

### **Part 3. Certification and Completion**

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# Article 1. General

## 1.1 Scope

- (a) This Part 3 [Certification and Completion] specifies the certification procedures with respect to Design and Construction of the Project, and requirements for completion of the Project.
- (b) The certification procedures with respect to the Design and Construction of the Project consist of three procedures:
  - (i) Systems General Requirements, as set out at Appendix G to Schedule 4;
  - (ii) Construction Approval Process for the Evergreen Line Rapid Transit Project, as set out at Appendix E to Schedule 4; and
  - (iii) Non-Systems Certification Procedure, as set out in Article 2.2 [Non-Systems Certification Procedure] of this Part 3,(collectively the “**Design and Construction Certification Procedures**”).

## 1.2 No Limitation regarding Certification

- (a) Any requirement for certification or for any check or review pursuant to, and for purposes of, this Part 3 is in addition to, and does not in any way limit, qualify, replace or relieve the Primary Contractor from, the obligation to comply with any other certification, check or review requirement provided elsewhere in this Agreement, or pursuant to any applicable Laws, professional standards or practices.

## 1.3 Satisfactory Completion of the Work

- (a) Without limiting any other provision of this Agreement, the satisfactory completion or achievement, as applicable, by the Primary Contractor, in accordance with this Agreement, of the Work and activities described in:
  - (i) Article 4.1.1 [Required Activities] of this Part 3 shall be a condition to achievement of Substantial Completion and the issuance of the Certificate of Substantial Completion; and
  - (ii) Article 4.2.1 [Required Activities] of this Part 3 shall be a condition to achievement of Total Completion and the issuance of the Certificate of Total Completion.

## Article 2. Design and Construction Certification Procedures

### 2.1 Application of Design and Construction Certification Procedures

#### 2.1.1 General

- (a) Without limiting the generality of the Primary Contractor's obligations under this Agreement, the Primary Contractor shall carry out the Design and the Construction of the Project in accordance with this Part 3, including the requirements in Article 2.1.2 [Systems Design and Construction Certification] and Article 2.1.3 [Construction Approval Process (CAP) for Fire and Life Safety], both of this Part 3.

#### 2.1.2 Systems Design and Construction Certification

- (a) The Primary Contractor shall comply with the requirements set out in Appendix G [Systems General Requirements] of Schedule 4 to achieve the Design and Construction certification for the Systems. For the purposes of Appendix G, "Systems" includes the TVS.

#### 2.1.3 Construction Approval Process (CAP) for Fire and Life Safety

- (a) The Primary Contractor acknowledges that it is aware of the requirements of the BC Building Code (BCBC), which is a regulation of the B.C. *Local Government Act* and addresses safety, health, and accessibility for persons with disabilities, and fire protection of buildings and facilities.
- (b) The BCBC does not contain any requirements that specifically address the Design and the Construction of the Guideways, the Tunnels or other transit-related Fixed Facilities.
- (c) The NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail Systems (NFPA 130) covers the requirements for life safety from fire and for fire protection for rapid transit systems, including but not limited to enclosed or unenclosed stations, guideways, emergency ventilation systems, communications, and control system.
- (d) As provided in Appendix F to Schedule 4, TransLink has developed the TransLink Building Code Criteria (TLBCC) as a bridging document between the BCBC and NFPA 130 with respect to the fire and life safety requirements of the Fixed Facilities.
- (e) The Primary Contractor shall:

- (i) apply the BCBC and NFPA 130, both as appropriate and as amended by the TLBCC, to the Design and the Construction of the Fixed Facilities; and
  - (ii) comply with the Construction Approval Process (CAP) as set out in Appendix E of Schedule 4 with respect to those facilities subject to the CAP.
- (f) Notwithstanding Section 2.7 [Early Commencement of Work] of Schedule 2, the Primary Contractor shall not commence the Construction of a particular Fixed Facility unless and until the Primary Contractor has received an ATPC from the AHJ in respect of that Fixed Facility.
- (g) The Primary Contractor shall, within 60 Business Days after the Effective Date, retain and thereafter, at all times, maintain the retainer of a competent and qualified person to act as the building code review agent in connection with this Agreement (the “**Building Code Review Agent**”) having, at a minimum, the following qualifications:
- (i) registration in good standing as a Professional Engineer;
  - (ii) a specialty in code consulting; and
  - (iii) at least 15 years’ direct experience with project similar to the Project, with experience in the design and construction of railway and/or transit infrastructure and stations considered to be an asset.

#### 2.1.4 Design and Construction Certification Procedure for Non-Systems

- (a) Without limiting the Primary Contractor’s obligations under any other applicable Design and Construction Certification Procedures, the Primary Contractor shall undertake the Design and the Construction of all components of the Evergreen Line other than the Systems and the TVS (the “**Non-Systems Components**”) in accordance with the Non-Systems Certification Procedure as set out in Article 2.2 [Non-Systems Certification Procedure] of this Part 3.

#### 2.1.5 Submission of Design Manual

- (a) Within 60 Business Days after the Effective Date, the Primary Contractor shall submit to the Province’s Representative in accordance with the Review Procedure a complete design manual, covering all aspects of the engineering and architectural Design of and for all the Systems and the Non-Systems Components of the Evergreen Line (collectively the “**Design Manual**”).
- (b) Without limiting the generality of Article 2.1.5(a) of this Part 3, the Design Manual shall include the following:
- (i) the Design and Construction approach for all components of the Evergreen Line, listing all applicable criteria, codes and standards, key design assumptions, innovative design features, construction methodology and sequence of construction; and
  - (ii) the Updated Durability Report in accordance with Article 2.2.3.3 [Updated Durability Report] of this Part 3.

## 2.2 Non-Systems Certification Procedure

### 2.2.1 General

- (a) The Primary Contractor shall, with respect to the Design and the Construction of the Non-Systems Components, implement and enforce the procedures set out in this Article 2.2 [Non-Systems Certification Procedure] (collectively the “**Non-Systems Certification Procedure**”), together with the accepted Non-Systems Design Management Plan.

### 2.2.2 Non-Systems Certification Procedure in Emergency

- (a) In the case of an Emergency, the Primary Contractor may proceed with such measures as are immediately necessary for the protection of persons and/or property prior to complying with the applicable provisions of this Article 2.2 [Non-Systems Certification Procedure], provided that the Primary Contractor shall comply with the provisions of the Non-Systems Certification Procedure otherwise applicable to those measures as soon as reasonably possible under the circumstances.

### 2.2.3 Non-Systems Design Management Plan and Technical Appraisal Forms

#### 2.2.3.1 Submission of Non-Systems Design Management Plan

- (a) Within 20 Business Days after the Effective Date, the Primary Contractor shall submit a design management plan for the Non-Systems Components (the “**Non-Systems Design Management Plan**”) to the Province’s Representative for acceptance, acting reasonably, in accordance with the Consent Procedure. The Non-Systems Design Management Plan shall include the following information in respect of the Design of the Non-Systems Components:
  - (i) the organization chart for all Design activities;
  - (ii) the procedures to be used for designing and checking of the Designs for all disciplines;
  - (iii) the identification of the members of the Checking Team(s) for Structures;
  - (iv) the contents and format of each of the Interim Design submissions and the Final Design submissions;
  - (v) a Design review and audit schedule, indicating the dates that the Primary Contractor shall:
    - A. conduct internal audits of the Design verification process;
    - B. submit the Interim Design submissions and the Final Design submissions; and
    - C. undertake review meetings in accordance with Article 2.2.3.4 [Non-Systems Review Meetings and Minutes] of this Part 3;
  - (vi) a drawing tree, indicating the organization and hierarchy of the Primary Contractor’s drawings; and



- (vii) appropriate metrics to measure the progress of the Design for each discipline.
- (b) The Primary Contractor shall submit any subsequent amendments or updates to the Non-Systems Design Management Plan to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure.

#### 2.2.3.2 Compliance with Non-Systems Design Management Plan

- (a) The Primary Contractor shall, in connection with all Design Data prepared or adopted in connection with the Design, the Construction and any other construction activities related to the Non-Systems Components, implement and comply with:
  - (i) the initial Non-Systems Design Management Plan, and
  - (ii) any subsequent amendments or updates to the initial Non-Systems Design Management Plan.

#### 2.2.3.3 Updated Durability Report

- (a) As part of the Design Manual, the Primary Contractor shall submit to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure, the Updated Durability Report, which report shall:
  - (i) be an update of and expand upon the Initial Durability Report;
  - (ii) reflect any changes and additional durability considerations arising from advancement, through Interim Design and Final Design, of the Primary Contractor's durability analysis and the Design for the Non-Systems Components; and
  - (iii) address, where not addressed in the Initial Durability Report, the following:
    - A. a description of how the specified design lives and service lives of the Tunnel and its components, as applicable, will be achieved, including:
      - (1) protection against any detrimental soil and ground water properties;
      - (2) protection against contaminants in soil; and
      - (3) elements which cannot practically be accessed for maintenance or repair during the service life;
    - B. a description of how the specified design lives and service lives of each of the Guideway, Transition Tunnel, and retaining walls, and the respective components of the Guideway, Transition Tunnel and retaining walls, as applicable, will be achieved, including:
      - (1) a design response to address the durability guidelines given in CAN/CSA-S6-06, Section 2, but using the requirements for the design life set out Article 4.3.2 [Applicability], Part 2 of Schedule 4;
      - (2) protection of items which cannot readily be repaired or replaced, such as piles, caissons, rock/soil anchors,

- mechanically stabilized earth walls, and concrete embedded items;
- (3) fatigue provisions to meet the fatigue criteria set out in Article 4 [Structures], Part 2 of Schedule 4; and
  - (4) joint sealing provisions to prevent water from staining super- or sub-structures; and
- C. a description of how the specified design lives of each of the Station structures and ancillary and maintenance facilities, and their components, as applicable, will be achieved, including:
- (1) proposed design approach, strategies, methods and materials that will be instrumental in meeting the 100-, 50- and 25-year design lives, as specified in this Agreement;
  - (2) a listing of proposed key building components, materials and elements under each of the 100-, 50- and 25-year design lives category that will meet the life cycle requirements, as specified in this Agreement; and
  - (3) critical care and maintenance commitments of the operator to achieve durability and design cycle requirements as specified in this Agreement.

#### 2.2.3.4 Non-Systems Review Meetings and Minutes

- (a) The Primary Contractor shall, in accordance with the Non-Systems Design Management Plan, organize and attend review meetings with the Province's Representative for the purpose of reviewing the Design submissions (the "**Non-Systems Review Meetings**").
- (b) The Primary Contractor shall:
  - (i) prepare minutes of the Non-Systems Review Meetings (the "**Non-Systems Review Meeting Minutes**"), which minutes shall include a record of all of the Province's Representative's comments regarding the design submissions discussed at the meeting; and
  - (ii) provide copies of the Non-Systems Review Meeting Minutes to the Province's Representative within 5 Business Days following the applicable Non-Systems Review Meeting.
- (c) For greater certainty, the Non-Systems Review Meeting Minutes, including any comments of the Province's Representatives included and addressed therein, shall not, for the purposes of this Agreement, be considered as either Province Changes or Primary Contractor Proposals.

#### 2.2.3.5 Technical Appraisal Submission Requirements

- (a) The Primary Contractor shall submit a completed Technical Appraisal Form (TAF) to the Province's Representative for review, acting reasonably, in accordance with the

Review Procedure, with each Final Design submission submitted in accordance with the Non-Systems Certification Procedure.

- (b) Where the Final Design submission package in respect of a Non-Systems Component involves any mechanical or electrical engineering functions, or similar specialization, unrelated to the Systems or the TVS, the Primary Contractor shall submit to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure a separate TAF in respect of such data and functions.
- (c) Where the Work involves the complete or partial demolition of an Existing Facility, the Primary Contractor shall, as part of the Final Design submissions, submit to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure a TAF in respect of such complete or partial demolition.
- (d) Where the Work involves the alteration of or an upgrade or augmentation to any Existing Facility, the Primary Contractor shall, as part of the Final Design submissions, submit to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure a TAF and an assessment certificate in the format shown in Certificate Form 7 [Assessment Certificate (Existing Facilities)], attached at Attachment A [Form of Certificates] to this Part 3, in respect of such alteration, upgrade or augmentation.

#### 2.2.3.6 Technical Appraisal Form and Content

- (a) Each TAF submitted by the Primary Contractor pursuant to Article 2.2.3.5 [Technical Appraisal Submission Requirements] of this Part 3 shall:
  - (i) substantially be in the format shown in Attachment B [Sample Contents for a TAF] to this Part 3;
  - (ii) include the relevant design criteria, environmental and ground considerations, and interface requirements, together with a complete listing of the design documentation included in the design package accompanying the applicable Design Certificate; and
  - (iii) be signed by:
    - A. the Primary Contractor's Representative; and
    - B. the Designer(s) for the Non-Systems Components covered by the TAF.

#### 2.2.3.7 Variation to Technical Appraisal Form

- (a) In the event that the Primary Contractor intends to vary any aspect of the Design or the Construction of any of the Non-Systems Components from that contained in a TAF that has previously been submitted to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure, the Primary Contractor shall submit the proposed variation as an addendum to the original TAF to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure.

## 2.2.4 Design Submissions, Review and Reports for Non-Systems Components

### 2.2.4.1 Format of Design Submissions for Non-Systems Components

- (a) When submitting the Interim Design submissions or the Final Design submissions in respect of Non-Systems Components in accordance with this Article 2.2.4 [Design Submissions, Review and Reports for Non-Systems Components], the Primary Contractor shall provide two hard copies and one electronic copy of the applicable submission.
- (b) Prior to commencing design drawing production, the Primary Contractor shall confirm with the Province's Representative the drawing conventions and standards, including AutoCAD standards, title block and stationing convention, in accordance with Article 17 [Drawing Requirements], Part 2 of Schedule 4.
- (c) Notwithstanding Article 2.2.4.1(b) of this Part 3, the Primary Contractor shall prepare all drawings for:
  - (i) the Utilities to be constructed or modified by the Primary Contractor in accordance with the applicable standards of the relevant Utility Suppliers; and
  - (ii) the Municipal Works to be constructed or modified by the Primary Contractor in accordance with the current drawings standards of the relevant Municipality.

