



**TENDER # 2025-04**

**MUNICIPALITY OF CENTRAL MANITOULIN**

**2025 CONTRACT**

**FOR SUPPLY OF GRANULAR MATERIAL**

**GRANULAR – CLASS 6-HL3**

**And**

**Granular A**

**And**

**Granular B**

**Closing April 29, 2025 @ 12:00pm (Noon)**

**Municipality of Central Manitoulin  
2025 Contract  
For Supply of Granular Materials**

**Granular – CLASS 6-HL3  
And  
Granular A  
And  
Granular B**

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1. **FORM OF TENDER**

**TENDER FOR GRANULAR MATERIALS**

**GRANULAR – CLASS 6-HL3**

And

**Granular A**

And

**Granular B**

**MUNICIPALITY OF CENTRAL MANITOULIN**

TENDER CLOSING DATE: Tuesday -APRIL 29TH, 2025 **AT 12:00P.M. (noon)**  
LOCAL TIME AT THE MUNICIPAL OFFICE-6020 Highway 542, MINDEMOYA, ON

TENDER FOR GRANULAR MATERIAL CONTRACT - SUPPLY GRANULAR MATERIALS –  
GRANULAR – CLASS 6-HL3 and GRANULAR A and GRANULAR B

BY: \_\_\_\_\_  
Name of Firm or Individual  
(hereinafter referred to as the Contractor)

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name of Person Signing for Firm: \_\_\_\_\_

Office of Person Signing for Firm: \_\_\_\_\_

**(Lowest or any tender not necessarily accepted)**

Municipality of Central Manitoulin  
P. O. Box 420  
MINDEMOYA, Ontario  
P0P 1S0

Attention: Denise Deforge  
CAO/Clerk

TENDER FOR THE **YEAR 2025** CONTRACT  
SUPPLY OF GRANULAR MATERIALS – GRANULAR – CLASS 6-HL3 and  
GRANULAR A and GRANULAR B

The contractor has carefully examined the Provisions, Plans, Specifications, and conditions referred to in the Schedule of Provisions, Plans, Specifications and Conditions attached hereto as part of this Tender and has carefully examined the site and location of the work to be done under this Contract and the Contractor understands and accepts the said provisions, plans, specifications and conditions, and for the prices set forth in this tender, hereby offers to furnish all machinery, tools, apparatus and other means of construction, furnish all materials, except otherwise specified in the Contract, and to complete the work in strict accordance with the provisions, plans, specifications and conditions referred to in the said Schedule.

This offer shall be irrevocable for a period of thirty (30) calendar days following the date of the tender opening.

With the signing of the contract a certified cheque will be provided to the Municipality in the amount of 10% of the total tender. The certified cheque must be made payable to the Municipality of Central Manitoulin. The proceeds of this cheque shall constitute a deposit which shall be forfeited to the Municipality if the Contractor fails to successfully complete the conditions of the contract. The cheque of the successful bidder will be retained until the completion of the work.

In accordance with the first paragraph of this Tender, the Contractor hereby offers to complete the work specified in the Contract for the following prices for the **2025** Contract.

NO.	Item	Unit Price \$/cubic meter	Quantity cubic meter	Price Total \$
OPSS.MUNI 1006 NOV 2021	Stockpile @ 7 Lakeshore Road, Mindemoya, ON Granular CLASS 6- HL3 Tested with Density		950 +/-	
OPSS.MUNI 1010 NOV 2013	Supply and Tailgate Spread at Various Municipality Roads Granular "A" Tested with Density		3,800 +/-	
OPSS.MUNI 1010 NOV 2013	Granular B (Type 2) Tailgate, Supply and Stockpile @ 7 Lakeshore Road, Mindemoya, On		1,200 +/-	
TOTAL TENDER AMOUNT				
H. S. T.				
TOTAL CONTRACT PRICE				

## SCHEDULE OF PROVISIONS, PLANS, SPECIFICATION AND CONDITIONS

The work specified in this Contract will be performed in strict accordance with the following Provisions, Plans, Specifications and Conditions. In reading, interpreting and applying these Specifications the word "The Municipality of Central Manitoulin" shall be substituted for "The Ministry of Transportation of Ontario (M.T.O.)" where they appear in these documents.

### A. SPECIAL PROVISIONS

'A' Tender and Bonding Requirements	- Attached
'B' Special Provisions for Contract	- Attached
'C' Special Provisions for Labour Conditions	- Attached

### B. PLANS

N/A

### C. SUPPLEMENTAL SPECIFICATION (Not attached)

N/A

### D. STANDARD SPECIFICATIONS

OPSS.MUNI Forms:

1006, November 2021

1010, November 2013

## GENERAL CONDITIONS

(Attached)

### E. QUALITY ASSURANCE

The Contractor shall provide a material test result for the Granular Class 6-HL3 and Granular "A" from a qualified lab prior to delivery of material. This is for the purposes of ensuring that materials used in the work conform to the physical and production requirements of this special provision.

Notwithstanding the requirements for QA sampling as indicated below, the Municipality reserves the right to obtain a sample at any time without notice for any purpose.

QA Samples shall be taken from the Contractor stockpile in accordance with procedures given in OPSS.MUNI 1010, or OPSS.MUNI 1006. Duplicate QA samples shall be obtained and sealed by the Contractor in the presence of the Contract Administrator (or a designated representative). In the event that the Contractor is unavailable to take the sample, no further materials shall be placed in the work until the QA sample has been taken.

QA sampling and testing will be based on lots of material delivered to the job site. Should the lot size, for any reason, exceeds these limits indicated below, any adjusted payment shall apply to the entire quantity of the lot.

All lots designated for QA will be selected by the Contract Administrator according to the following schedule:

- i) One lot from the first 1,000 cubic meters of material delivered.
- ii) A minimum of one lot per 5,000 cubic meters shall be selected during the delivery of the rest of the material.

In addition to the above, the Contract Administrator may begin a new QA lot at any time.

Payment at an Adjusted Price

Complete or incomplete QA lots which do not meet the gradation or percent crushed requirements, and which are not subject to removal under subsection will be subject to a reduced payment where the Contractor chooses to use

such a lot or where it cannot be totally excluded from the work.

The price reduction will be calculated by the following formula:

$$\text{PRICE REDUCTION} = \frac{\text{lot quantity (metres)} \times \text{item price (\$/cubic metre)}}{\text{payment adjustment factor (\%)}}$$

Where:

The payment adjustment factor, in percentage, shall be equal to the sum of the adjustment points determined as follows:

- i. Adjustment points shall be applied for each 0.1 percent that the mean gradation falls outside the gradation specification limits for each sieve, according to respective OPSS.MUNI standard
- ii. adjustment points shall be applied for each 0.1 percent that the range exceeds the maximum acceptable range for each sieve; and
- iii. 0.2 adjustment points shall be applied for Granular - CLASS 6-HL3 and Granular "A" and for each 0.1 percent that the lot mean falls below the applicable limits for percent crushed.



SIGNED STATEMENT BY BIDDER THAT THE BID IS  
PREPARED AND SUBMITTED WITHOUT COLLUSION OR DECEIT

The Bidder expressly warrants that the prices contained in the tender as unit price, and whether for transportation or supply of materials or for services, are quoted in utmost good faith on their part, without any collusive arrangement or agreement with any other person, or partnership or corporation.

The Bidder expressly represents that they are not part or privy to any deceit tending to mislead the Corporation into accepting his Tender as a truly competitive tender whether to the prejudice, injury or benefit of the Corporation.

THE CONTRACTOR BY THIS TENDER OFFERS TO COMPLETE THIS CONTRACT IN ACCORDANCE WITH THE TERMS CONTAINED HEREIN.

DATED AT \_\_\_\_\_ THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, **2025**.

WITNESS: \_\_\_\_\_

Signature of Authorized Person  
signing for Contractor \_\_\_\_\_

Position \_\_\_\_\_

**2. AGREEMENT**

**CONTRACT 2025-04**

THIS AGREEMENT made in duplicate this \_\_\_\_ day of \_\_\_\_\_, **2025**.  
BETWEEN

**THE MUNICIPALITY OF CENTRAL MANITOULIN**

(hereinafter called the "Owner")

OF THE FIRST PART

AND

(hereinafter called the "Contractor")

OF THE SECOND PART

WITNESSETH

That any reference to "Engineer" throughout this document shall be termed to mean "Road Superintendent"; and

That the Owner and the Contractor in consideration of the fulfilment of their respective promises and obligations herein set forth covenant and agree with each other as follows:

**ARTICLE 1**

- (a) A general description of the work is: Supply of Granular – CLASS 6-HL3 materials and Granular "A" and Granular "B".
- (b) The Contractor shall, except as otherwise specifically provided, provide at their own expense, all and every kind of labour, machinery, plant, structures, roads, ways, materials, appliances, articles and things necessary for the due execution and completion of all the work set out in this Contract and shall forthwith according to the instructions of the Engineer commence the works and diligently execute the respective portions hereof, and deliver the works complete in every particular to the Owner within the time specified in the Special Provisions of the Contract.

## **ARTICLE 2**

In the event that the Tender provides for and contains a contingency allowance, it is understood and agreed that the Contractor is not entitled to payment thereof except for extra or additional work carried out by him in accordance with the Contract and only to the extent of such extra or additional work.

