

General Requirements for Referee Testing

Special Provision No. 199S64

November 2022

1.0 Scope

This Special Provision describes the general requirements for referee testing related to laboratory and field testing of engineering materials and associated costs. Standard Specifications, Special Provisions and test methods provide details on the referee testing and/or acceptance for specific materials where applicable.

2.0 Definition

Referee Testing means testing of a material property or attribute, for the purpose of resolving acceptance, by:

- a) an independent, third party laboratory based on applicable referee roster, or
- b) where there is no applicable referee roster:
 - i. the MTO laboratory or,
 - ii. an assigned service provider.

3.0 Referee Testing Requirements

Referee testing may be invoked provided that all associated contractual conditions have been met. The material and specific property or properties, attribute(s) lot and subplot(s), as applicable, for which the referee testing is being requested shall be identified in writing and submitted to the Contract Administrator, within the time as specified in the Contract Documents.

Referee testing shall be carried out by a laboratory designated by the Owner from a roster maintained for this purpose, or as specified in the Contract Documents. Where there is no applicable referee roster, referee testing shall be carried out by the MTO laboratory, or the same service provider assigned by the Owner to carry out the QA testing.

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

4.0 Observation

The Contractor and Owner may designate a maximum of two representatives each to observe the referee testing. The method of observation for the referee testing, either remote or in person, shall be selected by the Owner. The Owner and Contractor shall be notified within a minimum of 3 Business Days in advance of the date and time of referee testing. Provided that such notice was given, referee testing shall commence on time, and be carried out regardless of the absence of one or more observers.

All communications with the referee testing laboratory shall be through the Contract Administrator.

Observing representatives shall follow all referee laboratory protocols and shall not impede the progress of the referee testing. Observing representatives shall be permitted to validate sample identification and view sample condition. Subject to safety requirements, testing procedures and equipment limitations, representatives shall be permitted to witness test activities, take notes, view equipment readings and review

completed worksheets while observing the testing. The taking of photographs, videos or electronic recordings shall not be permitted.

Concerns with sample condition or sample identification shall be made known to all representatives prior to commencement of the referee testing. Comments on deviations from the applicable test method shall be made at the time of referee testing. Unresolved concerns shall be specific in nature and submitted in writing to the referee laboratory's designated representative and the other observing representatives present, at the time of testing.

5.0 Referee Testing Costs

Referee testing costs shall be the sum of all applicable testing costs, as shown in Table 1, for all tests included in each referee testing request plus, a standard shipping and handling charge, unless otherwise specified elsewhere in the Contract Documents. Responsibility for payment of referee testing costs shall be as specified elsewhere in the Contract Documents.

No compensation shall be made for any costs incurred in observing the referee testing or for travelling to and from the referee laboratory.

TABLE 1

General Fees Are in Notes 1 and 2.		
AGGREGATE AND SOIL REFEREE TESTING SERVICES		
Aggregate Testing Methods (LS-Methods)		
Test	Test description	Fee (\$)
LS-600	Dry Preparation of Aggregates for Determination of Physical Constants	\$130
LS-601	Material Finer Than 75 µm Sieve in Mineral Aggregates by Washing	\$165
LS-602	Sieve Analysis of Aggregates (includes washing of the fine aggregate portion according to LS-601)	\$395
LS-603	Resistance to Degradation of Coarse Aggregate by Abrasion and Impact in the Los Angeles Abrasion Machine	\$720
LS-604	Relative Density and Absorption of Coarse Aggregate	\$380
LS-605	Relative Density and Absorption of Fine Aggregate	\$430
AGH11	Superpave Mixture – Aggregate Bulk Specific Gravity (Gsb): LS-266, LS-604, LS-605 Follow provisions for blended coarse and fine aggregates.	\$1,035 per combined density
AGH12	Superpave Mixture with RAP – Aggregate Bulk Specific Gravity (Gsb): LS-266, LS-604, LS-605 Follow provisions for blended coarse and fine aggregates. Note: Aggregates from RAP are to be incorporated as identified in the appropriate LS.	\$1,380 per combined density
LS-606	Soundness of Aggregates by Use of Magnesium Sulphate (coarse aggregate fraction only)	\$760
LS-607	Percent Crushed Particles in Processed Coarse Aggregate	\$270
LS-608	Percent Flat and Elongated Particles in Coarse Aggregate Containing no RAP or RST Aggregates	\$410 (Note 3)
LS-609	Petrographic Analysis of Coarse Aggregate (Part A), complete analysis	\$1,060
LS-609	Petrographic Examination of Coarse Aggregate (Part A), analysis for determination of percentage of specific material types only (e.g., % total carbonate rock type, and/or % contamination)	\$460
LS-609	Petrographic Analysis of Coarse Aggregate (Part B), includes the extraction using LS-282	\$1,060
LS-610	Organic Impurities in Concrete Sands	\$180
LS-613	Insoluble Residue of Carbonate Aggregates	\$560 (Note 3)
LS-614 or CSA A23.2-24A	Freezing and Thawing of Coarse Aggregate	\$860
LS-615 or CSA A23.2-26A	Potential Alkali-Carbonate Reactivity of Carbonate Rocks by Chemical Composition	\$1,175
LS-616	Petrographic Analysis of Fine Aggregate (Part A)	\$1,200 (Note 3)
LS-616	Petrographic Analysis of Fine Aggregate (Part B)	\$570 (Note 3)
LS-616	Mica Content	\$950 (Note 3)