### 2.2.4.2 Preparation of Design Data for Non-Systems Components

- (a) The Primary Contractor shall prepare all Design Data in respect of the Non-Systems Components under the supervision of the Designer(s) responsible for the Design of the applicable Non-Systems Component.
- (b) Prior to the submission of any Design Data by the Primary Contractor to the Province's Representative, the Designer(s) and, where applicable, the Checking Team(s), shall satisfy themselves that the Design Data meets the Design-Build Requirements and otherwise complies with the requirements of this Agreement.

### 2.2.4.3 Construction Specifications for Non-Systems Components

- (a) The Primary Contractor shall, in accordance with the Review Procedure, submit to the Province's Representative for review, acting reasonably, a complete set of the Construction Specifications, representing the Design and the Construction of the Non-Systems Components.
- (b) In preparing the Construction Specifications for the Non-Systems Components, the Primary Contractor shall comply with Appendix C [Minimum Considerations for Construction Specifications] of Schedule 4, which appendix includes selective specifications that the Primary Contractor shall take into account in the development of the Construction Specifications.
- (c) The Primary Contractor shall:

- (i) submit the Construction Specifications to the Province's Representative as part of the documents submitted for each of the Interim Design and Final Design reviews for the Non-Systems Components; and
- (ii) with respect to the format of the Construction Specifications, follow Masterformat 2010 as defined by the Construction Specifications Institute.

#### 2.2.4.4 Interim Design Review for Non-Systems Components

- (a) The Primary Contractor shall, in accordance with this Article 2.2.4.4 [Interim Design Review for Non-Systems Components], submit to the Province's Representative the Interim Design documents for the Non-Systems Components, including:
  - (i) supporting information for the Design and the Construction of such components; and
  - (ii) any design required in connection with any plans developed by the Primary Contractor in accordance with Schedule 5 [Environmental Obligations].
- (b) The Primary Contractor shall, as part of the Non-Systems Design Management Plan, define the Design submissions to be submitted for review in the Interim Design submissions for Non-Systems Components, the schedules of timing and listing of such Interim Design submissions, and the scope of each Design submission package review.
- (c) The Interim Design submissions shall be informal and shall not be submitted in accordance with Schedule 2 [Representatives, Review Procedure and Consent Procedure]. Rather, the Primary Contractor shall use the informal Interim Design submissions to:
  - (i) inform the Province's Representative on the development of the Design of the Non-Systems Components; and
  - (ii) provide an opportunity for a dialog with the Province's Representative regarding compliance with the Design-Build Requirements before the Design is completed.
- (d) The content of the Interim Design submissions for Non-Systems Components shall be appropriate to the subject and discipline and the information provided in such submissions shall be adequate to demonstrate to the Province's Representative that the Design of the Non-Systems Components is proceeding in compliance with the Design-Build Requirements and is taking into consideration the relevant construction activities.

#### 2.2.4.5 Final Design Review for Non-Systems Components

- (a) The Primary Contractor shall, in respect of the Non-Systems Components, submit the Final Design documents from all design disciplines to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure, which submissions shall consist of the relevant TAF(s), together with all Final Design drawings, supporting Design Data and calculations required in

accordance with this Part 3 [Certification and Completion] and other requirements of Schedule 4.

#### 2.2.4.6 Final Design Submissions for Non-Systems Components

##### 2.2.4.6.1 General

- (a) The Primary Contractor shall prepare the Final Design submissions for the Non-Systems Components in accordance with the following requirements:
- (i) design folders shall be prepared for the Final Design submissions, which folders shall:
    - A. include the applicable TAF;
    - B. have indexes and sectional dividers;
    - C. contain pertinent correspondence;
    - D. be arranged by subject matter in chronological order;
    - E. include design calculations and backup information; and
    - F. include, without limitation, copies of all approvals, Design reports, correspondence and calculations;
  - (ii) the Final Design drawings and the Design reports shall be signed and sealed by the responsible engineer, who shall be a duly experienced Professional Engineer of an appropriate discipline;
  - (iii) the inclusion of a summary of the resolution of all issues identified during Interim Design reviews; and
  - (iv) the inclusion of a summary of any changes or deviations from the Interim Design submissions, including Construction Specifications.

##### 2.2.4.6.2 Alignment Design

- (a) In addition to any other requirements identified in this Schedule 4, the Final Design submissions with respect to the Design of the Alignment, including track alignment, shall include the following:
- (i) complete plan and profile drawings, including details on the following:
    - A. all geometric design data;
    - B. the Station locations;
    - C. the tie-in to the Existing Millennium Line;
    - D. future station locations;
    - E. crossovers and special trackwork;
    - F. the VSF location;
    - G. horizontal and vertical curve data;
    - H. horizontal and vertical clearances; and
    - I. speed profile along the Alignment;

- (ii) typical and working cross sections; and
- (iii) relationship of the Alignment to adjacent structures, buildings, roadways and the Permanent Project Lands.

#### 2.2.4.6.3 Guideway Design

- (a) In addition to any other requirements identified in this Schedule 4, the Final Design submissions with respect to the Guideway (which, for the purposes of this Article 2.2.4.6.3 [Guideway Design], includes all elevated Guideway, at-grade Guideway, Transition Tunnel, cut and cover, and special structures) shall include the following:
  - (i) all design drawings, including general arrangements, sub-structure and super-structure;
  - (ii) all geotechnical reports for the Guideway;
  - (iii) all environmental mitigation/compensation plans;
  - (iv) any special provisions for the Construction of the Guideway;
  - (v) reinforcement layout drawings;
  - (vi) independent review of all submitted design calculations and drawings;
  - (vii) inspection and maintenance manual for all Guideway, including bearing replacement methods and future post-tensioning;
  - (viii) the Design for casting, storage, and transportation of all structural components; and
  - (ix) the Design for construction loads and equipment.

#### 2.2.4.6.4 Roadway Design

- (a) In addition to any other requirements identified in this Schedule 4, the Final Design submissions with respect to all roadways which form part of the Work shall include the following:
  - (i) all drawings, including complete laning and geometrics, profiles, typical and template cross-sections, right-of-way acquisition and drainage;
  - (ii) stormwater management plan and drainage design report;
  - (iii) geotechnical design recommendations for pavements;
  - (iv) stakeholder issues, plans for utility relocations, critical constructability and traffic-handling considerations, environmental issues and mitigation plans;
  - (v) roadway electrical (including signals, lighting and telecommunications), signing and pavement marking plans;
  - (vi) Design drawings for all roadway electrical systems, which shall include the following:
    - A. electrical equipment and all associated support structure locations;
    - B. lighting calculations where appropriate;
    - C. service locations; and

D. schematics showing electrical wiring layout.

**2.2.4.6.5 Traffic Engineering**

- (a) In addition to any other requirements identified in this Schedule 4, the Final Design submissions with respect to traffic engineering shall include the following:
- (i) traffic engineering analysis and associated reports and files;
  - (ii) traffic engineering checklists and signal timing sheets associated with the Design of signalized intersections;
  - (iii) the assigned traffic volumes, along with the traffic engineering checklists and signal timing sheets for opening day operation of signalized intersections; and
  - (iv) traffic engineering analysis along with the traffic engineering checklists and signal timing sheets whenever traffic signal timings are adjusted after Substantial Completion.

**2.2.4.6.6 Retaining Wall Design**

- (a) In addition to any other requirements identified in this Schedule 4, the Final Design submissions with respect to the retaining walls shall include the following:
- (i) the final geotechnical report(s) for the retaining walls;
  - (ii) descriptions of the aesthetic treatment for all retaining walls;
  - (iii) descriptions of the maintenance considerations for retaining walls;
  - (iv) resolution of all issues identified during Interim Design reviews;
  - (v) the Final Design drawings for all retaining walls; and
  - (vi) a neat, bound, indexed set of design calculations for the retaining walls, initialled by the responsible engineer, who shall be a duly experienced Professional Engineer of the appropriate discipline.

**2.2.4.6.7 Geotechnical Design**

- (a) For the final geotechnical Design submissions, the Primary Contractor shall prepare and submit a comprehensive geotechnical design report in accordance with Article 6.9 [Geotechnical Reports], Part 2 of Schedule 4.
- (b) In addition to any other requirements identified in this Schedule 4, the final geotechnical Design submissions shall include the following:
- (i) a summary of any additional work and subsurface investigations that have been completed by the Primary Contractor since the Effective Date;
  - (ii) final recommendations for foundation systems, allowable loads and estimates of total and differential settlements of foundations at 2, 5, 10, 20, 40 and 75 years following completion of construction of the applicable Structure;
  - (iii) geotechnical Design recommendations for retaining structures;
  - (iv) lightweight fill designs;



- (v) estimates of total and differential settlement of the Guideways and the Stations at 2, 5, 10, 20, 40 and 75 years following completion of the Guideway or Station, as applicable;
- (vi) requirements for ground improvement measures necessary to meet the static and Seismic Performance Level requirements for foundations, cut and fill slopes, and retaining structures;
- (vii) reduced size (11" x 17") drawings showing the Alignment in plan and profile with drill hole locations shown on the plan and simplified summary logs shown on the profile and with design notes to be shown along the bottom of the drawings; and
- (viii) a final geotechnical report for the Structures with reduced size (11" x 17") drawings, showing the general arrangements for the Structures in plan and profile, with drill hole locations shown in plan and simplified summary logs shown in profile.

#### 2.2.4.6.8 Bored Tunnel Design

- (a) In addition to any other requirements identified in this Schedule 4, the Final Design submissions with respect to the Design of the Bored Tunnel, Cross Passages and the dividing wall separating the inbound and outbound sections of the Bored Tunnel shall include the following, as applicable:
  - (i) reinforcement layout drawings;
  - (ii) bolt and dowel size and strength;
  - (iii) the Design of gaskets;
  - (iv) taper Design;
  - (v) the Design for demolding, handling, transportation and stacking of Tunnel liner segments;
  - (vi) the Design for construction loads;
  - (vii) the Design of the dividing wall separating the inbound and outbound sections of the Bored Tunnel;
  - (viii) the Design of concrete collar and connection details; and
  - (ix) the Design of the Cross Passages and Cross Passage fire doors.

#### 2.2.4.6.9 Architectural Design

- (a) In addition to any other requirements identified in this Schedule 4, the Final Design submissions with respect to the architectural Design shall include the following:
  - (i) a complete and comprehensive set of architectural, structural, electrical, mechanical and civil construction drawings and specifications, fully dimensioned, detailed, engineered and coordinated as required to document and construct the Final Design of the Fixed Facilities;

- (ii) all construction details of the Station building and attached components, engineering calculations, products, building systems, Equipment, materials, finishes, signage and furnishings to be provided as part of the Work;
- (iii) finish and color materials samples of all major and prominent finish materials to be provided for all exterior and interior areas of all buildings; and
- (iv) manufacturers' product literature on all building elements, products and Equipment to be provided for all areas of all buildings.

#### 2.2.4.6.10 Utilities

- (a) In addition to any other requirements identified in this Schedule 4, the Final Design submissions with respect to the Utilities shall include the following:
  - (i) the Design of the Utilities, containing sufficient details to meet the approval of the applicable Utility Supplier and to confirm that the Design meets all requirements of Schedule 4; and
  - (ii) a master Utility plan that sets out all the information related to the Design and Construction of the Work to be carried out in respect of Regulated Utilities, Municipal Utilities and GVRD Utilities, and any other utilities impacted by the Design and the Construction.

#### 2.2.4.6.11 Transit Integration

- (a) In addition to any other requirements identified in this Schedule 4, the Final Design submissions for the integration of Existing Transit Facilities shall include the following:
  - (i) the Design of:
    - A. the temporary and permanent modifications to the Existing Transit Facilities; and
    - B. the integration of Existing Transit Facilities, in accordance with Articles 10 [Architecture] and 18 [Integration of Transit Facilities], both of Part 2 of Schedule 4, with the Evergreen Line; and
  - (ii) approval of TransLink with respect to the integration of Existing Transit Facilities as set out in the Transit Construction Integration Plans in accordance with Article 18 [Integration with Transit Facilities], Part 2 of Schedule 4.

#### 2.2.4.6.12 Environmental Design

- (a) In addition to any other requirements identified in this Schedule 4 and in Schedule 5 [Environmental Obligations], the Final Design submission with respect to environmental Design shall include the following:
  - (i) applicable construction drawings that address:
    - A. all critical and sensitive wildlife habitats and ecosystems (e.g., nest trees, red- and blue-listed plant communities, and wetlands);

- B. “no disturbance” riparian and “vegetation to remain” (protected vegetation) areas;
  - C. all fish-bearing streams and aquatic habitats; and
  - D. all archaeological features;
- (ii) riparian restoration and terrestrial reclamation/revegetation drawings that, as a minimum, describe timing requirements, seed mixes and applications rates of hydroseeding and site-specific restoration plans, including species type, size and spacing for riparian areas, areas of higher sensitivity, and areas prone to erosion or shallow slope movement;
  - (iii) environmental design drawings that show environmental mitigation and compensation features and any environmental features to be constructed;
  - (iv) regulatory agency review and acceptance documentation for the CEMP specific to the Design of the Project;
  - (v) all environmental Permits and notifications specific to the Design of the Project;
  - (vi) all environmental assessments, studies, surveys and monitoring reports specific to the Design of the Project; and
  - (vii) a Design criteria checklist that lists general environmental commitments and assurances, environmental design commitments, site-specific environmental features and environmental mitigation/compensation plans, including all commitments, assurances and plans relating to archaeological features.

