



## R. W. Gillespie & Associates, Inc.

Geotechnical Engineering • Geohydrology • Materials Testing Services

31 August 2011

Cuyler Feagles, AIA  
City of Portland, Portland International Jetport  
1001 Westbrook Street  
Portland, Maine 04102

Subject: Summary Report of Special Inspections  
Terminal Enhancement, Portland International Jetport  
Portland, Maine  
RWG&A Project No. 557-14

Dear Mr. Feagles:

As requested, a summary report of special inspections has been prepared for your use. Subsequent paragraphs in this letter, which also serves as part of the report, present a general scope of services outline, items of clarification with respect to certain services, and references to appendices containing the report and test results.

Our scope of services included the following tasks for the Terminal Enhancement project:

**Soils Testing:** Our construction technology staff conducted in-place density tests of backfill placed against foundations, above utilities and subbase and base course materials placed to support roadways using nuclear methods in accordance with ASTM D6938. The RWG&A materials testing laboratory provided support services in the form of gradation and moisture-density relationship testing. Soil lab test results can be found in Appendix G. Results were provided verbally to Gorham Sand & Gravel or Turner Construction Company and summarized on a weekly basis. Copies were sent to the concerned parties as directed by you.

**Concrete Testing:** Testing of portland cement concrete included field and laboratory testing. Field tests included slump, entrained air content, unit weight and temperature. Four specimens were typically cast for compressive strength testing in the laboratory. Parameters observed to be outside specification limits were reported to on-site representatives from AMEC and Turner Construction Company. Compressive strength was typically determined in the laboratory at 7 (1 cyl.) and 28 days (2 cyl.). A fourth cylinder was held for testing at 56 days, if needed. Reports were sent within a day or two of the laboratory test and included all field data; see Appendix B.

**Floor Flatness Testing:** Floor flatness testing was performed by RWG&A's subconsultant F-Number Testing of New Ipswich, New Hampshire. Floor flatness testing was performed in accordance with ASTM 1155-96 and ACI 117 using the Dipstick Auto Read Profiler. Test results were verbally reported to Turner Construction Company's onsite representative and a formal written report was issued soon after; see Appendix C.

**Structural Steel:** Visual inspections were performed by an RWG&A Certified Welding Inspector (CWI), and all non-destructive testing was performed by an ANSI Level II NDT inspector. These services were in accordance with the project specifications and AWS D1.1-2006 "Structural Welding Code - Steel". Bolted connections were inspected in accordance with the project specifications and AISC-ASD 9th ed. part 5; see Appendix D. On occasion, when RWG&A's CWI inspector was not available, our subconsultant UTS of Massachusetts performed inspections.

**Fireproofing:** An RWG&A senior construction technologist made thickness measurements at prescribed intervals, and obtained samples for unit weight testing of spray-applied fire resistant material. Adhesion/cohesion strength was also checked in the field. Test results were forwarded as soon as lab tests were complete.

**Curtain Wall Testing:** RWG&A's subconsultant Architectural Testing, Inc. (ATI) of Chelmsford, Massachusetts perform water penetration and spray nozzle tests at selected locations of the curtain walls at the subject project. Tests were performed in accordance with AAMA 501.2-03, AAMA 503-92, ASTM E 1105-00. Curtain wall testing was witnessed by representatives from Turner Construction Company, AMEC, Gensler, and RWG&A. Formal written reports were issued soon after field tests were complete; see Appendix F.

**Bituminous Pavement Testing:** During paving operations, an RWG&A construction technologist observed laydown thicknesses, measured mix temperatures, and obtained samples for theoretical maximum density (TMD) testing. Following compaction of the mix, in-place densities were obtained using a pavement quality indicator (PQI) for comparison to the TMD. In-place density of the pavement was verified by determining the density of 6-inch cut cores. Test results were forwarded soon after lab testing was complete; see Appendices A and G.