## **ARTICLE 3**

In case of any inconsistency or conflict between the provisions of this Agreement and the Plans or Specifications or General Conditions or Tender or any other document or writing, the provisions of such documents shall take precedence and govern in the following order, namely:

- (i) Special Provisions
- (ii) Plans
- (iii) Supplemental Specifications
- (iv) Standard Specifications
- (v) Tender
- (vi) General Conditions

## **ARTICLE 4**

The Owner covenants with the Contractor having in all respects complied with the provisions of this Contract, will be paid for an in respect of the works the sum of \_\_\_\_\_

subject to Article 2 hereof and subject to such additions and deductions as may properly be made under the terms hereof, subject to the provision that the Owner may make payments on account monthly or otherwise as may be provided in the General conditions attached hereto.

## **ARTICLE 5**

Where any notice, direction other communication is required to be or may be given or made by one of the parties hereto to the other, it shall be deemed sufficiently given or made if mailed or delivered in writing to such party at the following addresses:

The Contractor:

The Owner

Municipality of Central Manitoulin  
P. O. Box 420,  
MINDEMOYA, Ontario  
P0P 1S0

## **ARTICLE 6**

A copy of each of the appendices is hereto annexed and together with the Plans relating thereto and listed in the Specifications are made part of this Contract as fully to all intents and purposes as though recited in full herein.

## **ARTICLE 7**

No implied contract of any kind whatsoever by or on behalf of the Owner shall arise or be implied from anything in this Contract contained, nor from any position or situation of the parties at any time, it being clearly understood that the express covenants and agreements herein contained made by the Owner shall be the only covenants and agreements upon which any rights against the Owner may be found.

## **ARTICLE 8**

Time shall be deemed the essence of this Contract.

## ARTICLE 9

The Contractor declares that in tendering for the works and in entering into this Contract, they have either investigated for their self the character of the work and all local conditions that might affect his tender or his acceptance of the work, or that not having so investigated, he is willing to assume and does hereby assume all risk of conditions arising or developing in the course of the work which might or could make the work, or any items thereof, more expensive in character, or more onerous to fulfil, than was contemplated or known when the tender was made or the Contract signed. The Contractor also declares that he did not and does not rely upon the information furnished by any methods whatsoever by the Owner or its officers or employees, being aware that any information from such sources was and is approximate and speculative only and was not in any manner warranted or guaranteed by the Owner.

## ARTICLE 10

This Contract shall apply to and be binding on the parties hereto and their successors, administrators, executors and assigns and each of them.

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seals the day and year first above written or caused their corporate seals to be affixed, attested by the signature of their proper officers.

### CONTRACTOR

Witness as to signature of	)	_____
Contractor	)	
	)	
	)	
	)	_____
	)	
_____	)	COMPANY SEAL

### OWNER - **MUNICIPALITY OF CENTRAL MANITOULIN**

**SPECIAL PROVISIONS**

**SPECIAL PROVISIONS**  
**SECTION 'A'**  
**TENDER AND BONDING REQUIREMENTS**

1. **TENDER REQUIREMENTS**

(a) The Correct Tender Form as supplied by the Municipality for this Contract must be used and in the possession of the Clerk or his/her duly Authorized representative before **12:00 p.m. (noon)** local time, on the Tender Closing Date indicated on Page T-1 of the Tender Form. The Tender Documents will be **opened at 1:30 p.m.** local time on the Tender Closing Date.

(b) The Tender must be legible, and ALL ITEMS MUST BE BID with the unit price for every item and other entries being fully clear. The bidder acknowledges that the quantities listed in the Tender Form represent good faith estimates of the quantities required by the Municipality. The quantity of crushed gravel required in 2025 may be more or less than listed in the Tender Form and such changes shall not limit or alter in any way the bidder's obligation to provide the products at the price contained in the Tender Form.

(c) The bid must not be restricted by statement added to the Tender Form or a covering letter, or alterations to the Tender Form provided by the Municipality.

Adjustments by telegram or letter to a Tender already submitted will not be considered. A bidder desiring to adjust a Tender must withdraw the Tender and/or supersede it with a later Tender Submission.

(d) Tender must be sealed in an envelope specially provided for this Contract and marked "**Contract # 2025 – 04** Supply of Granular Materials – Granular - CLASS 6-HL3 and Granular "A" and "B" (CLASS 2).

(e) The Tender Form must be signed and witnessed in the space provided on the form, with the signature of the Bidder or of a responsible official of the organization bidding. If a joint bid is

submitted, it must be signed and witnessed on behalf of each of the Bidders and if the signing authority for each bidder is vested in one individual, he shall sign separately on behalf of each Bidder.

- (f) The successful bidder shall provide a certified cheque made payable to the Municipality of Central Manitoulin equal to 10 % of the total tender amount at the time of signing of the agreement.
- (g) The successful bidder shall deliver a certified copy of the firms Public Liability and Property Damage Insurance Policy for the works, within (10) calendar days of receiving the acceptance notice. Coverage shall be at least \$2,000,000 per accident in the name of the Municipality. Failure to provide such proof shall result in cancellation of the contract and forfeiture of the bid deposit.
- (h) The successful bidder shall also deliver proof of Workers' Compensation Board coverage, within ten (10) calendar days of receiving the acceptance notice.

## SPECIAL PROVISIONS

### **SECTION 'B'** SPECIAL PROVISIONS FOR CONTRACT

#### 1. EMPLOYMENT

The Contractor and any Sub-Contractor of the Contractor will, respective of the construction to be carried out under this contract,

1. employ only residents of Canada, and
2. in employing persons, refrain from discriminating against any person by reason of race, religious views or political affiliations.

#### 2. SCHEDULE OF MINIMUM TRUCK HAUL RATES

The current schedule of minimum truck haul rates shall apply to this contract, both the Contractor and Sub-Contractor shall pay for trucks employed to haul materials on the work not less than the rates set in the schedule at the time of Contract award.

#### 3. PROPERTY OWNER'S RELEASE OF PIT AREAS AND WASTE DISPOSAL AREAS ON PRIVATELY-OWNED AND MUNICIPALITY-OWNED LANDS

In accordance with the Conditions set out in section GC.6 of the General Conditions, the Authority will, without further notice, withhold payment of moneys due to the Contractor, until the Contractor shall have provided the Road Superintendent with two copies each of a release signed by Owner of each pit or waste disposal area used by the Contractor.

Releases shall be made out as follows:



Date:

To: Municipality of Central Manitoulin  
P. O. Box 420  
MINDEMOYA, Ontario. P0P 1S0

Dear Sir:

I hereby certify that (Contracting Firm Name) have fulfilled the terms of our Agreement and have left my property in a satisfactory condition.

I have accepted their final payment in accordance with the estimates provided by your Road Superintendent and release (Contracting Firm Name) and the Authority from further obligations.

Yours very truly,

Final payment will not be paid to the Contractor until all applicable forms of release have been signed by the Property Owner, received by the Road Superintendent, and checked.

4. CO-OPERATION WITH OTHERS

The Contractor shall co-operate with the Road Superintendent and with the public utilities' commissions, etc., Federal and Provincial Government Agencies and the area Municipalities.

5. ORDER OF PRECEDENCE

In case of any inconsistency or conflict between the provisions of this Agreement and the Specifications or General Conditions or Tender or any other document or writing, the provisions of such documents shall take precedence and govern in the following order, namely

- (i) Special provisions
- (ii) Standard Specifications
- (iii) Tender
- (iv) General Conditions

6. SPECIFICATIONS AND CONDITIONS

The work specified in this contract will be performed in strict accordance with the following Specifications and Conditions. In reading, interpreting and applying these specifications the words "Corporation" shall be substituted for "Ontario Ministry of Transportation (M.T.O.)" where they appear in these documents.

Standard Specifications (Attached)

OPSS.MUNI 1006 – November 2021  
OPSS.MUNI 1010 - November 2013

7. GRADATION REQUIREMENTS

The Contractor shall rigidly follow the gradation requirements of OPSS.MUNI 1006, OPSS.MUNI 1010. Oversize material or material outside of the Specification for, Granular – CLASS 6-HL3 or Granular A will not be accepted.

8. DESIGNATED SOURCES

There are no designated sources to this Contract.

9. MEASUREMENT PAYMENT

Measurement for payment of granular materials will include only those materials accepted by the Road Superintendent.

10. BASIS OF PAYMENT

Granular materials - Payment at the Contract Price shall be compensation in full for performing the work specified in the tender item and for the supply of all labour, equipment and material, except as otherwise provided, necessary to complete the work to the satisfaction of the Road Superintendent.

11. SPECIAL PROVISIONS FOR ITEMS

Item No. 1 - Stockpile Crushed Gravel Granular CLASS 6-HL3

Item No. 2 - Supply and Tailgate Crushed Gravel Granular "A"

Item No. 3 – Supply, Tailgate and Stockpile Granular B

Under this item the Contractor shall supply, haul, and tailgate spread the material to various Municipality roads as directed by the Road Superintendent.

SPECIAL PROVISIONS  
**SECTION 'C'**  
LIQUIDATED DAMAGES

1. TIME

Time shall be the essence of this agreement.