#### 2.2.4.7 Objection to Design Data for Non-Systems Components

- (a) If the Province’s Representative objects to any Design Data submitted by the Primary Contractor for review, acting reasonably, in accordance with the Review Procedure, the Province’s Representative shall so notify the Primary Contractor and, unless the Primary Contractor disputes the objection by the Province’s Representative to such Design Data in accordance with the Dispute Resolution Procedure, the Primary Contractor shall either:
  - (i) cause to be made such alterations and additions as may be necessary such that the Design Data accords with the Design-Build Requirements and all other requirements of this Agreement, all in accordance with the Review Procedure; or
  - (ii) subject to the other provisions of this Agreement, submit a Primary Contractor Proposal pursuant to Section 8.2 [Primary Contractor Proposals].

#### 2.2.4.8 Adherence to Design Data for Non-Systems Components

- (a) The Primary Contractor shall not, during the Construction of the Project, depart from any Design Data for Non-Systems Components which has been the subject of a Design Certificate that has previously been submitted to the Province’s Representative in accordance with the Non-Systems Design Management Plan and

the Non-Systems Certification Procedure and not rejected in accordance with the Review Procedure.

#### 2.2.4.9 Issued for Construction Drawings for Non-Systems Components

- (a) The Primary Contractor shall submit, as and when prepared and issued by the Primary Contractor, copies of all drawings that are “issued for construction” to the Province’s Representative and to the Independent Certifier.

#### 2.2.4.10 No Construction

- (a) The Primary Contractor shall not commence, or permit the commencement of, construction activities in respect of a Non-Systems Component unless and until all Design Data and applicable Design Certificates have been submitted by the Primary Contractor to the Province’s Representative in accordance with the Non-Systems Design Management Plan and the Non-Systems Certification Procedure.

#### 2.2.4.11 Designer Review During Construction of Non-Systems Components

- (a) The Primary Contractor shall ensure that, during the Construction of the Non-Systems Components, the Designer undertakes the Design in accordance with the procedures set out in the Non-Systems Design Management Plan and the relevant Quality Documentation and other Design-Build Requirements, and satisfies itself that Non-Systems Components and every part thereof have been designed, constructed, completed, commissioned, tested and maintained in all respects so as to accord with:

- (i) the Design Data in respect of which Design Certificates have been issued and submitted to the Province’s Representative; and
- (ii) all applicable Design-Build Requirements,

and otherwise to comply in all respects with the requirements of this Agreement.

### 2.2.5 Checking of Structures

#### 2.2.5.1 General

- (a) In addition to any other requirements identified in Schedule 4, the Primary Contractor shall comply with this Article 2.2.5 [Checking of Structures] with respect to the checking of the Design of all Structures and of any structures existing on the Effective Date which will be incorporated into the Work.

#### 2.2.5.2 Concept Review

- (a) The Primary Contractor shall undertake a Concept Review of all Structures and shall provide a copy of the Concept Review documentation to the Province’s Representative with the Interim Design submissions.

### 2.2.5.3 Categories of Structures

- (a) Prior to submitting the Interim Design submissions, the Primary Contractor shall undertake a categorization of all Structures in accordance with this Article 2.2.5.3 [Categories of Structures], the purpose of which is to determine the degree of independence of checking of the Design Data that is required for each Structure.
- (b) The Primary Contractor shall place each Structure into one of the following four categories:
  - (i) **Category 0** - minor individual Structures, provided the Structure conforms to one of the following:
    - A. a Structure with a single span of less than 10m and which is statically determinate;
    - B. a buried Structure less than 3m clear span/diameter;
    - C. a multi-cell buried Structure where the cumulative span is less than 5m and having more than 1m cover;
    - D. a retaining wall with less than 3m retained height; or
    - E. a facing-panel system less than 3m in height.
  - (ii) **Category I** - simple individual Structures, provided the Structure conforms to one of the following:
    - A. a retaining wall with at least 3m and less than 7m retained height;
    - B. a buried concrete box Structure with less than 8m span;
    - C. a Structure with a simply supported single span of less than 20m and having less than 25 degree skew;
    - D. a facing-panel system at least 3m, but less than 7m, in height; or
    - E. a noise wall that is at least 3m in height.
  - (iii) **Category II** - the Bored Tunnel and any Structures not otherwise within the parameters of Categories 0, I or III; or
  - (iv) **Category III** - any Structure which is:
    - A. a special structure for an elevated Guideway that is not a simple span;
    - B. an elevated Guideway with a split alignment;
    - C. an elevated Guideway with a span of greater than 50m; or
    - D. a Guideway foundation in liquefiable soil.

### 2.2.5.4 Existing Structures

- (a) Prior to submitting the Interim Design submissions, the Primary Contractor shall undertake a categorization assessment of any structures existing on the Effective Date which will be incorporated into the Work in accordance with the criteria set out in Article 2.2.5.3(b) [Categories of Structures] of this Part 3 and the renewal or strengthening work affecting structural integrity of existing structures shall be

categorized on the basis of the structure as it existed on the Effective Date unless otherwise agreed by the Province's Representative.

#### 2.2.5.5 Category Proposal

- (a) The Primary Contractor, as soon as sufficient Design Data for a Structure or an existing structure subject to categorization under Article 2.2.5.4 [Existing Structure] of this Part 3 has been prepared to allow the determination of the applicable category for the particular structure, shall submit its proposed category for the structure, together with such Design Data as necessary to support its proposal, to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure.

#### 2.2.5.6 Structure Checking Procedure

- (a) The Primary Contractor shall ensure that all Design Data, inclusive of calculations, assessments, drawings and bar schedules, relating to each Structure and to each existing structure subject to categorization under Article 2.2.5.4 [Existing Structures] of this Part 3, is checked as follows:
  - (i) Category 0 and Category I Structures require an independent check to be carried out by a Professional Engineer, which engineer may be from the original Design Team but shall not be the engineer who designed the Structure;
  - (ii) Category II Structures require a check to be carried out by a Checking Team, which may be from the Designer but shall be independent of the Design Team; and
  - (iii) Category III Structures require a check to be carried out by a Checking Team, appointed to perform an independent detailed check by experts in:
    - A. structural analysis and design of guideways similar to the Guideway; and
    - B. seismic design of guideway structures similar to the structures of the Guideway, but the engineer undertaking the check of the seismic design shall be from an organization not related to the Designer.
- (b) The Checking Team for Category III Structures shall report directly to the Primary Contractor.
- (c) The Primary Contractor shall, in addition to the checking procedures required under this Part 3, conduct all checking procedures required by APEGBC.
- (d) The Primary Contractor shall ensure, in addition to the requirements of Articles 2.2.5.6(a)(ii) and 2.2.5.6(a)(iii), both of this Part 3, any Category II Structures or Categories III Structures are subject to an independent detail check by geotechnical experts in seismic design by an organization not related to the Designer.

### 2.2.5.7 Checking Teams

- (a) The Primary Contractor shall, in accordance with the Non-Systems Design Management Plan, submit to the Province's Representative for review, acting reasonably, in accordance with the Consent Procedure a proposal regarding the identity of the Checking Team, which proposal shall be supported by a resume for each member of the proposed Checking Team, the organizational structure of the Checking Team and the proposed terms and conditions of the team members' engagement.
- (b) The Primary Contractor shall ensure that the following responsibilities and expertise are required of and incorporated into the Checking Team for Category III Structures:
  - (i) the Checking Team shall be responsible for:
    - A. conducting design checks to ensure that the Design of all Category III Structures meets the performance expectations outlined in this Agreement and that the Design is carried out according to Good Industry Practice;
    - B. undertaking supplementary analyses to independently verify and confirm the design methodologies and assumptions used for each Category III Structure; and
    - C. identifying deficiencies in the Design and analyses, and notifying each of the Primary Contractor and the Province's Representative of any unresolved deficiencies during Final Design submissions; and
  - (ii) the Checking Team shall consist of persons with recognized expertise in the following:
    - A. seismic design and analysis of guideway structures or long-span bridges located in high seismic risk regions and in soils susceptible to liquefaction, similar to the Guideway;
    - B. ground improvement methods to mitigate liquefaction;
    - C. displacement-based design philosophy;
    - D. the disciplines of geotechnical and structural engineering;
    - E. hydrotechnical analysis and design for structures similar to the Structures;
    - F. the analysis and design of all aspects of long span and complex structures similar to the Structures;
    - G. the seismic design provisions in CAN/CSA-S6-06, ATC-49, AASHTO and all other applicable Reference Documents;
    - H. the state-of-the-art geotechnical, structural, and soil-structure interaction modeling and software used for design and analysis of guideway and bridge foundations similar to the Guideway foundations; and

- I. the review of designs to ensure compliance with Environmental Laws and other environmental requirements.

#### 2.2.5.8 Additional Structure Design Checking Responsibility

- (a) Each of the Design Team, the Designer and the Checking Team shall satisfy themselves as to the applicability and accuracy of all computer programs used in the Design of the Structures and shall ensure the validity of the program for each application.
- (b) Each of the Design Team, the Designer and the Checking Team shall be responsible for its own interpretation of the relevant ground information.
- (c) The Primary Contractor shall issue a separate Design Certificate (Independent Check for Category III Structures) for each Category III Structure, which certificate shall be:
  - (i) on the Certificate Form 2 [Design Certificate (Independent Check for Category III Structures)], attached at Attachment A [Form of Certificates] to this Part 3;
  - (ii) signed and sealed by the responsible member of the Checking Team, who shall be a Professional Engineer; and
  - (iii) signed by the Primary Contractor's Representative.

#### 2.2.5.9 Independence

- (a) The Primary Contractor shall ensure that the independence of the Design Team and the Checking Team is maintained at all times.
- (b) Notwithstanding Article 2.2.5.9(a) of this Part 3, the Design Team, the Checking Team and the Primary Contractor may consult with each other to ensure that the results they are obtaining are directly comparable.

### 2.2.6 Design Certification for Non-Systems Components

#### 2.2.6.1 Design Certificates

- (a) The Primary Contractor shall prepare and issue a separate Design Certificate for each submitted Final Design review package. All Design Certificates prepared and issued by the Primary Contractor shall be:
  - (i) on the applicable Certificate Form 1 [Design Certificate (General)] or Certificate Form 3 [Design Certificate (Environmental)], both attached at Attachment A [Form of Certificates] to this Part 3;
  - (ii) signed and sealed by the responsible professional, who shall be a Professional Engineer or an architect registered with AIBC, and a principal of the Designer; and
  - (iii) signed by the Primary Contractor's Representative or, in the case only of Design Certificates for environmental works incorporated into the Work, the Environmental Manager.



- (b) Any person who signs a Design Certificate shall clearly print his or her name and the position held in his or her organization on the Design Certificate.

#### 2.2.6.2 Submission of Design Certificates

- (a) The Primary Contractor shall submit all Design Certificates, together with the supporting documentation, to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure. The submitted Design Certificates shall have original signatures, seals and registration numbers and shall be in such form as to allow the Province's Representative to perform its review function in respect of such Design Certificate without delay.

#### 2.2.7 Construction Certificates for Non-Systems Components

- (a) The Primary Contractor shall, in accordance with the procedures set out in the Non-Systems Design Management Plan and the relevant Quality Documentation or other Design-Build Requirements, submit Construction Certificates in respect of each substantially completed Non-Systems Component in the form set out as Certificate Form 4 [Construction Certificate], attached at Attachment A [Form of Certificates] to this Part 3, to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure.
- (b) The Primary Contractor shall, in accordance with the procedures set out in the Non-Systems Design Management Plan and the relevant Quality Documentation or other Design-Build Requirements, submit one Construction Certificate in respect of all totally completed Non-Systems Components, in the form set out as Certificate Form 4 [Construction Certificate], attached at Attachment A [Form of Certificates] to this Part 3, to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure.
- (c) The Primary Contractor shall, in accordance with the procedures set out in the Non-Systems Design Management Plan and the relevant Quality Documentation or other Design-Build Requirements, submit one Construction Certificate, in the form set out as Certificate Form 4 [Construction Certificate], attached at Attachment A [Form of Certificates] to this Part 3, in respect of all totally completed Non-Systems Components of any Reinstatement Work carried out by the Primary Contractor pursuant to Part 7 [Insurance, Damage and Destruction] of this Agreement in accordance with a Reinstatement Plan, to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure.
- (d) The Primary Contractor shall submit all Construction Certificates to:
  - (i) the Province's Representative and to the Independent Certifier in respect of:
    - A. all substantially completed Non-Systems Components prior to Substantial Completion; and
    - B. totally completed Non-Systems Components of any Reinstatement Work; and

- (ii) the Province's Representative in respect of totally completed Non-Systems Components after Substantial Completion but prior to Total Completion.
- (e) All Construction Certificates shall be:
  - (i) signed and sealed by the Designer;
  - (ii) signed by the Primary Contractor's Representative; and
  - (iii) signed by the Independent Certifier, acknowledging receipt.

## Article 3. Completion Deliverables

### 3.1 Scope

- (a) Without limiting the Primary Contractor's obligations under this Agreement, the Primary Contractor shall deliver the deliverables set out in this Article 3 [Completion Deliverables] prior to Substantial Completion.
- (b) Any failure by the Primary Contractor to deliver a deliverable required by this Article 3 [Completion Deliverables] prior to Substantial Completion shall be deemed to be a deficiency in the Work and the Province shall be entitled to hold back from the Substantial Completion Payment Amount the amount permitted by Section 12.7 [Holdbacks for Deficiencies in Work] on account of any such deficiency.

