2023 ALBERTA AND YUKON MINI-CORRELATIONS

AGGREGATES and SOILS

Please read the following Mini-Correlation instructions carefully BEFORE you start testing!

- Testing of mini correlation samples shall be according to the below instructions.

- Submission of results by **March 27, 2023** in the mini correlation report(s) provided in the labs portal. https://portal.ccil.com/ After signing into the portal, all mini-correlation reporting forms appropriate to your lab certification will be accessible under the tab for **Reporting Forms**. You will be able to enter your test results into the forms and submit to CCIL through the portal.

- Please record the mini-correlation sample identification information found on the sample labels in the "Comments" section of the reporting forms and upload any photos of unclear labels in the portal mini report.

SAMPLES FOR MINI-CORRELATION TESTING

- Samples for the mini-correlation were shipped to the laboratory March 14th. If you experience delay in receiving your samples, please advise Anett Briggs abriggs@ccil.com of your need for an extension. **Results beyond March 31st may affect your 2023 certificate being issued**.

- The mini-correlation samples are pre-prepared to meet the requirements of the appropriate test method and are to be tested as received unless instructed otherwise.

- Generally, only one sample will be shipped for each test requiring a mini-correlation. Tests for a mini-correlation are not generally carried out in pairs.

- Unsatisfactory mini result will result in a 2nd mini that must be conducted in the presence of a CCIL inspector.

ALBERTA AND YUKON MINI-CORRELATION INSTRUCTIONS – AGGREGATES

Sample Preparation

Dry all mini-correlation aggregate samples to a constant mass at 110 ± 5°C.

ASTM C136: SIEVE ANALYSIS OF AGGREGATES,

If the problem with your original test results was with the fine aggregate sieves only, your lab will receive a mini-correlation sample of fine aggregate only. Otherwise, your lab will receive a combined coarse aggregate and fine aggregate sample.

Combined
If you receive a **combined coarse and fine aggregate sample**, test the entire mini-correlation sample as specified in C136 to determine the aggregate gradation. Report the percent passing on each sieve listed in the portal report (20, 16, 12.5, 10, 5, 2.5, 1.25, 0.630, 0.315, 0.160 and 0.080 mm)). All sieves are to be reported to 1 decimal (0.1%), except the 5.00 mm and 0.080 mm sieves are to be reported to two decimal places (0.01%).

Fine Only
If you receive **only fine aggregate** for the mini-correlation sample, test the entire mini-correlation sample following C136 on the 2.5, 1.25, 0.630, 0.315, 0.160 and 0.080 mm sieves. However, when reporting the % passing, use the value from the following table to reduce the % passing on each sieve by multiplying by the factor provided. All sieves are to be reported to 1 decimal (0.1%), except the 0.080 mm sieve is to be reported to two decimal places (0.01%).

Mini sample year on label	Factor for original % passing the 4.75mm sieve. Multiply by
2022	0.481

Example:

Sieve (mm)	Fine Aggregate % Passing of sample	Multiplication factor (%Passing 4.75mm)	Value to be reported in the portal report (% Passing of original)
2.36	77.7	0.491	38.1
1.18	58.2	0.491	28.6

ASTM C117: Wash Passing 0.080 mm sieve.

Test the entire mini correlation sample as specified in C117. Report the Percent Loss to two decimal (0.01%).

ASTM D5821: PERCENTAGE OF FRACTURED PARTICLES IN COARSE AGGREGATE

The mini-correlation sample is comprised of a single test sample representing all of the size fractions combined. Test the portion of the sample retained on the 5.0 mm sieve only. Do not separate into individual size fractions. Determine the percentage of fractured particles with at least one fractured face by mass for the whole sample. Report the Percent Fractured particles to the nearest 0.1%.

TYPE D TESTS

ASTM C127: RELATIVE DENSITY AND ABSORPTION (COARSE AGGREGATE)

Carry out the test as outlined in the test procedure. The mini-correlation sample size allows for duplicate testing. Report the Average Relative Density (OD) to three decimal places (0.001). Calculate and report the Average Percent Absorption and report to 2 decimal places (0.01%).

SOILS TESTS

AASHTO T88 (formerly D422): PARTICLE SIZE ANALYSIS OF SOILS

Prepare the test specimens in accordance with T88. Use a freshly prepared dispersing agent with distilled water using 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.

Compute the specific gravity correction factor α and constant K using the value 2.745 for the specific gravity of soil particles (DO NOT use the values determined by your lab). Upon completion of the test, compute Constant K, Coefficient of Viscosity η, and Particle Diameter D to four significant digits (i.e., 0.0001), and record the results in the comment of the portal report. Report the Percent passing the 2.0 mm, 425μm, 75μm, 20μm, 5μm and 2μm sieves to the nearest 0.1 percent.

Report the percent passing the 2.0 mm, 425μm, 75μm, 20μm, 5μm and 2μm sieves to one decimal (0.1 %). The portal allows 2 decimals but only one is required.

ASTM D698: PROCTOR - MOISTURE-DENSITY RELATIONSHIP

Follow ASTM D698 Method C to perform the test on only the materials passing 20.0 mm sieve for compaction. Use the following parameters to compute correction for oversize particles:

Bulk specific gravity of the oversize fraction = 2.620
Water content of the oversize fraction = 0.90%

Calculate corrected optimum moisture content according to equation (4) of ASTM D 4718.

Calculate corrected maximum dry density using the following equation:

$$C\rho d = (100\ \rho F\ GM)/(\rho F\ PC + GM\ PF\ )$$

where:
$C\rho d$ = corrected dry density of the total material (combined finer and oversize fractions),
GM = bulk specific gravity,
ρF = dry density of the finer fraction,
PC = Percent of oversize coarse fraction by weight, and
PF = Percent of oversize finer fraction by weight,

Example Calculation:

Given GM = 2.62, ρF = 2.250, PC = 12.2%, PF = 87.8%

$C\rho d$ = (100 × 2.250 × 2.62) / (2.250 × 12.2 + 2.65 × 87.8) = 2.289

Report the maximum wet density in t/m3, corrected maximum dry density in t/m3, and corrected optimum moisture content in percentage. DO NOT REUSE THIS MATERIAL. (Note: t/m3 = g/cm3).

March 15, 2023