2. PROGRESS OF THE WORK AND TIME FOR COMPLETION

The Contractor shall commence work as soon as possible after the award of the Contract, as per the Roads Superintendent, and shall diligently prosecute his work on Item #1, 2, and 3 of the Contract to completion on or before **June 27, 2025.**

This Contract will not be complete until the full amount of the materials that are stockpiled on the Contractors property have been delivered and spread on Municipal roads as required and directed by the Road Superintendent. Payment for the amount stockpiled at the Contractors yard will be paid upon delivery of the material on the municipal roads.

3. LIQUIDATED DAMAGES

It is agreed by the parties to the Contract that in case all the work called for under the Contract is not finished or completed within the date of completion specified a loss or damage will be sustained by the Municipality. Since it is and will be impracticable and extremely difficult to ascertain and determine the actual loss or damage which the Municipality will suffer in the event of and by reason of such delay, the parties hereto agree that the Contractor will pay to the Municipality the sum of \$250.00 as liquidated damages for each and every calendar days delay in finishing the work beyond the date of completion prescribed. It is agreed that this amount is an estimate of the actual loss or damage to the Authority, which will accrue during the period more than the prescribed date of completion.

The Municipality may deduct any amount under this paragraph from any moneys that may be due or payable to the Contractor on any account whatsoever. The liquidated damages payable under this paragraph are in addition to and without prejudice to any other remedy, action or other alternative that may be available to the Municipality.

## **O.P.S.S. SPECIFICATIONS**

OPSS.MUNI 1006, November 2013



**ONTARIO**

<b>3.</b>	<b>PROVINCIAL</b>	<b>OPSS.MUNI 1006</b>
	<b>STANDARD SPECIFICATION</b>	<b>NOVEMBER 2021</b>

### **MATERIAL SPECIFICATION FOR AGGREGATES - SURFACE TREATMENT**

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#### **APPENDICES**

## **1006.01 SCOPE**

This specification covers the requirements for aggregates for use in surface treatment.

### ***1006.01.01 Specification Significance and Use***

This specification is written as a municipal-oriented specification. Municipal-oriented specifications are developed to reflect the administration, testing, and payment policies, procedures, and practices of many municipalities in Ontario.

Use of this specification or any other specification shall be as specified in the Contract Documents. **1006.01.02 Appendices Significance and Use**

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner's use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

## **1006.02        *REFERENCES***

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless the use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be the OPSS listed, unless use of a provincial oriented specification is specified in the Contract Documents.

This specification refers to the following standards, specifications, or publications:

### **Ontario Provincial Standard Specifications, Material**

OPSS 1001 Aggregates - General

### ***Ontario Ministry of Transportation Publications***

MTO Laboratory Testing Manual:

LS-601	Material Finer than 75 µm Sieve in Mineral Aggregates by Washing
LS-602	Sieve Analysis of Aggregates
LS-604	Relative Density and Absorption of Coarse Aggregate
LS-606	Soundness of Aggregates by Use of Magnesium Sulphate
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LS-703/704	Liquid Limit, Plastic Limit, and Plasticity Index of Soils

## **1006.03            DEFINITIONS**

For the purpose of this specification, the following definitions apply:

**CCIL** means the Canadian Council of Independent Laboratories.

**Duplicate Samples** means two samples taken at the same time and location – one to be used for Quality Assurance testing and the other for referee testing.

**Physical Property** means an inherent attribute or feature of an aggregate material. Tests are carried out to determine an aggregate's resistance to weathering or degradation or both.

**Referee Testing** means testing of a material property or attribute for the purpose of resolving acceptance.

**Slag** means fused silicate material from the processing of ores and includes air-cooled blast furnace slag, blast furnace slag, copper slag, nickel slag, and steel slag.

## **1006.05            MATERIALS**

### **1006.05.01        Aggregates**

#### **1006.05.01.01    General**

Aggregates shall be according to OPSS 1001, unless otherwise specified in this specification.

Aggregates shall be clean, hard durable particles produced from sands, gravels, or quarried rock and shall be free of earth, humus, clay coatings, and clay lumps or fragments of any size or shape.

Aggregates containing slag or composed of slag are not acceptable for use as surface treatment aggregates.

At the discretion of the Owner, the physical property requirements may be waived provided the Contractor has demonstrated satisfactory field performance for a pavement that is at least 3 years old and constructed in a



similar environment for the same application and using the same aggregate that is being proposed. An independent petrographic examination and report shall be provided to the Owner that demonstrates to the Owner's satisfaction that the aggregate used in the pavement being referred to is the same as the aggregate under consideration for acceptance.

When a change in the character of the aggregate occurs or when the performance of the aggregate is found to be unsatisfactory, use of those aggregates shall be discontinued until it is demonstrated to the satisfaction of the Contract Administrator that the source remains acceptable or can be made acceptable.

#### **1006.05.01.02      Gradation Requirements**

Aggregate shall meet the gradation requirements shown in Table 1.

#### **1006.05.01.03      Physical Property Requirements**

Aggregate shall meet the physical property requirements of Table 2.

### **1006.07                  PRODUCTION**

#### ***1006.07.01 Aggregate Processing, Handling, and Stockpiling***

Aggregates separated during processing, aggregates secured from different sources, and aggregates from the same source but of different gradations shall be placed in individual stockpiles. When screenings from primary and secondary crushers are produced separately, they shall be stockpiled separately.

Aggregates that have become mixed with foreign matter of any description or aggregates from different stockpiles that have become mixed with each other shall not be used and shall be immediately removed from the stockpile.

### **1006.08                  QUALITY ASSURANCE**

### **1006.08.01      *General***

QA testing may be carried out by the Owner for purposes of ensuring that the aggregates used in the work are according to the requirements of this specification. Individual test results may be forwarded to the Contractor as they become available.

When a hydrated lime anti-stripping agent is used and testing is required, test samples for the physical property requirements shall be taken prior to the addition of the hydrated lime. If this is not practical, samples coated in hydrated lime may be taken and the lime removed by washing prior to testing. In this case, the requirements for LS-601 shall be waived.

The Owner shall be responsible for all costs associated with testing for QA purposes, unless otherwise specified in the Contract Documents.

### **1006.08.02    *Laboratory Requirements***

The Contract Administrator shall designate all QA laboratories.

An acceptable laboratory conducting aggregate tests for physical properties shall be one that holds a current Type D certificate from CCIL for the applicable test methods and participates in the annual MTO Proficiency Sample Testing Program for the specific tests, when applicable.

An acceptable laboratory conducting tests for gradation according to LS-602, materials finer than 75  $\mu\text{m}$  by washing of the aggregates according to LS-601, and percent crushed particles according to LS-607 shall be one that holds a current Type C certificate from CCIL.

Testing shall be conducted by qualified laboratory staff that holds a current certificate from CCIL in aggregate testing.

Equivalent alternate laboratory and technician certifications or laboratory proficiency testing programs may be used to demonstrate similar requirements if they are acceptable to the Contract Administrator.

### **1006.08.03                      *Alternative to LS-614***

LS-614 shall be used for acceptance, unless written notification to the Contract Administrator to replace it with LS-606 for acceptance is received prior to sampling of the applicable materials for QA purposes. Provided the Contract Administrator has received such a request, LS-606 shall be used. Otherwise, conformance to LS-614 shall be required.

When notification is provided after QA testing using LS-614 has been initiated, the Contractor shall be charged for the cost of the testing using LS-614, administrative charges, and additional sampling, if required.

#### **1006.08.04      *Sampling***

Sampling shall be conducted by the Contractor according to LS-625.

Duplicate samples shall be randomly obtained from the stockpile and sealed by the Contractor in the presence of the Contract Administrator. The stockpiles from which the samples are to be taken shall contain at least 10% of the total quantity of aggregate needed, unless otherwise directed by the Contract Administrator.

The mass of each sample shall meet the requirements shown in Table 3. Each bag or container shall hold not more than 30 kg. When more than 30 kg is required, the total sample shall be recombined by the QA laboratory prior to testing.

In the event that the Contractor is unavailable to take the sample, no further materials shall be placed in the work until the duplicate samples have been taken.

The Contractor shall provide new or clean sample bags or containers that are constructed to prevent the loss of any part of the material or contamination or damage to the contents during shipment. Metal or cardboard containers are unacceptable.

QA samples shall be identified on both the inside and the outside of the sample container.

#### **1006.08.05 *Testing and Retention of Samples***

When the Contract Administrator elects to carry out QA testing, one of the duplicate samples shall be randomly selected for testing by the QA

laboratory and the remaining sealed sample shall be retained by the QA laboratory for possible referee testing.

#### **1006.08.06      *Acceptance***

QA test results shall be used for acceptance purposes, except when referee testing has been carried out.

When QA test results show that the aggregates meet the requirements of this specification, the aggregates shall be accepted.

When QA test results show that the aggregates do not meet the requirements of this specification, the Contract Administrator shall notify the Contractor that the aggregates represented by the test results shall not be accepted. This notification shall take place in writing within 3 Business Days of receipt of the nonconforming data. The Contractor has the option of either removing the material from the work or invoking referee testing. The Contractor may request a reduced price in lieu of removal for aggregates that fail to meet the requirements of this specification. Irrespective of the negotiation of a reduced-price payment, the warranty provisions as specified in the Contract Documents shall apply.

#### **1006.08.07      *Referee Testing***

When QA test results do not meet the requirements of this specification the Contractor has the option of invoking referee testing of the test result that fails to meet the requirements. The Contractor shall notify the Contract Administrator of the selected option in writing within 2 Business Days following notification of unacceptable material.