### 3.2 Records Documentation and Assignments

#### 3.2.1 Records Documentation

- (a) Without limiting the Primary Contractor's obligations under this Agreement, the Primary Contractor shall, prior to Substantial Completion, compile a complete set of the Records Documentation, including record drawings.
- (b) The Primary Contractor shall, upon request by the Province's Representative, made prior to Substantial Completion, make available to the Province's Representative and the Independent Certifier the Records Documentation compiled by the Primary Contractor under this Article 3.2.1 [Records Documentation].
- (c) The Primary Contractor shall ensure that:
  - (i) the drawing numbers of the record drawings shall remain the same as the original Design drawings; and
  - (ii) the Records Documentation consists of stand-alone documents, drafted in the format and to the standards of the original Design drawings.

#### 3.2.1.1 Record Drawings

- (a) Notwithstanding Article 3.2.1(b) of this Part 3, the Primary Contractor shall submit the record drawings in respect of the Work, including the record drawings for the Municipal Works, to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure, which drawings shall comply with the following requirements:
  - (i) the record drawings shall be signed and certified by the applicable discipline professional as being a true representation of what was built to the best of the said professional's knowledge;

- (ii) original paper drawings shall be accompanied by a CD or DVD containing the drawings in AutoCAD format; and
  - (iii) the drawings shall be accompanied by all electronic data for survey, mapping, and three dimensional modeling to confirm as-built conditions.
- (b) In addition to the requirements of this Article 3.2.1 [Records Documentation], the Primary Contractor shall comply with the requirements of Article 3.7(c), Part 1 of Schedule 4, with respect to preparation of and delivery of record drawings in respect of Municipal Works.
- (c) Following receipt of confirmation from the Province's Representative that there is no objection to the record drawings submitted by the Primary Contractor in accordance with Article 3.2.1.1(a) of this Part 3, and when no further changes are required to be made to the record drawings, the Primary Contractor shall submit the finalized record drawings to the Province's Representative for record purposes.

### 3.2.1.2 Construction Specifications

- (a) Notwithstanding Article 3.2.1(b) of this Part 3, the Primary Contractor shall submit to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure, a complete compilation of all Construction Specifications that have been developed in accordance with and in satisfaction of the requirements of this Agreement, including this Part 3, and that have been applied by the Primary Contractor in carrying out the Work.

### 3.2.1.3 Final Durability Report

- (a) The Primary Contractor shall update the Updated Durability Report prepared in accordance with Article 2.2.3.3 [Updated Durability Report] of this Part 3 to reflect the as-built conditions of the Evergreen Line (the "**Final Durability Report**") and shall submit the Final Durability Report to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure.

## 3.2.2 Evidence of Assignments and Transfers of Property and Warranties

- (a) The Primary Contractor shall deliver the following to the Province, or at the discretion of the Province to BCTFA or other third party designated by the Province:
- (i) written confirmations or acknowledgements of:
    - A. the assignment of Subcontractor warranties as required by Section 6.10 [Assignment of Warranties to Province]; and
    - B. where not previously provided pursuant to Section 2.12(c) [Transfer of Title], the transfer of any other assets required to be transferred prior to the Substantial Completion Date to the Province or any other person under the terms of this Agreement; and

- (ii) copies of all materials comprising the Project Intellectual Property, and transfers, assignments and waivers in respect of same in accordance with the provisions of this Agreement.

### 3.3 Operations and Maintenance Manuals

#### 3.3.1 Manual Delivery Plan

- (a) The Primary Contractor shall prepare and submit, as part of the Systems Management Plan set out in Section 4.2 [Systems Management Plan], Appendix G to Schedule 4, a plan for the delivery of manuals required under this Article 3.3 (the “**Manual Delivery Plan**”), which plan shall:
  - (i) list all manuals to be provided by the Primary Contractor under this Agreement; and
  - (ii) include a preliminary table of contents for each manual.

#### 3.3.2 General Manual Requirements

- (a) Subject to Article 3.3.2(b) of this Part 3, for each item of Equipment, the Primary Contractor shall, in accordance with this Article 3.3 [Operations and Maintenance Manuals] and the Manual Delivery Plan, develop, as required, and deliver to each of the Province and TransLink:
  - (i) one bound, hard copy;
  - (ii) one electronic copy in PDF file format; and
  - (iii) one electronic copy in Word format,of each of the operations manual and the maintenance manual.
- (b) The Primary Contractor shall not be required to provide an operations manual and a maintenance manual in respect of a piece of Equipment that is the same make and model as a piece of equipment that forms part of the Existing SkyTrain System, provided that such piece of Equipment will be used in the same manner as it is used on the Existing SkyTrain System as of the Effective Date.
- (c) The Primary Contractor shall ensure that the manuals delivered pursuant to this Article 3.3 [Operations and Maintenance Manuals] are:
  - (i) final, complete and in the English language;
  - (ii) written at a level of understanding at least equivalent to the standard of operations and maintenance manuals used by TransLink in connection with the Existing SkyTrain System; and
  - (iii) sufficient to enable persons knowledgeable in the operation and maintenance of the item of Equipment to understand the manual content, to effectively apply the content to the operation and maintenance of the item of Equipment, and to competently train other persons in the operation and maintenance of the item of Equipment.

- (d) The Primary Contractor shall, in developing the manuals required under this Article 3.3 [Operations and Maintenance Manuals], consider and incorporate information required to conduct the O & M Training.
- (e) Without limiting any rights granted to the Province under this Agreement, the Primary Contractor shall ensure that all Third Party Technology, Project Intellectual Property and Background Technology contained in any manual delivered to the Province pursuant to this Part 3, and any updates to same, shall be provided to the Province pursuant to a Complete License or a Limited License, as required by Section 17.3(d), in favour of the Province.

### 3.3.3 Operations Manuals

#### 3.3.3.1 General Requirements

- (a) The Primary Contractor shall ensure that the operations manual for each item of Equipment includes, as applicable, the following information:
  - (i) a detailed description of the scope of the manual, as well as a listing of the specific item(s) of Equipment covered by the manual;
  - (ii) a complete and comprehensive table of contents and index;
  - (iii) summary descriptions of all modes of operation of the item(s) of Equipment, which descriptions will be sufficient to enable persons reasonably knowledgeable in the operation of the item(s) of Equipment to understand each mode of operation;
  - (iv) a detailed description of how each item of Equipment integrates with the Evergreen Line, the Operational Evergreen Line and the Integrated SkyTrain System, as applicable, and/or other items of Equipment covered by the manual;
  - (v) complete operating instructions and detailed operations procedures, relating to both normal and emergency operations, for each item of Equipment covered by the manual;
  - (vi) all operating limits and restrictions applicable to the item(s) of Equipment that are known to the Primary Contractor and/or the manufacturer or that are reasonably anticipated by application of Good Industry Practice;
  - (vii) clear and detailed illustrations to supplement written descriptions in the manual;
  - (viii) complete and accurate parts list(s) for the applicable item of Equipment, including spare parts lists, and illustrated parts catalogues;
  - (ix) name plate information pertaining to each part making up the item of Equipment, as available, including the make, model, date of manufacture, size, capacity, output, voltage and serial number;

- (x) the names, addresses and telephone numbers of all Subcontractors, manufacturers, and/or suppliers directly responsible for the provision of the applicable item of Equipment; and
- (xi) required configuration data as it relates to the Evergreen ATC System.

### 3.3.3.2 Systems Operations Manual Requirements

- (a) The Primary Contractor shall use the Existing SkyTrain System fault recovery policies and procedures, including system start-up, shutdown, transition and restart, as documented in BCRTC 's "SkyTrain Control Room Operations Manual" and the SkyTrain ATC Operations Manual (collectively the "**Systems Operations Manuals**"), as amended in accordance with this Article 3.3.3.2 [Systems Operations Manual Requirements], for the Evergreen Line.
- (b) The Primary Contractor shall propose changes to the Systems Operations Manuals as they apply to the Evergreen Line, if required, to support the operation of the Integrated SkyTrain System.
- (c) The Primary Contractor shall, in accordance with Section 15.8 [Operations and Maintenance Documentation] of Appendix G to this Schedule 4, submit to each of:
  - (i) the Province's Representative for review, acting reasonably, in accordance with the Review Procedure; and
  - (ii) TransLink,  
a preliminary redline version of Systems Operations Manuals to document the proposed changes to these manuals required for the purposes of supporting the operation of the Integrated SkyTrain System.
- (d) The Primary Contractor shall, in accordance with Section 15.8 [Operations and Maintenance Documentation] of Appendix G to this Schedule 4, deliver to each of the Province's Representative and TransLink a redline version of each of the Systems Operations Manuals that, in the discretion of the Province's Representative, clearly, comprehensively and accurately documents the changes required to be incorporated in each such manual to enable each manual to be appropriately applied to the Operational Evergreen Line and the Integrated SkyTrain System, as applicable (the "**Final Redlined Version**"). TransLink shall be responsible for incorporating the Final Redlined Version into the Systems Operations Manuals.

### 3.3.4 Maintenance Manuals

- (a) The Primary Contractor shall ensure that the maintenance manual for each piece of Equipment includes, as applicable, the following information:
  - (i) a detailed description of the scope of the manual, as well as a listing of the specific item(s) of Equipment covered by the manual and any applicable manufacturer's warranty periods;
  - (ii) a complete and comprehensive table of contents and index;

- (iii) a detailed description of how the applicable item of Equipment integrates with the Evergreen Line, the Operational Evergreen Line and the Integrated SkyTrain System, as applicable, and/or other items of Equipment covered by the manual;
- (iv) complete and accurate parts list(s) for the applicable item(s) of Equipment covered by the manual, including spare parts lists, and illustrated parts catalogues;
- (v) a detailed and comprehensive procedures to safely service, inspect, maintain (both corrective and preventative maintenance), adjust, troubleshoot, repair, replace and overhaul each item of Equipment covered by the manual;
- (vi) a detailed description of all troubleshooting tips known to the Primary Contractor and/or the manufacturer or that are reasonably anticipated by application of Good Industry Practice, set out, whenever possible, in order of likely cause;
- (vii) clear and detailed illustrations to supplement written descriptions in the manual;
- (viii) name plate information pertaining to each part making up the applicable item of Equipment, as available, including the make, model, date of manufacture, size, capacity, output, voltage and serial number;
- (ix) the names, addresses and telephone numbers of all Subcontractors, manufacturers, and/or suppliers directly responsible for the provision and installation of the applicable item of Equipment; and
- (x) detailed and comprehensive maintenance instructions for finished surfaces and materials of the applicable item of Equipment.

### 3.4 Hardware, Finishes and Paint Schedules

- (a) The Primary Contractor shall, in respect of each Fixed Facility, submit to the Province and TransLink a complete copy of each of the following:
  - (i) the finishes schedule, containing a comprehensive listing of the finishes;
  - (ii) the hardware schedule, containing a comprehensive listing of the hardware; and
  - (iii) complete paint schedules in respect of each item of Equipment, containing comprehensive listings identifying the paint type, colour, manufacturer and paint system build up.

### 3.5 Training and Orientation

#### 3.5.1 Operations and Maintenance Training Plan

- (a) The Primary Contractor shall, in accordance with the Systems Management Plan and the Review Procedure, prepare and submit to the Province's Representative for



review, acting reasonably, a plan (the “**O & M Training Plan**”) for the training of personnel from:

- (i) TransLink with respect to the operations and maintenance of the Evergreen Line (the “**O & M Training**”); and
- (ii) the Emergency Response Agencies with respect to the orientation of such agencies with the Evergreen Line for emergency response purposes (the “**Emergency Services Orientation**”).

### 3.5.2 Operations and Maintenance Training

- (a) The Primary Contractor shall deliver the O & M Training in accordance with the O & M Training Plan, and, in delivering the O & M Training, shall provide:
  - (i) all appropriate, necessary and fully qualified persons, materials, including training manuals, equipment, curriculum and documentation, for the purpose of facilitating and providing in-person instruction sessions by the Primary Contractor to personnel designated by TransLink; and
  - (ii) the training and instruction services and sessions described in this Article 3.5.2 [Operations and Maintenance Training] in a competent and professional manner, sufficient to enable the persons having received the training instructions to properly train and instruct others, including Province and TransLink personnel, to properly use, operate, adjust, support and maintain the Equipment.

### 3.5.3 Emergency Services Orientation

- (a) The Primary Contractor deliver the Emergency Services Orientation in accordance with the O & M Training Plan.

## 3.6 Spare Parts and Station Spare Parts

### 3.6.1 Station Spare Parts

- (a) The Primary Contractor shall, at its own cost and expense, deliver the Station Spare Parts to the Province’s Representative or, at the direction of the Province, to TransLink or another third party designated by the Province. as follows:
  - (i) with respect to tiles, in accordance with Section 09310 Tiling of Appendix C [Minimum Considerations for Construction Specifications] to Schedule 4; and
  - (ii) with respect to other fixtures and fittings, additional materials as follows based on the amount supplied and installed as part of the Design and Construction of the Stations:
    - A. 5% of total light fixtures, including ballasts;
    - B. 5% of stair nosing;
    - C. if used, 5% of ceiling tiles; and

- D. where approved in accordance with Article 10 [Architecture], Part 2 of Schedule 4, 5% of any custom fixtures,

and such Station Spare Parts shall be delivered:

- (iii) neatly packaged in unopened containers, with protective covering for storage to prevent damage and with labels identifying the contents, manufacturer, product names, colour and pattern; and
- (iv) to such location(s) designated by the Province or TransLink, as the case may be.