LS-617	Percent Particles with Two or More Crushed Faces and Uncrushed Particles in Processed Coarse Aggregate	\$295
LS-618 or CSA A23.2-29A	Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus	\$735
LS-619 or CSA A23.2-23A	Resistance of Fine Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus	\$735
LS-620 or CSA A23.2-25A	Accelerated Detection of Potentially Deleterious Alkali-Silica Reactive Aggregate by Expansion of Mortar Bars	\$3,335
LS-621	Amount of Asphalt Coated Particles in Coarse Aggregate	\$235
LS-627	Open-Graded Drainage Layer (OGDL) Core Porosity Test	\$350
LS-629	Uncompacted Void Content of Fine Aggregate. (Test for determination of relative density will be paid separately)	\$425
LS630	Determination of Amount of Contamination of Coarse Aggregate	\$460
LS-631	Presence of Plastic Fines in Aggregates	\$250
LS634	Amount of Reclaimed Content in Coarse Aggregate	\$345
LS-282	Extraction for Aggregates that Incorporate RAP and/or RST	\$370 (Note 3)
Aggregate Testing (AASHTO/ASTM Methods)		
Test	Test Description	Fee (\$)
AASHTO T84	Specific Gravity and Absorption, Fine Aggregate	\$760
AASHTO T85	Specific Gravity and Absorption, Coarse Aggregate	\$365
AASHTO T176	Sand Equivalent, (Method 1)	\$390
ASTM D 4791	Flat and Elongated Particles, Coarse Aggregate	\$430
ASTM D 5821	Fractured Particles, Coarse Aggregate, One Face	\$300
ASTM D 5821	Fractured Particles, Coarse Aggregate, Two Faces	\$345
Soils Testing (LS Methods)		
Test	Test Description	Fee (\$)
LS-701	Determination of Moisture Content of Soils	\$75
LS-702	Determination of Particle Size Analysis of Soils (includes LS-705, Relative Density, in triplicate)	\$1,060
LS-703/704	Liquid Limit, Plastic Limit and Plasticity Index of Soils	\$375
LS-705	Determination of Relative Density of Soils (in triplicate)	\$770
LS-706	Moisture-Density Relationship of Soils Using 2.5 Kg Rammer and 305 mm Drop	\$595
LS-707	Moisture-Density Relationship of Soils Using 4.5 Kg Rammer and 457 mm Drop	\$680
LS-709	Determination of Permeability of Granular Soils	\$1,140
Geotextile Testing		
Test	Test Description	Fee
ASTM D 4632/D 4632M	Grab Breaking Load and Elongation of Geotextiles	\$175
ASTM D 4533/D 4533M	Trapezoid Tearing Strength of Geotextiles	\$175
ASTM D 6241	Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50 mm Probe	\$175
BITUMINOUS TESTING REFEREE TESTING (Note 4)		