The Contract Administrator shall select a referee testing laboratory acceptable to the Contractor within 3 Business Days following the Contractor's notification to invoke referee testing. Referee test samples shall be delivered to the referee testing laboratory from the QA laboratory by the Contract Administrator. The sealed test sample shall be opened in the presence of the Contractor and the Contract Administrator.

Referee testing shall be carried out in the presence of the Contract Administrator. Where applicable, the referee testing laboratory shall also test

a control aggregate sample for each test method required. The Contractor may observe the testing at no cost to the Owner.

The Contractor and Owner may send a maximum of two representatives each to observe the referee testing. The Contract Administrator shall notify the Owner and Contractor a minimum of 3 Business Days in advance of the date of the referee testing. Provided that such notice is given, referee testing shall be carried out regardless of the absence of one or more observers.

Observers shall follow the referee laboratory protocols for access to the premises and testing equipment and shall not unnecessarily impede the progress of the testing. Observers shall be permitted to validate sample identification and view sample condition. Subject to safety requirements, test method and equipment limitations, they shall also be permitted to observe test procedures, take notes, view equipment readings and review completed work sheets while in attendance.

Comments on the non-conformity of the test methods shall be made and corrected at the time of testing.

Referee test results shall be binding on both the Owner and the Contractor.

When a referee test result shows that the aggregates do not meet the requirements of this specification, the aggregates represented by the test result, including aggregates in existing stockpiles or in the Work, shall be rejected. The Contractor shall remove the aggregates from the work at no cost to the Owner. The Contractor may request a reduced price in lieu of removal for aggregates that fail to meet the requirements of this specification. Irrespective of the negotiation of a reduced-price payment, the warranty provisions as specified in the Contract Documents shall apply.

When referee test results show that the aggregates meet the requirements of this specification, the aggregates represented by the sample shall be accepted.

The Owner shall be responsible for the cost of referee testing provided that the referee test results show that the aggregates meet the applicable specifications otherwise the Contractor shall be responsible for the cost.

**TABLE 1 Gradation Requirements, LS-602**

	Percent Passing by Mass
--	-------------------------

<b>MTO Sieve Designation</b>	<b>Class 1 (Note 1)</b>	<b>Class 2</b>	<b>Class 3 (Note 2)</b>	<b>Class 4</b>	<b>Class 5 (Note 1)</b>	<b>Class 6 (Note 3)</b>
19.0 mm	--	100	100	--	--	--
16.0 mm	--	98-100	96-100	--	--	100
13.2 mm	100	75-95	67-86	--	--	96-100
9.5 mm	75-100	50-80	29-52	100	100	50-73
6.7 mm	0-40	--	--	--	40-85	--
4.75 mm	0-10	25-50	0-10	70-100	5-25	0-10
2.36 mm	--	--	--	10-100	0-10	--
1.18 mm	--	10-40	--	5-90	0-5	--
600 µm	--	--	--	3-70	--	--
300 µm	--	2-20	--	2-40	--	--
150 µm	--	2-13	--	0-15	--	--
75 µm	Note 4	2-7	Note 4	0-7	Note 4	Note 4

**Notes:**

1. Class 1 and Class 5 aggregates shall be washed according to OPSS 1001.
2. Class 3 aggregate has the same gradation requirements as HL4 coarse aggregate.
3. Class 6 aggregate has the same gradation requirements as HL3 coarse aggregate.
4. Class 1, 3, 5, and 6 requirements for percent passing 75 µm are shown in Table 2.

**TABLE 2 Physical Property Requirements**

<b>MTO Laboratory Test</b>	<b>MTO Test No.</b>	<b>Class 1 (Note 1)</b>	<b>Class 2 (Note 1)</b>	<b>Class 3 (Note 1)</b>	<b>Class 4</b>	<b>Class 5 (Note 1)</b>	<b>Class 6 (Note 1)</b>
Wash Pass 75 µm sieve, Guideline B, % maximum	LS-601	1.3 (Note 2)	--	1.3 (Note 2)	--	1.3 (Note 2)	1.3 (Note 2)
Absorption, % maximum	LS-604	1.75	--	2.0	--	1.75	1.75
Percent Crushed Particles, % minimum	LS-607	60	60	60	--	60	60
Flat and Elongated Particles, % maximum	LS-608	20	20	20	--	20	20
Petrographic Examination, % non-carbonate retained 4.75 mm sieve, % minimum	LS-609	60 (Note 3)	60 (Note 3)	60 (Note 3)	--	60 (Note 3)	60 (Note 3)
Unconfined Freeze-Thaw, % maximum loss, (Note 4)	LS-614	6	15	6	--	6	6
Micro-Deval Abrasion (Coarse Aggregate), % maximum loss	LS-618	17	25	17	--	17	17
Micro-Deval Abrasion (Fine Aggregate), % maximum loss	LS-619	--	30	--	25	--	--
Plasticity Index, maximum	LS-703/704	--	0	--	0	--	--
<b>Alternative Requirement to Unconfined Freeze-Thaw Loss, LS-614</b>							
Magnesium Sulphate Soundness (coarse aggregate), % maximum loss	LS-606	12	15	12	--	12	12

**Notes:**

1. With the exception of LS-619 and LS-703/704, the physical property requirements for Class 1, 2, 3, 5, and 6 aggregates noted above shall be conducted on the material retained on the 4.75 mm sieve.
2. When quarried rock is used as a source of coarse aggregate, a maximum of 2.0% passing the 75 µm sieve shall be permitted.
3. The requirements listed below are only applicable to the area to the north and west of a boundary defined by the north shore of Lake Superior, the north shore of the St. Mary's River, the south shore of St. Joseph's Island, the north shore of Lake Huron easterly to the north and east shore of Georgian Bay (excluding Manitoulin Island), along the Severn River to Washago and a line easterly passing through Norland, Burnt River, Burleigh Falls, Madoc, and hence easterly along Highway 7 to Perth and northerly to Calabogie and easterly to Arnprior and the Ottawa River:
  - a) When the coarse aggregate for use in surface treatment is obtained from a gravel pit or quarry containing more than 40% carbonate rock type (e.g., limestone and dolostone), then blending with aggregate of non-carbonate rock types shall be required to increase the minimum non-carbonate rock type content of the coarse aggregate to 60%, as determined by petrographic examination (LS-609). In cases of dispute LS-613, shall be used with a minimum acid insoluble residue of 60%.
  - b) When the coarse aggregate for use in surface treatment is obtained from a non-carbonate source, blending with aggregate from carbonate rock types is not permitted.
4. The Owner shall waive the requirements for LS-614, unconfined freeze-thaw, provided the Contractor has submitted a written request that the coarse aggregates meet the alternative requirements for LS-606, magnesium sulphate soundness.

**TABLE 3**  
**Sample Size**

<b>Material</b>	<b>Minimum Mass of Field Samples (Note 1) kg</b>
Fine aggregate	15
19 mm coarse aggregate	25
37.5 mm coarse aggregate	50

**Note:**

1. Individual sample containers shall hold no more than 30 kg of aggregate. When more than 30 kg is required, additional sample containers shall be used.



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## **Appendix 1006-A,      *FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS***

**Note:** This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner's design decisions and methodology.

### ***Designer Action/Considerations***

The designer should specify the following in the Contract Documents:

- Requirements for meeting QA. (1006.03)
- Costs of QA testing. (1006.08.01)
- Warranty provisions. (1006.08.06)
- Warranty provisions in referee testing. (1006.08.07)

The designer should determine if the following is required and, if so, specify it in the Contract Documents:

- If the QA sampling and testing frequencies provided in Appendix 1006-B are to be used for QA purposes, Appendix 1006-B needs to be invoked by reference in the Contract Documents.
- If the payment reduction in lieu of aggregate removal provided in Appendix 1006-C is to be used, Appendix 1006-C needs to be invoked by reference in the Contract Documents.
- If the form in Appendix 1006-D is to be used for submission purposes, Appendix 1006-D needs to be invoked by reference in the Contract Documents.

The designer should be aware that quality assurance (QA) testing for purposes of ensuring material used in the Work meets the requirements of is not mandatory, unless specifically included in the Contract Documents. The designer should determine the need for QA testing based on the size and

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complexity of the work and specify the required frequency of QA sampling and testing. Appendix 1006-B provides recommended QA sampling and testing frequencies.

The requirement for a minimum of 60% non-carbonate aggregate, Table 2, Note 3, in certain parts of the province is based on the following considerations: Carbonate aggregates, due to their low resistance to abrasion, polish easily under traffic and, depending on traffic volume, may result in pavements with relatively differing low frictional properties. In areas of the province with a predominant type of rock, siliceous or carbonate, it has been found that it is best to give consistent frictional properties to pavement surfaces. For instance, it has been found that the use of carbonate aggregates in areas of predominantly siliceous rocks results in lower frictional values than normal for that area and a relatively higher proportion of wet weather skidding accidents in those areas paved with carbonate rocks. In areas of the predominant use of carbonate rocks it has been found that drivers appear to adjust their behavior to the generally lower frictional properties.

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

### **Related Ontario Provincial Standard Drawings**

No information provided here.

#### ***1006-B***

**FOR USE IN MUNICIPAL CONTRACTS, WHEN REFERENCED IN THE CONTRACT DOCUMENTS**

**Note:** This is a non-mandatory Additional Information Appendix intended to provide supplementary requirements for the OPS specification in a municipal contract, when the appendix is invoked by the Owner. It is written in mandatory language to permit invoking it by reference in the Contract Documents. If the appendix has not been invoked by reference in the Contract Documents, it does not apply.

