

**Part 1            General**

**1.1                DEFINITIONS**

- .1      Certificate of Conformance: a document issued by the Quality Verification Engineer confirming that the specified components of the Work are in General Conformance with the requirements of the Contract Documents
- .2      Non-conformances: materials or workmanship which have an attribute, property or characteristic that does not meet the requirements of the Contract Documents.
- .3      Deficient Materials: means, for quality control purposes, materials which have an attribute, property or characteristic that does not meet the requirements of the Contract Documents
- .4      Deficient Workmanship: means, for quality control purposes, the final product does not meet the requirements of the Contract Documents due to the Contractor's construction activities including but not limited to incorrect elevations, dimensions, alignment, appearance and/or crossfall of individual elements, products and finished construction.
- .5      General Conformance: means that, in the opinion of a Professional Engineer, the standard of construction work fulfills the essential requirements of the Contract Documents, and has been done in accordance with normally accepted industry standards, and will perform its intended function.
- .6      Interim Inspection: an inspection confirming that the specified components of the Work are in General Conformance with the Contract Documents and a written permission issued by the Quality Verification Engineer, or the Departmental Representative, to the Contractor to proceed to the next stage of the Work.
- .7      Quality Control: a system or series of activities carried out by the Contractor to ensure that the final product and materials supplied to Canada meets the specified requirements.
- .8      Quality Control Administrator (QCA): Contractor's representative responsible for monitoring and ensuring Quality Control compliance;
- .9      Quality Verification Engineer (QVE): one or more Professional Engineer(s) licensed in both the Provinces of Ontario and Quebec qualified to provide the QVE services specified in the Contract Documents. The QVE must be retained by the Contractor to certify that the work is in general conformance with the contract documents and issue of Certificate(s) of Conformance. The QVE must have a minimum of ten (10) years' experience directly related to the Work for which the Certificate of Conformance will be issued, or alternatively with demonstrated experience expertise through providing satisfactory quality verification services for a minimum of five (5) projects in which the work was of similar scope to that in the Contract. The QVE must be an independent party, and cannot not be an employee of the Contractor.
- .10     Notification of Non-Conformance: means a formal notification by the Departmental Representative to the Contractor identifying aspects of the work which do not conform to the Contract requirements and which have not been adequately identified by the Contractor to the Departmental Representative.
- .11     Non-Conformance Report: means a report issued by the Contractor to the Departmental Representative which identifies the Quality Control Performance Measure that was not

met, will not be met, or may not be met. This report will include a proposal for corrective or mitigating action and must be approved by the Departmental Representative.

## **1.2 DECLARATION OF QUALIFICATIONS**

- .1 Two weeks prior to the commencement of the Work, Submit the following to the Departmental Representative.
  - .1 The name(s) of the QVE(s) and QVE delegates and a summary of their relevant experience.
  - .2 The name(s) of the NACE Inspector(s) and a summary of their relevant experience.
  - .3 The name(s) of the QCA(s) and a summary of their relevant experience. Where QCA responsibilities are shared between more than one person a breakdown of the responsibilities of each QCA must be provided.
  - .4 The name(s) of all other quality control personnel and/or firms and a summary of their relevant experience.
- .2 Only the personnel/firms identified in the submissions, or in other forms of communication when permitted by the Contract Documents, must be utilized for the indicated Certificates of Conformance, Interim Inspections, permissions to proceed and other quality control activities. Any revisions to the named personnel must be submitted in writing to the Departmental Representative for approval at least two weeks prior to the activity for which the substituted personnel will be required.
- .3 The Departmental Representative will respond in writing with an acknowledgement of receipt. Submissions that are incomplete or otherwise do not meet the requirements of the Contract Documents will be returned for re-submission at no additional cost to the Departmental Representative.
- .4 For audit purposes, submit supporting documentation demonstrating that the specified qualifications have been met for any Quality Verification Engineer, quality control personnel or firm upon request at any time up to 30 calendar days after the date of certification of Completion of the Work. This must include detailed resume(s) and copies of certificates where applicable and must be submitted within 3 business days of the request.