Hot Mix Asphalt Testing		
Test code	Test description	Fee
AQA1	Moisture Damage: AASHTO T 283	\$1,000 per sample
AQA2	Mix Properties: LS-264, LS-265, LS-266, LS-282 (or LS-292), AASHTO R 35, AASHTO T 166, AASHTO T 312	\$700 per sample
AQA3	Draindown: LS-310	\$235 per sample
AQA5	Ignition Oven Calibration: LS-292	\$1,400 per calibration
AQA6	Compaction: LS-262, LS-264, LS-265. Core compaction shall be calculated using the Maximum Relative Density (MRDm) from the matching loose mix subplot as follows: % Compaction = (100 x BRDc/MRDm).	\$165 per sample
AQA8	Lift Thickness: LS-294	\$40 per core (single lift) \$65 per core (multi-lift)
AQA10	SMA Grit Gradation & AC Content: LS-282 (AC content and gradation only)	\$370 per sample
Hot Mix Asphalt Performance Testing		
Test code	Test description	Fee
AQA14	FIT-SCB on Mix: LS-334, AASHTO T 393 (Minimum 4 individual test specimens are 1 test)	\$1,500 per test
AQA15	FIT-SCB on Cores: LS-334, AASHTO T 393 (Minimum 4 individual test specimens are 1 test)	\$1,200 per test
AQA16	Hamburg Wheel-Track on Mix: LS-335, AASHTO T 324 (Four 150 mm diameter specimens, grouped in pairs (1 and 1a), representing similar material run in the Hamburg Wheel-Tracking Device simultaneously are 1 test)	\$2,500 per test
AQA17	DCT on Mix: LS-336, ASTM D7313 (Minimum 3 individual test specimens are 1 test)	\$2,500 per test
AQA18	DCT on Cores: LS-336, ASTM D7313 (Minimum 3 individual test specimens are 1 test)	\$2,000 per test
AQA19	ISS on a Core: AASHTO TP 114	\$7135 per sample
AQA20	Permeability on Mix: Florida DOT Method FM 5-565	\$525 per sample
AQA22	Hamburg Wheel-Track on Cores: LS-335, AASHTO T 324 (Four cores, grouped in pairs (1 and 1a), representing similar material run in the Hamburg Wheel-Tracking Device simultaneously are 1 test)	\$2,250 per test
AQA23	Texas Overlay on Mix: Texas DOT Method Tex-248-F (Minimum 3 individual test specimens are 1 test)	\$2,500 per test

AQA24	Texas Overlay on Cores: Texas DOT Method Tex-248-F (Minimum 1 individual test specimen is 1 test)	\$800 per test
Emulsions and Cutback Asphalt Testing		
Test code	Test description	Fee
ECA1	Tack Coat: ASTM D5 (Penetration), ASTM D6997 (Residue by Distillation)	\$345 per sample
ECA3	Cutbacks: Penetration (ASTM D5), Softening Point (ASTM D36), Ductility (ASTM D113), Residue of Specified Penetration (ASTM D243), Distillation (ASTM D402), Density of Cutback Asphalts (ASTM D3142), Flash Point (ASTM D3143), Kinematic Viscosity (LS-202), Solubility (LS-204) Note: Used for Granular Sealer Type Ia.	\$1,100 per sample
ECA6	Emulsified Asphalt Primer or Solvent Free Emulsified Asphalt: Penetration (ASTM D5), Ductility (ASTM D113), Flash Point (ASTM D1310), Storage Stability (ASTM D6930 as amended in Appendix I), Sieve Test (ASTM D6933) for Type II only, Residue by Distillation (ASTM D6997), Oil Portion of Distillate (ASTM D6997 as amended in Appendix I), Particle Charge (ASTM D7402 as amended in Appendix I) for Type I only, Saybolt Viscosity (ASTM D7496), Ash Content (ASTM D8078) Note: Solubility in Trichloroethylene (LS-204) shall be carried out for Carryover Projects prior to 2022 only. Note: Used for Granular Sealer Type I (formerly Type Ib) and Type II.	\$1,365 per sample
ECA7	Tall Oil Pitch: Particle Charge (ASTM D7402), Solids Content (OPSS 2510) Note: Used for Granular Sealer Type III.	\$650 per sample
Performance Graded/Recovered Asphalt Cement Testing		
Test code	Test description	Fee
PGA1	PGAC Continuous Grading Plus: LS-228 (Method A), LS-299, LS-308, LS-319, LS-320, AASHTO M 320, AASHTO R 29 (Section 6), AASHTO T 350, ASTM D7643, ASTM D8078. Compare AASHTO R 29 (Section 6) results against AASHTO M 320 and report the continuous high and low grading temperatures according to ASTM D7643 rounded to the nearest 0.1 °C. Conduct LS-299 (DENT), LS-319 (T _δ 45), and LS-320 (ΔTC) on the 20-hour PAV residue (LS-228 Method A) only.	\$3,200 per sample
PGA2	PGAC Continuous Grading Only: LS-228 (Method A), AASHTO M 320, AASHTO R 29 (Section 6), ASTM D7643. Compare AASHTO R 29 (Section 6) results against AASHTO M 320 and report the continuous high and low grading temperatures according to ASTM D7643 rounded to the nearest 0.1 °C.	\$1,000 per sample