RWG&A was also requested to perform materials testing services for the Johnson Road/Turnpike Connector/Turnpike Northbound Ramp Improvements project. It is RWG&A's understanding that these improvements were part of the Jetport Terminal Expansion project. Services include in-place density testing of embankment fill and roadway subbase/base course material along with bituminous pavement testing. Test results can be found in Appendix H.

Test results and associate reports were reviewed during the construction process and were sent to the City of Portland and other project team members on a regular basis. The attached appendices include pertinent information including:

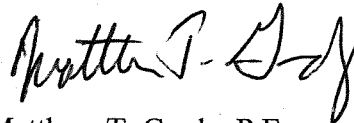
- Appendix A - In-Place Density of Soils and Bituminous Pavement
- Appendix B - Concrete
- Appendix C - Floor Flatness
- Appendix D - Structural Steel
- Appendix E - Fireproofing
- Appendix F - Curtain Walls
- Appendix G - Lab Test Results - Soils and Bituminous Pavement
- Appendix H - Johnson Road/Turnpike Connector/Turnpike Northbound Ramp Improvements, In-Place Density and Lab Test Results

During construction, occasional in-place density of soils were below the required density, but were re-compacted the same day to meet specifications. Another item of note is that two out of eighteen floor slabs tested for floor flatness varied slightly from the required FF value of 40. Slab #2 had a value of 33.73 and Slab #12 had a value of 39.38. It is our understanding that there were no exceptions taken to the variances. A final item of note is that the subbase gravel used for the Johnson Road/Turnpike Connector/Turnpike Northbound Ramp Improvements project was slightly out of specification on the #200 sieve. The requirement is 0 to 7 percent on the #200 sieve and the result was 7.4 percent. The civil designer from AMEC was informed of the result and exception was not taken to the use of the material.

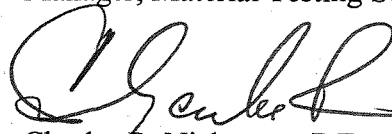
Other than the noted items, our review of the results and daily reports indicate the work for which RWG&A had observed and tested were completed in general accordance with the projects plans and specifications.

If you have any questions or we may be of further assistance please contact us.

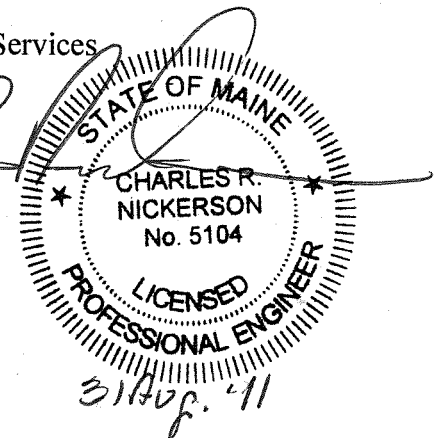
Very truly yours,  
R. W. GILLESPIE & ASSOCIATES, INC.



Matthew T. Grady, P.E.  
Manager, Material Testing Services



Charles R. Nickerson, P.E.  
CEO/President



MTG/CRN:md

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**APPENDIX A**

**IN-PLACE DENSITY OF SOILS AND BITUMINOUS PAVEMENT**

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# **R. W. Gillespie & Associates, Inc.**

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## **APPENDIX B**

### **CONCRETE**

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**APPENDIX C**  
**FLOOR FLATNESS**

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**APPENDIX D**

**STRUCTURAL STEEL**

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**APPENDIX E**  
**FIREPROOFING**

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**APPENDIX F**

**CURTAIN WALLS**

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**APPENDIX G**

**LAB TEST RESULTS - SOILS AND BITUMINOUS PAVEMENT**

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**APPENDIX H**

**JOHNSON ROAD/TURNPIKE CONNECTOR/TURNPIKE NORTHBOUND RAMP  
IMPROVEMENTS  
IN-PLACE DENSITY AND LAB TEST RESULTS**

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