### **Supplementary Requirements for Quality Assurance Sampling and Testing Frequencies**

OPSS.MUNI 1006, Aggregates - Surface Treatment is amended as follows:

#### **1006.08                      QUALITY ASSURANCE**

### 1006.08.01 General

The first paragraph of subsection 1006.08.01 is deleted in its entirety and replaced with the following:

QA sampling and testing shall be carried out by the Owner for the purpose of ensuring that the aggregates used in the Work are according to the requirements of the Contract Documents. QA sampling and testing carried out at the frequency specified in Table B-1. Individual test results may be forwarded to the Contractor as they become available.

Table B-1 is added.

**TABLE B-1 Sampling and Testing Frequencies for Physical Property and Gradation Requirement (Note 1)**

Aggregate Quantity from Each Source t	Minimum Frequency Class 1, 2, 3, 4, 5 and 6
< 500	Sampling and testing may be waived at the discretion of the Contract Administrator.
□ 500 and □ 2,000	One sample for both physical properties and gradation.
> 2,000 (Note 2)	<u>Gradation</u> : One sample per 2,000 tonnes. <u>Physical Properties</u> : One sample per 20,000 tonnes.
Notes: 1. The physical property requirements may be waived at the discretion of the Owner, provided that the Contractor has demonstrated satisfactory field performance for a pavement that is at least 3 years old and constructed in a similar environment for the same application and using the same aggregate that is being proposed. An independent petrographic examination and report shall also be provided to the Owner that demonstrates to the Owner's satisfaction that the aggregate used in the pavement being referred to is the same as the aggregate under consideration for acceptance. 2. When the quantity of granular material is: a) Less than one-half the quantity required for a sample, then that quantity shall be added to the quantity representing the previous sample.	

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- b) Greater than or equal to one-half the quantity required for a sample, then that quantity shall require its own sample.

### **1006-C**

#### **FOR USE IN MUNICIPAL CONTRACTS, WHEN REFERENCED IN THE CONTRACT DOCUMENTS**

**Note:** This is a non-mandatory Additional Information Appendix intended to provide supplementary requirements for the OPS specification in a municipal contract, when the appendix is invoked by the Owner. It is written in mandatory language to permit invoking it by reference in the Contract Documents. If the appendix has not been invoked by reference in the Contract Documents, it does not apply.

### ***Supplementary Requirements for Payment Reduction In Lieu of Removal of Aggregates***

OPSS.MUNI 1006, Aggregates - Surface Treatment is amended as follows:

When a tested sample of aggregates shows that the aggregates do not meet the requirements of this specification, the aggregates represented by the test result, including material in existing stockpiles or in the Work, shall not be accepted. The Contractor may request a reduced price in lieu of removal provided that the applicable test results for that sample:

- a) Do not exceed the requirement for LS-614, or LS-606 if it has replaced LS-614, by more than 25% of the specified value.
- b) Do not exceed the requirement for LS-618 by more than 10% of the specified value.
- c) Do not exceed the requirement for LS-619 by more than 15% of the specified value.

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- d) Do not identify a plasticity index within the material, when determined according to LS-703/704, and meet the requirement for LS-602 on the 75 µm sieve.
- e) Do not exceed 10% of the specified value for any other requirement in this specification.

Irrespective of the negotiation of a reduced price payment, the warranty provisions of the Contract Documents shall apply.

### **1006-D**

FOR USE IN MUNICIPAL CONTRACTS, WHEN REFERENCED IN THE CONTRACT DOCUMENTS

**Note:** This is a non-mandatory Additional Information Appendix intended to provide supplementary requirements for the OPS specification in a municipal contract, when the appendix is invoked by the Owner. It is written in mandatory language to permit invoking it by reference in the Contract Documents. If the appendix has not been invoked by reference in the Contract Documents, it does not apply.

### ***OPSS 1006 – Surface Treatment Aggregate Test Data***

Contract No.:	Contractor:	Contract Location:	
Name of Testing Laboratory:		Telephone No.:	Fax No.:
Sampled by (Print Name):		Date Sampled (YY/MM/DD):	
Aggregate Class:		Quantity (tonnes) :	
Source Name/Location:		Aggregate Inventory Number (AIN) :	

Laboratory Test and Number	Requirements						Test Results		
	Class 1 (Note 1)	Class 2 (Note 1)	Class 3 (Note 1)	Class 4	Class 5 (Note 1)	Class 6 (Note 1)	Reference Material	Sample	Meets Requirements (Y/N)
Wash Pass 75 µm Sieve Guideline B, % maximum, LS-601	1.3 (Note 2)	--	1.3 (Note 2)	--	1.3 (Note 2)	1.3 (Note 2)			
Absorption, % maximum, LS-604	1.75	--	2.0	--	1.75	1.75			
Percent Crushed Particles, % minimum, LS-607	60	60	60	--	60	60			

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Flat and Elongated Particles, % maximum, LS-608	20	20	20	--	20	20			
Petrographic Examination, Minimum % non-carbonate retained on 4.75 sieve, LS-609	60 (Note 3)	60 (Note 3)	60 (Note 3)	--	60 (Note 3)	60 (Note 3)			
Unconfined Freeze-Thaw, % maximum loss, LS-614 (Note 4)	6	15	6	--	6	6			
Micro-Deval Abrasion(CA), % maximum loss, LS-618	17	25	17	--	17	17			
Micro Deval Abrasion (FA), % maximum loss, LS-619	--	30	--	25	--	--			
Plasticity Index, maximum, LS-703/704	--	0	--	0	--	--			
Alternative Requirement to Unconfined Freeze-Thaw (LS-614)									
Magnesium Sulphate Soundness, % maximum loss, LS-606 (Note 4)	12	15	12	--	12	12			

I hereby certify that testing has been carried out by a properly qualified/certified test technician:

Issued by:

PRINT NAME	TESTING LABORATORY REPRESENTATIVE SIGNATURE	DATE

Received by:

PRINT NAME	CONTRACT ADMINISTRATOR REPRESENTATIVE SIGNATURE	DATE

Copies to:      ☐ Contract Administrator      ☐ Contractor

## ***Appendix 1006-D***

### Notes:

4. With the exception of LS-619 and LS-703/704, the physical property requirements for Class 1, 2, 3, 5, and 6 aggregates noted above shall be conducted on the material retained on the 4.75 mm sieve.
5. When quarried rock is used as a source of coarse aggregate, a maximum of 2.0% passing the 75  $\mu$ m sieve shall be permitted.
6. The requirements listed below are only applicable to the area to the north and west of a boundary defined by the north shore of Lake Superior, the north shore of the St. Mary's River, the south shore of St. Joseph's Island, the north shore of Lake Huron easterly to the north and east shore of Georgian Bay (excluding Manitoulin Island), along the Severn River to Washago and a line easterly passing through Norland, Burnt River, Burleigh Falls, Madoc, and hence easterly along Highway 7 to Perth and northerly to Calabogie and easterly to Arnprior and the Ottawa River:
  - a) When the coarse aggregate for use in surface treatment is obtained from a gravel pit or quarry containing more than 40% carbonate rock type (e.g, limestone and dolostone), then blending with aggregate of non-carbonate rock types shall be required to increase the minimum noncarbonate rock type content of the coarse aggregate to 60%, as determined by petrographic examination (LS-609). In cases of dispute LS-613, shall be used with a minimum acid insoluble residue of 60%.
  - b) When the coarse aggregate for use in surface treatment is obtained from a non-carbonate source, blending with aggregate from carbonate rock types is not permitted.
4. The Owner shall waive the requirements for LS-614, provided the Contractor has submitted a written request that the coarse aggregates meet the alternative requirements for LS-606.



ONTARIO  
PROVINCIAL

METRIC

**4. STANDARD** **OPSS.MUNI 1010**  
**SPECIFICATION** **NOVEMBER 2013**

**MATERIAL SPECIFICATION FOR  
AGGREGATES - BASE, SUBBASE,  
SELECT SUBGRADE, AND BACKFILL MATERIAL**

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<b>Removal 1010-D</b>	<b>Fine Aggregate Test Data Form 1010-E</b>	
<b>Coarse Aggregate Test Data Form</b>		

## 1010.01 SCOPE

This specification covers the material requirements for aggregates for use in base, subbase, select subgrade, granular surface, shouldering, and backfill material.

### **1010.01.01 Specification Significance and Use**

This specification is written as a municipal-oriented specification. Municipal-oriented specifications are developed to reflect the administration, testing, and payment policies, procedures, and practices of many municipalities in Ontario.

Use of this specification or any other specification shall be according to the Contract Documents.

### 1010.01.02 Appendices Significance and Use

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner's use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

## **1010.02        *REFERENCES***

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be considered to be the OPSS listed, unless use of a provincial-oriented specification is specified in the Contract Documents.