RAC1	<p>RAC Continuous Grading Plus: LS-228 (Method A), LS-284, LS-299, LS-308, LS-319, LS-320, AASHTO M 320, AASHTO R 29 (Section 6), AASHTO T 350, ASTM D7643, ASTM D8078.</p> <p>Compare AASHTO R 29 (Section 6) results against AASHTO M 320 (except for original binder requirements).</p> <p>AASHTO T 240 (RTFO) is not performed on RAC. Use AASHTO M 320 criteria for RTFO residue ($G^*/\sin\delta \geq 2.2\text{kPa}$).</p> <p>Report the continuous high and low grading temperatures according to ASTM D7643 rounded to the nearest 0.1 °C.</p> <p>Conduct LS-299 (DENT), LS-308 (ExBBR), LS-319 (Tδ45), and LS-320 (ΔTC) on the 20-hour PAV residue (LS-228 Method A) only.</p>	\$4,400 per 20 kg loose mix sample
RAC2	<p>RAC Continuous Grading Only: LS-228 (Method A), LS-284, AASHTO M 320, AASHTO R 29 (Section 6), ASTM D6473, ASTM D8078.</p> <p>Compare AASHTO R 29 (Section 6) results against AASHTO M 320 (except for original binder requirements).</p> <p>AASHTO T 240 (RTFO) is not performed on RAC. Use AASHTO M 320 criteria for RTFO residue ($G^*/\sin\delta \geq 2.2\text{kPa}$).</p> <p>Report the continuous high and low grading temperatures according to ASTM D7643 rounded to the nearest 0.1 °C.</p>	\$2,200 per 20 kg loose mix sample
Cold In-place Recycled Mix Testing		
Test code	Test description	Fee
CIR1	Moisture Content of CIR Slabs: LS-282 (Following Determination of Moisture Content portion only)	\$75 per sample
CIR3	ITS of CIREAM and EAM: LS-297 (Following Procedure for Coring and Curing Specimen from Slab Samples)	\$750 per sample
CONCRETE REFEREE TESTING		
Concrete Testing		
Test code	Test description	Fee
LS-407	Compressive Strength of Moulded Concrete Cylinders	\$110 (per set of two 150 mm diameter cylinders or three 100 mm diameter cylinders)
LS-410	Compressive Strength Testing of Concrete Cores	\$120 (per one core)
LS-412	Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals	\$2,100 (per set of 2 slabs, Note 71)

