2026 CCIL Certification Period Aggregate and Soils Testing Instructions –

BC, NT, SK, MB, NB, NS, PE, NL

Please read these instructions carefully BEFORE you start testing!

The samples shipped in May 2025 are used for 2026 CCIL Aggregate Certification.

REPORTING

Please report the results through the CCIL portal https://portal.ccil.com/ using the 2026 reporting forms that will be in your lab's portal after you have applied for 2026 certification. The tests on the Report will be based on the tests selected on the 2026 Application for CCIL certification, which is planned to be available in the portal by end of July 2025.

Results are due no later than **Friday January 9, 2024**. If your laboratory closes for the winter and there will be no staff in January 2026, ensure that the lab results have been reported **before the lab closure**. Results reported after the deadline will likely cause a delay in your laboratory's 2026 certification.

The intent of the proficiency testing is that a certified technician carries out the tests as part of their normal routine to gauge how the laboratory performs under typical operating conditions. You are strongly encouraged to report the results by the end of September 2025.

NUMBER FORMAT- IMPORTANT

The number format, i.e., number of decimals, the results are to be reported with is provided in these instructions. To avoid unnecessary mini correlation letters from CCIL and added costs for the laboratory, please report the results as instructed.

If you don't use the correct number format to report the results, the portal will identify your results as outliers even if your results are correct. This will take valuable CCIL staff time away from other important tasks, such as providing services to labs that do follow the instructions, during a very busy time of year.

PLEASE DO NOT enter fictitious or 0.0 results for a test that your lab has decided not to report. If the test will not be reported, please check off "Cancel test?" or contact abriggs@ccil.com to discuss the situation. By using the "Cancel test?" option in a report you are indicating that the laboratory does not want to be certified for that test.

QUESTIONS

All Questions regarding CCIL 2026 Aggregate submissions shall be addressed to the attention of Anett Briggs, P.Geo. abriggs@ccil.com .

SAMPLE INFORMATION

These instructions are for 2026 CCIL Aggregate Proficiency Samples distributed and tested in 2025.

Each participant should receive the following samples:

- 1 pair (2 large bags) of coarse and fine aggregate mixture (well graded granular aggregate). These are labeled **1.25A** and **2.25A**.

- 1 pair (2 large bags) of coarse aggregate samples ("clear stone"). These samples are referred to as **1.25ST** and **2.25ST**.

- If you applied for soils tests (not including D698 and/or D1557), you will receive 1 pair of (2 small bags) of soil samples labelled **1.25S** and **2.25S**.

Note: Proctor tests are performed on the fine portion of aggregate samples 1.25A and 2.25A as instructed below. Separate soil samples were not provided if ASTM D698, or D698 and D1557 are the only soils tests on your lab's 2025 certification.

- If you requested participation in LS-609, Petrographic Analysis of Coarse Aggregate, you will receive separate instructions for this test. Additional samples must be requested for each additional PN Analyst. Contact the CCIL certification office gkermath@ccil.com or Anett Briggs, P.Geo., abriggs@ccil.com if additional PN samples are required.

- If you requested participation in Accelerated Detection of Potentially Deleterious Alkali-Silica Reactive Aggregate by Expansion of Mortar Bars CSA A23.2-25A (MTO LS-620), you will receive separate instructions for this test.

INSTRUCTIONS

- Each test method must be carried out in pairs by the same certified technician. For example, the Technician who performs the sieve analysis on Sample 1.25A must also perform the sieve analysis on Sample 2.25A. The same Technician need not perform every test method. For example, Technician 'A' may perform the Micro-Deval Abrasion (MDA) tests and Technician 'B' may perform the Flat and Elongated tests, if the same Technician performs the respective test on both samples.

- Carry out the non-destructive tests first. Material used for the non-destructive tests may be recombined to form samples to prepare for the remaining tests, as indicated below.

NOTE: To maintain certification, you are required to submit acceptable results on all Type C tests and those Type D tests for which you are certified.

Each lab is advised to perform the tests in such an order that ensures sufficient material.