### 3.6.2 Spare Parts Lists, Spare Parts Plan and Provisioning Conference

- (a) The Primary Contractor shall, in accordance with the Systems Management Plan, this Article 3.6.2 [Spare Parts Lists, Spare Parts Plan and Provisioning Conference] and the Review Procedure, prepare and submit a plan for the development of the list of Spare Parts (the “**Spare Parts Plan**”) to the Province’s Representative for review, acting reasonably, which plan shall include the timing for:
  - (i) the submission of the Preliminary Spare Parts List in accordance with Article 3.6.2(b) of this Part 3, which list shall be submitted no less than 1 year prior to the Substantial Completion Date;
  - (ii) the holding of the Provisioning Conference in accordance with Article 3.6.2(c) of this Part 3;
  - (iii) the finalization and submission of the Final Spare Parts List in accordance with Article 3.6.2(d) of this Part 3, which list shall be submitted no less than 6 months prior to the Substantial Completion Date; and
  - (iv) the ordering and delivery schedule for Spare Parts.
- (b) The Primary Contractor shall, in accordance with the Review Procedure and the Spare Parts Plan, prepare and submit an initial list (the “**Preliminary Spare Parts List**”) to the Province’s Representative for review, acting reasonably, which list shall:
  - (i) identify a stock of Spare Parts to ensure that, as worn or malfunctioning Equipment is removed from the Evergreen Line, replaced with the Spare Parts and then repaired or reconditioned, the Availability Demonstration requirements, as specified in Article 13.4.2 [Availability Demonstration], Part 2 of Schedule 4, are maintained on a continuing basis for a minimum of two years after the Substantial Completion Date;
  - (ii) determine the specific inventory of recommended Spare Parts, taking into account the following in developing the inventory:
    - A. cost;
    - B. availability;
    - C. supply process; and
    - D. replacement/procurement lead times;

- (iii) identify the quantity and unit price (exclusive of GST, but inclusive of all other taxes) for each recommended Spare Part, which unit prices (other than in respect of the Spare Parts to be provided pursuant to the terms of the ATC Supply Contract (the “**ATC Spare Parts**”)) shall be valid until the Substantial Completion Date;
  - (iv) for recommended Spare Parts which are not normally in inventory or commercially available, also identify any lower price applicable to such spare if the recommended number of Spare Parts or additional numbers of Spare Parts were ordered at an earlier date to take advantage of production runs; and
  - (v) identify the ATC Spare Parts. The unit prices for the ATC Spare Parts shall only be adjusted in accordance with the terms of the said ATC Supply Contract.
- (c) The Primary Contractor shall, at its cost and in accordance with the Spare Parts Plan, schedule, make all necessary arrangements for and host a provisioning conference to be attended by the Province, TransLink, the Primary Contractor and, if applicable, suppliers of each subsystem, (the “**Provisioning Conference**”) to discuss the Preliminary Spare Parts List and the preparation of the Final Spare Parts List. During the Provisioning Conference, the Primary Contractor shall solicit comments from the Province and TransLink regarding the Preliminary Spare Parts List, including as to any adjustments to quantities and unit prices.
- (d) Following the Provisioning Conference, the Primary Contractor shall, in accordance with the Review Procedure and the Spare Parts Plan, prepare and submit to the Province’s Representative for review, acting reasonably, a final Spare Parts list (the “**Final Spare Parts List**”), which list shall:
  - (i) reflect the comments, if any, provided by the Province and TransLink during the course of the Provisioning Conference with respect to the Preliminary Spare Parts List;
  - (ii) list the specific inventory of Spare Parts to be supplied by the Primary Contractor as determined at the Provisioning Conference, and include with respect to each category of Spare Parts (with the ATC Spare Parts to be separately identified from the other Spare Parts) to be supplied:
    - A. the quantity and, subject to Articles 3.6.2(b)(iii) through (v) of this Part 3, the unit price (exclusive of GST, but inclusive of all other taxes); and
    - B. the anticipated delivery date(s), where they vary from the delivery date(s) in the Spare Parts Plan;
  - (iii) identify the total cost (exclusive of GST, but inclusive of all other taxes) of the Spare Parts listed in the Final Spare Parts List, which cost shall reflect the quantity of each Spare Part to be supplied by the Primary Contractor and the unit prices (exclusive of GST, but inclusive of all other taxes) for the Spare Parts.

- (e) Subject to Article 3.6.2(f) of this Part 3:
  - (i) TransLink shall be responsible for the ordering and acceptance of delivery of, and payment for, any Spare Parts ordered from the Final Spare Parts List (it being acknowledged that TransLink shall not be obliged to order any Spare Parts identified on the Final Spare Parts List); and
  - (ii) at the same time as it delivers any Spare Parts (which delivery shall be at its own cost and expense and in accordance with the Spare Parts Plan), the Primary Contractor shall submit an invoice to TransLink in respect of any delivered Spare Parts, which invoice shall be payable within 20 Business Days after receipt of the invoice or, if applicable, the resolution of any objections by TransLink regarding the applicable delivery of Spare Parts.
- (f) In relation to ATC Spare Parts identified on the Final Spare Parts List:
  - (i) the Primary Contractor shall deliver, at its own cost and expense, the ATC Spare Parts to TransLink in accordance with the Spare Parts Plan and the Final Spare Parts List;
  - (ii) out of the total cost of the ATC Spare Parts, the Province shall pay a maximum amount of \$526,440 (together with any applicable GST) in accordance with Section 12 [Payments] and Schedule 22 [Payments] on completion of the relevant Payment Milestone; and
  - (iii) on delivery of ATC Spare Parts, the Primary Contractor shall invoice TransLink in respect of the balance of the total cost, which invoice(s) shall be payable within 20 Business Days after receipt thereof or, if applicable, the resolution of any objections by TransLink regarding the applicable ATC Spare Parts.

### 3.6.3 Delivery, Storage and Handling

- (a) The Primary Contractor shall deliver all Spare Parts and Station Spare Parts in accordance with the applicable manufacturer's recommended delivery, storage and handling procedures, which procedures shall be provided to the Province's Representative upon request.
- (b) All Spare Parts and Station Spare Parts shall be individually clearly identified, labeled and packaged for storage in accordance with the manufacturer's recommendations.

### 3.6.4 Defective Spare Parts and Replacements

- (a) Where any Spare Parts or Station Spare Parts provided by the Primary Contractor do not conform with the requirements of Section 6.1 [Representation, Warranty and Covenant as to Work], including any substitutions by the Primary Contractor not properly approved and authorized, such Spare Parts shall be considered defective unless and until the Primary Contractor furnishes satisfactory evidence to the Province's Representative to demonstrate the kind and quality of such Spare Parts

conforms with the requirements of Section 6.1 [Representation, Warranty and Covenant as to Work].

- (b) All replacements for:
  - (i) Spare Parts (other than the ATC Spare Parts) supplied by the Primary Contractor shall comply with Section 6.1 [Representation, Warranty and Covenant as to Work]; and
  - (ii) ATC Spare Parts supplied by the Primary Contractor shall comply with the terms of the ATC Supply Contract.

### 3.6.5 Spare Parts during the Work

- (a) The Primary Contractor shall, at its own cost, supply all Spare Parts (including testing equipment) which are required by the Primary Contractor for the performance of the Work, including during testing and commissioning of the Systems.

## 3.7 Cleaning

### 3.7.1 The Site

- (a) The Primary Contractor shall:
  - (i) remove all surplus material, equipment, sanitary facilities and any other Construction Plant, and all waste, material, debris, and rubbish from the Site;
  - (ii) remove all temporary fences and roads from the Site; and
  - (iii) leave the Work, the Site and the Project Infrastructure to the extent that such infrastructure has been constructed, installed, altered, upgraded, and/or augmented by the carrying out of the Work in a safe and orderly condition, including by ensuring that such areas have been returned to their original condition, as applicable, or are 'broom clean' and graded to an even clean surface.
- (b) Notwithstanding Article 3.1(a) of this Part 3, the Primary Contractor shall, in respect of any relevant part of the Site in respect of which an Access Period Expiry Date applies that is prior to the Substantial Completion Date, comply with the requirements of Article 3.7.1(a) of this Part 3 by no later than the applicable Access Period Expiry Date.

### 3.7.2 Guideways and other Project Infrastructure

- (a) The Primary Contractor shall:
  - (i) clear the Guideways of all rail grindings and pockets of dirt;
  - (ii) flush clean all drainage systems on or in respect of the Guideways and any other Project Infrastructure that has been constructed, installed, altered, upgraded, and/or augmented by the carrying out of the Work ; and

- (iii) remove all graffiti from the Guideways and any other Project Infrastructure that has been constructed, installed, altered, upgraded, and/or augmented by the carrying out of the Work.

### 3.7.3 Fixed Facilities

- (a) The Primary Contractor shall wash clean the interior and exterior of all Fixed Facilities, including associated paved areas, taking care to protect sensitive electrical and mechanical fixtures, and shall:
  - (i) remove all graffiti, stains, spots and other marks;
  - (ii) clean all mechanical and electrical fixtures and Equipment and replace any filters;
  - (iii) flush clean all gutters, drains and rainwater leaders;
  - (iv) polish all glass, mirrors, hardware, wall tile, stainless steel, chrome, panels and electrical and mechanical fixtures;
  - (v) wax, seal or otherwise complete all floor finishes in accordance with the requirements or recommendations of the applicable floor's manufacturer; and
  - (vi) vacuum all electric and electronic equipment rooms.

## 3.8 Keys, Codes and Passwords

- (a) The Primary Contractor shall
  - (i) in respect of all locks, supply and install permanent cores;
  - (ii) deliver the following keys to the Province or a third party designated by the Province:
    - A. the permanent keys to all permanent cores installed under Article 3.8(a)(i) of this Part 3;
    - B. the keys to all traffic sign housings;
    - C. the lifting keys for all types of chamber covers; and
    - D. all other keys to all buildings forming part of the Project Infrastructure that has been constructed, installed, altered, upgraded, and/or augmented by the carrying out of the Work; and
  - (iii) deliver the codes and passwords to all computers and computerized systems installed as part of the Work, control of which is required to be transferred to the Province or a third party designated by the Province.

## Article 4. Certification of Substantial Completion and Total Completion

### 4.1 Substantial Completion of the Work

#### 4.1.1 Required Activities

- (a) The Work and activities referred to in Article 1.3(a)(i) [Satisfactory Completion of the Work] of this Part 3 are as follows:
- (i) the provision to TransLink, BCSA and the Province of such documentation, records, test results and other material related to the Design and Construction of the Project, to which there has been no objection in accordance with the Review Procedure, as are required to permit TransLink to make application for the issuance of the Operating Permit(s), or the modification of the existing Operating Permit, to allow Service Commencement;
  - (ii) the handover to TransLink and the SCFW Concurrent Work Contractor of the areas required by TransLink and the SCFW Concurrent Work Contractor to undertake the Smart Card and Faregates Work in accordance with Article 14.2.8(e) [Coordination with TransLink and SCFW Concurrent Work Contractor], Part 2 of Schedule 4. In the event that the Primary Contractor fails to handover to TransLink and the SCFW Concurrent Work Contractor those areas required by TransLink and the SCFW Concurrent Work Contractor to undertake the Smart Card and Faregates Work in accordance with the said Article 14.2.8(e) [Coordination with TransLink and SCFW Concurrent Work Contractor], the relevant activity that is required to be completed in accordance with this Article 4.1.1(a)(ii) as a condition to the achievement of Substantial Completion and the issuance of the Certificate of Substantial Completion is the completion of the Smart Card and Faregates Work at the Stations by the SCFW Concurrent Work Contractor;
  - (iii) the completion of the Work set out in Article 6.2.4(c) [BC Hydro Transmission Lines Work], Part 1 of Schedule 4;
  - (iv) the substantial completion of all Systems components in accordance with the provisions of this Agreement and the delivery of the Systems Engineer of Record certificate, to which there has been no objection in accordance with the Review Procedure, all in accordance with the provisions of this Agreement, including Section 14 [Systems Certification] of Appendix G to Schedule 4;
  - (v) the issuance of the Occupancy Approval Certificates in respect of all Fixed Facilities in accordance with Appendix E [Construction Approval Process] to Schedule 4;

- (vi) the substantial completion of all Non-Systems Components in accordance with the provisions of this Agreement and the submission of the Design Certificates and the Construction Certificates in respect of the Non-Systems Components, to which there has been no objection in accordance with the Review Procedure, in accordance with Article 2.2.6 [Design Certification for Non-Systems Components] and Article 2.2.7 [Construction Certification for Non-Systems Components], both of this Part 3;
- (vii) the substantial completion of all Off-Street Bus Exchanges and park & ride facilities in accordance with the provisions of this Agreement, including Article 18 [Integration with Transit Facilities], Part 2 of Schedule 4;
- (viii) written approvals from CPR and other third parties, as applicable, as required by the following:
  - A. Article 4 [Existing Conditions]; and
  - B. Article 5 [CPR Requirements],both of Part 1 of Schedule 4;
- (ix) the completion of all Utility Work in accordance with the provisions of this Agreement, including Article 4 [Existing Conditions], Part 1 of Schedule 4, and Article 8 [Utilities], Part 2 of Schedule 4;
- (x) written confirmation by the Emergency Response Agencies of the completion of the Evergreen Line orientation to Emergency Response Agencies in accordance with Article 3.5.3 [Emergency Services Orientation] of this Part 3; and
- (xi) the issuance of the certificate of completion by the Independent Engineer that the Work, including the Project Infrastructure to the extent that such infrastructure has been constructed, installed, altered, upgraded and/or augmented by the carrying out of the Work, has been completed within the meaning of the *Builders Lien Act* (British Columbia).