## **1.3 QUALITY CONTROL PERFORMANCE MEASURES**

- .1 General
  - .1 Be responsible for the development, implementation and maintenance of a Quality Control program for all quality control activities in the Contract, and provide the staff and resources necessary to implement quality control processes that result in compliance to the quality control performance measures detailed in the contract documents. The program must include, but not be limited to, the following:
    - a) Retaining the services of a QVE and QVE delegates as required;
    - b) Retaining the services of a NACE Inspector(s);
    - c) Assigning a Quality Control Administrator (QCA);
    - d) Making available and submitting all QC documentation upon request by the Departmental Representative;

- e) Ensuring all Interim Inspections are completed and Certificates of Conformance are submitted, where specified, prior to proceeding to the next stage of the Work.
- .2 The Departmental Representative will assess the Contractor's compliance to the performance measures related to:
  - a) The production and supply of Construction Materials,
  - b) The removal, rehabilitation, modification or construction of temporary or permanent elements of work, and
  - c) Inspection, sampling, testing and QC records associated with a) and b) above.
- .2 Quality Control Personnel/Firms
  - .1 Ensure that:
    - .1 The name of the QC Administrator is identified in writing to the Contract Administrator before the QC Administrator carries out the position's responsibilities,
    - .2 If the Contractor divides the QC Administrator's responsibilities between more than one person, the Departmental Representative is provided with their names and a written explanation of the responsibilities of each person before any of them carries out the position's responsibilities,
    - .3 Submissions of declarations for firms, the quality control personnel and Quality Verification Engineers are accurate, complete and submitted in accordance with the timeframes as detailed in Contract Documents,
    - .4 The Departmental Representative is provided with proof of the identity of quality control personnel and Quality Verification Engineers upon request,
    - .5 Only the personnel/firms identified in the submitted declarations must be utilized for the indicated quality control activities, and
    - .6 Personnel and firms meet the qualifications as specified in the Contract Documents and maintain these qualifications for the duration of their participation in the work.
- .3 Submissions
  - .1 Ensure:
    - .1 All submissions have been reviewed prior to being submitted to the Departmental Representative, and
    - .2 All submissions are signed by the QC Administrator confirming that the submissions have been reviewed and are in General Conformance with the requirements of the Contract Documents.
- .4 Sampling, Testing and Submission of Results
  - .1 Ensure that QC test results are recorded on the day on which the tests were performed and are submitted to the Departmental Representative under the signature of the QC Administrator, and that each of the following is performed in accordance with the Contract Documents:
    - a) Quality control and quality assurance material sampling, preparation, handling, delivery and storage,

- b) Quality control testing and the timing for the testing, and
  - c) Timing for the submission of results for all quality control testing
- .5 Construction Materials and Mix Designs
  - .1 Ensure:
    - a) Each of the following complies with and is supplied in accordance with the Contract Documents:
      - .1 Mix design submission, including all supporting documentation, and
      - .2 Submission of certification for all materials that require certification.
    - b) Each of the following is performed in accordance with the Contract Documents:
      - .1 Mix designs,
      - .2 Materials testing and/or inspection prior to incorporation into the work,
      - .3 Checking that materials meet the applicable specifications, and
      - .4 Materials handling and/or storage.
    - c) That no materials are used that are identified as deficient prior to incorporation into the work. If QC test results have not been made available when specified, ensure that the materials subject to the QC test are not used prior to receiving the test results.
- .6 Other Quality Control Responsibilities
  - .1 Ensure that all QC inspection activities and associated records are completed in accordance with the quality control requirements of the Contract Documents and that each of the following is in accordance with the Contract Documents:
    - a) Submission of materials-related documentation prior to proceeding with construction of particular elements of work,
    - b) The existing condition of substrate, formwork or other locations against which material is to be placed,
    - c) Environmental conditions for material placement, including but not limited to temperature and weather constraints and placement restrictions,
    - d) Equipment,
    - e) Construction methods for material placement and/or removal, and
    - f) Provision of environmental protection of materials and elements of work and/or maintenance of environmental conditions after material placement (for example; curing of concrete, cold weather protection).
- .7 Certifications, Permission to Proceed and Submission of Drawings/Documents
  - .1 Ensure that:
    - a) All specified inspections have been carried out prior to certification,

- b) All certifications are correct, completed accurately, submitted on time in accordance with the Contract Documents and submitted prior to proceeding with the next phase of the work where specified, and
- c) All drawings and other documents sealed and signed by an Engineer are submitted on time in accordance with the Contract Documents.