Summary of tests to be performed on each material:

Sample	**1.25A, 2.25A**	**3.25A, 4.25A**	**1,25ST, 2.25ST**	**1.25S, 2.25S**
Aggregate drying temperature	**Max. 40°C**	**Max. 40°C**	110 ± 5°C	See ASTM standards
Tests				
A1. Preparation of Sample, ASTM C702	X	X		X
A2. Sieve Analysis, ASTM C136	X (split to obtain FA samples **3.25A and 4.25A)**	X (part of overall results for 1.25A and 2.25A)		
A3. Magnesium Sulphate Soundness (coarse aggregate), ASTM C88	X			
A4. Freezing and Thawing of Coarse Aggregate, CSA A23.2-24A	X			
A5. Micro-Deval Abrasion (Coarse Aggregate), ASTM D6928	X			
A6. Relative Density and Absorption (Fine Aggregate), ASTM C128		X		
A7. Micro-Deval Abrasion Loss (Fine Aggregate), ASTM D7428		X		
A8. Compaction Characteristics of Soil, Standard Effort, ASTM D698		X		
A9. Uncompacted Void Content of Fine Aggregates, ASTM C1252		X		
A10. Sand Equivalent of Fine Aggregate, ASTM D2419		X		
ST1. Preparation of Sample, ASTM C702			X	
ST2. Wash Pass 75 µm, ASTM C117			X	
ST3. Coarse aggregate gradation for calculating weighted average results (not on report form)			X	
ST4. Percent of Fractured Particles in Coarse Aggregate, ASTM D5821			X	
ST5. Flat and Elongated Particles in Coarse Aggregate, ASTM D4791			X	
ST6. Relative Density and Absorption (Coarse Aggregate), ASTM C127			X	
ST7. Los Angeles Abrasion, ASTM C131			X	
S1. Particle Size Analysis of Soils, ASTM D7928/D6913				X
S2. Liquid Limit, Plastic Limit and Plasticity Index of Soils, ASTM D4318				X
S3. Specific Gravity of Soils, ASTM D854				X

TESTS TO BE PERFORMED ON SAMPLES 1.25A AND 2.25A (WELL GRADED AGGREGATE):

A1. PREPARATION OF SAMPLE, ASTM C702: Dry A-samples to a constant mass at **max. 40°C**. Follow the test method to separate test samples for each test.

A2. SIEVE ANALYSIS, ASTM C136: Test the entire sample of each 1.25A and 2.25A to determine the coarse aggregate gradation. Both samples shall be tested using the same nest of coarse sieves including sizes 19.0, 16.0, 12.5, 9.5, and 4.75 mm. Report the percent passing to 0.01%.

Label the material passing the 4.75 mm sieve **3.25A and 4.25A,** respectively and keep separate for fine aggregate testing below. Record the total mass of the passing 5.0 mm prior to splitting, to be able to calculate the percent passing based on the original sample.

Reduce the mass of the fine portion of samples 1.25A and 2.25A (labelled 3.25A and 4.25A) by splitting the material passing the 4.75 mm sieve from the above sieve to a minimum 300 g sample as detailed in ASTM C136 Clause 7.3. Wash the split test portion over a 0.075 mm sieve in accordance with ASTM C117 and dry prior to sieving. Use the same fine aggregate nest of sieves for both samples including sieve sizes 2.36, 1.18, 0.600, 0.300, 0.150, and 0.075 mm.

Compute the fine aggregate cumulative percent passing for each sample based on the total mass sieved (coarse and fine combined) as detailed in ASTM C136 Clause 8.5.1. Include the washed material in your fine split sample total. Report the cumulative percent passing for each sieve to the nearest 0.01%.