## 4.1.2 Certification of Substantial Completion

### 4.1.2.1 90 Business Days' Notice of Substantial Completion

- (a) The Primary Contractor shall, no less than 90 Business Days prior to the date upon which the Primary Contractor expects to achieve Substantial Completion, provide the Province's Representative with written notice of the expected Substantial Completion Date so as to provide TransLink with sufficient time to:
  - (i) plan and implement all required changes to the existing bus network; and
  - (ii) hire and train additional staff.
- (b) If the Primary Contractor has, at any time, reason to believe that such expected date for Substantial Completion will be delayed or achieved earlier by more than five Business Days than the date set out in a notice issued under Article 4.1.2.1(a) of this



Part 3, it shall issue a fresh notice under the said Article 4.1.2.1(a) informing the Province's Representative of the new date expected for Substantial Completion.

#### 4.1.2.2 Deficiency Lists prior to Substantial Completion

- (a) The Primary Contractor shall:
- (i) no less than 60 Business Days prior to the date upon which the Primary Contractor expects to achieve Substantial Completion, prepare and submit to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure, and to the Independent Certifier a preliminary list of any defects or deficiencies in the Work (the "**Preliminary Deficiency List**"), distinguishing in such list between any defects or deficiencies in the Work that, in the Primary Contractor's opinion, will be required to be remedied as a condition of achieving Substantial Completion and any defects or deficiencies in the Work that, in the Primary Contractor's opinion, if not remedied by the relevant date, will not affect the achievement of Substantial Completion;
  - (ii) thereafter update the Preliminary Deficiency List by deleting any defects or deficiencies in the Work that are remedied by the Primary Contractor and by adding any defects or deficiencies in the Work that are newly noted; and
  - (iii) submit to the Province's Representative and the Independent Certifier an updated Preliminary Deficiency List at the beginning of each calendar month until Substantial Completion is achieved.

#### 4.1.2.3 30 Business Days' Notice of Substantial Completion

- (a) The Primary Contractor shall issue to the Independent Certifier and the Province's Representative a notice informing them at least 15 Business Days but no more than 30 Business Days prior to the date upon which the Primary Contractor expects to achieve Substantial Completion.
- (b) If the Primary Contractor has, at any time, reason to believe that such expected date for Substantial Completion will be delayed or achieved earlier by more than five Business Days than the date set out in a notice issued under Article 4.1.2.3(a) of this Part 3, it shall issue a fresh notice under the said Article 4.1.2.3(a) informing the Independent Certifier and the Province's Representative of the new date expected for Substantial Completion.

#### 4.1.2.4 Final Deficiency List

- (a) At the same time that the Primary Contractor delivers a notice under Article 4.1.2.3(a) of this Part 3, the Primary Contractor shall submit to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure, and to the Independent Certifier an updated list of any defects or deficiencies in the Work (the "**Final Deficiency List**"), which list shall:
- (i) identify all outstanding defects or deficiencies in the Work that the Primary Contractor expects to remain outstanding as of Substantial Completion and

- required to be corrected by the Primary Contractor in order to achieve Total Completion;
- (ii) include the Primary Contractor's estimate of the cost to remedy each defect or deficiency (the amount of such costs being, if not objected to by the Province's Representative after review, acting reasonably, in accordance with the Review Procedure, or, if objected to, as agreed or determined in accordance with the Review Procedure or the Dispute Resolution Procedure, as the case may be, the "**Agreed Remedy Cost**"); and
  - (iii) the Primary Contractor's proposed date for the remedy of each defect or deficiency, which date shall be no later than the Total Completion Target Date.

#### 4.1.2.5 Inspection for Substantial Completion

- (a) Upon the Primary Contractor's issuance of a notice under Article 4.1.2.3 [30 Business Days' Notice of Substantial Completion] of this Part 3, and subject to the delivery to the Independent Certifier and the Province's Representative of all Construction Certificates in respect of substantial completion of the Non-Systems Components, the Occupancy Approval Certificates and the System Engineer of Record certification pursuant to Section 14 [Systems Certification] of Appendix G to Schedule 4, and all other relevant Certificates and supporting documentation in accordance with the Design and Construction Certification Procedures and the other provisions of this Agreement (where applicable, to which there has been no objection in accordance with the Review Procedure), the Province's Representative and the Primary Contractor shall cause the Independent Certifier to commence, within ten Business Days after receipt of such notice, an inspection to determine:
  - (i) whether Substantial Completion has been achieved; and
  - (ii) whether the Final Deficiency List is correct.

#### 4.1.2.6 Issuance of Certificate of Substantial Completion

- (a) The Province's Representative and the Primary Contractor shall cause the Independent Certifier, within 15 Business Days after the commencement of the inspection under Article 4.1.2.5 [Inspection for Substantial Completion] of this Part 3, to either:
  - (i) issue to the Province and the Primary Contractor:
    - A. the Certificate of Substantial Completion in the form of Certificate Form 5 [Certificate of Substantial Completion], attached at Attachment A [Form of Certificates] to this Part 3, which certificate shall append the Final Deficiency List signed by the Independent Certifier in accordance with Article 4.1.2.6(b)(i) of this Part 3; and
    - B. the Solemn Declaration/Certification of Substantial Completion in the form of Schedule D [Solemn Declaration/Certification of Substantial Completion] to the FCA; or

- (ii) notify the Primary Contractor and the Province's Representative of its decision not to issue both of the Certificate of Substantial Completion and Solemn Declaration/Certification of Substantial Completion and state the reasons in detail for such decision, including what further work may be required to achieve Substantial Completion.
- (b) The Province's Representative and the Primary Contractor shall cause the Independent Certifier, within 15 Business Days after the commencement of the inspection under Article 4.1.2.5 [Inspection for Substantial Completion] of this Part 3, to either:
  - (i) sign the Final Deficiency List to reflect the Independent Certifier's determination that the Final Deficiency List is correct; or
  - (ii) notify the Primary Contractor and the Province's Representative of its decision not to sign the Final Deficiency List and state the reasons in detail for such decision, including what further defects or deficiencies in the Work should be added to the Final Deficiency List.

#### 4.1.2.7 Refusal to Issue Certificate of Substantial Completion or Sign Final Deficiency List

- (a) The Independent Certifier shall refuse to issue the Certificate of Substantial Completion and the Solemn Declaration/Certification of Substantial Completion only if the Work is not Substantially Complete, or if any other conditions or requirements under this Agreement to the achievement of Substantial Completion have not been satisfied or complied with.
- (b) The Independent Certifier shall refuse to sign the Final Deficiency List only if the Independent Certifier does not agree that such list correctly sets out the defects or deficiencies in the Work as of Substantial Completion and that are required to be remedied in order to achieve Total Completion.

#### 4.1.2.8 Completion of Further Work for Substantial Completion

- (a) In the event of service of a notice by the Independent Certifier under Article 4.1.2.6(a)(ii) or Article 4.1.2.6(b)(ii), both of this Part 3, the Primary Contractor shall issue to the Province's Representative and the Independent Certifier a notice not less than five Business Days but no more than ten Business Days prior to the date upon which the Primary Contractor expects to complete such further work or other measures necessary or appropriate to remedy or remove the cause of the Independent Certifier's refusal to issue both of the relevant Certificate of Substantial Completion and the Solemn Declaration/Certification of Substantial Completion or as the case may be, to sign the Final Deficiency List, in which case the Primary Contractor shall amend the Final Deficiency List to include:
  - (i) the further defects or deficiencies in the Work to be added to the Final Deficiency List;
  - (ii) the Primary Contractor's estimate of the cost to remedy each such further defect or deficiency (the amount of such costs being, if not objected to by the

Province's Representative after review, acting reasonably, in accordance with the Review Procedure, or, if objected to, as agreed or determined in accordance with the Review Procedure or the Dispute Resolution Procedure, as the case may be, the Agreed Remedy Cost in respect of such defects or deficiencies); and

- (iii) the Primary Contractor's proposed date for the remedy of each further defect or deficiency, which date shall be no later than the Total Completion Target Date.
- (b) Upon the Primary Contractor's notification to the Independent Certifier and the Province's Representative that such further work or measures necessary or appropriate have been completed, subject to the delivery of any additional or amended documentation that is referred to in Article 4.1.2.5(a) of this Part 3 that is necessary to demonstrate the achievement of Substantial Completion or, as the case may be, the Final Deficiency List has been amended in accordance with Articles 4.1.2.8(a)(i) through (iii) of this Part 3, the Province's Representative and the Primary Contractor shall cause the Independent Certifier, if applicable, to commence, within 10 Business Days after receipt of such notice, an inspection of such further work or measures and/or to review the amended Final Deficiency List and the provisions of Articles 4.1.2.4 [Final Deficiency List] through 4.1.2.8 [Completion of Further Work for Substantial Completion] inclusive, all of this Part 3, shall thereafter apply to such notice *mutatis mutandis*.

#### 4.1.2.9 Outstanding Work for Total Completion

- (a) The Province shall be entitled to hold back from the Substantial Completion Payment Amount the amount permitted by Section 12.7 [Holdbacks for Deficiencies in Work] on account of any defects or deficiencies in the Work as identified on the Final Deficiency List signed by the Independent Certifier pursuant to Article 4.1.2.6(b)(i) of this Part 3.
- (b) Notwithstanding the issuance of a Certificate of Substantial Completion and the Solemn Declaration/Certification of Substantial Completion in accordance with Article 4.1.2.6 [Issuance of Certificate of Substantial Completion] of this Part 3, the Primary Contractor shall promptly complete all outstanding defects or deficiencies as identified in the Final Deficiency List as soon as practicable and, in any event, no later than the Total Completion Target Date.

#### 4.1.2.10 Submissions by Province's Representative regarding Substantial Completion or Final Deficiency List

- (a) The Province's Representative may, at any time following receipt of notice given by the Primary Contractor pursuant to Article 4.1.2.3 [30 Business Days' Notice of Substantial Completion] of this Part 3 and prior to the Independent Certifier issuing or notifying the Primary Contractor and the Province's Representative of its decision not to issue both of the Certificate of Substantial Completion and the Solemn Declaration/Certification of Substantial Completion and/or sign the Final

Deficiency List, provide the Independent Certifier and the Primary Contractor with the Province's Representative's submissions as to whether the conditions for issuance of both of the Certificate of Substantial Completion and the Solemn Declaration/Certification of Substantial Completion have been satisfied and/or the Final Deficiency List is correct and, if applicable, any reasons as to why the Province's Representative considers that such Certificate of Substantial Completion and such Solemn Declaration/Certification of Substantial Completion should not be issued and/or the Final Deficiency List should not be signed by the Independent Certifier.

- (b) The Independent Certifier shall consider the Province's submissions pursuant to Article 4.1.2.10(a) of this Part 3 in determining whether to issue both of the Certificate of Substantial Completion and the Solemn Declaration/Certification of Substantial Completion or sign the Final Deficiency List.

## 4.2 Total Completion of the Work

### 4.2.1 Required Activities

- (a) The Work and activities referred to in Article 1.3(a)(ii) [Satisfactory Completion of the Work] of this Part 3 is the completion of the remedy of all Final Deficiency List Deficiencies.

### 4.2.2 Remedy of Defects and Deficiencies in the Work

- (a) Following the end of each of the first three complete calendar months (commencing with the first complete calendar month) after the Substantial Completion Date has occurred, the Primary Contractor shall submit to the Province's Representative for review, acting reasonably, in accordance with the Review Procedure, an updated Final Deficiency List, which list shall identify the Final Deficiency List Deficiencies remedied by the Primary Contractor in the period since the submission of the previous updated Final Deficiency List.
- (b) In undertaking its review of each updated Final Deficiency List, the Province's Representative shall confirm by way of his or her initials those Final Deficiency List Deficiencies that the Province's Representative considers to have been satisfactorily completed by the Primary Contractor in the period since the submission of the previous updated Final Deficiency List. For the purposes of this Article 4.2.2 [Remedy of Defects and Deficiencies in the Work], the 15 Business Day period referred to in Section 2.1(b) of Schedule 2 [Representatives, Review Procedure and Consent Procedure] shall be reduced to 10 Business Days.
- (c) In the event that the Primary Contractor fails to remedy any Final Deficiency List Deficiency by the Total Completion Target Date, the Province, in its discretion, shall, instead of permitting the Primary Contractor to remedy such deficiency, be entitled to irrevocably retain (or, if applicable, make a demand under any Deficiency Letter of Credit in) the amount equal to 200% of the Agreed Remedy Cost in respect of all

such unremedied Final Deficiency List Deficiencies in accordance with Section 12.7(g) [Holdbacks for Deficiencies in Work].

#### 4.2.3 Certification of Total Completion

- (a) The Primary Contractor shall issue to the Province's Representative a notice informing the Province's Representative at least five Business Days but no more than ten Business Days prior to the date upon which the Primary Contractor expects to achieve Total Completion.
- (b) Upon the Primary Contractor's issuance of a notice under Article 4.2.3(a) of this Part 3 and, subject to the delivery to the Province's Representative of the Construction Certificate for the total completion of the Non-Systems Components, the Province's Representative shall commence, within five Business Days of receipt of such notice, an inspection of the Work to determine whether Total Completion has been achieved.
- (c) The Province's Representative shall, within ten Business Days of the commencement of the inspection pursuant to Article 4.2.3(b) of this Part 3, either:
  - (i) issue the Certificate of Total Completion, in the form of Certificate Form 6 [Certificate of Total Completion], attached at Attachment A [Form of Certificates] to this Part 3, stating the Total Completion Date, to the Primary Contractor; or
  - (ii) notify the Primary Contractor of its decision not to issue the Certificate of Total Completion and state the reasons in detail for such decision, including the further work required in order to achieve Total Completion.
- (d) The Province's Representative shall refuse to issue the Certificate of Total Completion only if the Work is not Totally Complete, or any other conditions or requirements under this Agreement to the achievement of Total Completion have not been satisfied or complied with in respect of the Project Infrastructure components to the extent that such infrastructure components have been constructed, installed, altered, upgraded and/or augmented by the carrying out of the Work.
- (e) In the event of service of a notice by the Province's Representative under Article 4.2.3(c)(ii) of this Part 3, the Primary Contractor shall issue to the Province's Representative a notice not less than five Business Days, but no more than ten Business Days, prior to the date upon which the Primary Contractor expects to complete such further work or other measures necessary or appropriate to remedy or remove the cause of the Province's Representative's refusal to issue the Certificate of Total Completion.
- (f) Upon the Primary Contractor's notification to the Province's Representative that such further work or measures necessary or appropriate have been completed and subject to the delivery of any additional or amended documentation that is referred to in Article 4.2.3(b) of this Part 3 that is necessary to demonstrate the achieve of

Total Completion, the Province's Representative shall commence, within five Business Days of receipt of such notice, an inspection of such further work or measures and the provisions of Articles 4.2.3(c) through 4.2.3(e), inclusive, all of this Part 3, shall thereafter apply to such notice *mutatis mutandis*.