LS-426	Compressive Strength of High Strength Concrete Cylinders	\$110 (per set of three 100 mm diameter cylinders)
LS-431	Microscopical Determination of Air Void System Parameters in Hardened Concrete for Referee Test	\$770 per test (Note 82)
LS-433	Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration	\$715 (per set of two specimens from one core or cylinder)
LS-450	Determination of Concrete Pavement Thickness Using Drilled Core Specimens	\$80 (per one core)
Admixture Testing		
Test Sample	Test description	Fee
LS-413 and LS-414 Chemical Admixture (Including Superplasticizers)	LS-413 and LS-414 Sample: Chemical Admixture (Including Superplasticizers) Method of Test for Non-Volatile Content of Chemical Admixtures, Latex Admixtures and Curing Compounds and Method of Test for Relative Density of Chemical Admixtures, Air Entraining Admixtures, Latex Admixtures and Curing Compounds	\$570 (per non-volatile content and relative density determination of one sample of admixture)
LS-414 and LS-415 Air Entraining Admixture	LS-414 and LS-415 Sample: Air Entraining Admixture Method of Test for Relative Density of Chemical Admixtures, Air Entraining Admixtures, Latex Admixtures and Curing Compounds and Method of Test for pH of Aqueous Solutions by Glass Electrode	\$570 (per relative density and pH determination of one sample of admixture)
Mechanical Connectors Testing		
Test code	Test description	Fee
LS-434	Method of Test for Mechanical Connectors Used to Splice Steel Reinforcement	\$550 (per one set of three sample connectors)
Water-Proofing		
	Test description	Fee
	Waterproofing Membrane Thickness (Field Guide for the Acceptance of Hot Mix and Bridge Deck Waterproofing)	\$1,150
	Waterproofing Membrane Quality (OPSS 914 and OPSS 1213)	\$1,265

CONCRETE PAVEMENT SMOOTHNESS REFEREE MEASUREMENT		
Concrete Pavement Measurement Fee		
Number Of Sublots Measured	Measurement Fee	
1 to 5	\$2,900	
6 to 10	\$4,300	
11 to 20	\$5,750	
21 to 30	\$7,000	
31 to 40	\$8,400	
41 to 60	\$9,750	
61 to 80	\$11,200	
81 to 100	\$12,450	
101 to 150	\$13,850	
151 or more	\$15,300	
One-Time Mobilization Fee		
Contract Region	Mobilization Fee	
West Region	\$950	
Central Region	\$950	
Eastern Region	\$950	
Northeastern Region South (Area south of the boundary formed by Hwy 522 and a straight line between Trout Creek and Petawawa)	\$950	
Northeastern Region North (Area north of the boundary formed by Hwy 522 (including Hwy 522) and a straight line between Trout Creek and Petawawa)	\$3,000	
Northwestern Region	\$6,000	
ASPHALT PAVEMENT SMOOTHNESS REFEREE SERVICES		
Asphalt Pavement Measurement Fee		
Number of Sublots Measured	Sublots Located on 400 Series Highways¹	Sublots Located on Non-400 Series Highways
1 to 5	\$2,900	\$2,750
6 to 10	\$4,300	\$3,650
11 to 20	\$5,750	\$4,300
21 to 30	\$7,000	\$5,000
31 to 40	\$8,400	\$5,700
41 to 60	\$9,750	\$6,900
61 to 80	\$11,200	\$8,300
81 to 100	\$12,450	\$9,800
101 to 150	\$13,850	\$11,000
151 or more	\$15,300	\$12,400
One-Time Mobilization Fee		
Contract Region	Mobilization Fee	

West Region	\$950
Central Region	\$950
Eastern Region	\$950
Northeastern Region South (Area south of the boundary formed by Hwy 522 and a straight line between Trout Creek and Petawawa)	\$950
Northeastern Region North (Area north of the boundary formed by Hwy 522 (including Hwy 522) and a straight line between Trout Creek and Petawawa)	\$3,000
Northwestern Region	\$6,000
Notes: <ol style="list-style-type: none"> 1. \$100 will be paid for each referee assignment when remote observation is provided by the Service Provider. 2. The standard shipping and handling charge shall be \$300 per delivery trip from the Owner's Quality Assurance laboratory to the referee laboratory. 3. When extraction (LS-282) is required, it shall be paid for one time per sample. 4. The minimum fee for any individual bituminous referee testing assignment will be \$350 (including the \$100 for providing remote observation as per Note 1.) 5. The standard shipping and handling charge shall not be applied to surface smoothness by inertial profiler testing costs. 6. 400 series highways include the Queen Elizabeth Way (QEW) highway. 7. Fee includes cutting and trimming of concrete slabs. 8. Shipping of AVS samples to the Ministry and polishing, if necessary, is included in the fee. 	

WARRANT: All Contracts.