This specification refers to the following standards, specifications, or publications:

### **Ontario Provincial Standard Specification, Material**

OPSS 1001 Aggregates - General

### ***Ontario Ministry of Transportation Publications***

MTO Laboratory Testing Manual:

- LS-601    Material Finer than 75 µm Sieve in Mineral Aggregates by Washing
- LS-602    Sieve Analysis of Aggregates
- LS-607    Percent Crushed Particles in Processed Coarse Aggregate
- LS-614    Freezing and Thawing of Coarse Aggregate
- LS-616    Petrographic Analysis of Fine Aggregate
- LS-617    Percent Particles with Two or More Crushed Faces and Uncrushed Particles in Processed Coarse Aggregate

- LS-618 Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus
- LS-619 Resistance of Fine Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus
- LS-621 Determination of Amount of Asphalt-Coated Particles in Coarse Aggregate
- LS-625 Guidelines for Sampling of Aggregate Materials
- LS-630 Amount of Contamination of Coarse Aggregates
- LS-702 Particle Size Analysis of Soils
- LS-703/704 Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- LS-709 Permeability of Granular Soils

### **1010.03        *DEFINITIONS***

For the purpose of this specification, the following definitions apply:

**Air-Cooled Blast-Furnace Slag** means the material resulting from solidification of molten blast-furnace slag under atmospheric conditions. Subsequent cooling may be accelerated by application of water to the solidified surface.

**CCIL** means the Canadian Council of Independent Laboratories.

**Ceramic** means porcelain, china, and whiteware (e.g., sinks, toilets, and bidets made from clay and silica fired at a high temperature, excluding clay brick and tile) that is free of organic materials, metal, and plastic.

**Deleterious Material** means materials from the recycling stream other than glass, ceramic, reclaimed asphalt pavement, and reclaimed concrete material that includes but is not limited to the following: wood, clay brick, clay tile, plastic, gypsum, gypsum plaster, and wallboard.

**Duplicate Samples** means two samples taken at the same time and location—one to be used for quality assurance testing and the other for referee testing.

**Fines** means material passing the 75 µm sieve when tested according to LS-601 or LS-602.

**Free of Clay** means the amount of material with a particle diameter less than 2 µm shall not be greater than 1% of the total sample when tested according to LS-702.

**Glass** means processed glass obtained from the recycling stream that is free of organic materials, metal, and plastic.

**Granular A** means a set of requirements for dense graded aggregates intended for use as granular base within the pavement structure, granular shouldering, and backfill.

**Granular B** means a set of requirements for well-graded aggregates intended for use as granular subbase within the pavement structure and granular backfill. Granular B may be Type I, Type II, or Type III.

**Granular M** means a set of requirements for dense graded aggregates intended for use on unpaved road surfaces and for the maintenance of unpaved shoulders.

**Granular O** means a set of requirements for open graded aggregates intended only for use as a free draining granular base within the pavement structure.

**Granular S** means a set of requirements for dense graded aggregates intended only for use as surface dressing of low volume unpaved roads with an AADT less than 200.

**Nickel Slag** means the non-metallic product resulting from the production of nickel.

**Physical Property** means an inherent attribute or feature of an aggregate or soil material. Tests are carried out to determine a materials resistance to weathering or degradation or both.

**Quality Assurance (QA)** means a system or series of activities carried out by the Owner to ensure that Materials received from the Contractor meet the requirements specified in the Contract Documents.

**Reclaimed Asphalt Pavement (RAP)** means processed hot mix asphalt material that is recovered by partial or full depth removal.

**Reclaimed Concrete Material (RCM)** means removed or processed old hydraulic cement concrete.

**Referee Testing** means testing of a material property or attribute for the purpose of resolving acceptance.

**Select Subgrade Material (SSM)** means a set of requirements for well-graded non-plastic aggregates used to replace poor subgrade materials and as swamp backfill.

**Steel Slag** means the non-metallic product resulting from the production of steel in a basic oxygen furnace or electric arc furnace.

## **1010.05 MATERIALS**

### **1010.05.01 General**

Aggregates shall be according to OPSS 1001, unless otherwise specified in this specification.

Aggregates shall meet the physical property requirements shown in Table 1 and the gradation requirements shown in Table 2.

When aggregates are tested according to LS-630, the total amount of wood shall not exceed 0.1% by mass, and the total amount of deleterious material and other contaminants shall not exceed a combined total of 1.0% by mass.

Glass and ceramic material shall be processed to remove all deleterious organic materials. 100% of the processed glass and ceramic material shall pass the 13.2 mm sieve.

When RCM is permitted, RCM shall not contain loose reinforcing materials.

When air-cooled blast furnace slag, nickel slag, and RAP containing steel slag aggregates are used, sitespecific notification shall be given by the Contractor to the Ontario Ministry of the Environment (MOE).

When reclaimed materials are permitted, they shall be homogeneously blended.

Steel slag shall not be used.

When a change in the character of the aggregate occurs or when the performance of the aggregate is found to be unsatisfactory, use of those aggregates shall be discontinued until the Contractor can prove to the

satisfaction of the Contract Administrator that the source remains acceptable or can be made acceptable.

### ***1010.05.02 Granular A, Granular M, and Granular S***

Granular A, Granular M, and Granular S shall be produced by crushing one or more of the following:

- a) Quarried bedrock.
- b) Boulders, cobbles, gravel, sand, and fines from naturally formed deposits.
- c) RAP up to 30% by mass.
- d) RCM up to 100% by mass.
- e) Air-cooled blast-furnace slag or nickel slag.
- f) Glass or ceramic materials up to a combined total of 15% by mass.

Granular A and Granular M containing RAP with steel slag aggregates shall be acceptable for unpaved gravel shoulders only.

### **1010.05.03            Granular B**

Granular B may be Type I, Type II, or Type III.

#### ***1010.05.03.01 Granular B Type I and Type III***

Granular B Type I and Type III may be produced from naturally formed deposits of sand, gravel, and cobbles or by crushing one or more of the following:

- a) Quarried bedrock.
- b) Air-cooled blast-furnace slag or nickel slag.
- c) RCM up to 100% by mass.
- d) RAP up to 30% by mass.

- e) Glass or ceramic materials up to 15% by mass combined.

RAP containing steel slag aggregates shall not be allowed.

#### **1010.05.03.02 Granular B Type II**

Granular B Type II shall only be produced by crushing:

- a) Quarried bedrock.
- b) Air-cooled blast furnace slag or nickel slag.

Steel slag and reclaimed materials shall not be used in the production of Granular B Type II.

#### **1010.05.04 Granular O**

Granular O shall only be produced by crushing:

- a) Quarried bedrock.
- b) Cobbles or boulders retained on the 50 mm sieve.

Steel slag and reclaimed materials shall not be used in the production of Granular O.

#### **1010.05.05 Select Subgrade Material**

Select subgrade material shall only be produced from natural deposits of non-plastic silt, sand, and gravel material. Reclaimed materials of any type shall not be used.

### **1010.07 PRODUCTION**

#### **1010.07.01 Aggregate Processing, Handling, and Stockpiling**

Aggregates that have become mixed with foreign matter of any description or aggregates that have become mixed with each other shall not be used and shall be immediately removed from the stockpile.

**1010.08**                    **QUALITY**  
                                 **ASSURANCE**  
**1010.08.01**            **General**

QA testing may be carried out by the Owner for the purposes of ensuring that the aggregates used in the work are according to the requirements of this specification. Individual test results shall be forwarded to the Contractor, as they become available.

Test data for each aggregate type shall be managed independently. When more than one source is used for supplying materials, test data from each source and product shall be managed independently.

The Owner shall be responsible for all costs associated with testing for QA purposes, unless otherwise specified in the Contract Documents.

**1010.08.02    *Laboratory Requirements***

The Contract Administrator shall designate the QA laboratories.

An acceptable laboratory conducting tests for physical properties shall be one that holds a current Type D certificate from CCIL for the applicable test methods and also participates in the annual MTO Proficiency Sample Testing Program for the specific tests, except LS-616 and LS-709.

An acceptable laboratory conducting tests for gradation according to LS-602 and percent crushed particles according to LS-607 shall be one that holds a current Type C certificate from CCIL.

Testing shall be conducted by qualified laboratory staff that holds a current certificate from CCIL in aggregate testing.

Equivalent alternate laboratory and technician certifications or laboratory proficiency testing programs may be used to demonstrate similar requirements, provided that they are acceptable to the Contract Administrator.



### **1010.08.03      *Sampling***

Sampling shall be according to LS-625.

Duplicate samples shall be taken and sealed by the Contractor in the presence of the Contract Administrator at the time and location determined by the Contract Administrator. When materials contain blended or reclaimed aggregates or both, QA sampling shall be performed on the final blended product.

The mass of each sample shall meet the requirements shown in Table 3. When more than 30 kg is required, the total samples shall be recombined by the QA laboratory prior to testing.

In the event that the Contractor is unavailable to take the sample, no further materials shall be placed in the work until the duplicate samples been taken.

The Contractor shall provide new or clean sample bags or containers that are constructed to prevent the loss of any part of the material or contamination or damage to the contents during shipment. Metal or cardboard containers are unacceptable.

QA samples shall be identified on both the inside and the outside of the sample container.

### **1010.08.04 *Testing and Retention of Samples***

When the Contract Administrator elects to carry out QA testing, one of the duplicate samples shall be randomly selected for testing by the QA laboratory and the remaining sealed sample shall be retained by the QA laboratory for possible referee testing.

### **1010.08.05      *Acceptance***

QA test results shall be used for acceptance purposes, except when referee testing has been carried out.

When QA test results show that the aggregates meet the requirements of this specification, the aggregates shall be accepted.