### 4.3 Certification of Total Completion (Reinstatement Work)

- (a) In addition to the other provisions of this Part 3 other than Articles 4.1 [Substantial Completion of the Work] and 4.2 [Total Completion of the Work], both of this Part 3, this Article 4.3 [Certification of Total Completion (Reinstatement Work)] shall apply in respect of any Reinstatement Work carried out by the Primary Contractor pursuant to Part 7 [Insurance, Damage and Destruction] of this Agreement in accordance with a Reinstatement Plan.
- (b) The Primary Contractor shall issue to the Independent Certifier and the Province's Representative a notice informing them at least 15 Business Days, but no more than 30 Business Days, prior to the date upon which the Primary Contractor expects to totally complete all of the Reinstatement Work in a Reinstatement Plan.
- (c) Upon the Primary Contractor's issuance of a notice under Article 4.3(b) of this Part 3, and subject to the delivery to the Independent Certifier and the Province's Representative of all Construction Certificates in respect of the totally completed Non-Systems Components subject to the Reinstatement Work, and all other relevant Certificates and supporting documentation in accordance with the Design and Construction Certification Procedures and the other provisions of this Agreement, the Province's Representative and the Primary Contractor shall cause the Independent Certifier to commence, within 10 Business Days of receipt of such notice, an inspection to determine whether the Reinstatement Work has been totally completed.
- (d) The Province's Representative and the Primary Contractor shall cause the Independent Certifier, within 25 Business Days following the commencement of the inspection under Article 4.3(c) of this Part 3, to either:
  - (i) issue the Certificate of Total Completion (Reinstatement Work) to the Province and the Primary Contractor in the form of Certificate Form 8 [Certificate of Total Completion (Reinstatement Work)], attached at Attachment A [Form of Certificates] to this Part 3; or
  - (ii) notify the Primary Contractor and the Province's Representative of its decision not to issue the Certificate of Total Completion (Reinstatement Work) and state the reasons in detail for such decision, including what further work may be required to totally complete the Reinstatement Work.
- (e) The Independent Certifier shall refuse to issue the Certificate of Total Completion (Reinstatement Work) only if the Reinstatement Work is not totally complete, or any other conditions or requirements under this Agreement regarding the Reinstatement Work have not been satisfied or complied with.

- (f) In the event of service of a notice by the Independent Certifier under Article 4.3(d)(ii) of this Part 3, the Primary Contractor shall issue to the Province's Representative and the Independent Certifier a notice not less than five Business Days but no more than ten Business Days prior to the date upon which the Primary Contractor expects to complete such further work or other measures necessary or appropriate to remedy or remove the cause of the Independent Certifier's refusal to issue the relevant Certificate of Total Completion (Reinstatement Work).
- (g) Upon the Primary Contractor's notification to the Independent Certifier and the Province's Representative that such further work or measures necessary or appropriate have been completed, the Province's Representative and the Primary Contractor shall cause the Independent Certifier to commence, within 10 Business Days of receipt of such notice, an inspection of such further work or measures and the provisions of Articles 4.3(c) through 4.3(f) inclusive, all of this Part 3, shall thereafter apply to such notice *mutatis mutandis*.
- (h) The Province's Representative may, at any time following receipt of notice given by the Primary Contractor pursuant to Article 4.3(b) of this Part 3 and prior to the Independent Certifier issuing or notifying the Primary Contractor and the Province's Representative of its decision not to issue the Certificate of Total Completion (Reinstatement Work), provide the Independent Certifier and the Primary Contractor with the Province's Representative's submissions as to whether the conditions for issuance of the Certificate of Total Completion (Reinstatement Work) have been satisfied and, if applicable, any reasons as to why the Province's Representative considers that such Certificate of Total Completion (Reinstatement Work) should not be issued.
- (i) The Independent Certifier shall consider the Province's submissions pursuant to Article 4.3(h) of this Part 3 in determining whether to issue the Certificate of Total Completion (Reinstatement Work).

## 4.4 Effect of Issuance of Certificate

### 4.4.1 No Limitation regarding Issuance of Certificate

- (a) The issuance of the Certificate of Substantial Completion, the Solemn Declaration/Certification of Substantial Completion, the Certificate of Total Completion or a Certificate of Total Completion (Reinstatement Work), as applicable, shall be without prejudice to and shall not in any way limit the rights and obligations of the parties under and in accordance with this Agreement.

### 4.4.2 Disputed Certificate or Final Deficiency List

- (a) If there is any dispute between the parties as to the decision of the Independent Certifier:
  - (i) to issue or not to issue:



- A. both of the Certificate of Substantial Completion and the Solemn Declaration/Certification of Substantial Completion; or
  - B. a Certificate of Total Completion (Reinstatement Work); or
- (ii) to sign or not sign the Final Deficiency List,  
in accordance with this Part 3, then either the Province's Representative or the Primary Contractor, as applicable, may refer such dispute for resolution under the Dispute Resolution Procedure.

#### 4.4.3 Certificate Effective Pending Dispute

- (a) If the Independent Certifier has issued the Certificate of Substantial Completion, the Solemn Declaration/Certification of Substantial Completion or a Certificate of Total Completion (Reinstatement Work) or has signed the Final Deficiency List and the Province's Representative has referred a dispute in respect thereof for resolution under the Dispute Resolution Procedure pursuant to Article 4.4.2 [Disputed Certificate or Final Deficiency List] of this Part 3, then, for all purposes of this Agreement, the Certificate of Substantial Completion, the Solemn Declaration/Certification of Substantial Completion, a Certificate of Total Completion (Reinstatement Work) or the Final Deficiency List, as the case may be, shall be deemed not to have been issued or signed unless and until it is agreed by the parties or determined in accordance with the Dispute Resolution Procedure that the applicable certificate or declaration was properly issued or the Final Deficiency List was properly signed by the Independent Certifier in accordance with the terms of this Part 3 [Certification and Completion].

**ATTACHMENT A TO PART 3 [CERTIFICATION AND COMPLETION]  
FORM OF CERTIFICATES**

<b>Certificate Form No.</b>	<b>Name of Certificate Form</b>
1	Design Certificate (General)
2	Design Certificate (Independent Check for Category III Structures)
3	Design Certificate (Environmental)
4	Construction Certificate
5	Certificate of Substantial Completion
6	Certificate of Total Completion
7	Assessment Certificate (Existing Facilities)
8	Certificate of Total Completion (Reinstatement Work)

**Certificate Form 1**

Certificate Ref No. [ ]

**DESIGN CERTIFICATE (GENERAL)**

**In respect of :..... (Provide details e.g. Guideway structure, tunnel, stations, geotechnical, , etc.)**

*Project Agreement between Her Majesty the Queen in right of the Province of British Columbia, BC Transportation Financing Authority and [Primary Contractor] dated • (“the Project Agreement”) relating to the Project. Defined terms and expressions used in the Project Agreement have the same meanings in this Certificate.*

*Form of Certificate to be used by the Designer and the Primary Contractor for certifying the Design of the Project Infrastructure components to the extent that such infrastructure components have been constructed, installed, altered, upgraded, and/or augmented by the carrying out of the Work or any other components in accordance with Article 2.2 [Non-Systems Certification Procedure], Part 3 of Schedule 4, to the Project Agreement.*

1. We certify that we have the requisite professional qualifications, skill and experience to prepare the Design Data referred to herein in accordance with the requirements of the Project Agreement and all relevant Design-Build Requirements.
2. We certify that we have prepared the Design Data for [.....] listed in the Schedule hereto in accordance with all applicable requirements contained in the Non-Systems Design Management Plan and the Design Quality Management Plan and utilizing the standards of care, skill and diligence that, in accordance with the standards of our profession, are required of experienced professionals undertaking the preparation of such Design Data, and that in our professional opinion such Design Data:
  - i. complies with all applicable Design-Build Requirements, as amended by the following:  
**[List, if any, the changes made by the issue of Change Certificates];**
  - ii. complies with all applicable Design requirements of the Project Agreement;
  - iii. complies with all applicable standards, codes and current Good Industry Practice; and
  - iv. accurately describes and depicts the Work to be undertaken.

SCHEDULE

[Include here drawing numbers and titles, reports, calculations, etc. ]

Certified by: .....

Designer (Principal)

Name: .....

Title: .....

Date: .....

Professional Registration Number: .....

Affix Professional Seal

Signed: .....

Primary Contractor

Per: Primary Contractor's Representative

Name: .....

Date: .....

This Certificate is:

- i. received\*
- ii. received with comments as follows\*
- iii. returned marked "comments" as follows:\*

\* delete as appropriate

Signed: .....

Province's Representative

Name: .....

Date: .....

**Certificate Form 2**

Certificate Ref. No [ ]

**DESIGN CERTIFICATE (INDEPENDENT CHECK FOR CATEGORY III STRUCTURES)**

*Project Agreement between Her Majesty the Queen in right of the Province of British Columbia, BC Transportation Financing Authority and [Primary Contractor] dated • (“the Project Agreement”) relating to the Project. Defined terms and expressions used in the Project Agreement have the same meanings in this Certificate.*

*Form of certificate to be used by the Checking Team and the Primary Contractor for certifying the Design of Category III Structures incorporated in the Work in accordance with Article 2.2 [Non-Systems Certification Procedure], Part 3 of Schedule 4, to the Project Agreement.*

1. We certify that we have the requisite professional qualifications, skill and experience to perform an independent check of the Design Data referred to herein in accordance with the requirements of the Project Agreement and all relevant Design-Build Requirements.
2. We certify that we have performed an independent check (as required in the Project Agreement for Category III Structures) of the Design Data for [.....] [**Name of the Structure and list of all elements of the Structure included in the Design Data**] listed in the Schedule hereto in accordance with all applicable requirements contained in the Non-Systems Design Management Plan and the Design Quality Management Plan and utilizing the standards of care, skill and diligence that, in accordance with the standards of our profession, are required of experienced professionals undertaking such an independent check, and that in our professional opinion:
  - i. the said Design Data meets performance expectations outlined in the Project Agreement, [**including Technical Appraisal Form**] No. [.....] dated [.....], as amended by the following:

**[List, if any, the changes made by the issue of Change Certificates, and any Addenda to the foregoing Technical Appraisal Form];**
  - ii. the Design, methodologies and assumptions are consistent with all applicable standards, codes and current Good Industry Practice; and
  - iii. the said Design Data accurately describes and depicts the Work to be undertaken.

SCHEDULE

[Include here drawing numbers and titles and reports, calculations, etc. ]

Certified by: .....

Checking Team (Principal)

Name: .....

Title: .....

Date: .....

Professional Registration Number: .....

Affix Professional Seal

Signed: .....

Primary Contractor

Per: Primary Contractor's Representative

Name: .....

Date: .....

This Certificate is:

- i. received\*
  - ii. received with comments as follows\*
  - iii. returned marked "comments" as follows:\*
- \* delete as appropriate

Signed: .....

Province's Representative

Name: .....

Date: .....

**Certificate Form 3**

Certificate Ref No. [ ]

**DESIGN CERTIFICATE (ENVIRONMENTAL)**

*Project Agreement between Her Majesty the Queen in right of the Province of British Columbia, BC Transportation Financing Authority and [Primary Contractor] dated • (“the Project Agreement”) relating to the Project. Defined terms and expressions used in the Project Agreement have the same meanings in this Certificate.*

*Form of certificate to be used by the Designer and the Environmental Manager for certifying the Design of environmental works incorporated in the Work in accordance with Article 2.2 [Non-Systems Certification Procedure], Part 3 of Schedule 4, to the Project Agreement.*

1. We certify that we have the requisite professional qualifications, skill and experience to prepare the Design Data referred to herein in accordance with the requirements of the Project Agreement and all relevant Design-Build Requirements.
2. We certify that we have prepared the Design Data for [.....] [**Name and list of all elements of the environmental works**] in the Schedule hereto in accordance with all applicable requirements contained in the Non-Systems Design Management Plan and the Design Quality Management Plan and utilizing the standards of care, skill and diligence that, in accordance with the standards of our profession, are required of experienced professionals undertaking the preparation of such Design Data, and that in our professional opinion:
  - i. the said Design Data complies with all applicable Design-Build Requirements, including Technical Appraisal Form No. [.....] dated [.....], as amended by the following:

**[List, if any, the changes made by the issue of Change Certificates, and any Addenda to the foregoing Technical Appraisal Form];**
  - ii. the said Design Data complies with all applicable Design requirements of the Project Agreement;
  - iii. the said Design Data complies with all applicable standards, codes and current Good Industry Practice; and
  - iv. the said Design Data accurately describes and depicts the Work to be undertaken.

SCHEDULE

**[Include here drawing numbers and titles and reports, calculations, etc. ]**

Certified by: .....

Designer (Principal)

Name: .....

Title: .....

Date: .....

Professional Registration Number: .....

Affix Professional Seal

Signed: .....

Environmental Manager

Name: .....

Title: .....

Date: .....

Professional Registration Number: .....