.8 Disposition of Deficient Materials and Workmanship

.1 For each occurrence of deficient materials and/or workmanship:

- a) Immediately identify and notify the Departmental Representative of the deficiency prior to the Departmental Representative bringing it to the Contractor's attention,
- b) Implement preventative measures prior to continuing with the operation and do not proceed with subsequent operations that would prevent or impede corrective work on the deficiency,
- c) Record a brief description of the deficiency in a daily diary immediately after identifying the deficiency and the complete details within one business day of each occurrence,
- d) Within 3 business days, submit a Deficiency Report to the Departmental Representative containing the following:
  - .1 The cause and extent of the identified deficiency,
  - .2 A proposal for corrective work
  - .3 For information purposes, a description of preventative measures to be undertaken that will effectively prevent reoccurrence of the event, and
  - .4 A testing and/or inspection proposal for the written approval of the Departmental Representative and undertake the approved testing and/or inspection to demonstrate that the corrective action has been effective and the resulting material or elements of work are acceptable, and
- e) Implement the corrective work, testing and/or inspection in accordance with the approved proposals.

**1.4 COMPLIANCE WITH QUALITY CONTROL PERFORMANCE MEASURES**

.1 Assessment of Compliance

- .1 During the course of construction and within 30 calendar days after the date of certification of Completion of the Work, the Departmental Representative will assess compliance to the quality control performance measures.
- .2 The Departmental Representative's assessment of compliance may consist of random or milestone inspections, continuous inspection, sampling and testing for audit purposes, audits of the quality control documentation specified in the Contract Documents or any combination of the preceding actions, at the discretion of the Departmental Representative. In addition, the Departmental Representative may perform audits to assess compliance.
- .3 For workmanship, if the Contract Documents do not specify a test method or tolerance for a specified property or measurement of a final product and the Departmental Representative identifies deficient workmanship in the final

- product that the Contractor did not identify, the Departmental Representative will provide the Contractor with a description of the deficiency in writing within three business days of its identification.
- .4 Use the Departmental Representative's assessment of compliance of that particular aspect of workmanship for inspection of work already completed and for future work.
- .2 Non-Conformances to Quality Control Performance Measures Identified by the Contractor
- .1 A non-conformance to a quality control performance measure occurs when the Contractor does not comply with that quality control performance measure.
- .2 When a non-conformance occurs:
- a) Immediately notify the Departmental Representative verbally or in writing.
  - b) Within 24 hours of the non-conformance, submit a Non-Conformance Report containing a description of the quality control performance measure that was not met together with a proposal for corrective or mitigating action to the Departmental Representative for approval, and
  - c) Carry out corrective or mitigating action in accordance with the approved proposal.
- .3 Non-Conformances to Quality Control Performance Measures Identified by the Departmental Representative
- .1 A non-conformance to a quality control performance measure occurs when the Contractor does not comply with that quality control performance measure.
- .2 When a Notification of Non-Conformance is issued to the Contractor:
- a) within 24 hours of the non-conformance, submit a Non-Conformance Report containing a description of the quality control performance measure that was not met together with a proposal for corrective or mitigating action to the Departmental Representative for approval, and
  - b) Carry out corrective or mitigating action in accordance with the approved proposal
- .3 Within 24 hours after a non-conformance has been assessed, comply with the requirements of the Contract Documents that were the subject of the non-conformance. The non-conformance will not be waived regardless of the Contractor's subsequent compliance.

## **1.5 QUALITY VERIFICATION ENGINEER SERVICES**

- .1 Retain one or more professional engineers to provide the services of a Quality Verification Engineer (QVE). In the event that the QVE provided professional services to the Departmental Representative during the design or tendering of the project, obtain the written consent of the Departmental Representative before retaining this person as QVE.
- .2 The QVE must be an independent party, and cannot not be an employee of the Contractor.
- .3 Advise the Departmental Representative of the name of the QVE before the QVE provides services to the Contractor.