When QA test results show that the aggregates do not meet the requirements of this specification, the Contract Administrator shall notify the Contractor that aggregates represented by the test results shall not be accepted. This notification shall take place in writing within 3 Business Days of receipt of the non-conforming data. The Contractor has the option of either removing the aggregates from the work or invoking referee testing. The Contractor may request a reduced price in lieu of removal of aggregates that fail to meet the requirements of this specification. Irrespective of the negotiation of a reduced price payment, the warranty provisions of the Contract Documents shall apply.

At the discretion of the Contract Administrator, irrespective of non-compliance with the requirements of this specification, aggregates may be accepted on the basis of satisfactory field performance.

#### **1010.08.06     *Referee Testing***

When QA test results do not meet the requirements of this specification, the Contractor has the option of invoking referee testing of the test result that fails to meet the requirements. The Contractor shall notify the Contract Administrator of the selected option in writing within 2 Business Days following written notification of unacceptable material.

The Contract Administrator shall select a referee laboratory acceptable to the Contractor within 3 Business Days following the Contractor's notification to invoke referee testing. Referee test samples shall be delivered to the referee testing laboratory from the QA laboratory by the Contract Administrator. The sealed sample shall be opened in the presence of the Contractor and the Contract Administrator. If referee materials are not available, the Contractor shall be responsible for obtaining and submitting new samples to the referee laboratory from a location to be decided by the Contract Administrator. The Contract Administrator shall be present to witness the sampling.

Referee testing shall be carried out in the presence of the Contract Administrator. When applicable, the referee laboratory shall also test a control aggregate sample for each test method required. The Contractor may observe the testing at no cost to the Owner.

The Contractor and Owner may send a maximum of two representatives each to observe the referee testing. The Contract Administrator shall notify

the Owner and Contractor a minimum of 3 Business Days in advance of the date of referee testing. Provided that such notice was given, referee testing shall be carried out regardless of the absence of one or more observers.

Observers shall follow the referee laboratory protocols for access to the premises and testing equipment and shall not unnecessarily impede the progress of the testing. Observers shall be permitted to validate sample identification and view sample condition. Subject to safety requirements, test method and equipment limitations, they shall also be permitted to observe test procedures, take notes, view equipment readings and review completed work sheets while in attendance.

Comments on the non-conformity of the test methods shall be made and corrected at the time of testing.

Referee test results shall be binding on both the Owner and the Contractor.

When a referee test result shows that the aggregates do not meet the requirements of this specification, the aggregates represented by the test result, including aggregates in existing stockpiles or in the Work, shall not be accepted. The Contractor shall remove the aggregates from the Work at no cost to the Owner. The Contractor may request a reduced price in lieu of the removal of aggregates that fail to meet the requirements of this specification. Irrespective of the negotiation of a reduced price payment, the warranty provisions of the Contract Documents shall apply.

When a referee test result shows that the aggregates meet the requirements of this specification, the aggregates represented by the sample shall be accepted.

The Owner shall be responsible for the cost of referee testing provided that the referee test results show that the aggregates meet the applicable specifications. Otherwise, the Contractor shall be responsible for the cost.

***TABLE 1 Physical Property Requirements***

<b>MTO Laboratory Test and Number</b>	<b>Granular O</b>	<b>Granular A</b>	<b>Granular S</b>	<b>Granular B Type I and Type III</b>	<b>Granular B Type II</b>	<b>Granular M</b>	<b>Select Subgrade Material</b>
Percent crushed particles, % minimum, LS-607	100	60	50	--	--	60	--

Unconfined Freeze-Thaw, % maximum loss, LS-614	15	--	--	--	--	--	--
2 or more crushed faces, % minimum, LS-617	85 (Note 1)	--	--	--	--	--	--
Micro-Deval Abrasion Coarse Aggregate, % maximum loss, LS-618	21	25	25	30 (Note 2)	30	25	30 (Note 2)
Micro-Deval Abrasion, Fine Aggregate, % maximum loss, LS-619	25	30	30	35	35	30	N/A
Asphalt Coated Particles, % maximum, LS-621	0	30	30	30	0	30	0
Amount of Contamination, LS-630	(Note 3)						
Plasticity Index, maximum LS-703/704	0						
Determination of Permeability, k, LS-709	(Note 4)						

**Notes:**

1. When Granular O is produced from boulders, cobbles, or gravel retained on the 50 mm sieve.
2. The coarse aggregate Micro-Deval abrasion loss test requirements shall be waived if the material has more than 80% passing the 4.75 mm sieve.
3. Granular A, B Type I, B Type III, or M may contain crushed glass or ceramic materials up to a combined total of 15% by mass. Granular A, B Type I, B Type III, M, O, and S shall not contain more than 1% by mass of wood, clay brick and/or gypsum and/or gypsum wall board or plaster. Granular B Type II and SSM shall not contain more than 0.1% by mass of wood.
4. For materials north of the French and Mattawa Rivers only, the coefficient of permeability, k, shall be greater than  $1.0 \times 10^{-4}$  cm/s or alternatively, where past field experience has demonstrated satisfactory performance. Prior data demonstrating compliance with this requirement for k shall be acceptable, provided such testing has been done within the 5 years of the material being used and field performance has continually been shown to be satisfactory.

**TABLE 2 Gradation Requirements -  
Percent Passing**

MTO Test	Sieve	Granular	Select
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		A	B (Note 1)			M	O	S	Subgrade Material
			Type I (Note 2)	Type II	Type III (Note 2)				
Sieve Analysis, % Passing, LS-602	150 mm	N/A	100	N/A	100	N/A	N/A	N/A	100
	106 mm	N/A	N/A	100	N/A	N/A	N/A	N/A	N/A
	37.5 mm	N/A	N/A	N/A	N/A	N/A	100	N/A	N/A
	26.5 mm	100	50-100	50-100	50-100	N/A	95-100	100	50-100
	19.0 mm	85-100 (87-100, Note 3)	N/A	N/A	N/A	100	80-95	90-100	N/A
	13.2 mm	65-90 (75-95, Note 3)	N/A	N/A	N/A	75-95	60-80	75-100	N/A
	9.5 mm	50-73 (60-83, Note 3)	N/A	N/A	32-100	55-80	50-70	60-85	N/A
	4.75 mm	35-55 (40-60, Note 3)	20-100	20-55	20-90	35-55	20-45	40-60	20-100
	1.18 mm	15-40	10-100	10-40	10-60	15-40	0-15	20-40	10-100
	300 µm	5-22	2-65	5-22	2-35	5-22	N/A	11-25	5-95
	150 µm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.0-65.0
	75 µm	2.0-8.0 (2.0-10.0, Note 4)	0-8.0 (0-10.0, Note 4)	0-10.0	0-8.0 (0-10.0, Note 4)	2.0-8.0 (2.0-10.0, Note 4)	0-5.0	9.0-15.0 (9.0-17.0, Note 4)	0-25.0

**Notes:**

1. When Granular B is used for granular backfill for pipe subdrains, 100% of the material shall pass the 37.5 mm sieve.
2. When RAP is blended with Granular B Type I or Type III, 100% of the RAP shall pass the 75 mm sieve.  
Conditions in Note 1 supersede this requirement.
3. When the aggregate is obtained from an air-cooled blast furnace slag source.
4. When the aggregate is obtained from a quarry or an air-cooled blast furnace slag or nickel slag source.

**TABLE 3**  
**Sample Size**

<b>Material</b>	<b>Minimum Mass of Individual Field Samples kg</b>
Granular A, S, M, and O	25
Granular B and SSM	50
Granular B and SSM (100% passing 26.5 mm sieve)	25

Note:

A. Each sample container shall hold no more than 30 kg of aggregate. When more than 30 kg is required, additional sample containers shall be used.

## ***Appendix 1010-A, November 2013 FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS***

**Note:** This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner's design decisions and methodology.

### ***Designer Action/Considerations***

The designer should specify the following in the Contract Documents:

- Type of Granular B to be used. (1010.05.03)

The designer should determine if the following is required and, if so, specify it in the Contract Documents:

- If the quality assurance sampling and testing frequencies provided in Appendix 1010-B are to be used, Appendix 1010-B needs to be invoked by reference in the Contract Documents.
- If the payment reduction in lieu of aggregate removal provided in Appendix 1010-C is to be used, Appendix 1010-C needs to be invoked by reference in the Contract Documents.
- If the test data forms in Appendices 1010-D and 1010-E are to be used for submission purposes, Appendices 1010-D and 1010-E need to be invoked by reference in the Contract Documents.

The use of steel slag aggregate is prohibited.

The designer should be aware that aggregates that are wholly or partially comprised of industrial by-products and/or recycled materials such as, but not limited to, air-cooled iron blast furnace slag, nickel slag, and RAP containing steel slag aggregates, may have specific placement and approval requirements or constraints to mitigate adverse affects on the environment based on local conditions and/or municipal and MOE policy. Prior to tendering, when such Owner supplied or specified materials are to be used, the designer should provide site notification to MOE and ensure any

applicable environmental placement and approval requirements and constraints are included in the Contract Documents.