A3. MAGNESIUM SULPHATE SOUNDNESS (COARSE AGGREGATE), ASTM C88: Prepare the test samples from the materials passing 37.5 mm and retained on 4.75 mm from the samples 1.25A and 2.25A on the following three fractions:
Passing (P) 19.0/Retained (R) 12.5 mm, P 12.5 / R 9.5 mm and P 9.5 / R 4.75mm with masses listed in ASTM C88 Clause 7.3. Do NOT determine the loss for “37.5 mm to 19.0 mm” fraction. Assign the same loss value of the next smaller fraction for the “37.5 mm to 19.0 mm” fraction. All 4 fractions shall be used to compute the weighted average.

The test is to be run using Magnesium Sulphate and five cycles. Record the initial and final masses to 0.1 g and calculate sample loss to the nearest 0.1% for each size fraction tested, based on the total mass tested of that size fraction. Compute the weighted average for each of the samples 1.25A and 2.25A based on the coarse gradation (percent retained) obtained in Step A2, after adjusting the percentages so the four fractions account for 100%. Report a weighted sample loss to the nearest 0.1%. An example of calculating weighted averages is provided following the testing instructions. **Do not re-use this material.**

A4. FREEZING AND THAWING OF COARSE AGGREGATE, CSA A23.2-24A: Determine the gradation of the samples 1.25A and 2.25A from the material passing 28.0 mm and retained on 5.0 mm sieves. Prepare the test fractions from samples as follows: Passing (P) 20.0 / Retained (R) 14.0 mm = 1250 g, P 14.0 / R 10.0 mm = 1000 g, P 10.0 / R 5.0 mm = 500 g according to Table 2. Do NOT determine the

freeze-thaw value for 28.0 mm to 20.0 mm fraction. Assign the same freeze-thaw value of the next smaller fraction, i.e., 20.0 – 14.0 mm, for the 28.0 mm to 20.0 mm fraction. All 4 fractions shall be used to compute the weighted average.

Determine the freeze-thaw values for each fraction tested and calculate the weighted average based on the gradation (percent retained) of samples 1.25A and 2.25A, adjusting the percentages so the coarse portion used is 100%. Report the weighted average freeze-thaw loss to the nearest 0.1%.

Run a control sample at the same time using the gradation in Table 1 of CSA A23.2-24A. If you do not have a supply of the control aggregate on hand, contact the MTO Soils and Aggregates Section at soils-aggregates@ontario.ca. Report the loss of control sample tested and known limits to the nearest 0.1% in the comments section. **Do not re-use this material.**

A5. MICRO-DEVAL ABRASION (COARSE AGGREGATE), ASTM D6928: Prepare the test specimens from the samples 1.25A and 2.25A, according to ASTM D6928 Clause 8.2. Run a control sample at the same time. If you do not have a supply of the control aggregate on hand, contact the MTO Soils and Aggregates Section at soils-aggregates@ontario.ca . Record the Test Sample Loss to the nearest 0.1%. Report the loss of control sample tested and known limits to the nearest 0.1% in the comments section. **Do not re-use this material.**

FINE AGGREGATE TESTS TO BE PERFORMED ON SAMPLES 3.25A AND 4.25A:

A6. RELATIVE DENSITY AND ABSORPTION (FINE AGGREGATE), ASTM C128: Use the fine material 3.25A and 4.25A to prepare the test specimens according to ASTM C128 and remove the material finer than 0.075 mm in accordance with ASTM C117 as discussed in ASTM C128 Appendix X1. Saturate the test specimens from each sample by immersion in water for 24 ± 4 hours. Report the Fine Aggregate Oven Dry Relative Density, BRD Fa (OD), to the nearest 0.001. Calculate the Absorption ABS Fa and report the results to the nearest 0.01%.