Affix Professional Seal

This Certificate is:

- i. received\*
  - ii. received with comments as follows\*
  - iii. returned marked "comments" as follows:\*
- \* delete as appropriate

Signed: .....

Province's Representative

Name: .....

Date: .....



**Certificate Form 4**

Certificate Ref. No. [ ]

**CONSTRUCTION CERTIFICATE**

*Project Agreement between Her Majesty the Queen in right of the Province of British Columbia, BC Transportation Financing Authority and [Primary Contractor] dated • (“the Project Agreement”) relating to the Project. Defined terms and expressions used in the Project Agreement have the same meanings in this Certificate.*

*Form of Certificate to be used by the Primary Contractor and the Designer for certifying, as applicable:*

- (a) *the substantial completion of construction activities in respect of those Non-Systems Components of the Work set out in paragraph 1 of this Construction Certificate;*
- (b) *the Total Completion of construction activities in respect of the Work, including Final Deficiency List Deficiencies; or*
- (c) *the total completion of construction activities in respect of any Reinstatement Work carried out by the Primary Contractor pursuant to Part 7 [Insurance, Damage and Destruction] of this Agreement in accordance with a Reinstatement Plan,*

*in accordance with Article 2.2.7 [Construction Certificates for Non-Systems Components], Part 3 of Schedule 4, to the Project Agreement.*

**Primary Contractor’s Statement**

1. We certify that [name and element of Construction in respect of the Certificate of Substantial Completion][the Work in respect of the Certificate of Total Completion][the Work in respect of the Certificate of Total Completion (Reinstatement Work)] has been designed, constructed, [substantially completed], [totally completed], commissioned and tested in all respects in accordance with: [NTD: Inapplicable language to be deleted.]
  - (i) the relevant Design Data and Design Certificates in each case to which there has been no objection under the Review Procedure; and
  - (ii) the provisions of the Project Agreement, including all applicable Design-Build Requirements [as amended by the following Change Certificate(s): [.....]].

Signed.....

Primary Contractor

Per: Primary Contractor’s Representative

Name.....

Date.....

**Designer's Statement**

2. We certify that we have examined the **[name and element of Construction in respect of the Certificate of Substantial Completion][the Work in respect of the Certificate of Total Completion][the Work in respect of the Certificate of Total Completion (Reinstatement Work)]** in accordance with the requirements for examination of the Work contained in the Non-Systems Design Management Plan, the Design Quality Management Plan and the Construction Quality Management Plan and utilizing the standards of care, skill and diligence that, in accordance with the standards of our profession, are required of experienced professionals undertaking such examinations, and that in our professional opinion **[the said element of the Work][the Work][the Reinstatement Work]** has been designed, constructed, **[substantially completed][totally completed]**, commissioned and tested in all respects in accordance with: **[NTD: Inapplicable language to be deleted.]**
- (i) the relevant Design Data and Design Certificates in each case to which there has been no objection under the Review Procedure; and
  - (ii) the provisions of the Project Agreement, including all applicable Design-Build Requirements **[as amended by the Change Certificate(s) listed in paragraph 1.(ii) above]**.

Signed.....  
Designer (Principal)  
Name.....  
Title.....  
Date.....  
Professional Registration Number: .....  
Affix Professional Seal

Receipt of this Certificate is acknowledged.

Signed.....  
Independent Certifier  
Name.....  
Date.....  
Professional Registration Number: .....  
Affix Professional Seal

This Certificate is:

- i. received\*

- ii. received with comments as follows\*
  - iii. returned marked "comments" as follows:\*
- \* delete as appropriate

Signed: .....  
Province's Representative  
Name: .....  
Date: .....

**Certificate Form 5**

Certificate Ref No. [ ]

**CERTIFICATE OF SUBSTANTIAL COMPLETION**

*Project Agreement between Her Majesty the Queen in right of the Province of British Columbia, BC Transportation Financing Authority and [Primary Contractor] dated • (“the Project Agreement”) relating to the Project. Defined terms and expressions used in the Project Agreement have the same meanings in this Certificate.*

*Form of Certificate of Substantial Completion to be used by Independent Certifier in accordance with Article 4.1.2.6 [Issuance of Certificate of Substantial Completion], Part 3 of Schedule 4, to the Project Agreement.*

The undersigned has fulfilled his/her obligations as the Independent Certifier pursuant to the Independent Certifier Contract and, pursuant to those obligations, advises that:

1. the Work has been Substantially Completed in accordance with the Project Agreement and all conditions to achievement of Substantial Completion as set out in Article 4.1.1(a), Part 3 of Schedule 4 to the Project Agreement have been met;
2. Systems Engineer of Record certification that the Integrated SkyTrain System to the extent within the scope of the Work is ready to carry passengers (as described in Appendix G [Systems Engineering General Requirements] to Schedule 4 to the Project Agreement), to which there has been no objection in accordance with the Review Procedure, has been issued and is appended;
3. Occupancy Approval Certificates for all of the Fixed Facilities as described in Appendix E [Construction Approval Process] to Schedule 4 to the Project Agreement have been issued and are appended;
4. Construction Certificates in respect of the substantial completion of all of the Non-Systems Components, to which there has been no objection in accordance with the Review Procedure, have been issued and are appended;
5. this document shall serve as the Certificate of Substantial Completion for the Work;
6. the Final Deficiency List signed by the Independent Certifier is appended; and
7. the Substantial Completion Date shall be [date].

Signed.....

Independent Certifier

Name.....

Title.....

Date.....

Professional Registration Number: .....

Affix Professional Seal

**Certificate Form 6**

Certificate Ref. No. [ ]

**CERTIFICATE OF TOTAL COMPLETION**

*Project Agreement between Her Majesty the Queen in right of the Province of British Columbia, BC Transportation Financing Authority and [Primary Contractor] dated • (“the Project Agreement”) relating to the Project. Defined terms and expressions used in the Project Agreement have the same meanings in this Certificate.*

*Form of Certificate of Total Completion to be used by the Province’s Representative in accordance with Article 4.2.3 [Certification of Total Completion], Part 3 of Schedule 4, to the Project Agreement.*

The undersigned advises that:

1. Total Completion has been achieved in accordance with the Project Agreement;
2. the Construction Certificate for the total completion of all Non-Systems Components , to which there has been no objection in accordance with the Review Procedure, was issued on [date] and is appended;
3. this document shall serve as the Certificate of Total Completion; and
4. the Total Completion Date shall be [date].

Signed: .....

Province’s Representative

Name: .....

Title.....

Date.....

**Certificate Form 7**

Certificate Ref. No. [ ]

**ASSESSMENT CERTIFICATE (EXISTING FACILITIES)**

*Project Agreement between Her Majesty the Queen in right of the Province of British Columbia, BC Transportation Financing Authority and [Primary Contractor] dated • (“the Project Agreement”) relating to the Project. Defined terms and expressions used in the Project Agreement have the same meanings in this Certificate.*

*Form of Assessment Certificate (Existing Facilities) to be used by the Designer and the Primary Contractor in accordance with Article 2.2.3.5 [Technical Appraisal Submission Requirements], Part 3 of Schedule 4, to the Project Agreement.*

We certify that, in assessing [.....] **[Name and Category of the Existing Facility to be altered, upgraded or augmented as part of the Work and list of all elements of the Existing Facility included in the assessment]** listed in the Schedule hereto and annexed we have complied with all applicable requirements contained in the Non-Systems Design Management Plan, the Design Quality Management Plan and the Construction Quality Management Plan and have utilized the standards of care, skill and diligence that, in accordance with the standards of our profession, are required of experienced professionals undertaking such assessments, and that in our professional opinion:

- (a) the said assessment complies with all applicable Design-Build Requirements, including Technical Appraisal Form No. [.....] dated [.....], as amended by the following:

**[List, if any, the changes made by the issue of Change Certificates and addenda to the foregoing Technical Appraisal Form];**

and the said assessment complies in all other respects with the Project Agreement; and

- (b) the assessed capacity of each element of the Existing Facility is as follows:

[ ♦ ]

SCHEDULE

[Include here drawing numbers and title used for the assessment.]

Certified by:.....

Designer (Principal)

Name.....

Title.....

Date.....

Professional Registration Number: .....

Affix Professional Seal

Signed: .....

Primary Contractor

Per: Primary Contractor's Representative

Name: .....

Date: .....

This Certificate is:

- i. received \*
  - ii. received with comments as follows\*
  - iii. returned marked "comments" as follows:\*
- \* delete as appropriate

Signed: .....

Province's Representative

Name: .....

Title: .....

Date: .....

**Certificate Form 8**

Certificate Ref. No. [ ]

**CERTIFICATE OF TOTAL COMPLETION (REINSTATEMENT WORK)**

*Project Agreement between Her Majesty the Queen in right of the Province of British Columbia, BC Transportation Financing Authority and [Primary Contractor] dated • (“the Project Agreement”) relating to the Project. Defined terms and expressions used in the Project Agreement have the same meanings in this Certificate.*

*Form of Certificate of Total Completion (Reinstatement Work) to be used by Independent Certifier in accordance with Article 4.3(d) [Certification of Total Completion (Reinstatement Work)], Part 3 of Schedule 4, to the Project Agreement.*

The undersigned has fulfilled his/her obligations as the Independent Certifier pursuant to the Independent Certifier Contract and, pursuant to those obligations, advises that:

1. the Reinstatement Work carried out by the Primary Contractor in accordance with the Reinstatement Plan, dated \_\_\_\_\_, has been totally completed in accordance with the Project Agreement;
2. one Construction Certificate for the total completion of the Non-Systems Components subject to the Reinstatement Work, to which there has been no objection in accordance with the Review Procedure, was issued on **[date]** and is appended;
3. this document shall serve as the Certificate of Total Completion (Reinstatement Work) for the Reinstatement Work carried out by the Primary Contractor in accordance with the Reinstatement Plan referred to in paragraph 1; and
4. the date of total completion of the Reinstatement Work carried out by the Primary Contractor in accordance with the Reinstatement Plan referred to in paragraph 1 shall be **[date]**.

Signed: .....

Independent Certifier

Name: .....

Title.....

Date.....

Professional Registration Number: .....

Affix Professional Seal



**ATTACHMENT B TO PART 3 [CERTIFICATION AND COMPLETION]  
SAMPLE CONTENTS FOR A TECHNICAL APPRAISAL FORM**

Ref. No.....

- 1. DESCRIPTION OF DESIGN PACKAGE .....**
  - 1.1 List of Design elements and disciplines covered by TAF.
- 2. PROPOSED DESIGN AND CONSTRUCTION ELEMENT(S) (e.g. GUIDEWAY, STATION, TUNNEL, UTILITY, ROAD)**
  - 2.1 Description of element and rationale for choice.
  - 2.2 Structural type.
  - 2.3 Foundation type.
  - 2.4 Proposed arrangements for inspection and maintenance.
- 3. DESIGN/ASSESSMENT CRITERIA**
  - 3.1 Live Loading.
  - 3.2 List of relevant Design documents.
  - 3.3 Proposed Alternative Proposals.
- 4. DESIGN ANALYSIS**
  - 4.1 Methods of analysis proposed for superstructure, substructure and foundations.
  - 4.2 Description and diagram of idealised structure to be used for analysis.
  - 4.3 Assumptions intended for calculation of structural element stiffness.
  - 4.4 Proposed earth pressure coefficients ( $k_a$ ,  $k_o$ , or  $k_p$ ) to be used in the Design of earth retaining elements.
- 5. SEISMIC DESIGN**
  - 5.1 Seismic considerations with respect to Article 5 [Seismic], Part 2 of Schedule 4.
  - 5.2 Seismic design approach and methodology.
  - 5.3 Description of structural performance with respect to each of the Serviceable Performance Level, Repairable Performance Level and Life-Safety/No-Collapse Performance Level.
  - 5.4 Liquefaction considerations and analysis.
- 6. GEOTECHNICAL**
  - 6.1 Geotechnical considerations with respect to Article 6 [Geotechnical], Part 2 of Schedule 4.

- 6.2 Acceptance of interpretative recommendations of the soils report to be used in the Design and reasons for any proposed departures.
- 6.3 Describe foundations fully including the reasons for adoption of allowable and proposed bearing pressures/pile loads, strata in which foundations are located, provision for skin friction effects on piles and for lateral pressures due to compression of underlying strata, etc.
- 6.4 Differential settlement to be allowed for in the Design of the Structure.
- 6.5 Anticipated ground movements or settlement due to embankment loading, mineral extraction, flowing water, and measures proposed to deal with these defects as far as they affect the Structure.
- 6.6 Anticipated ground movements or settlement due to seismic loading, measures proposed to deal with these impacts as far as they affect the Structure.
- 6.7 Proposed earth pressure coefficients ( $k_a$ ,  $k_o$ , or  $k_p$ ) to be used in the Design of each retaining elements.

**7. ENVIRONMENTAL**

- 7.1 Environmental considerations with respect to Schedule 5 [Environmental Obligations].

**8. CHECKING**

- 8.1 Name of Designer.
- 8.2 Names of Checking Team members.
- 8.3 Name of seismic design checker.

**9. DOCUMENTATION**

- 9.1 List of drawings (including numbers) and documents accompanying this submission.

**10. THE ABOVE DESIGN AND CONSTRUCTION PROPOSALS ARE SUBMITTED FOR REVIEW.**

Signed: .....  
Designer (Principal)  
Name: .....  
Engineering Qualifications:.....  
Date: .....  
Professional Registration Number: .....  
Affix Professional Seal

Signed:.....

Primary Contractor

Per: Primary Contractor's Representative

Name:.....

Date:.....

**11. THE ABOVE TAF IS:**

- i. received\*
  - ii. received with comments as follows:\*
  - iii. returned marked "comments" as follows:\*
- \*delete as appropriate.

Signed:.....

Province's Representative

Name: .....

Date:.....