RAP content is determined by LS-621, percent Asphalt Coated Particles. However, this test is limited to identifying RAP content in the coarse aggregate portion only. When RAP in fine aggregate is a concern a Petrographic Examination of the material passing the 4.75 mm sieve is recommended. (1010.05.02)

The designer should be aware that quality assurance (QA) testing for the purpose of ensuring material used in the work meet the requirements of OPSS 1010 is not mandatory unless specifically included in the Contract Documents. The designer should determine the need for QA testing based on the size and complexity of the work and specify the required frequencies of QA sampling and testing. Appendix 1010-B provides recommended QA sampling and testing frequencies.

The designer may specify a higher percent crushed requirement to improve performance in higher traffic areas.

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

## **Appendix 1010-A**

### **Related Ontario Provincial Standard Drawings**

No information provided here.



## ***Appendix 1010-B, November 2013***

**Note:**

apply.

### ***Supplementary Requirements for Quality Assurance Sampling and Testing Frequency***

OPSS.MUNI 1010, Aggregates-Base, Subbase, Select Subgrade, and Backfill Material, is amended as follows:

**1010.08**                    **QUALITY  
ASSURANCE**  
**1010.08.01**            **General**

The first paragraph of subsection 1010.08.01 is deleted in its entirety and replaced with the following:

QA sampling and testing shall be carried out by the Owner for the purposes of ensuring that the aggregates used in the work are according to the requirements of the Contract Documents. QA sampling and testing shall be carried out at the frequency specified in Table B-1. Individual test results may be forwarded to the Contractor as they become available.

Table B-1 is added.

***TABLE B-1 Sampling and Testing Frequency for Physical Property Requirements***

<b>Quantity from Each Source or Process t</b>	<b>Granular A; Granular B - Type I, II, and III; Granular M; Granular O; and Select Subgrade Material</b>
---	---

$\leq 5,000$	One sample.
$> 5,000$ (Note 1)	One sample per 5,000 tonnes.
<p>Note:</p> <p>1. When the quantity of material is:</p> <p>a) Less than one-half the quantity required for a sample, then that quantity shall be added to the quantity representing the previous sample.</p> <p>b) Greater than or equal to one-half the quantity required for a sample, then that quantity shall require its own sample.</p>	

## Appendix 1010-B

Table B-2 is added.

**TABLE B-2**

### Sampling and Testing Frequency for Gradation Requirements

Quantity from Each Source or Process t	Granular A, O, and M	Granular B - Type I, II, and III, and Select Subgrade Material
$< 250$	At the Contract Administrator's discretion.	
$\geq 250$ and $\leq 1,000$	One sample.	
$> 1,000$ (Note 1)	One sample per 1,000 tonnes.	

Note:

1. When the quantity of granular material is:
  - a) Less than one-half the quantity required for a sample, then that quantity shall be added to the quantity representing the previous sample.
  - b) Greater than or equal to one-half the quantity required for a sample, then that quantity shall require its own sample.

### ***Appendix 1010-C, November 2013***

Note:

apply.

### ***Supplementary Requirements for Reduced Price Payment In Lieu of Aggregate Removal***

When a tested sample of aggregates shows that the aggregates do not meet the requirements of this specification, the aggregates represented by the test result, including material in existing stockpiles or in the Work, shall not be accepted. The Contractor may request a reduced price in lieu of removal provided the applicable test results:

- a) Do not exceed the requirement for LS-614 by more than 25% of the specified value.
- b) Do not exceed the requirement for LS-618 by more than 10% of the specified value.
- c) Do not identify a plasticity index within the material when determined according to LS-703/704 and the requirement for LS-602 on the 75  $\mu$ m is met.

- d) Meet all other requirements of this specification.

Irrespective of a reduced price payment, the warranty provisions of the Contract Documents shall apply.

## Appendix 1010-D, November 2013

**Note:**

apply.

### OPSS 1010 - Aggregate Test Data - Granulars Physical Properties

Contract No.:	Contractor:	Contract Location:	
Name of Testing Laboratory:		Telephone No.:	Fax No.:
Sampled by (Print Name):		Date Sampled (YY/MM/DD):	Date Tested (YY/MM/DD):
Granular Type:		Quantity (tonnes) :	
Source Name/Location:		Aggregate Inventory Number (AIN) :	

Laboratory Test and Number	Requirements								Test Results		
	A	B Type I	B Type II	B Type III	M	O	S	SSM	Reference Material	Sample	Meets Requirements (Y/N)
Crushed Particles, % minimum, LS-607	60	--	100	--	60	100	50	--			
Unconfined Freeze-Thaw, % maximum loss, LS-614	--	--	--	--	--	15	--	--			
2 or more Crushed Faces, % minimum, LS-617	--	--	--	--	--	85 (Note 1)	--	--			
Micro-Deval Abrasion, Coarse Aggregate % maximum loss, LS-618	25	30 (Note 2)	30	30 (Note 2)	25	21	25	30 (Note 2)			
Micro-Deval Abrasion, Fine Aggregate % maximum loss, LS-619	30	35	35	35	30	25	30	--			
Asphalt Coated Particles, % maximum, LS-621	30	30	0	30	30	0	30	0			
Amount of Contamination, LS-630	(Note 3)										
Plasticity Index, maximum, LS-703/704	0										
Determination of Permeability, k, LS-709	(Note 4)										

**Notes:**

1. When Granular O is produced from boulders, cobbles, or gravel retained on the 50 mm sieve.
2. The coarse aggregate Micro-Deval abrasion loss test requirement shall be waived if the material has more than 80% passing the 4.75 mm sieve.
3. Granular A, B Type I, B Type III, or M may contain up to 15 percent by mass crushed glass or ceramic materials. Granular A, B Type III, M, O, and S shall not contain more than 1.0 percent by mass of wood, clay brick and/or gypsum and/or gypsum wall board or plaster. Granular B Type II and SSM shall not contain more than 0.1 percent by mass of wood.
4. For materials north of the French/Mattawa Rivers only, the coefficient of permeability,  $k$ , shall be greater than  $1.0 \times 10^{-4}$  cm/s or field experience has demonstrated satisfactory performance. Prior data demonstrating compliance with this requirement for  $k$ , shall be acceptable provided that such testing has been done within 5 years of the material being used and field performance has continually been shown to be satisfactory.

I hereby certify that testing has been carried out by a properly qualified/certified test technician:

Issued by: \_\_\_\_\_

PRINT NAME

TESTING LABORATORY REPRESENTATIVE SIGNATURE

DATE

Received by: \_\_\_\_\_

PRINT NAME

CONTRACT ADMINISTRATOR REPRESENTATIVE SIGNATURE

DATE

Copies to:      Contract Administrator      Contractor

## ***Appendix 1010-E, November 2013***

**Note:**

apply.

### **OPSS 1010 - AGGREGATE TEST DATA - GRANULARS GRADATION REQUIREMENTS, LS-602**

Contract No.:	Contractor:	Contract Location:	
Name of Testing Laboratory:		Telephone No.:	Fax No.:
Sampled by (Print Name):		Date Sampled (YY/MM/DD):	Date Tested (YY/MM/DD):
Granular Type:		Quantity (tonnes) :	
Source Name/Location:		Aggregate Inventory Number (AIN) :	

Sieve Size	Gradation Requirement, % Passing								Test Result	
	A	B (Note 1)			M	O	S	SSM	Sample	Meets Requirements (Y/N)
		Type I (Note 2)	Type II	Type III (Note 2)						
150 mm	--	100	--	100	--	--	--	100		
106 mm	--	--	100	--	--	--	--	--		
37.5 mm	--	--	--	--	--	100	--	--		
26.5 mm	100	50-100	50-100	50-100	--	95-100	100	50-100		
19.0 mm	85-100 (87-100,	--	--	--	100	80-95	90-100	--		

	Note 3)									
13.2 mm	65-90 (75-95, Note 3)	--	--	--	75-95	60-80	75-100	--		
905 mm	50-73 (60-73, Note 3)	--	--	32-100	55-80	50-70	60-85	--		
4.75 mm	35-55 (40-60, Note 3)	20-100	20-55	20-90	35-55	20-45	40-60	20-100		
1.18 mm	15-40	10-100	10-40	10-60	15-40	0-15	20-40	10-100		
300 µm	2-55	2-65	5-22	2-35	5-22	--	11-25	5-95		
150 µm	--	--	--	--	--	--	--	2-65		
75 µm	2.0-8.0 (2.0- 10.0, Note 4)	0-8.0 (0-10.0, Note 4)	0-10.0	0-8.0 (0-10.0, Note 4)	2.0-8.0 (2.0- 10.0, Note 4)	0-5.0	9.0- 15.0 (9.0- 17.0, Note 4)	0-25.0		

Notes:

1. When Granular B is used for granular backfill for pipe subdrains, 100% of the material shall pass the 37.5 mm sieve.
2. When RAP is blended with Granular B Type I or Type III, 100 percent of the RAP shall pass the 75 mm sieve. Conditions in Note 1 supersede in this requirement.
3. When the aggregate is obtained from an iron blast furnace slag source.
4. When the aggregate is obtained from a quarry or blast furnace slag or nickel slag source.

I hereby certify that testing has been carried out by a properly qualified/certified test technician:

Issued by: \_\_\_\_\_

\_\_\_\_\_  
PRINT NAME TESTING LABORATORY REPRESENTATIVE SIGNATURE DATE

Received by: \_\_\_\_\_

\_\_\_\_\_  
PRINT NAME CONTRACT ADMINISTRATOR REPRESENTATIVE SIGNATURE DATE

Copies to: Contract Administrator Contractor