A7. MICRO-DEVAL ABRASION LOSS (FINE AGGREGATE), ASTM D7428: Prepare test specimens from samples 3.25A and 4.25A according to ASTM D7428 Clause 8.1 and 8.2. Run a control sample at the same time. If you do not have a supply of the control aggregate on hand, contact the MTO Soils and Aggregates Section at soils-aggregates@ontario.ca . Report the test Sample Loss to the nearest 0.1%. Report your control aggregate loss and known limits to the nearest 0.1% in the comments. **Do not re-use this material.**

A8. COMPACTION CHARACTERISTICS OF SOIL, STANDARD EFFORT METHOD ASTM D698: Carry out this test on a minimum of 6 kg of samples 3.25A and 4.25A, respectively. This is the material passing the 4.75 mm sieve. Follow ASTM D698 Method A to perform the test for compaction. DO NOT CORRECT the results to compensate for oversized particles. ASTM D698 does not allow re-use of compacted material, however, for CCIL proficiency testing purposes ONLY, you may re-use the material within this test and add water for each succeeding trial. No standing time is required. Should

you observe excessive water run-off from the mould during compaction and/or aggregate break-down during the trials, please note it in the comments section on the reporting form.

Report the wet and dry maximum densities to the nearest 0.001 t/m^3, which is metric tonne per cubic meter (i.e., 2.345, **not** 2345) and optimum moisture content to the nearest 0.1% on the 2026 Soil reporting form in your portal. If you don't use the correct number format to report the results, the results **will not be accepted as correct and will receive a rating of "0"**. (Note: 1 t/m^3 = 1000 kg/m^3). **Do not re-use this material for other tests.**

A9. UNCOMPACTED VOID CONTENT OF FINE AGGREGATE, ASTM C1252: Prepare the individual test specimens from 3.25A and 4.25A. Perform the uncompacted void content test in accordance with ASTM C1252 Test Method A, Standard Graded Sample. Compute the uncompacted void contents using the bulk dry specific gravity values of Samples 3.25A and 4.25A determined according to ASTM C128. Report the uncompacted voids to the nearest 0.1%. Indicate the bulk dry specific gravity values used to the nearest 0.001 in the comments of the report on the portal.

A10. SAND EQUIVALENT VALUE OF FINE AGGREGATE, ASTM D 2419: Obtain at least 1500 g from each fine aggregate sample 3.25A and 4.25A. Prepare the test specimens in accordance with Procedure A or B. Report the sand equivalent value to the nearest 0.1%. Include whether you used Procedure A or B in the comments of the report in the portal.

TESTS TO BE PERFORMED ON SAMPLES 1.25ST AND 2.25ST (CLEAR STONE):

ST1. PREPARATION OF SAMPLE, ASTM C702: Dry ST-samples to a constant mass at 110 ± 5°C and split to obtain appropriate test sample sizes of material passing or retained on the 4.75 mm sieve, as required for each test method.

ST2. WASH PASS 75 μM, ASTM C117: Use Sample 1.25 ST and 2.25 ST for this test. Obtain an appropriate quantity of material for test method ASTM C117. Wash the entire split test portion. Report the Percent Loss to 0.01%.

ST3. SIEVE ANALYSIS, ASTM C136: Determine the gradation of the ST-samples for the purpose of calculating weighted average results, as applicable according to individual test methods.

ST4. PERCENT FRACTURED PARTICLES, ASTM D5821: For both Type C and Type D Fractured Particles tests, perform the test on material retained on the 4.75 mm sieve and larger of the samples 1.25ST and 2.25ST, respectively, according to the test method. Determine the percentage of fractured particles with at least one fractured face by mass. Report the percentage of material to the nearest 0.1%. This material may be recombined to form samples for other tests.

ST5. PERCENT FLAT AND ELONGATED PARTICLES, ASTM D4791: For both Type C and Type D Flat and Elongated tests, use the materials retained on the 4.75 mm sieve and larger of samples 1.25ST and 2.25ST. Perform the test in accordance with Method B of ASTM D4791 Clause 8.4 using 5:1 ratio.

Reduce the number of particles per clause 8.2 and test approximately 100 particles of each of the following three fractions: Passing(P) 19.0/Retained(R) 12.5 mm, P 12.5/R 9.5 mm, and P 9.5/R 4.75 mm. For the purposes of ASTM D4791 Clauses 8.4.2, 9.1, and 10.1.4.2, the determination of proportion of sample and calculations of percentages shall be "by mass" based on the total mass of material retained on 4.75 mm sieve.

