacing structure and any additional quantities left in stockpiles subject to section 3200.6.2.7.
 - 3200.6.2.5.5.1 If the Contractor produces Crushed Aggregate in excess of the Processed Aggregate Requisition quantities, the quantity of Screened Aggregate for a four-way split will be reduced proportionately.

- 3200.6.2.5.6 Payment for Natural Fines Aggregate for a four-way split will be paid for up to the Processed Aggregate Requisition quantity less the quantity incorporated into the surfacing structure.
- 3200.6.2.5.7 Payment for Pea Aggregate for a four-way split will be based on the total quantity produced subject to section 3200.6.2.7.
 - 3200.6.2.5.7.1 If the Contractor produces Natural Fines Aggregate in excess of the Processed Aggregate Requisition quantity, the quantity of Pea Aggregate will be reduced proportionately.
- 3200.6.2.5.8 There will be no direct payment for Commodity quantities lost due to stockpile loss.
- 3200.6.2.6 Any excess aggregate that was produced from Ministry-owned or controlled sources shall be the property of the Ministry.
 - 3200.6.2.6.1 If interim stockpiling of the aggregate is specified in the Contract, the Contractor will be paid for the haul of the excess material remaining at the interim stockpile site(s) at the completion of the Project as follows:
 - 3200.6.2.6.1.1 At the applicable Standard Haul Rate from the aggregate source to the interim stockpile site and from the interim stockpile site to the Ministry's stockpile site as designated in the Special Provisions or directed by the Engineer, for quantities up to the Processed Aggregate Requisition quantity less the amount incorporated into the Final Product.
 - 3200.6.2.6.1.1.1 The Engineer may elect to haul additional remaining materials to the Ministry's stockpile site as designated in the Special Provisions or directed by the Engineer at the applicable Standard Haul Rate. Other remaining materials shall be disposed of by the Contractor at no direct expense to the Ministry.
 - 3200.6.2.6.2 If interim stockpiling of the aggregate is not specified in the Contract, excess material shall be stockpiled where the material originated from at no direct expense to the Ministry.
- 3200.6.2.7 When the Contractor uses material from sources that are not Ministry-owned or controlled, the following will apply to the Commodities remaining at the completion of the Project:
 - 3200.6.2.7.1 If the Contractor elects to maintain control of these materials, there will be no payment.
 - 3200.6.2.7.2 If the Contractor elects, the Ministry will take ownership of these materials up to the Processed Aggregate Requisition quantity less the amount incorporated into the Final Product.
 - 3200.6.2.7.2.1 The Ministry will pay for these materials at the applicable contract prices.
 - 3200.6.2.7.2.2 If material was not hauled to an interim stockpile site(s), the Contractor shall haul materials remaining at the source(s) to a site(s) designated by the Engineer. Payment will be at the applicable Standard Haul Rates.
 - 3200.6.2.7.2.3 If material was hauled to an interim stockpile site(s) and interim stockpiling is not specified in the Contract, the Contractor shall haul these materials to a site designated by the Engineer at no direct expense to the Ministry.

3200.6.2.7.2.4 If interim stockpiling is specified in the Contract, the Contractor shall haul these materials to a site(s) designated by the Engineer. Payment for haul on these materials will be made from the aggregate source designated in the Contract to the interim stockpile site and from the interim stockpile site to the designated site at the applicable Standard Haul Rates.

3200.6.2.7.2.5 Payment will not be made for quantities in excess of the Processed Aggregate Requisition quantity less the amount incorporated into the Final Product. The Contractor shall maintain control of these excess materials.

3200.6.3 Hauling Processed Aggregate

3200.6.3.1 Payment for hauling aggregate processed without splitting will be in accordance with the Specification(s) for the Final Product(s) being produced and applicable contract unit price(s).

3200.6.3.2 Payment for hauling split aggregate if the Commodities are for use by others will be at the contract unit price for Hauling Aggregate, unless the Commodities are to be stockpiled In Place at the designated aggregate source.

3200.6.3.3 Payment for hauling split aggregate if the Commodities are incorporated into a surfacing structure under this Contract will be in accordance with the Specification(s) for the Final Product(s) being produced and the applicable contract unit price(s).

3200.6.4 Interim Products And Interim Haul

3200.6.4.1 Interim products are defined as aggregates that do not meet the definitions for Commodity or Final Product.

3200.6.4.2 The Ministry will make monthly payments for interim products and interim haul as follows:

3200.6.4.2.1 Payments for processing interim products will be at the applicable rates as stipulated in the Special Provisions.

3200.6.4.2.2 Payments for hauling interim product(s) or Commodities that are not a Final Product will be at the applicable Standard Haul Rates as stipulated in the Special Provisions or the applicable contract unit price, whichever is less.

3200.6.4.3 Payments pursuant to the above will be deducted from subsequent progressive estimates as the aggregate is incorporated into the work and these payments will not appear on the final estimate.