- .4 The QVE must issue Certificates of Conformance, as specified in the Contract Documents. The QVE must also issue written permission to proceed to the next stage of the Work following an Interim Inspection. A Certificate of Conformance must be issued by one QVE who will be responsible for all Interim Inspections of Work covered by the Certificate of Conformance. The Certificate of Conformance must include the time, date and components inspected in all Interim Inspections.
- .5 Where a QVE is unavailable to complete all the Interim Inspections that are specified, the QVE must issue a Certificate of Conformance covering the Interim Inspections completed to date. The second QVE must issue a Certificate of Conformance covering the subsequent Interim Inspections for which the second QVE is responsible. In this event, ensure that the Certificates cover all required inspections and submit them at the same time.
- .6 The QVE must not delegate any activity that the Contract Documents require the QVE to "witness". For all other activities, the QVE may delegate the function to another Professional Engineer(s) licensed in both the Provinces of Ontario and Quebec where it is consistent with prudent engineering practice to do so, and the function is performed under the supervision of the QVE.
- .7 Submit Certificates of Conformance, with reference to the applicable Working Drawings and other Contract Documents, to the Departmental Representative at the milestones identified in the Contract Documents.
- .8 The Certificate of Conformance must be submitted within 24 hours of completing the Work described in the Certificate of Conformance and prior to commencing subsequent stages of Work unless a different period is specified elsewhere in the Contract Documents. Where Interim Inspections are specified, the Contractor must not proceed until written permission is received from the QVE. A copy of the written permission must be made available to the Departmental Representative upon request.
- .9 The QVE must identify themselves and date the Certificates of Conformance indicating that construction of the Work is in General Conformance with the stamped Working Drawings and the requirements of the Contract Documents. No conditions or limitations can form part of the Certificate of Conformance or the written permission to proceed following an Interim Inspection. Any amendments to the Contract Documents accepted by the Departmental Representative, and related to the Certificate of Conformance, must be appended.
- .10 If the QVE is prevented from issuing a written permission following an Interim Inspection, or a Certificate of Conformance, because of lack of clarity of the Contract Documents, the QVE must seek clarification of the requirements from the Departmental Representative.

## **1.6 NACE INSPECTOR SERVICES**

- .1 Retain a qualified inspector to control the quality of shop and field paint work. The inspector must hold a NACE certification – Level 1 with the bridges painting specialty, and experience on two bridge projects minimum over the last five years. Inspector's certification must be valid for the duration of the work.
- .2 Two weeks before the work starts, provide the name of the qualified inspector, a copy of proof of qualification and a summary of relevant experience.

- .3 The qualified inspector of the Contractor must attend site meetings and all relevant stages of the painting work.
- .4 A written report signed by the qualified inspector must be provided to the Departmental Representative no later than 24 hours after the inspection.
- .5 Not limited to, the following steps should be inspected by the qualified inspector:
  - .1 Surface preparation.
  - .2 SSP1 Cleaning
  - .3 Application of the base coat, including stripe coats and touch ups.
  - .4 Application of the mid coat, including stripe coats and touch ups.
  - .5 Application of the final coat, including stripe coats and touch ups.
  - .6 Repairs to deficient work.
  - .7 Final cleanup.

**1.7 QUALITY ASSURANCE INSPECTIONS BY DEPARTMENTAL REPRESENTATIVE**

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or applicable laws.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative will pay cost of examination.

**1.8 QUALITY ASSURANCE INSPECTIONS BY INDEPENDENT INSPECTION AGENCIES**

- .1 Independent Inspection/Testing Agencies may be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.



**1.9 ACCESS TO WORK**

- .1 Allow Departmental Representative and inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

**1.10 PROCEDURES**

- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

**1.11 REJECTED WORK**

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

**1.12 REPORTS**

- .1 Submit inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested, manufacturer or fabricator of material being inspected or tested.
- .3 Retain and provide access to all inspection records and test results for a period of at least six years after the date of certification of completion of the work. This clause will survive after the date of certification of completion of work.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**