Compute the weighted average based on the gradation (percent retained) of samples 1.25ST and 2.25ST, respectively, adjusting the percentages so the total for the coarse portion used is 100%. Report the weighted average to the nearest 0.1%. An example the calculation of weighted averages is provided following the testing instructions for your reference. This material may be recombined to form the sample for other tests.

ST6. RELATIVE DENSITY AND ABSORPTION (COARSE AGGREGATE), ASTM C127: Prepare the samples for this test from the samples 1.25ST and 2.25ST. Report the Coarse Aggregate Oven Dry Relative Density, BRD Ca (OD), to the nearest 0.001. Report the Coarse Aggregate Absorption ABS Ca to the nearest 0.01%. This material may be recombined to form the sample for other tests.

ST7. LOS ANGELES ABRASION, ASTM C131: Prepare the test specimens from the samples 1.25ST and 2.25ST. Carry out the test as outlined in the ASTM C131 Table 1 Grading B. Report the Loss to the nearest 0.1%. **Do not re-use this material.**

SOIL PROFICIENCY SAMPLES 1.25S AND 2.25S

If you applied for soils tests other than D698 or D1557, you have received 1 pair (2 small bags) of soil samples labelled 1.25S and 2.25S.

Note: Soil samples were not provided if ASTM D698, or D698 and D1557, are the only soils tests on your lab's 2025 certification. Proctor tests are performed on the aggregate sample 1.25A and 2.25A as instructed above.

S1. PARTICLE SIZE ANALYSIS OF SOILS, ASTM D7928/D6913: Prepare individual test specimens from samples 1.25S and 2.25S. Use a freshly prepared dispersing agent with distilled water and 40 grams of sodium hexametaphosphate per litre of solution and ensure the pH value of the solution is adjusted to 8 or 9. The soil samples supplied should be dispersed in the stirring apparatus for 10 minutes.

Assume a value of 2.759 for the specific gravity of soil particles in the calculations of mass percent finer for each hydrometer reading (DO NOT use the values determined by your lab).

Report the Percent passing the 2.0 mm, 425µm, 75µm, 20µm, 5µm and 2µm sieves to the nearest 0.1%.

S2. LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS, ASTM D4318: Determine the Liquid Limit, Plastic Limit and Plasticity Index of soil samples 1.25S and 2.25S according to ASTM

D4318. Prepare the test specimens as outlined in ASTM D4318 Clause 11.2 "Specimen Preparation Procedure 2 (Dry Preparation Procedure)" and determine the Liquid Limit according to the procedure described in ASTM D4318 Clause 12.0, Method A – Multi-point Liquid Limit. Determine the Plastic Limit using a minimum of two trials and report the mean value. Report the Liquid Limit, Plastic Limit and Plasticity Index to the nearest one decimal, i.e., 0.1%.

S3. SPECIFIC GRAVITY OF SOILS, ASTM D854: Determine the specific gravity of soil samples 1.25S and 2.25S according to ASTM D854. Carry out the test according to the procedures outlined in ASTM D854 Clause 11.2 –Method B - Procedures for Oven Dried Specimen. Perform the test on a minimum of three specimens and report the Mean Specific Gravity of the soil to the nearest three decimal places (0.001). The calculated test results from three specimens (range) should be within 0.020 of each other. If the range exceeds 0.020, the test must be repeated.

EXAMPLE FOR CALCULATING WEIGHTED AVERAGE

This calculation is an example only and uses assumed values.

Material Size Fraction (mm)	Original sieved individual percent retained	Original Sieved % retained of tested portions	Adjusted percent for Weighted Average	Test result per size fraction	Weighted average percentages
>19.0	2		Not tested		
19.0 to 12.5	12	12	12/60=20	55	20*55/100=11
12.5 to 9.5	18	18	18/60=30	70	30*70/100=21
9.5 to 4.75	30	30	30/60=50	42	50*42/100=21
<4.75 (pan)	38		Not tested		
Total	100	60	100		(11+21+21)=**53**

Reported result **53%**